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**Navigating the use of AI in the public sector: The  
complex world of AI ethics and regulation in  
Finnish municipalities**

School of Management  
Public Policy and Management  
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**ABSTRACT:**

This thesis examines the implications of the European Union's Artificial Intelligence Act (EU AI Act) for Finnish municipalities. The use of artificial intelligence in municipalities has increased rapidly, but municipalities continue to face challenges related to the ethical governance of AI and the practical implementation of regulation. In addition, uncertainties surrounding the regulation may hinder responsible AI adoption and innovation development in municipalities. The aim of the study is to examine whether the EU AI Act facilitates the adoption of AI by providing a clear regulatory framework and what effects it has had on the use and ethical governance of AI in Finnish municipalities. Furthermore, the study develops a conceptual framework for understanding the complex world of AI ethics and regulation in Finnish municipalities.

The theoretical framework discusses artificial intelligence, its role in public administration reform, AI ethics, and AI regulation. In addition, I develop the AI trilemma conceptual framework based on previous research. The empirical part of the study is based on a survey conducted among Finnish municipalities. The data were analysed using descriptive statistical methods and qualitative thematic analysis.

The findings indicate that respondents generally perceived the EU AI Act as relatively clear, although uncertainty remained regarding the interpretation of key concepts, responsibilities, and implementation. The regulation has so far had a relatively limited impact on the use of AI in municipalities. This may partly be explained by the fact that municipalities had already followed various guidelines and principles of good governance before the AI Act entered into force.

The main conclusion is that the EU AI Act alone does not resolve the challenges associated with AI adoption. Municipalities continue to require expertise, training, and practical guidance. At the same time, the AI Act and the broader discussion surrounding it may contribute to the further development of ethical AI governance in municipalities, even though the perceived practical benefits of the regulation have remained relatively limited so far.

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**KEYWORDS:** AI, EU AI Act, AI ethics, public administration, municipalities, good governance

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**VAASAN YLIOPISTO****Johtamisen akateeminen yksikkö**

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**TIIVISTELMÄ:**

Tässä tutkielmassa tarkastellaan Euroopan unionin tekoälyasetuksen (EU AI Act) vaikutuksia Suomen kuntiin. Tekoälyn hyödyntäminen kunnissa on lisääntynyt nopeasti, mutta samalla kunnat kohtaavat haasteita tekoälyn käytön eettisessä hallinnassa ja sääntelyn käytännön soveltamisessa. Lisäksi sääntelyn epäselvyydet voivat hidastaa tekoälyn vastuullista käyttöönottoa sekä innovaatioiden kehittämistä kunnissa. Tutkielman tavoitteena on selvittää, edistääkö tekoälyasetus tekoälyn käyttöönottoa tarjoamalla selkeän sääntelykehyksen sekä millaisia vaikutuksia sillä on ollut tekoälyn hyödyntämiseen ja eettiseen hallintaan suomalaisissa kunnissa. Tutkimuksessa kehitetään lisäksi käsitteellinen viitekehys, jonka avulla voidaan ymmärtää tekoälyn etiikkaan ja sääntelyyn liittyvää monimutkaista toimintaympäristöä suomalaisissa kunnissa.

Tutkielman teoreettisessa osuudessa tarkastellaan tekoälyä, sen roolia julkisen hallinnon uudistamisessa, tekoälyn etiikkaa sekä sääntelyä. Lisäksi kehitän tekoälytrilemman käsitteellisen viitekehyksen aiemman tutkimuksen pohjalta. Empiirinen osuus perustuu suomalaisille kunnille suunnattuun kyselytutkimukseen, jonka aineisto analysoitiin kuvailevien tilastollisten menetelmien ja laadullisen teema-analyysin avulla.

Tulosten mukaan tekoälyasetusta pidettiin melko selkeänä, mutta siihen liittyi epävarmuuksia erityisesti käsitteiden tulkinnan, vastuiden ja toimeenpanon osalta. Asetuksen vaikutus tekoälyn käyttöön kunnissa on toistaiseksi ollut verrattain vähäinen. Tätä voi osaltaan selittää se, että kunnissa on jo ennen asetuksen voimaantuloa noudatettu erilaisia ohjeistuksia ja hyvän hallinnon periaatteita.

Tutkielman keskeinen johtopäätös on, että EU:n tekoälyasetus ei yksin ratkaise tekoälyn käyttöönottoon liittyviä haasteita. Kunnat tarvitsevat edelleen osaamista, koulutusta ja käytännön ohjeistusta. Toisaalta tekoälyasetus ja sen ympärillä käytävä keskustelu voivat edistää tekoälyn eettisen hallinnan kehittymistä kunnissa, vaikka asetuksen koettu käytännön hyöty on toistaiseksi jäänyt melko rajalliseksi.

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**AVAINSANAT:** AI, EU AI Act, AI ethics, public administration, municipalities, good governance

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# 1 Introduction

## 1.1 Introduction to the topic

This master's thesis discusses the complex world of AI ethics and regulation in Finnish municipalities. According to a report by Sitra (2022, p. 6), public services appear to be a particularly natural area for the application of artificial intelligence. Automation and precision enabled by artificial intelligence can bring significant efficiency gains to service and operational processes. In addition, Sitra's report argues that the automation and streamlining of processes that previously required human intellectual input should be viewed positively. However, the general principles of governing public authorities must not be compromised because of the use of artificial intelligence (Sitra, 2022, p. 6).

Finnish municipalities will increase the use of artificial intelligence in administration in the upcoming years. For example, according to a survey by Kuntaliitto (2023), many Finnish municipalities already use or are planning to soon use AI-based tools in their communications. However, a survey by Local Government and County Employers (2024) found that most jobs in the municipal and wellbeing sectors are only in a "phase of cautious interest" regarding artificial intelligence (Kuntalehti, 2024b).

Despite most Finnish municipalities being in the phase of cautious interest related to the use of AI, another survey by Local Government and County Employers (2025) found that 85% of organizations in the municipal and wellbeing services sector use artificial intelligence to at least some extent. It is remarkable that in 2024, the corresponding share was 70 percent. In addition, according to the 2025 survey, more than 70 percent of municipal and wellbeing services employers believe that artificial intelligence will improve services and increase productivity (Kuntalehti, 2025).

The ETAIROS (Ethical AI for the Governance of the Society) project, in cooperation with the Ministry of Finance of Finland, conducted a survey in 2021 among people

responsible for public sector information management. The survey examined perspectives related to the use of artificial intelligence and the results provide an overview of the AI discussion in municipalities and central government. Central government and large cities are somewhat ahead of municipalities in AI-related applications. Particularly in central government, leadership's readiness to manage change was assessed as better than in municipalities and cities (Kuntalehti, 2021).

In municipalities, the main factors perceived to slow down the adoption of artificial intelligence were a lack of regulation, understanding, expertise, and training. Other factors hindering adoption include poor data quality, limited resources, and the ethical issues raised by the AI discussion. In addition, training on the use of AI systems has generally not been organized in municipalities, and there is also a perceived mismatch between the need for expertise and the allocation of resources (Kuntalehti, 2021).

Related to the lack of expertise observed in the ETAIROS survey, a report by the Finnish Prime Minister's office wonders if the public sector has sufficient resources and expertise to address issues related to the deployment and maintenance of AI systems. Insufficient expertise and inadequate systems create risks related to privacy and may lead to challenges in system maintenance and renewal (Valtioneuvosto, 2019, p. 53). This requires public administration organizations to adopt new approaches to training so that adequate responsiveness in decision-making and system maintenance can be ensured (Valtioneuvosto, 2019, p. 22).

As mentioned previously, a lack of regulation and ethical issues were some of the other factors hindering AI adoption in the ETAIROS survey. This master's thesis focuses on these two factors, as they are relevant due to recent developments in AI regulation. On the other hand, AI ethics always remain relevant, especially as AI evolves. Another reason why these two specific themes were chosen for the thesis is that in the research, there is a research gap between previous research on the ethics of AI and new research on the impacts of the recent EU AI Act.

The European Commission (2026) states that “the AI Act is the first-ever legal framework on AI, which addresses the risks of AI and positions Europe to play a leading role globally.” The EU AI Act prohibits the most harmful uses of artificial intelligence and sets out specific requirements and obligations for high-risk AI systems and their operators. In addition, the regulation establishes, for example, transparency requirements for certain AI systems and rules for placing general-purpose AI models on the market (Kuntaliitto, 2025b).

In the EU AI Act’s risk classification, examples of prohibited uses of artificial intelligence include harmful manipulation, social scoring, and certain forms of biometric identification, such as real-time remote biometric identification in public spaces. High-risk systems, on the other hand, include systems that may pose significant risks to people’s health, safety, or fundamental rights. For example, AI systems used to evaluate job applicants are considered high-risk (European Commission, 2026).

According to the Association of Finnish Cities and Municipalities (2025), the EU AI Act entered into force on 1 August 2024, and its application has been introduced gradually over a two-year transition period. Any AI-based system that is deployed on or after 2 August 2026 must comply with the regulation. However, other obligations have already entered into force. What is exceptional about the AI Act is that deployers are also supervised, as the regulation requires fundamental rights impact assessments, data protection impact assessments, and the retention of log data (Kuntaliitto, 2025b).

Kuntaliitto (2025b) notes that Finland does not have a national artificial intelligence strategy for public administration. There are various general guidelines and ethical principles related to artificial intelligence, but there is still relatively little interpretation of the AI Act from a municipal perspective. However, the previous practices already prevent many of the most harmful uses of artificial intelligence in public



administration and set boundaries for its use. Requirements related to information management, the GDPR, and the principles of good governance provide a strong foundation for complying with the requirements of the AI Act. Therefore, it may not be necessary to create new monitoring systems for the regulation (Kuntaliitto, 2025b).

Regarding monitoring systems, Kuntaliitto (2025b) argues that previous documentation, impact assessments, information management practices, and compliance with data protection regulations and ethical principles may at least partly meet the requirements of the AI Act. Information relevant to the Act's requirements, such as fundamental rights impact assessments or quality management systems, may also already be available. Therefore, existing frameworks, such as information management models and data protection impact assessments, can be used as a foundation (Kuntaliitto, 2025b).

An example of existing frameworks is presented in Sitra's report (2022, p. 51), as the possible applications of AI are divided into four different categories. The classification of AI application areas has been developed in accordance with the requirements of Finnish public administration. Therefore, it is not directly connected to the AI Act, which is instead based on the classification of AI systems. The categorization framework adopted in the AI Act differs from the legal constraints governing the exercise of public authority in Finland (Sitra, 2022, p. 53).

The first category includes public sector functions in which the use of AI may be the most optimal. The report identifies data-driven management based on statistical analysis and infrastructure monitoring as examples of potential AI applications. The report states that in such functions, no restrictions related to the exercise of public authority have been identified in relation to the use of AI (Sitra, 2022, p. 51).

In the second category, there are functions for which the use of AI may be well suited, but there is still a need to examine the requirements related to the exercise of public

authority. The report emphasises that requirements and constraints related to good governance and information management must be considered before AI can be implemented in these functions. According to the report, such functions include supporting and preparing decisions as well as the provision of public services (Sitra, 2022, p. 51).

In the third and fourth categories, the adoption of AI appears more challenging from the perspective of the fundamental requirements governing public authority functions (Sitra, 2022, p. 52). The third category includes functions such as large-scale and partially discretionary decision-making as well as the secondary use of personal data. The report states that the use of AI in such functions would require separate legislation before it could be fully utilised (Sitra, 2022, p. 51).

The fourth category includes functions to which the use of AI is difficult to adapt, as it would conflict with fundamental and human rights as well as the constitutional foundations of public administration. As a result, the implementation of AI in such functions is currently considered impossible. According to the report, example functions may include discretionary decision-making and intrusive monitoring or evaluation (Sitra, 2022, p. 51).

Sitra's report (2022, p. 54) also provides examples on the relationship between the EU AI Act risk categories and the requirements governing public authority functions in Finland. For instance, they argue that the high-risk category in the AI Act would be related to AI applications falling under the second or third category in Sitra's classification. Additionally, prohibited systems in the AI Act already appear to be excluded considering the constitutional requirements governing administrative action (Sitra, 2022, p. 54).

Kuntaliitto (2025b) provides examples of municipal functions and services that fall under the high-risk category in the EU AI Act. These include critical infrastructure,

education, employment, essential private and public services (such as healthcare and banking), certain law enforcement, migration and border control systems, as well as legal and democratic processes (influencing elections). An AI system is also classified as high-risk if it has a substantial influence on the outcome of decision-making (Kuntaliitto, 2025b).

Related to the procurement of potentially high-risk AI systems, Kuntaliitto (2025b) states that it is essential to identify the role in which the municipality operates as well as the risk classification of the AI system. When procuring a high-risk system, a municipality must verify that it is provided with CE marking information and adequate user instructions and ensure that the system operates in accordance with those instructions. Municipalities are also required to register the high-risk system in the EU database (Kuntaliitto, 2025b).

The EU AI Act faces critique in the Finnish municipal sector, which shows its importance to Finnish municipalities. According to a position paper by the Association of Finnish Cities and Municipalities (2025), the EU AI Act slows down the adoption of AI. In particular, the progress in developing high-risk AI applications has been halted. Key challenges include legal uncertainty around such systems, unclear data protection requirements, and insufficient official support for public sector organizations (Kuntaliitto, 2025a).

The position paper states that “the effectiveness of the AI Act in promoting responsible AI depends on its understandability and the clarity of its key concepts”, as the terms used in the regulation open to interpretation. An example of such term could be “provider”. (Kuntaliitto, 2025a). In most cases, municipalities act as deployers unless they develop an AI system for the market, substantially modify it, put it into use under their own name, place it on the EU market, or otherwise make it available (Kuntaliitto, 2025b). However, if a municipality collaborates with another entity in the

context of co-development, when does the municipality have the obligations of a “provider”? (Kuntaliitto, 2025a).

The clarity and complexity of the EU AI Act have also been critically examined by Sousa e Silva (2025). The author argues that the regulation is particularly complex and observes that it can be seen as part of the so-called “regulation brutality” trend (Sousa e Silva, 2025, p. 5). Jørgensen and Ma (2025, p. 15) note that complying with the requirements of the AI Act often requires specialized legal and technical expertise, which is frequently lacking within municipal administrations. This challenge is compounded by the complexity of the regulation itself, which, according to Sousa e Silva (2025, p. 5), comprises 68 definitions, 113 articles, 13 annexes, and 180 recitals. As well as this, the penalties are significant, as they can be up to 7% of the offender’s global revenue or 35 million euros (Sousa e Silva, 2025, p. 5). The fines described depend on the size and turnover of the company (Kuntaliitto, 2025b).

However, in the EU AI Act, no specific sanctions have been established for public sector entities, as the regulation only establishes financial penalties for companies that fail to comply with its obligations. Therefore, the regulation leaves room for national discretion in this regard. Currently, the Association of Finnish Cities and Municipalities assumes that sanctions would operate in a similar manner to those under the General Data Protection Regulation. The standard first-level sanction is typically a warning or reprimand, along with an opportunity to correct the conduct (Kuntaliitto, 2025b).

Another critical viewpoint is presented by Kusche (2024), who examines the AI Act from the perspective of fundamental rights. The author argues that the regulation will likely lead to a growing demand for legal and administrative decisions concerning specific cases. This is because the risk assessment in the regulation relies primarily on the concepts of fundamental rights and basic values, both of which are open to interpretation within legal and political systems. However, these decisions will not rest on

anything fundamentally new compared to the situation before the AI Act, as they continue to be based on consistent legal reasoning that involves balancing fundamental rights alongside the temporary prioritisation of certain values over others (Kusche, 2024, p. 11).

## **1.2 Research questions and objectives of the study**

1. Does the EU AI Act facilitate the implementation of AI in Finnish municipalities by providing a clear regulatory framework?
2. How has the EU AI Act influenced the use and ethical management of AI in Finnish municipalities?

The importance of the first research question arises from the fact that municipalities currently face significant uncertainty regarding the interpretation of the EU AI Act. The effectiveness of the regulation heavily depends on the understandability and the clarity of its key concepts, yet many of these concepts remain open to interpretation. This creates practical challenges for municipalities trying to comply with the regulation. Therefore, examining whether the EU AI Act provides a clear framework is essential for understanding its local impacts in the Finnish municipal sector.

As discussed in the introduction, the high-risk category of the AI Act has received criticism from the Association of Finnish Cities and Municipalities. In relation to this criticism, Jørgensen and Ma (2025, p. 2) begin the discussion by mentioning that European cities are increasingly adopting artificial intelligence to improve urban services and infrastructure management. It is expected that artificial intelligence will power more than 30% of smart city applications, which highlights the increasing reliance on intelligent systems in municipalities. However, AI systems categorized as high risk are particularly relevant to essential urban services (Jørgensen & Ma, 2025, p. 2).

The second research question is important because Finnish municipalities are actively increasing their use of AI, while at the same time facing multiple barriers to adoption.

For example, according to Jørgensen and Ma (2025, p. 38), regulatory requirements concerning privacy, transparency, and risk management can create significant challenges for smaller municipalities and businesses. These obligations often prolong project implementation timelines and require considerable resources to achieve compliance. From a broader perspective, concerns have emerged that such regulatory demands may hinder Europe's ability to remain competitive in the rapidly evolving artificial intelligence market (Jørgensen & Ma, 2025, p. 38).

As the second research question focuses on the implications of the AI Act, it is important to briefly discuss some of the potential benefits and challenges of AI adoption in the municipal sector. Returning to the smart city context, Jørgensen and Ma (2025, p. 1) argue that AI-powered applications, including energy grid optimization, traffic management, and public safety systems, have the potential to improve efficiency, sustainability, and citizens' quality of life. However, Jørgensen and Ma (2025, p. 19) also state that administrators must recognize that the deployment of AI systems may generate controversial outcomes that could both violate legal requirements and undermine public trust, potentially leading to legal challenges under anti-discrimination legislation. For example, a predictive policing model may disproportionately target minority neighbourhoods (Jørgensen & Ma, 2025, p. 19).

Although AI is widely recognized as a tool for improving public services, municipalities struggle with issues such as lack of expertise, limited resources, ethical concerns, and insufficient regulation. The introduction of the EU AI Act represents a major regulatory change, but its actual implications in the Finnish municipal sector remain unclear. To conclude, studying both the clarity of the regulatory framework and its practical effects on municipalities is essential for understanding the complex world of AI ethics and regulation in Finnish municipalities. Another objective of the study is to develop a conceptual framework that can help navigate the use of AI in the public sector.

### **1.3 Structure of the study**

I begin the theoretical framework by defining AI. With the development and expansion of artificial intelligence technologies, it is important to define what artificial intelligence means. In the context of AI regulation, defining AI is crucial. Otherwise, it will be unclear which AI technologies are being regulated. However, AI definitions can still vary.

In the second part of the framework, I examine AI and its linkage to public administration reform. I link AI to reform because according to Eichholz (2025, p. 1), municipal governments have increasingly adopted AI technologies across a wide range of sectors, including healthcare, education, environmental monitoring, waste management, transportation, risk assessment, and public safety. I discuss how the use of artificial intelligence in public administration depends on the applied theory of public administration. I also demonstrate the various ways in which the public sector can benefit from the use of AI and discuss how Finnish municipalities are using AI. The objective is to explain why the public sector uses AI and to briefly discuss the challenges associated with its implementation in municipalities.

While this thesis focuses on the use of artificial intelligence in municipal administration, with particular attention to the EU AI Act, the use of AI in public administration in general cannot be entirely excluded, as many studies and articles address the use of AI in the public sector in general. In addition, theories of administrative reform are typically discussed in the broader context of public administration. However, general theories of public sector reform, such as New Public Management and New Public Governance, can also be applied to municipal administration.

In the third part of the theoretical framework, I discuss AI ethics, as AI cannot be implemented immediately in the public sector. The objective is to highlight ethical challenges that AI implementation faces or can face in the public sector. Some examples

include unethical use of data and lack of data privacy. The ethical issues around AI discussed suggest that the use of AI should be regulated. For example, according to Jørgensen and Ma (2025, p. 1), unregulated implementation could increase surveillance, compromise individual privacy, and reinforce biases in public service delivery.

Therefore, in the fourth part of the theoretical framework, I examine AI regulation. However, regulation also raises ethical dilemmas and may stifle innovation. The objective is to highlight key issues that are seen in EU AI legislation. I will also briefly discuss some suggestions to improve existing regulation. Together, the theoretical framework describes the complex world of AI ethics and regulation in the public sector, as all parts of the framework are related to each other, and form an “AI trilemma”, which will be discussed more in detail in the fifth part of the theoretical framework. The AI trilemma is used as a guiding conceptual framework for the empirical analysis in Finnish municipalities carried out in this thesis.

The data collection methods are described in the methods section. The empirical data consists of an online survey conducted among representatives of municipal organisations across Finland. The survey includes Likert-scale and multiple-choice questions as well as open-ended responses, which allow for a comprehensive understanding of the effects of the AI Act in Finnish municipalities. The questions are based on the AI trilemma model, which illustrates how AI as part of reform, AI ethics, and AI regulation interact in the municipal context. The analysis combines descriptive statistical analysis of quantitative data with a qualitative interpretation of open-ended responses. The objective is to explain how the empirical data were collected and analysed.

The results section presents the findings of the survey conducted among Finnish municipalities. The first part presents the quantitative results of the closed-ended questions using descriptive statistics and figures. The second part presents the qualitative findings derived from the open-ended responses. Together, the results provide an



overview of how municipal respondents perceive the EU AI Act, its impacts on AI use, and the ethical governance practices associated with artificial intelligence. The objective is to present the empirical findings and provide a foundation for the discussion section.

The discussion section interprets the empirical findings in relation to the research questions and the theoretical framework developed in this thesis. First, it examines municipal respondents' perceptions of the clarity and implementation of the EU AI Act. Second, it discusses the impact of the regulation on AI use and governance practices in Finnish municipalities. The findings are assessed through the lens of the AI trilemma framework. The objective is to analyse the findings and assess the applicability of the AI trilemma framework in the municipal context.

The conclusion section summarises the main findings of the study and answers the research questions. It discusses municipal perceptions of the EU AI Act, its impact on AI governance and adoption, and the applicability of the AI trilemma framework. It also examines the theoretical and practical contributions of the study. Finally, the limitations of the study are considered, and suggestions for future research are presented. The objective is to synthesise the findings and discuss their implications for research and municipalities.

## 2 Theoretical framework

### 2.1 Defining AI

According to Samoili et al. (2020, p. 7), there is no single, universally accepted definition of artificial intelligence. Common elements in definitions of AI include perceiving the environment, processing information, making decisions, and achieving specific goals (Samoili et al., 2020, p. 8). AI definitions range from broad interpretations that associate it with the use of algorithms to stricter definitions that view AI as the imitation of all human skills (Sheikh et al., 2023, p. 334). The continuous development of technology further complicates the definition of AI, and it is difficult to provide an exhaustive definition of artificial intelligence in legislation (Kuntalehti, 2023b).

The U.S. National Science and Technology Council (2016, p. 6) states that one loose definition of AI describes it as “a computerized system that exhibits behavior that is commonly thought of as requiring intelligence.” Similarly, Wingström et al. (2022, p. 177) define AI as “a computational system demonstrating behaviour that would be considered intelligent when performed by humans.” Examples of such behaviour could include learning, problem-solving, and reasoning (Wingström et al., 2022, p. 177). Hautala and Ahlqvist (2022, p. 1) state that artificial intelligence is a world-changing technology because it can learn independently, process big data, and automate work.

Samoili and others (2020, p. 8) define AI from an operational perspective. The operational definition consists of a concise taxonomy and a set of keywords that describe the core and transversal domains of AI (Samoili et al., 2020, p. 8). In this context, AI technologies and subfields can be grouped into two categories based on system capabilities. These groups are reasoning and decision-making, and learning and perception (Samoili et al., 2020, p. 11).

In the taxonomy of artificial intelligence, domains and subdomains are interconnected rather than separate parts of AI. This reflects the nature of AI, which consists of intertwined applications and theoretical developments with blurred boundaries. At the same time, not all subdomains are fully AI-driven. For example, robotics has played a significant role in the recent development of AI technologies, even though mechanical robots do not always incorporate AI (Samoili et al., 2020, p. 12).

AI domains and subdomains have been identified in various national AI strategies and reports (Samoili et al., 2020, p. 12). The core domains of AI include 1) reasoning, 2) planning, 3) learning, 4) communication, and 5) perception. In contrast, the transversal domains include 6) integration and interaction, 7) services, and 8) ethics and philosophy (Samoili et al., 2020, p. 11). Together, these eight domains provide a useful framework for understanding the breadth of AI technologies and their applications. Furthermore, Samoili and others (2020, p. 11) state that each domain consists of distinct subdomains. The following paragraphs discuss these domains and their associated subdomains.

The subdomains of reasoning (1) include knowledge representation, automated reasoning, and common-sense reasoning. Reasoning can be understood as the process by which machines transform data into knowledge or infer facts from available information (Samoili et al., 2020, p. 11). Furthermore, the subdomains of planning (2) include planning and scheduling, searching, and optimisation. The purpose of planning is to design and implement strategies to perform a given task. This is typically carried out using intelligent agents, such as autonomous robots. In automated planning, solutions are often complex and must be identified and optimised within a multidimensional space (Samoili et al., 2020, p. 12).

In the context of AI, learning (3) refers to the ability of systems to learn automatically, make decisions, generate predictions, adapt, and respond to changes by improving through experience without explicit programming. The domain of learning includes

machine learning, which is widely present in efforts to categorize AI. Machine learning is considered a fundamental algorithmic approach to achieving AI, regardless of the specific type of learning (Samoili et al., 2020, p. 12).

Communication (4) and perception (5) represent AI capabilities that allow systems to process information from both humans and their surrounding environment. According to Samoili and others (2020, p. 12), the subdomain of communication is natural language processing (NLP), which refers to a machine's ability to recognize, process, understand, and generate information in human language, both written and spoken. According to national AI strategies and experts, NLP applications include text generation, text mining, text classification, and machine translation (Samoili et al., 2020, p. 12).

Perception, in turn, refers to a system's ability to become aware of its environment through sensors. Its subdomains include computer vision and audio processing. Computer vision enables machines to detect and classify objects and human faces in digital images, with applications including face and body recognition, video content analysis, 3D reconstruction, public security, and healthcare (Samoili et al., 2020, p. 13).

Next, the remaining transversal domains will be discussed. According to Samoili and others (2020, p. 13) integration and interaction (6) focuses on combining perception, reasoning, action, learning, and interaction with the environment. Its subdomains include multi-agent systems, robotics and automation, and connected and automated vehicles. Robotics and automation enable actions that may not be possible for humans, such as the use of medical robots (Samoili et al., 2020, p. 13).

Within services (7), the subdomain consists of AI services. These refer to infrastructure, software, and platforms offered as services or applications. Such services are typically available as ready-made solutions that can be used on demand. Examples include cognitive computing, machine learning frameworks, bots, and virtual

assistants. AI services reduce the need to manage complex infrastructures (Samoili et al., 2020, p. 13).

Finally, ethics and philosophy (8) includes the subdomains of AI ethics and AI philosophy. As intelligent systems become more widespread, ethical and philosophical questions related to AI are becoming increasingly important. Compliance with ethical principles and applicable regulation should be ensured across AI applications. Because AI has significant societal impacts, building trust in AI has become a central focus of frameworks and initiatives worldwide (Samoili et al., 2020, p. 14).

As robotics and automation were mentioned as an AI subdomain (Samoili et al., 2020, p. 13), the difference between AI and other similar technologies, such as RPA (robotic process automation) should be clarified. For example, according to Syed and others (2019, p. 3), RPA is a rule-based software that primarily performs repetitive, high-volume, lengthy and mundane tasks. However, other definitions add that the RPA software is trained with data. According to such definitions, RPA is advanced, complex, flexible and adaptable to circumstances (Syed et al., 2019, p. 3).

What is the difference between RPA and AI then? According to Syed and others (2019, p. 3), robotic process automation is often described as more rule-based and structured than AI, cognitive automation or expert systems. However, these techniques may be incorporated as a part of RPA. Also, some literature suggests that RPA could be more aware and adaptable to change (Syed et al., 2019, p. 3).

Based on these discussions, it appears that a key difference between AI and similar technologies could be creativity. According to Wingström and others (2022, p. 180), creativity can be described as a process in which ideas and actions are developed into new ideas or outcomes. It is often examined in the context of identifying and solving problems. Today, artificial intelligence can be used in tasks that require problem identification or problem-solving. AI can also interact with humans in creative drafting

tasks, where humans and AI take on different roles in a co-creative process and complement one another (Wingström et al., 2022, p. 180).

To further conceptualise creativity, Wingström et al. (2022, p. 178) identify five dimensions: actor, process, outcome, domain, and space. The actor dimension of creativity refers to an individual who possesses the ability to generate unique ideas. Creative actors are therefore often used in defining creativity, as creativity can be described in terms of the abilities characteristic of creative individuals. However, artificial intelligence can also be regarded as an actor. According to the so-called distributed perspective, creativity extends beyond the human actor and is distributed across artifacts and the surrounding environment (Wingström et al., 2022, pp. 178–179).

Building on the outcome dimension of creativity, Wingström et al. (2022, p. 180) define a creative output as the result of a creative process. Creative outputs can be categorized into intangible and tangible outcomes. Examples of intangible outputs include theories and skills, whereas examples of tangible outputs include paintings, songs, and software. The creativity of artificial intelligence is often evaluated through the outputs it produces. Therefore, creative AI challenges traditional notions of novelty, autonomy, and authorship (Wingström et al., 2022, p. 180).

The definition of AI in the EU AI act was important to Finland as according to Kuntalehti (2023b), it has been considered in Finland that simple software should not be classified as artificial intelligence. Finnish authorities make extensive use of automated decision-making in their operations, which is why the definition of AI in the new EU AI Act was particularly important for Finland (Kuntalehti, 2023b). According to the Ministry of Economic Affairs and Employment of Finland (2017), “artificial intelligence refers to devices, software and systems that are able to learn and to make decisions in almost the same manner as people.”

In the version of the regulation approved by the Council, rule-based automation has been excluded from the definition of AI. This is because rule-based automation operates automatically according to rules defined by humans and does not change its logic of operation. Therefore, simple and rule-based software does not exercise independent discretion (Kuntalehti, 2023b). According to the EU AI Act, an AI system is “a machine-based system” that operates “with varying levels of autonomy” and “infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions” that can affect “physical or virtual environments” (EU Artificial Intelligence Act, 2024).

## **2.2 AI and its linkage to public administration reform**

Mehr (2017, p. 15) states that AI is a powerful tool to increase government efficiency, despite not being a solution to government problems. Nevertheless, AI can have a great impact on the way citizens experience and interact with their government (Mehr, 2017, p. 15). From a broader perspective, Leikas and others (2022, p. 1) argue that AI is expected to profoundly transform both societal structures and people's everyday lives. On the other hand, according to Autioniemi (2021, p. 155), overly optimistic, utopian narratives should be avoided.

Autioniemi (2020, p. 8) states that the application of artificial intelligence in public administration depends on how administrative science is understood as an academic discipline. In administrative science, Max Weber's theory of bureaucracy can be considered as a fundamental theory of administration. In bureaucratic theory, public administration is seen as a system in which clearly defined administrative functions and tasks enable efficiency (Autioniemi, 2020, p. 9).

According to Autioniemi (2020, p. 9), public administration has been reformed using practices from the private sector, which has meant a reduction in some features of bureaucracy. The reform of public administration arises from dissatisfaction with the condition, performance, and funding of the public sector. The birth of the doctrine

New Public Management (NPM) is related to this concern. NPM served as a guiding approach for reforming the public sector, and today continues to influence public administration at the level of ideas (Autioniemi, 2020, p. 9)

The third key model of governance in public administration research is New Public Governance (NPG). In NPG, the central elements are the development of networks and partnerships, the acceptance of different forms of values, and the participation and consultation of citizens. Unlike bureaucratic theory and NPM, New Public Governance focuses on relationships between organizations as part of broader networks (Autioniemi, 2020, pp. 9–11).

The NPG model can be difficult to evaluate, as it is frequently presented in general terms (Pollitt & Bouckaert, 2017, p. 176). Therefore, the NPG model should be discussed in more detail, before discussing AI's linkage to the big models. Pollitt and Bouckaert (2017, p. 172) argue that New Public Governance views both politicians and civil servants primarily as actors within a broader system. Rather than being ultimate and authoritative decision-makers, politicians are seen more as negotiators who seek to build and maintain networks. This is a concrete example on the network approach (Pollitt & Bouckaert, 2017, p. 172).

According to Pollitt and Bouckaert (2017, p. 173), one potential problem of New Public Governance is how the division of responsibilities between politicians and civil servants will be defined. It is also difficult to determine the accountability of civil servants (Pollitt & Bouckaert, 2017, p. 173). Another key issue with the NPG model is the tendency to assume that stakeholders will ultimately reach a mutually acceptable compromise. Despite these limitations, the model continues to evolve and has gained support among scholars (Pollitt & Bouckaert, 2017, p. 176). For example, collaborative networks are useful when dealing with wicked and unruly problems (Torfing et al, 2020, p. 128).



According to Autioniemi (2020, p. 10), AI aligns with administrative theories to different extents. Artificial intelligence can be utilized in the public sector when serving citizens or clients particularly within bureaucratic administration. This is because in bureaucratic governance, the rules of decision-making are generally consistent, stable, and easily learnable for AI. Therefore, AI does not need to attempt to interpret complex ideological or ethical issues that are difficult to conceptualize (Autioniemi, 2020, p. 10).

On the other hand, in the context of New Public Management, AI may find it difficult to operate due to the relativistic nature of practical management. However, in New Public Governance, the use of AI is even more limited, because NPG does not accept purely economic efficiency as the only measure of good governance. Instead, in NPG, public administration also considers factors such as ethics and societal impact. In addition, public governance requires human interaction, the creation of networks, and social skills (Autioniemi, 2020, p. 11).

Further insight on AI's linkage to public administration reform is presented by Zuiderwijk and others (2021, p. 13), as they identified seven forms of public governance related to the use of AI in public administration. These forms of governance are 1) collaborative governance, 2) organizational governance, 3) service governance, 4) participative governance, 5) governance through policy, strategy, processes, and measures, 6) governance through legislation and regulation, and 7) ethical governance (Zuiderwijk et al., 2021, p. 13).

A key model of governance that is also related to the use of AI in public administration is anticipatory innovation governance. According to the OECD (2022, p. 25), this governance model calls for innovation to be built into the administrative system. Anticipatory information, such as data and measurements or the collection of signals of change, must be better packaged and synthesised across government. Therefore, technology such as AI plays a role in anticipatory knowledge synthesis. People's role

is increasingly to identify and test new assumptions and interpret data, while analytical tasks are carried out by computers, artificial intelligence, and algorithms (OECD, 2022, p. 46).

For the discussion related to the complex world of AI ethics and regulation in Finnish municipalities, the most important forms of governance are ethical governance and governance through legislation and regulation. However, the other forms of governance discussed, such as anticipatory innovation governance, demonstrate how AI can be used effectively. This demonstrates the value and benefits of AI for public sector organisations.

Mehr (2017, p. 4) presents different types of government problems where AI applications can be helpful. For example, AI could be used for large datasets that are too large for employees to work with efficiently. Another simple application is the automation of routine processes. Therefore, AI can reduce administrative burdens and help resolve resource allocation problems. On top of this, AI can take on significantly complex tasks (Mehr, 2017, p. 4).

Due to AI's potential, it has been used in citizen services across the world. According to Mehr (2017, p. 7-8), AI supports citizen services by answering questions, facilitating document management, routing inquiries, translating information, and generating draft content. Looking ahead, AI is expected to enable many additional applications that extend well beyond citizen inquiry and information services (Mehr, 2017, p. 10).

Jørgensen and Ma (2025, p. 27) continue this discussion by mentioning that some municipalities use artificial intelligence to evaluate feedback from residents gathered through surveys, social media platforms, and call centers. This enables municipal authorities to respond more effectively to the needs of residents. In addition, experimental AI applications have been developed to support budgeting processes by

modelling the potential outcomes of alternative spending decisions (Jørgensen & Ma, 2025, p. 27-28).

Artificial intelligence can also assist municipalities in identifying fraud and operational errors. For instance, AI systems can detect unusual patterns in procurement activities that may signal corruption or assess the consistency of benefit applications to reduce the misuse of public resources. By supporting effective oversight and accountability, such applications contribute to the proper management of public funds and help strengthen public trust (Jørgensen & Ma, 2025, p. 28).

However, Autioniemi (2021, p. 153) notes that artificial intelligence should not be used simply because it is a new and fascinating technology. Instead, it should be used when it is the best tool for solving a particular problem. In other words, AI can be seen as one tool among many. Civil servants must therefore continue to maintain their ability to solve problems. Additionally, citizen-centeredness and feedback from citizens regarding AI should be considered, as this will help to reduce public mistrust toward AI (Autioniemi, 2021, p. 153).

The survey by Local Government and County Employers (2024) presented in the introduction of the thesis examined, how Finnish municipalities use AI. Therefore, the survey gives concrete examples on AI's linkage to public administration reform in Finland. According to Kuntalehti (2024b), municipalities and wellbeing services counties believe that artificial intelligence will change job tasks and ways of working in the coming years.

Human resources, marketing, communications, and administration were the most active users of artificial intelligence. For example, ChatGPT and Copilot were used to produce texts, translations, retrieve information, and organize data. More specifically, AI applications can be used for writing speeches and newsletters, drafting

announcements, creating illustrations, preparing recruitment postings, and conducting staff surveys (Kuntalehti, 2024b).

Furthermore, AI is already being used in HR for tasks such as onboarding, workforce planning, recruitment, employment-related matters, and competence management. Respondents believe that AI can be utilized much more extensively in these tasks in the future. The survey responses also indicated that AI skills should be integrated into degree education at all levels (Kuntalehti, 2024b).

An effective implementation of the AI applications described above could require a change in leadership practices. In an article published by Kuntalehti (2024c), communications and AI trainer Jukka Saksi states that AI is increasingly moving from traditional IT administration to the core of municipal leadership. This development requires municipal leadership teams to adopt new ways of thinking and to be prepared to use AI personally in decision-making and strategic planning. According to Saksi, as municipalities face AI-driven transformation, it is essential to recognise how AI concretely changes the way work is carried out. Without this understanding, it is not possible to lead the AI transformation successfully (Kuntalehti, 2024c).

Furthermore, Saksi argues that currently the leadership environment in the municipal sector is exceptionally challenging. A significant amount of time and energy is spent on internal meetings, projects, change communication, and various reporting activities. Therefore, municipalities need to identify ways to save time and reduce workload. As a solution, Saksi recommends the use of productive and generative AI and emphasises that the cultural change it brings is substantial (Kuntalehti, 2024c).

The use of AI in education should also be discussed as according to Kuntaliitto (2025c), the education and cultural sector accounts for the largest share of municipal expenditures, nearly 70 percent. This reflects its central role in municipal operations (Kuntaliitto, 2025c). The Finnish National Agency for Education has mapped use cases for

software robotics and artificial intelligence suitable for the field (Valtioneuvosto, 2019, p. 24). Artificial intelligence is integrated into tools used to plan and monitor teaching, as well as into learning materials and educational environments. However, the Finnish National Agency for Education also notes that there is currently relatively little research applicable to the Finnish context on the educational use of AI applications (Opetushallitus, 2025).

However, AI implementation for reform purposes can face challenges in municipalities. Eichholz (2025, p. 2) mentions that municipalities must develop a stronger awareness of the potential benefits and complexities involved in implementing AI. Many municipalities lack the legal, financial, technological, and human capacities required to effectively implement AI solutions. This implementation gap highlights the need for a systematic and comprehensive approach to AI adoption in municipalities. In the described approach, each phase requires careful assessment of the associated operational challenges and risks (Eichholz, 2025, p. 2).

In contrast to conventional software projects, AI implementations require continuous adaptation in response to evolving data patterns, changing municipal requirements, and advances in technology. The successful implementation of AI depends not only on technical factors but also on organizational preparedness and active stakeholder participation. However, this also creates challenges related to balancing diverse stakeholder expectations. Organisations should also ensure that AI capabilities and limitations are communicated effectively (Eichholz, 2025, p. 8).

## **2.3 AI ethics**

In the world of robotics and artificial intelligence, various ethical concerns arise (Xu et al., 2018, p. 5). Rapid development of AI and other challenges, like the complexity of using AI in the public sector, call for design and implementation of better governance structures and policy development (Leikas et al., 2022, p. 2). Mehr (2017, p. 13) states that ethical risks should be mitigated, as AI is susceptible to bias. For example,

AI applications in the criminal justice system were found to be biased (Mehr, 2017, p. 13).

Therefore, AI should not make critical government decisions about citizens (Mehr, 2017, p. 13). Leikas and others (2022, p. 2) state that we have to consider the ethics of AI in a new way, due to AI's development. Therefore, ethical experts, scientists, technology developers, and other relevant stakeholders must be involved in deliberating the ethics of AI (Leikas et al., 2022, p. 2).

One of the main challenges in analysing the ethical implications of AI is overcoming the tendency to view it as human-like. Attributing human activities and abilities to machines becomes an issue when trust is involved, as trust is a fundamental and defining element of human relationships. Trust can exist between parties when one acts with goodwill toward the person placing the trust (Ryan, 2020, p. 1).

However, AI lacks the capacity to care about the trust placed in it (Ryan, 2020, p. 13). While AI can be programmed to simulate emotional reactions, it does not experience feelings toward the trustor, as the responses are pre-programmed (Ryan, 2020, p. 12). Trust also requires the ability to take responsibility for one's actions, which AI systems cannot do (Ryan, 2020, p. 17). AI actions are based on reliance or predictability rather than trust (Ryan, 2020, p. 13). Although robots have become more intelligent and autonomous, they lack the ability for moral reasoning, which limits their capacity to make decisions aligned with good practices in complex situations (Xu et al., 2018, p. 5).

Therefore, Ryan (2020, p. 17) argues that human-made artefacts, such as artificial intelligence, may be considered reliable but cannot be fully trustworthy. The emphasis should not be placed on trustworthy AI itself, but rather on ensuring that the organisations and individuals developing and using AI are trustworthy (Ryan, 2020, p. 17). The responsibility for AI at the ethical level ultimately lies with humans who program,

manage, and use it (Raskulla, 2019, p. 249). From a broader view, AI ethics should move away from the “trustworthy AI” paradigm and instead adopt a “reliable AI” approach (Ryan, 2020, p. 17).

The theme of data privacy should be addressed carefully when discussing the ethics of AI. According to Mehr (2017, p. 13), governments should be very transparent about the data collected. In addition, the citizens should be given the choice to opt in when personal data is used. If the citizens have not provided consent, privacy concerns become relevant. Another relevant data privacy issue would be a scenario when external datasets get mixed with government sources (Mehr, 2017, p. 13).

Leikas and others (2022, p. 3) add more to the discussion on the importance of data privacy, as they give examples on scenarios where data privacy issues were relevant. According to the authors, the challenges faced by the public are widely recognised, particularly those associated with unethical data practices and inadequate privacy safeguards. Another bigger theme, data security, is also mentioned as a challenge that has been faced (Leikas et al., 2022, p. 3).

Phatthanachaisuksiri et al. (2025) and Awogbemi et al. (2024) discuss AI applications from a different industrial perspective. However, the data quality issues are relevant to the municipal use cases discussed in this thesis as well. Phatthanachaisuksiri and others (2025, p. 7) state that the lack of quality data to train AI and a lack of transparency could result in inaccuracies. The authors refer to this as the “Black box” nature of AI (Phatthanachaisuksiri et al., 2025, p. 7). As the decisions made by AI are based on existing historical data, any inaccuracies or biases in the data affect the decision. This can escalate discrimination, unfairness, and inequality (Awogbemi et al., 2024, p. 14).

Such issues should be taken seriously. Mehr (2017, p. 13) mentions that the stakes are very high for democratic governance. The public has concerning thoughts like this

as well. According to Leikas and others (2022, p. 3), citizens are concerned about new challenges to the privacy of data in AI systems for governments. As well as this, the public is wondering how to curtail privacy violations (Leikas et al., p. 3, 2022).

Given the importance of data privacy, what can be done to ensure transparency? According to Leikas and others (2022, p. 3), while data transparency and privacy concerns are important, their implementation is often challenging. This is because expertise is required to put them into practice. Simply increasing awareness does not ensure data privacy for the public, as the ability to engage meaningfully will be needed. This goal would require education and training, making it a challenging goal (Leikas et al., 2022, p. 3).

Creating AI services for the public is the other side of the data privacy issue. According to Leikas and others (2022, p. 3), this can be referred to as the “skills challenge”. The so-called “skills challenge” includes limited knowledge about AI among the staff, for example. Another issue related to the “skills challenge” is cross-sectoral collaboration around AI, which is limited by varying skill levels among people in the organization (Leikas et al., 2022, p. 3).

In Finnish municipalities, ethical principles for the use of AI have been implemented. Kuntalehti (2024a) gives an example related to the City of Tampere. The principles established are human-centeredness, inclusion, sustainability, transparency, fairness, responsibility, privacy, security, human control, and responsible partners. According to the City of Tampere, developments and discussions related to AI are closely monitored under the leadership of a working group established around the topic (Kuntalehti, 2024a). Another municipality that has established ethical principles is the City of Helsinki (Kuntaliitto, 2025b).

Related to ethical principles, the OECD (2020, p. 19) states that institutional frameworks that clarify the integrity roles of public officials may involve tools such as codes



of conduct or ethical guidelines. The ethical principles implemented in Finnish municipalities are also related to ethical governance, as according to Zuiderwijk and others (2021, p. 13), one example of ethical governance is the institutionalization of ethical measures through ethical guidelines. Another example would be establishing an ethics council that handles ethical aspects of AI (Zuiderwijk et al., 2021, p. 13).

## **2.4 AI regulation and its issues**

Floridi and others (2018, p. 691) argue that risks associated with overuse or misuse of AI technologies must be considered. They suggest developing appropriate legal procedures and improving the IT infrastructure of the justice system. This way, algorithmic decisions can be investigated in court (Floridi et al., 2018, p. 702). This is an example of governance through legislation and regulation presented by Zuiderwijk and others (2021, p. 13). On the other hand, Floridi and others (2018, p. 691) also state that heavy-handed or misconceived regulation can be seen as a significant opportunity cost related to underuse of AI technologies.

Demmke (2025, p. 38) notes that “ethics policies are not good policies because they are ethics policies.” Every instrument produces a range of outcomes. Therefore, innovative ethics policies, practices, and processes may also produce the opposite of what they are supposed to do, such as an increase in costs (Demmke, 2025, p. 36). While transparency is essential, it could lead into new types of transparent monitoring, for example. It is worth asking if innovation leads to new formalism, increased administrative burdens, more hierarchical management practices, stronger control mechanisms, and expanded surveillance opportunities (Demmke, 2025, p. 37)

Torres and Ali-Vehmas (2025, p. 10) argue that the current issues in AI regulation are related to the fact that the world market is only partially harmonised. The two major EU regulations affecting the use of AI in Finnish municipalities are the GDPR (General Data Protection Regulation) and the EU AI Act. Out of the two major regulations, issues related to GDPR will be discussed first, as it is an older regulation.

According to Koskinen (2017, p. 54), the GDPR does not completely prohibit automated decision-making, but it does impose restrictions on it. Under Article 22, an individual has the right not to be subject to automated decision-making, but only if two conditions mentioned in the article are met. This means that if a decision is based only on automated processing, or if it produces legal effects concerning the individual or similarly significant effects, the individual has the right not to be subject to such automated decision making (Koskinen, 2017, p. 54).

Koskinen (2017, p. 55) notes that the GDPR does not precisely define what automated decision-making means. It is therefore important to consider that AI algorithms are designed by humans, meaning that decisions made by AI are not necessarily fully automated. Furthermore, humans may review AI-generated decisions, in which case the decision may not qualify as “automated decision-making” as referred to in Article 22 (Koskinen, 2017, p. 55).

The directive preceding the GDPR also does not define automation. Article 15 of the directive is like Article 22 of the GDPR. According to the European Commission’s interpretation, Article 15 requires “meaningful human involvement” in automated decision-making (Koskinen, 2017, p. 56).

It is also worth noting that, according to Koskinen (2017, p. 56), similar interpretations to that of the European Commission have appeared in legal literature. It has been argued that a human should have a “real influence” on the outcome produced by AI. This means that humans should critically assess AI-generated solutions rather than automatically trusting their results (Koskinen, 2017, p. 56).

According to Merilehto (2018, p. 161), Article 17 of the GDPR grants individuals the right to be forgotten. From an AI perspective, does this mean that AI must be re-trained after a person requests the deletion of their data from a system? According

to Koskinen (2017, p. 70), only a few algorithms store data. Instead, algorithms typically derive rules from training data and retain only those rules for future operation. Therefore, Article 17 can be interpreted to mean that if a person requests deletion of their data, it is sufficient to remove the data held by the data controller. This is because AI algorithms often do not contain any concrete data that can be deleted (Koskinen, 2017, p. 70).

Next, issues related to the EU AI Act will be discussed. According to Petri Myllymäki, a professor of computer science at the University of Helsinki, a key problem with the EU's AI regulation is its scope. There are so many different AI technologies that regulating all of them with a single regulation may be problematic. Therefore, Myllymäki questions if the new regulation clarifies the playing field for the use of AI. There is also a risk that the new regulation could slow down European AI research and development. In addition, the uncertainty created by the new AI regulation may hinder investments in Europe (Yle, 2023a).

According to Torres and Ali-Vehmas (2025, p. 3), the EU AI Act requires that harmonised standards align with Union values. However, values that are not Union values can affect global AI standardization. On the other hand, EU regulations may fail to acknowledge the values that guide the original development and deployment of AI systems outside Europe (Torres & Ali-Vehmas, 2025, p. 6). Therefore, Torres and Ali-Vehmas (2025, p. 7) argue that "privacy considerations vary in different regulatory contexts".

To deal with the regulatory issues related to global markets, Torres and Ali-Vehmas (2025, p. 12) suggest a value-sensitive AI standardisation approach. This approach integrates a minimum set of shared values and configurability. The base for the value-sensitive approach is the analysis done by the authors. In the analysis, the authors identified AI regulatory frameworks' values. They also argue that with value-sensitive AI standardisation, EU standards could be able to maintain access to markets that

reflect different values (Torres & Ali-Vehmas, 2025, p. 12). Therefore, Torres and Ali-Vehmas (2025, p. 12) encourage dialogue on balancing the regulatory requirements of AI technologies with the need to maintain interoperability.

Issues related to the understandability of the AI Act were discussed in the introduction from the perspective of Finnish municipalities. The position paper by the Association of Finnish Cities and Municipalities suggests that “the EU should create a mechanism whereby organisations can obtain a binding decision from national authorities on the lawfulness of a planned AI system”. This mechanism would be particularly relevant to the GDPR and the EU AI Act and would take place before committing to major investments and proceeding with deployment. The position paper also argues that such a mechanism would “significantly reduce the risks associated with AI adoption and provide much-needed legal certainty” (Kuntaliitto, 2025a).

It should be noted that the entire EU AI Act doesn’t have new regulatory requirements to Finnish municipalities. For example, according to Kuntaliitto (2025b), the AI Act establishes transparency obligations for providers and deployers of certain AI systems, including chatbots used by municipalities. However, in Finland, the regulation of chatbots is also linked to the Act on the Provision of Digital Services, which governs the use of service automation in advisory services. According to the Act, providers must inform natural persons that they are interacting with an AI system, unless this is obvious from the circumstances. They are also required to ensure that AI-generated audio, image, video, and text content is clearly identifiable through machine-readable markings (Kuntaliitto, 2025b).

Similarly, in the EU AI Act a key aspect of the transparency obligations is that residents must be informed when they are interacting with an AI system or when AI has generated content, such as the text in municipal announcements. Municipalities are required to provide information about the AI systems they use, their intended purpose, and their impact on citizens. Also, citizens must have the opportunity to challenge

decisions made with the assistance of AI systems and have them reviewed by a human (Kuntaliitto, 2025b).

## **2.5 Conceptual framework: the AI trilemma**

Based on the previous discussions, I propose that there is an “AI trilemma” in the complex world of AI usage in the public sector. The first part of the trilemma, or AI as part of reform, means that there are various ways in which the public sector can benefit from the use of AI. While AI won’t fix every problem in the public sector, the ways AI can impact the public sector are yet unknown, due to the rapid development of AI. It seems that today, with all the information that is available, not using AI in the public sector, even for small routine tasks, is missing benefits. Today’s problems could require new solutions. Staying in the past might ensure inefficient use of resources.

Therefore, the AI trilemma becomes relevant, as underusing AI technologies is a real concern. Floridi and others (2018, p. 691) state that reasons for underusing AI technologies include fear, ignorance, misplaced concerns or excessive reactions. As a result, the benefits AI technologies offer could not reach their full potential. An example opportunity cost related to this would be under-investment (Floridi et al., 2018, p. 691).

However, AI cannot be implemented immediately in the public sector. Even if the intention to use AI is good, reckless implementation can cause unintended consequences. Therefore, AI Ethics is the second part of the trilemma. This raises the question of why such a complex technology should be adopted? Due to the complexity of AI, the process should proceed gradually, step by step. According to Mehr (2017, p. 15), governments should probably begin implementing AI in low-risk service delivery applications to enhance citizen feedback and engagement with AI. Eichholz (2025, p. 8) recommends beginning with well-defined and manageable AI projects rather than pursuing a large-scale AI transformation. This allows municipal personnel to gain

practical experience and confidence with AI while effectively managing risks (Eichholz, 2025, p. 8).

The third part of the AI trilemma is regulation. The ethical issues associated with AI suggest that its use should be regulated to ensure accountability and transparency, which are among the most frequently discussed concerns in the literature. For example, according to Awogbemi and others (2024, p. 14), the deployment of AI is affected by fairness and bias, trust and transparency, accountability, social benefit, and privacy and security. Another reason why accountability was chosen more specifically is that Demmke (2025, p. 176) observes that the specific accountability of democratic government is one reason why ethics policies, values and principles are important in Europe. Also, accountability is a part of the best-known code of conduct in the world, which is the British “Seven Principles of Public Life” code (Demmke, 2025, p. 219).

Transparency, on the other hand, was selected specifically because public officials should have a better understanding of public ethics and administrative law, and transparency is related to this (Demmke, 2025, p. 404). On the other hand, transparency has gained “an almost mythical status” (Demmke, 2025, p. 270), but its issues include conservatism and bureaucratization (Demmke, 2025, p. 272). Also, there is a relationship between transparency and accountability, as according to Demmke (2025, p. 271), one of the claimed additional positive effects of transparency increased accountability. The broadness, relevance and the interconnectedness of accountability and transparency showcase why they are used to describe connections and processes in the AI trilemma model.

A core tension in the AI trilemma is that regulation can have unintended consequences, such as slowing down innovation, increasing administrative burdens, and creating legal uncertainty. As a result, regulation may constrain reform efforts. Interestingly, according to the European Commission (2023), the AI Act “aims to support AI innovation and start-ups in Europe”, which shows that the AI Act seems to have

unintended consequences. Sousa e Silva (2025, p. 2) also argues that the complexity of the AI Act's approach "risks defeating its own purpose of promoting responsible innovation within the European Union and beyond its borders".

Jørgensen and Ma (2025, p. 15) continue the discussion by stating that in some cases, municipalities discontinue promising AI initiatives due to concerns about legal liability or insufficient resources to meet regulatory requirements. The analysis of these regulatory constraints indicates that the EU's protective regulatory framework may pose short- and medium-term obstacles to AI implementation (Jørgensen & Ma, 2025, p. 19). This phenomenon has been described as a chilling effect, in which well-intentioned regulation unintentionally discourages public-sector AI innovation because of fears related to non-compliance (Jørgensen & Ma, 2025, p. 15).

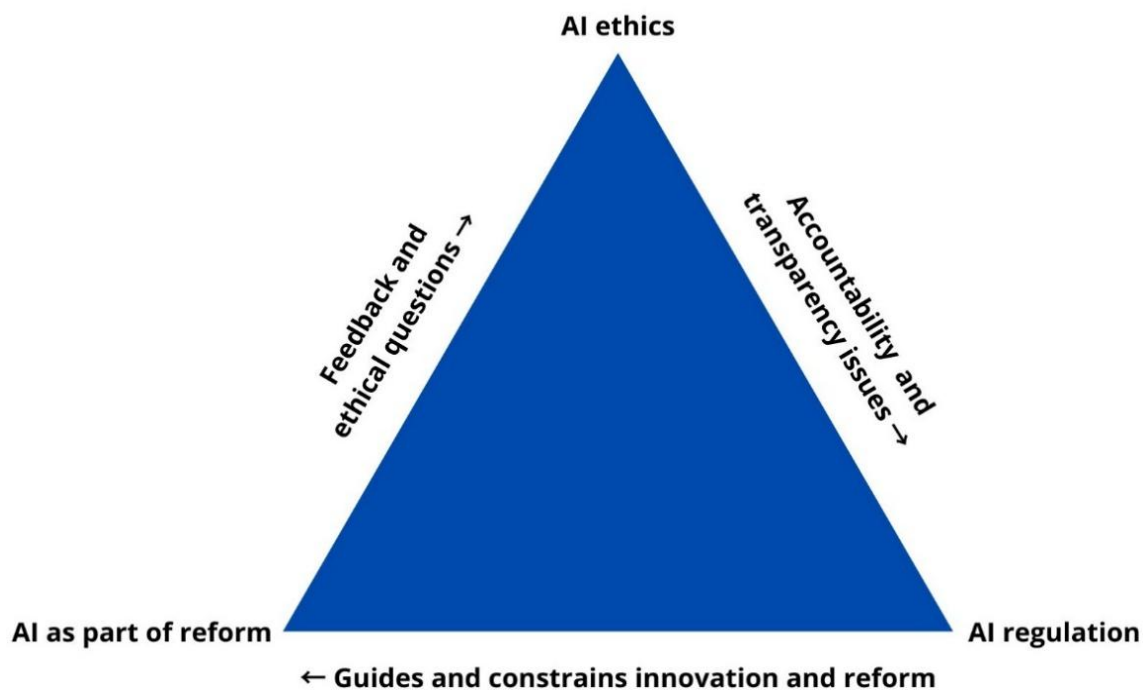
Jørgensen and Ma (2025, p. 16) give a more specific example related to the regulatory constraints discussed. Although high-risk AI systems are not outright prohibited, the regulatory obligations associated with them can substantially delay their deployment. For example, an AI system used by a municipality to allocate social housing would be classified as high risk because it affects individuals' rights. In such situations, municipalities or their technology providers are required to establish comprehensive risk management procedures, maintain audit logs, and comply with other regulatory obligations. Without fulfilling these requirements, the AI system cannot be legally deployed (Jørgensen & Ma, 2025, p. 16).

The authors also discuss another similar example scenario that could constrain innovation and reform. They argue that an AI-based traffic management system that automatically regulates traffic signals could be classified as high risk because of its implications for public safety. If the necessary conformity assessments have not been completed or certification processes are delayed, the municipality would be unable to implement the system until full compliance is achieved (Jørgensen & Ma, 2025, p. 16).

These types of delays can pose a significant obstacle to time-sensitive innovation. Municipal officials have expressed concerns that lengthy compliance procedures may result in technologies becoming outdated before deployment or cause pilot projects to lose momentum. Furthermore, the classification of AI systems as high risk may discourage smaller developers and startups, which are often important sources of innovation in smart city initiatives (Jørgensen & Ma, 2025, p. 16).

Therefore, based on these discussions, Jørgensen and Ma (2025, p. 17) argue that regulatory risk aversion represents a major obstacle to AI adoption. Municipal leaders may delay or avoid implementing AI systems not because such systems are prohibited, but because the regulatory environment creates uncertainty and potential legal exposure (Jørgensen & Ma, 2025, p. 17).

The proposed AI trilemma is presented below.



**Figure 1.** AI trilemma. (Author's own development).



In the figure, the three components of the AI trilemma are positioned at the corners of the triangle, while the sides of the triangle illustrate the relationships between these components. The triangular structure emphasizes the interconnected nature of the components and highlights how they influence one another. The concept of a trilemma is used because the pursuit of one dimension may complicate the achievement of the others. For example, stronger regulation may improve accountability and transparency while simultaneously constraining innovation and reform, especially if the regulation is unclear and open to interpretation.

In this study, the AI trilemma acts as a guiding conceptual framework for the empirical analysis in Finnish municipalities, as it integrates relevant concepts. The AI trilemma affects Finnish municipalities according to the references discussed previously in this thesis. The municipalities want to use AI (AI as part of reform), but they also acknowledge the ethical issues (AI ethics) and a lack of regulation, yet the AI Act faces critique (AI regulation). Further evidence on this is presented in a 2026 survey by Local Government and County Employers, where they found that the barriers to AI implementation are not related to a lack of willingness to use artificial intelligence, but rather to structural factors such as working time, training, the availability of licenses, and the absence of clear guidelines (KT-lehti, 2026).

In the survey, some factors perceived to slow down the adoption of AI were a lack of skills and awareness as well as concerns related to information security and data protection. The Local Government and County Employers argue that the adoption of artificial intelligence in municipalities and wellbeing services counties requires clear guidelines on how information security, the allocation of responsibilities, and ethical principles are ensured in practice (KT-lehti, 2026). It is also worth noting that this is said after the EU AI Act entered into force, which further shows how the AI trilemma is a way to describe the complex world of AI ethics and regulation in Finnish municipalities.

The AI trilemma might be the best suited for describing more complex AI use cases, as in those cases, the ethical risks are often more significant, and regulation is often stronger and more open to interpretation than in less complex use cases. Therefore, in more complex use cases, the effects of stronger regulation potentially improving accountability and transparency while simultaneously constraining innovation and reform can be better observed. However, according to the European Commission (2026), most AI systems are not in the high-risk category of the AI Act.

Therefore, basic chatbots falling under the transparency risk category are the first example to be discussed in the context of the AI trilemma. The case selected for this purpose is the Kunta-Kati chatbot use case. Kunta-Kati has been used in multiple municipalities across Finland and therefore, according to a slide presentation by the City of Riihimäki (n.d.), Kunta-Kati is a shared artificial intelligence system. The chatbot in question is a conversational AI used in citizen services that learns from examples provided by people (Riihimäen kaupunki, n.d.).

According to the City of Riihimäki's slide presentation (n.d.), Kunta-Kati originated from Norway's Kommune-Kari, which is now in use in 70 Norwegian municipalities. In Norway, Kommune-Kari has received positive user experiences, as it handles over 80,000 messages per month, and the number of customer service phone calls has decreased by an estimated 20–30 percent. Citizens use Kommune-Kari especially outside office hours and during holiday periods. Therefore, residents can receive 24/7 service (Riihimäen kaupunki, n.d.).

Although many benefits have been observed in the use of Kunta-Kati, according to Yle (2023b), the City of Hämeenlinna discontinued the use of Kunta-Kati on 31 May 2023. The reasons for discontinuation were customer feedback and a decrease in customer contacts. In the feedback received by the City of Hämeenlinna, it was particularly highlighted that mobile users were disturbed by Kunta-Kati popping up on the screen. Customer contacts also decreased because social and health services had been

transferred to wellbeing services counties, so fewer questions related to social and health care were directed to Kunta-Kati (Yle, 2023b).

The use of an AI chatbot on a municipality's website can be examined from the perspective of human-centered leadership. An expert article in Kuntalehti (2021) discusses human-centered leadership in relation to artificial intelligence. In human-centered leadership, trust in AI technologies, AI developers, and the organizations developing them is promoted. A key element in the process is transparency (Kuntalehti, 2021). The introduction of a conversational AI-based chatbot can therefore be seen as human-centered leadership, as trust in AI increases when citizens use the chatbot. Citizens can provide feedback on the bot's performance, as happened in the Kunta-Kati use case described above. This means that transparency is incorporated into the introduction of the new AI system.

The Kunta-Kati use case shows the AI trilemma's limitations in capturing simpler and lower risk AI applications in municipal contexts. However, the AI trilemma could still be used to describe such cases. While the chatbot clearly reflects 1) AI as part of reform, as it improves service efficiency and accessibility, the roles of both 2) AI ethics and 3) AI regulation appear more limited than the trilemma suggests in this case.

The user dissatisfaction observed in the Kunta-Kati use case is not directly related to ethical concerns such as bias, discrimination, or data privacy. However, the case could still be interpreted as part of AI ethics within the trilemma, as the previously discussed concept of human centred leadership emphasises transparency. In this sense, responding to user feedback in the Kunta-Kati case can be seen as an ethically appropriate action, as it contributes to building legitimacy. At the same time, it should be acknowledged that chatbots could be deployed in ways that raise more substantial ethical concerns, such as misleading communication, misuse of personal data, or lack of transparency.

In the Kunta-Kati case, regulation is not strongly constraining in relation to reform efforts. The central tension of the AI trilemma, where heavy handed and unclear regulatory requirements constrain reform and innovation, does not fully materialise in this example. However, as mentioned previously, chatbots could be deployed in unethical ways, and therefore, regulation guides reform in the Kunta-Kati case, while it doesn't necessarily constrain it. In simpler applications such as Kunta-Kati, reform appears to dominate, while the regulatory dimension plays a more limited, though still relevant, role.

A second simple AI use case analysed in the context of the AI trilemma relates to supporting administrative tasks. According to Kuntalehti (2023a), the City of Lohja has experimented with generative AI. For example, generative AI has been tested in city council meetings and in materials related to decision making bodies. The aim of the City of Lohja is to explore whether AI could assist in analysing meeting materials and, on the other hand, improve the accessibility of decision making. According to Jussi Patinen, Chair of the City Board of Lohja, AI could be particularly useful in preparatory work carried out by civil servants, especially in tasks involving text production. However, Patinen emphasises that civil servants must approve the text produced by AI themselves, and that responsibility for the content ultimately remains with the civil servant (Kuntalehti, 2023a).

Cases like the Lohja case are common AI use cases in Finnish municipalities as according to the 2026 survey by the Local Government and County Employers, artificial intelligence is most used for drafting and editing texts, information retrieval, reporting, as well as planning and ideation (KT-lehti, 2026), which is why this use case was also picked to be discussed in the context of the AI trilemma. Similarly, the Lohja use case clearly reflects the first part of the trilemma, or AI as part of reform. Also, just like in the Kunta-Kati case, there are not major ethical challenges observed. However, the core ethical concerns discussed in the trilemma, such as accountability and transparency, are present in the Lohja use case.

By ensuring human oversight, Lohja mitigates risks related to bias, inaccuracies, and the “black box” nature of AI. Related to the regulation part of the trilemma, the use of generative AI for drafting and analysis does not appear to fall into the high-risk category of the EU AI Act. However, the transparency and accountability expectations from the AI Act still shape how the system is used. As well as this, the requirement for human oversight aligns with GDPR principles regarding meaningful human involvement in decision-making. However, just like in the Kunta Kati use case, regulation is not particularly constraining in relation to reform efforts, as neither use case falls under the high-risk category of the AI Act.

## 3 Methods

### 3.1 Data collection and survey design

An online survey was used to collect empirical data on the impacts of the EU AI Act on Finnish municipalities. The survey method was chosen because it enables an efficient collection of both quantitative and qualitative data from a geographically dispersed group of respondents. While interviews could provide more in-depth insights, the survey design allows for the identification of general patterns as well as the collection of more detailed perspectives.

The survey was conducted between 3 and 19 June 2026 across 65 municipalities of varying sizes. It was created using the Webropol platform and targeted representatives of Finnish municipal organizations. The selected municipalities were located in different parts of the country, which enhances the representativeness of the sample. A total of 28 responses were received, and all respondents confirmed their informed consent for participation and data use. The response rate was 8,9 percent, as a total of 314 recipients were contacted via email. The lack of expertise among potential respondents may have limited participation. However, extensive knowledge of the AI Act was not required, as the survey primarily measured perceptions and experiences related to the regulation.

Also, the timing of the survey may have limited the number of responses, as June is a period when municipal personnel often begin preparing for summer holidays. In addition, the final week of the survey coincided with Midsummer, a significant national holiday in Finland. Although a broader selection of municipalities and a longer response period could have been used, the survey results are not the only data source for the thesis, and the study was also subject to time constraints.

The questionnaire consisted of closed-ended questions, including Likert-scale items and multiple-choice questions, as well as of open-ended questions that allowed

respondents to further elaborate on their views. The survey focused on the three key dimensions aligned with the theoretical framework of the study, or AI as part of reform, AI ethics and AI regulation. The language of the survey was Finnish. The full set of survey questions is provided in Appendix 1.

The first section of the survey focused on the current use of artificial intelligence in municipal work, which shows how AI is used as part of reform. Respondents were asked to evaluate how frequently they use AI in their work on a five-point Likert scale ranging from not at all to daily use. A multiple-choice question examined the areas in which AI is utilised, allowing respondents to select multiple options.

The second section of the survey addressed the ethical dimension of AI use. Respondents were asked whether their organisation currently has ethical principles for AI use. A follow-up question examined whether such principles existed before the EU AI Act entered into force (1 August 2024), allowing for comparison over time. Additionally, respondents were asked to assess how much the EU AI Act has influenced the development of ethical principles using a Likert scale ranging from no impact to very high impact.

Finally, the third section of the survey focused on respondents' perceptions of the EU AI Act and its implementation. Respondents evaluated how much the AI Act has influenced the general use of AI in their organisation using a Likert scale. Another Likert-scale question asked respondents to assess how clear they find the AI Act overall, ranging from very unclear to very clear. Also, a multiple-choice question explored which aspects of the AI Act are unclear. Respondents were also given an open-ended question to describe in their own words what they find unclear in the regulation. Lastly, the respondents were given the opportunity to answer an open-ended question about how the EU AI Act could be improved.

The second data source of the study is a 2023 survey conducted by the Association of Finnish Cities and Municipalities. The survey was selected because it provides a useful point of comparison for examining changes that have occurred before and after the EU AI Act entered into force. While the primary survey conducted for this thesis focuses specifically on the impacts of the AI Act, the 2023 survey examined the use of artificial intelligence in Finnish municipalities before the regulation entered into force. Both surveys include questions related to ethical guidelines for AI use, making it possible to compare developments over time.

Although the two surveys differ in terms of sample size and respondent composition, they provide a useful basis for comparison. In the 2023 survey, 64% of respondents reported that their organisation did not have ethical guidelines for AI use, whereas in this study a similar proportion (61%) reported that no such guidelines existed prior to August 2024. Given the relatively short time interval between the two reference points, the findings suggest a degree of consistency between the surveys. Therefore, the 2023 survey can be used as a valuable point of comparison when interpreting other findings related to AI governance in Finnish municipalities.

The third data source used in this study is a 2026 survey conducted by the National Audit Office of Finland, which focused on the utilisation of artificial intelligence in central government. Although the survey did not focus on municipalities, one of the respondent groups consisted of wellbeing services counties, which operate within the broader Finnish local government system. The survey provides an interesting point of comparison to the other results presented in this study, as it examined perceptions of AI-related legislation and its impact on the adoption and governance of AI in public sector organisations. Such a comparison may help contextualise the findings of this study within the wider Finnish public administration landscape.

The fourth data source used in this study is a 2026 survey on artificial intelligence, conducted by the Federation of Finnish Enterprises and Verian. The survey included



1,098 employed respondents, of whom 199 worked in municipalities or municipal companies. The survey was selected because it provides a broad and up-to-date overview of AI use among Finnish employees, including those working in the municipal sector. It serves as a useful point of comparison for the findings of this study regarding the frequency of AI use. By comparing the results with the present study, it is possible to assess whether the respondents in this study reflect broader patterns of AI adoption observed among municipal employees in Finland.

### **3.2 Research methods**

The close-ended survey responses were analysed using descriptive statistical methods. The analysis focused on percentages and mean values to provide an overview of perceptions and experiences among municipal respondents. The quantitative results were presented using tables and figures to facilitate comparison between response categories and to illustrate key patterns in the data.

In addition, selected responses were examined across different groups of respondents. Respondents were grouped according to their area of AI use, and mean values were calculated to explore possible differences in perceptions regarding the clarity of the EU AI Act and its perceived impact on AI use. These comparisons were intended to provide additional descriptive insights rather than statistical evidence of differences between groups, as several categories contained only a small number of respondents.

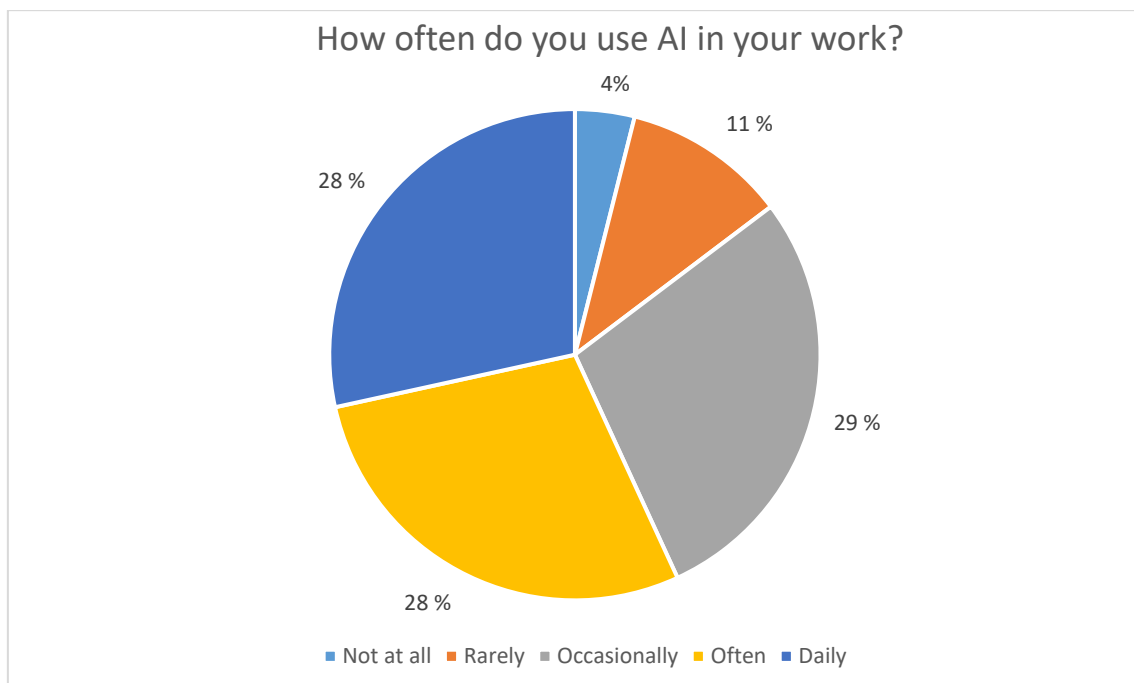
The open-ended responses were analysed using a thematic analysis approach. The responses were coded according to recurring ideas and patterns related to the research questions. Similar codes were grouped into broader themes, which were subsequently reviewed and refined. Through this process, four main themes were identified: uncertainty regarding roles and responsibilities, the complexity and interpretability of the regulation, a lack of expertise and resources, and learning and

adaptation. The identified themes were then used to organise and interpret the qualitative findings presented in the results section.

## 4 Survey results

### 4.1 Close-ended questions

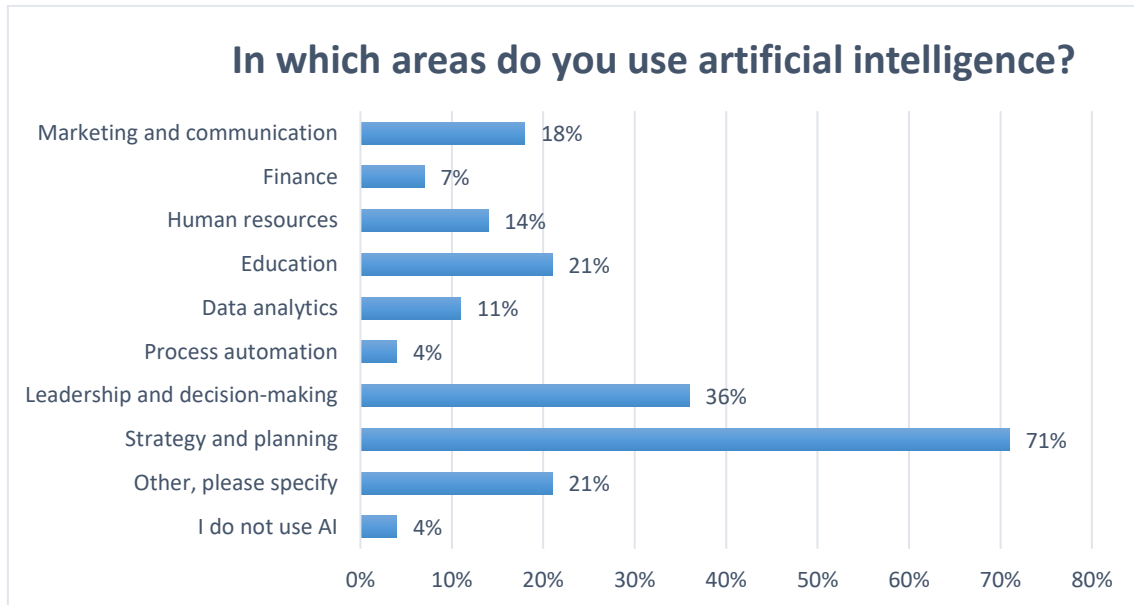
The results indicate that artificial intelligence is widely used among respondents. The frequency of AI use was relatively high, with an average value of 3,7 on a five-point scale. Approximately 28,6% of respondents reported using AI daily, and another 28,6% reported using it often. In addition, 28,5% used AI occasionally, while 10,7% used it rarely and 3,6% did not use AI at all.



**Figure 2.** Frequency of AI use. (Author's own development).

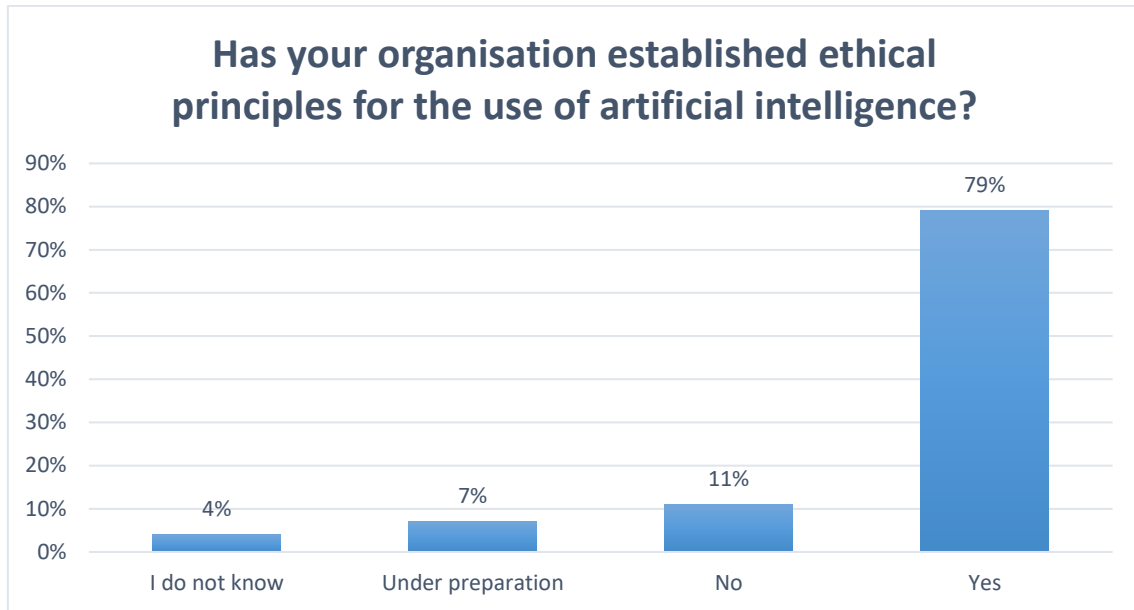
Regarding the areas of use, artificial intelligence was most applied in strategy and planning (71,4% of respondents). Other frequently reported areas included leadership and decision-making (35,7%), education (21,4%), and marketing and communication (17,9%). AI was also used in human resources (14,3%), data analytics (10,7%), and financial management (7,1%). Process automation was reported by 3,6% of respondents. In addition, 21,4% selected other uses, which included tasks such as

documentation, internal auditing, data management, and the preparation of presentations and speeches.



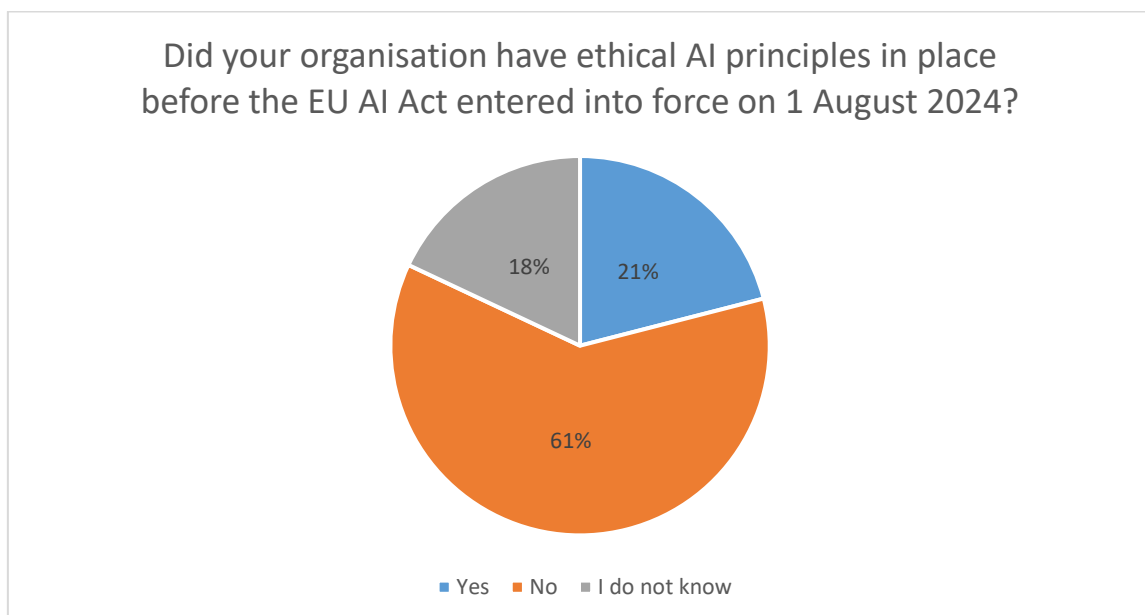
**Figure 3.** Areas of AI use. (Author's own development).

Most respondents indicated that their organisation has established ethical principles for the use of artificial intelligence. A total of 78,6% reported that ethical principles are already in place, while 7,1% indicated that such principles are currently under preparation. In contrast, 10,7% reported that their organisation does not have ethical principles, and 3,6% were unsure.



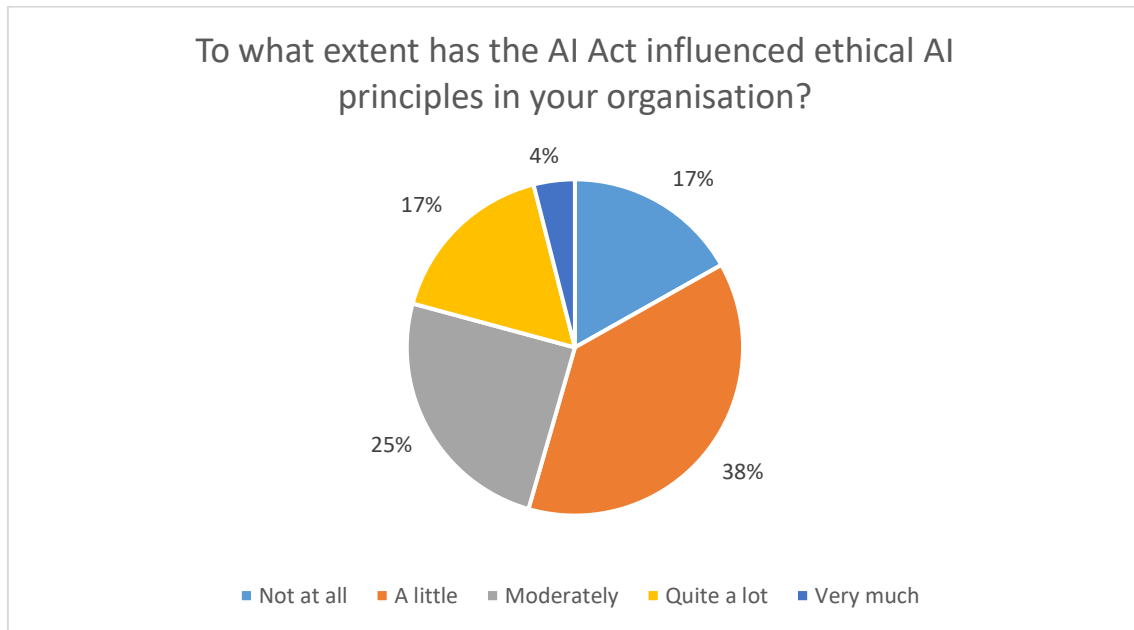
**Figure 4.** Existence of ethical principles for AI use. (Author's own development).

When asked whether ethical principles were in place before the EU AI Act entered into force on 1 August 2024, only 21.4% of respondents answered yes. A majority of 60,7% reported that no such principles existed at that time, and 17,9% were unsure.



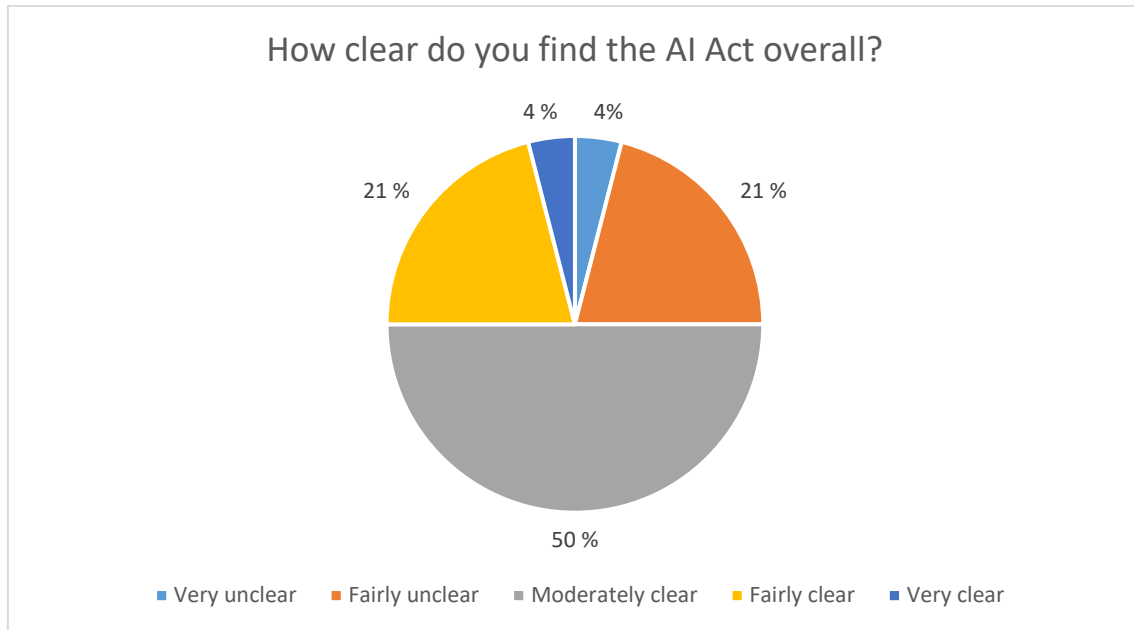
**Figure 5.** Ethical AI principles prior to the EU AI Act. (Author's own development).

Respondents assessed the impact of the EU AI Act on ethical principles using a five-point scale. The average rating was 2,5. A total of 37,5% of respondents reported that the impact has been small, and 25% reported that it has been moderate. In addition, 16,7% perceived the impact as fairly large, while 4,2% considered it very large. Conversely, 16,6% reported no impact.



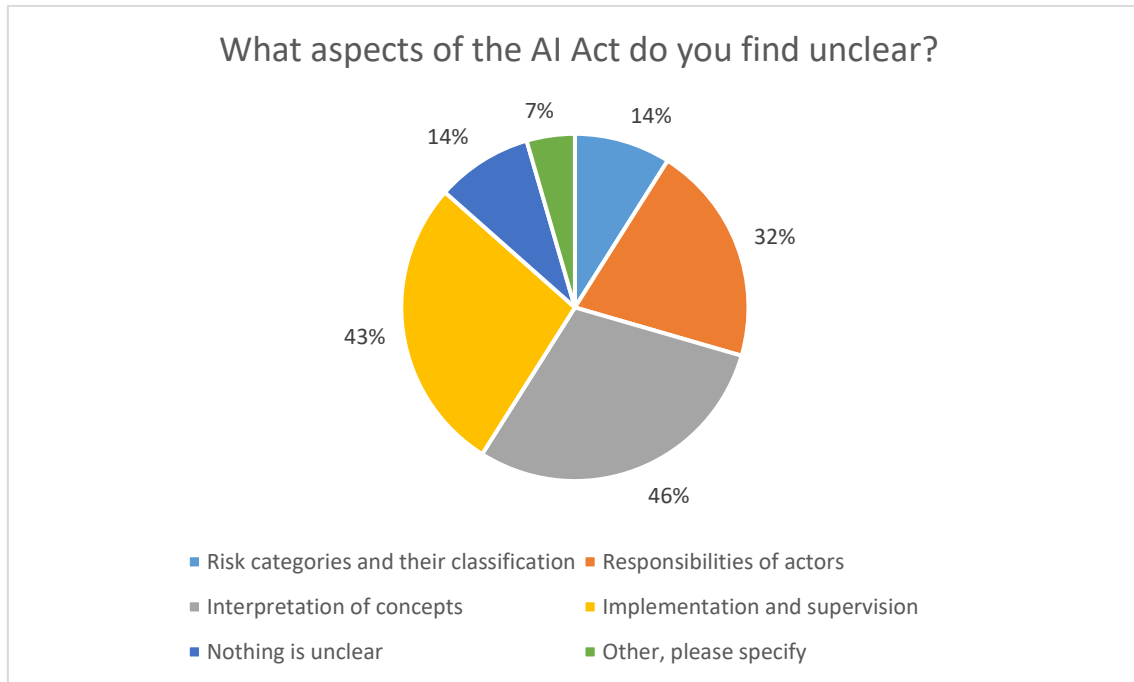
**Figure 6.** Perceived impact of the EU AI Act on ethical AI principles. (Author's own development).

Overall clarity of the regulation was evaluated on a five-point scale, with an average rating of 3. Half of the respondents considered the regulation to be moderately clear. In addition, 21,4% found it fairly clear and 3,6% very clear. On the other hand, 21,4% considered the regulation fairly unclear, and 3,6% very unclear.



**Figure 7.** Perceived clarity of the EU AI Act. (Author's own development).

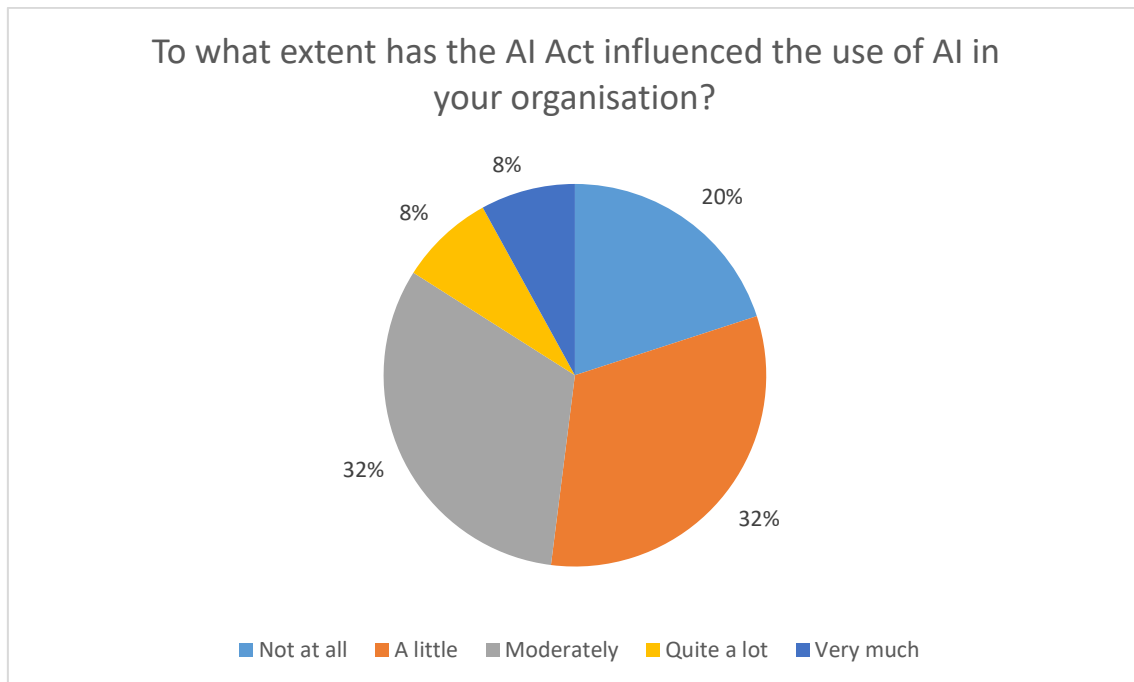
Respondents were also asked which aspects of the AI Act they find unclear. The most frequently selected issues were the interpretability of concepts (46,4%) and the implementation and supervision of the regulation (42,9%). In addition, 32,1% identified the responsibilities of actors as unclear, and 14,3% pointed to the classification of risk categories. Another 14,3% reported that nothing in the regulation is unclear, and 7,1% selected other issues, which will be discussed in chapter 4.2 with the other open-ended answers.



**Figure 8.** Unclear aspects of the EU AI Act. (Author's own development).

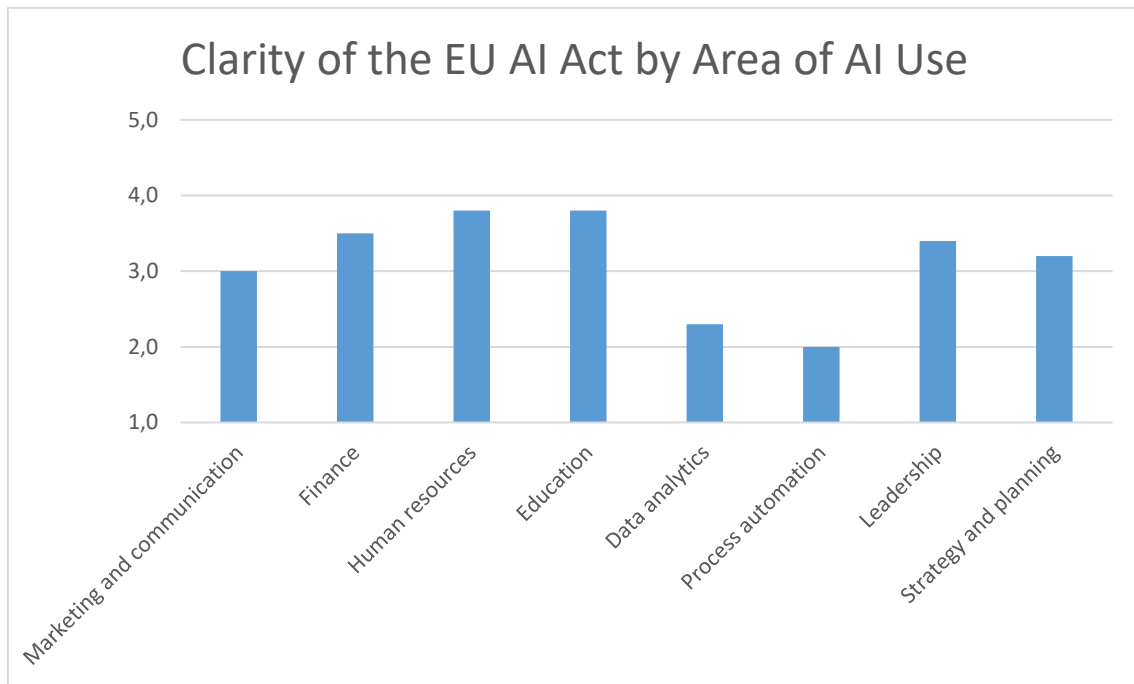
The perceived impact of the EU AI Act on the overall use of artificial intelligence in organisations was assessed using a five-point scale, with an average rating of 2,5. A total of 32% of respondents reported that the impact has been small, and another 32% indicated that it has been moderate. Furthermore, 20% reported no impact, while 8% perceived the impact as fairly large and 8% as very large.





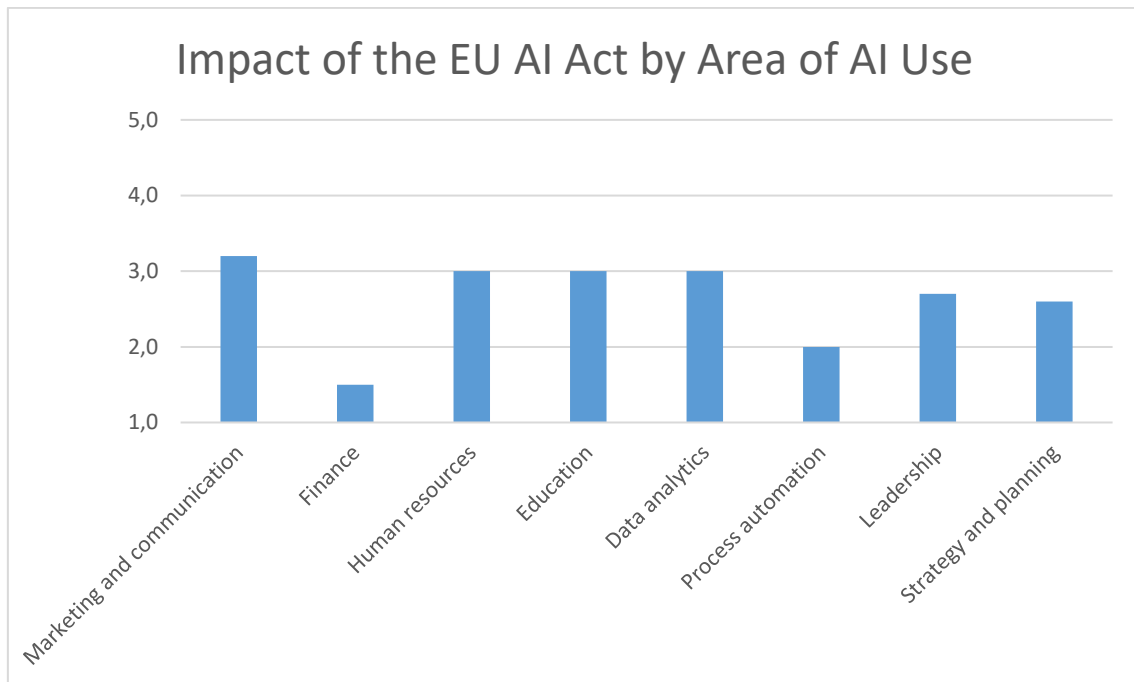
**Figure 9.** Impact of the EU AI Act on AI use. (Author's own development).

When analysing differences between groups, some variation emerged in how clearly respondents perceived the EU AI Act to be. Respondents using AI in human resources and education reported the highest average clarity scores (mean = 3,8). Relatively high levels of perceived clarity were also reported among respondents using AI in finance (mean = 3,5) and leadership and decision-making (mean = 3,4). Respondents using AI in strategy and planning reported an average score of 3,2, while those working in marketing and communication reported a mean score of 3. Lower average clarity scores were observed among respondents using AI in data analytics (mean = 2,3) and process automation (mean = 2). Overall, the perceived clarity of the EU AI Act ranged from 2,0 to 3,8 across the different areas of AI use.



**Figure 10.** Clarity of the EU AI Act by area of AI use. (Author's own development).

Some variation also emerged in the perceived impact of the EU AI Act on AI use. Respondents using AI in marketing and communication reported the highest average impact score (mean = 3,2). Respondents working in human resources, education, and data analytics each reported an average score of 3. Slightly lower average scores were reported by respondents using AI in leadership and decision-making (mean = 2,7) and strategy and planning (mean = 2,6). The average perceived impact was lower among respondents using AI in process automation (mean = 2), while the lowest score was reported by respondents using AI in finance (mean = 1,5). Overall, the perceived impact of the EU AI Act ranged from 1,5 to 3,2 across the different areas of AI use.



**Figure 11.** Perceived impact of the EU AI Act across different areas of AI use. (Author's own development).

## 4.2 Open-ended questions

The open-ended responses provide additional insight into the sources of uncertainty identified in the survey. Four main themes emerged from the responses. In addition, one respondent raised concerns regarding “the dominant position of large American organisations and the potential collection of data on virtually all activities for their commercial purposes.” While this concern did not fit neatly within the four themes identified, it highlights broader issues relating to data governance and the role of large technology companies.

The first theme was uncertainty regarding roles and responsibilities. Several respondents highlighted difficulties in understanding the difference between the terms “provider” and “deployer” and determining when responsibilities change under the AI Act. One respondent specifically pointed to “the distinction between providers and deployers, and the interpretation of when and under what circumstances a deployer becomes a provider.” This suggests that the allocation of responsibilities under the

regulation remains unclear for some municipalities, supporting concerns raised in the position paper by the Association of Finnish Cities and Municipalities.

The second theme concerned the complexity and interpretability of the regulation. Several respondents described the AI Act as difficult to understand, particularly for those without specialised legal expertise. One respondent noted that “like legal texts in general, the AI Act is quite difficult to understand for an ordinary expert and requires interpretation by specialists in different fields.” Another respondent observed that the AI Act is new and that “its application is not straightforward,” while a third stated that they had not read the regulation itself and instead relied on guidelines produced by ministries and municipalities. Furthermore, one respondent stated that “it is difficult to say because we have not familiarised ourselves with the regulation in more detail.” These responses indicate that the regulation may be difficult to interpret in practice, which is consistent with previous criticism concerning the complexity of the AI Act.

The third theme was a lack of expertise and resources. Some respondents acknowledged that they had not fully familiarised themselves with the regulation, while others emphasised the challenges faced by smaller municipalities. One respondent stated that “there is so much regulation that a small municipality does not have the resources to address everything.” Another respondent linked compliance challenges to practical issues, noting that “the practical problems are related to staff competence and unintentional violations resulting from a lack of expertise.” These responses highlight the importance of expertise and organisational resources, which are also discussed in the report by the Finnish Prime Minister’s Office.

The fourth theme related to learning and adaptation. Some respondents viewed the current uncertainty as a temporary consequence of a new regulatory framework and expected understanding to improve over time. One respondent stated that “the AI Act is new and its application is not straightforward, but the unclear aspects will likely

become clearer as users become more familiar with the regulation.” Similarly, another respondent explained that their organisation adopted AI cautiously and developed internal rules before expanding its use more broadly. These responses indicate that municipalities are still in the process of adapting to the requirements of the AI Act and suggest that familiarity with the regulation may increase as practical experience accumulates.

The final open-ended question invited respondents to suggest ways of improving the EU AI Act. Only two respondents provided comments. The first suggested establishing more data centres within the European Union, while the second argued that the regulation should be further clarified and simplified. Together, these responses suggest that municipalities would benefit from both clearer regulatory guidance and a stronger European technological infrastructure to support the implementation of artificial intelligence.

## 5 Discussion

### 5.1 Perceptions of the EU AI Act in Finnish municipalities

Despite the criticism directed at the EU AI Act in the literature and policy discussions, respondents generally perceived the regulation as relatively understandable. The average response to the question concerning the overall clarity of the AI Act indicated that the regulation was moderately clear. One possible explanation is that municipalities may already possess governance frameworks that support compliance with the regulation. Another explanation is that most municipalities represented in the sample do not appear to use AI for applications that would clearly fall within the high-risk category of the AI Act. This interpretation is supported by the finding that the most common area of AI use was strategy and planning (71% of respondents). Such applications are generally less likely to trigger the most demanding regulatory requirements.

However, an interesting finding is that the second most common area of AI use was leadership and decision-making (36%). Depending on the specific application, AI systems used to support decision-making processes may raise questions related to fundamental rights and could potentially fall within more heavily regulated categories. Nevertheless, only 4% of respondents considered the AI Act to be very unclear, suggesting that severe uncertainty regarding the regulation is relatively uncommon among the respondents.

Additional insight is provided by the question examining which aspects of the AI Act respondents found unclear. Notably, 14% of respondents reported that nothing in the regulation was unclear. Among those identifying areas of uncertainty, the most frequently mentioned issues were the interpretability of key concepts, implementation and supervision, and the responsibilities of different actors. These concerns closely mirror those highlighted in the Association of Finnish Cities and Municipalities' position paper on the AI Act.

To further explore perceptions of the AI Act's clarity, respondents were divided into groups based on their area of AI use, as presented in Figure 10. Although some variation can be observed between the groups, these differences should be interpreted with caution due to the relatively small sample size. While respondents involved in strategy and planning constituted the largest group, several other categories contained only a few respondents, with some groups consisting of fewer than three individuals. The observed variation may reflect individual perceptions rather than systematic differences between areas of AI use. Nevertheless, the results provide additional insight into how the clarity of the AI Act is perceived among respondents.

While the quantitative findings suggest that municipalities generally perceive the AI Act as moderately clear, the open-ended responses provide a more nuanced picture of the challenges municipalities face when interpreting and implementing the regulation. The first theme concerned uncertainty regarding roles and responsibilities. Respondents expressed uncertainty about the division of responsibilities between municipalities, AI providers, and other actors. This finding supports the quantitative results, where responsibilities of actors were identified as one of the least clear aspects of the regulation.

The second theme concerned the complexity and interpretability of the regulation. Respondents noted that certain concepts remain open to interpretation and that practical guidance is sometimes lacking. This finding directly corresponds to the most frequently selected unclear aspect in the survey, namely the interpretability of concepts. The third theme related to limited expertise and resources. While this concern was not directly captured by the predefined response options, as it is primarily associated with implementation challenges, it was nevertheless a recurring issue in both the academic literature and policy discussions.

The fourth theme, learning and adaptation, was also not included among the predefined response options. Several respondents viewed compliance with the AI Act as an ongoing process in which municipalities gradually develop new competencies, governance practices, and organisational routines. This finding suggests that some of the uncertainty observed in the survey may be transitional rather than permanent. As municipalities gain more experience with AI governance and as additional guidance becomes available, the perceived clarity of the regulation may improve over time.

Overall, the findings suggest that municipal perceptions of the AI Act are more positive than the theoretical discussion might imply. However, the perceived clarity of the regulation appears to depend partly on the types of AI systems being used. Municipalities primarily relying on lower-risk applications may encounter fewer regulatory challenges than organisations deploying high-risk AI systems. Consequently, if the study sample had included a larger number of municipalities using high-risk AI applications, perceptions regarding the clarity of the AI Act might have been less favourable. Still, uncertainty around the regulation was present in the survey results.

However, a survey conducted by the National Audit Office of Finland revealed more critical views of the AI Act. One possible explanation is that central government organisations are generally more advanced in their use of AI and therefore have greater experience with the practical challenges associated with AI regulation. Another factor may be the larger sample size of the National Audit Office's survey, which included 75 respondents. Nevertheless, critical perspectives were identified in both studies.

According to the National Audit Office of Finland, more than 80 percent of the organisations that responded to the survey had identified legislative factors that prevent or restrict the use of artificial intelligence. In addition, a clear majority of respondents believed that the current legislation does not enable the effective utilisation of AI within their organisations. The open-ended survey responses and the views



expressed during the audit interviews highlighted the importance of legislation (Valtiontalouden tarkastusvirasto, 2026, pp. 21-22).

From the perspective of AI adoption, the key legislative question ultimately appears to be what artificial intelligence is permitted to do and what information it is allowed to use legislation (Valtiontalouden tarkastusvirasto, 2026, p. 24). According to the views gathered during the audit, uncertainty regarding the interpretation of legislation is reflected in a cautious approach adopted by public authorities when carrying out and developing their activities. As a result, development initiatives that involve ambiguous legal interpretations are often left unimplemented (Valtiontalouden tarkastusvirasto, 2026, p. 22).

However, according to information obtained during the audit from the Data Protection Ombudsman, the European Union is preparing joint guidance on the application of the General Data Protection Regulation (GDPR) and the AI Act, which may help clarify the interpretation of the two legal frameworks in certain respects. The Data Protection Ombudsman also noted that viewing data protection as an obstacle to the use of AI often stems from insufficient expertise within public administration regarding the application of relevant regulations (Valtiontalouden tarkastusvirasto, 2026, p. 22). Nevertheless, another perspective that emerged during the audit related to whether supervisory authorities possess the capacity to provide guidance and advice to both public sector organisations and private companies (Valtiontalouden tarkastusvirasto, 2026, p. 23).

An interesting point of comparison from another country is provided by Kovač et al. (2025), who examined the implementation of the AI Act in the Slovenian public sector. The complexity of the AI Act and the limited availability of practical implementation mechanisms create challenges across the European Union. However, some of the findings appear to be specific to the Slovenian context, particularly uncertainties

regarding the distribution of responsibilities between central ministries and line ministries in policy areas such as taxation and social services (Kovač et al., 2025, p. 497).

The case study found that even experienced Slovenian public authorities struggled to interpret the AI Act despite their prior experience with GDPR implementation. Although the regulation is legally binding and directly applicable, several elements of its structure, including the recitals, annexes, and sanctioning provisions, remained challenging for both legal and technical experts to interpret. These findings support concerns raised in the literature regarding the AI Act's regulatory framework, scope of application, and effectiveness. The challenges associated with the AI Act contrast with the GDPR, which provides more clearly defined procedural requirements and stronger enforcement mechanisms (Kovač et al., 2025, p. 496).

Furthermore, while the AI Act is widely regarded as an important regulatory framework, its implementation is often hindered by unclear procedures, weak coordination, and gaps in expertise. Addressing these challenges requires measures such as impact assessments, clearer allocation of responsibilities, and stronger cooperation between institutions at both the national and EU levels. Future implementation efforts should balance innovation and flexibility with legal certainty, accountability, and the protection of fundamental rights. Closing the gap between policy objectives and administrative practice is therefore critical (Kovač et al., 2025, p. 498).

Although the institutional context differs between Slovenia and Finland, the Slovenian findings share several similarities with the experiences observed in this study. In both cases, difficulties related to the interpretation of the AI Act, uncertainty regarding responsibilities, and the need for additional expertise emerged as important challenges. This suggests that many of the difficulties associated with the AI Act stem not only from national administrative arrangements but also from the complexity of the regulation itself.

To conclude, the findings of this section suggest that respondents generally perceived the AI Act as moderately clear. However, considerable uncertainty remained regarding the interpretation of key concepts, the responsibilities of different actors, and the practical implementation of the regulation. The qualitative findings further indicate that limited expertise and organisational resources continue to complicate compliance efforts. Overall, the results suggest that municipalities still face notable challenges in translating regulatory requirements into everyday administrative practice.

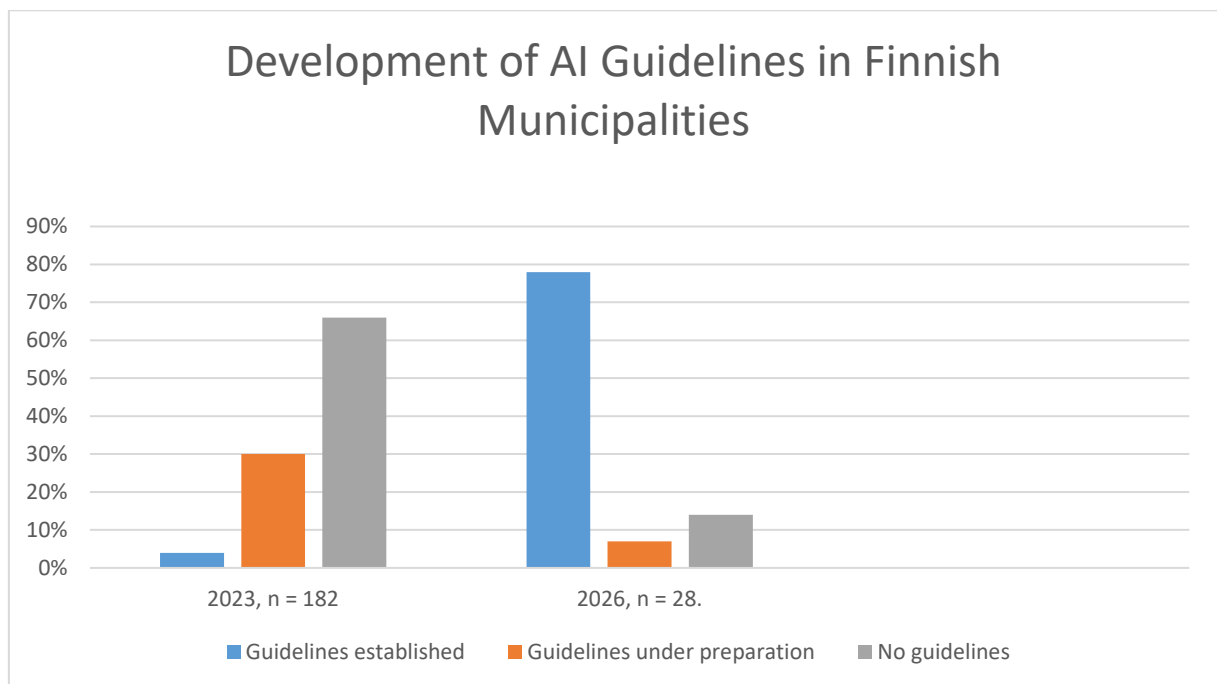
## **5.2 The impact of the EU AI Act on AI governance in Finnish municipalities**

The level of AI adoption in municipalities may shape how strongly the AI Act affects municipal operations and governance practices. Therefore, it should be noted that the frequency of AI use reported in this study was slightly higher than in the 2026 Työelämägallup survey. In the survey conducted for this study, nearly 29% of respondents reported using AI daily and only 4% reported not using AI at all. By comparison, among municipal employees in the Työelämägallup survey, approximately 25% used AI daily while 18% reported not using AI at all. These differences suggest that the respondents in this study were generally more active users of AI than the average municipal employee. Furthermore, individuals with a greater interest in AI may have been more willing to participate in the survey.

To further examine the perceived impact of the EU AI Act on the use of artificial intelligence, respondents were grouped according to their area of AI use, as presented in Figure 11. Like the findings shown in Figure 10, some variation can be observed between the groups. However, these differences should again be interpreted with caution due to the small number of respondents in some groups. The variation is likely to reflect individual differences in perception rather than clear and systematic differences between user groups. Also, the findings are consistent with the overall survey result, in which respondents assessed the impact of the AI Act on organisational AI use at an average of 2,5 on a five-point scale. No area of AI use reported an

exceptionally high impact score, suggesting that the regulation has had a generally moderate influence across the different areas of AI use.

However, the prevalence of ethical AI guidelines in Finnish municipalities increased substantially between the 2023 Kuntaliitto survey and this study. In the 2023 survey, only 4% of respondents reported that their organisation had established ethical guidelines for AI use, while 30% reported that such guidelines were under preparation. In contrast, 78% of respondents in this study reported that ethical guidelines had been established, while only 7% indicated that guidelines were still being prepared. At the same time, the share of organisations without any ethical guidelines decreased markedly from 66% to 14%.



**Figure 12.** Development of ethical AI guidelines. Comparison of the 2023 Kuntaliitto survey (n = 182) and the author's survey (2026, n = 28). (Author's own development).

These findings suggest that ethical governance practices related to artificial intelligence have become more common in Finnish municipalities after the EU AI Act entered into force. However, caution is required when interpreting the comparison, as the two surveys differ in terms of the sample size. Furthermore, it cannot be

conclusively determined whether the increase in ethical guidelines is related to the AI Act itself or to broader developments. Examples of other factors could include the growing adoption of AI in municipalities or the increasing public discussion around AI ethics.

The established ethical guidelines may serve as a practical tool for translating regulatory requirements into everyday practices. However, the existence of guidelines alone does not guarantee effective implementation. Kovač et al. (2025, p. 496) emphasise that the introduction of the regulation alone is insufficient to generate meaningful change. Practical implementation must be supported by clear procedures, impact assessment mechanisms, training initiatives, and inter-authority collaboration (Kovač et al., 2025, p. 496).

One explanation for the relatively limited influence of the AI Act on the use and ethical management of AI reported by respondents may lie in the established principles of good governance embedded in Finnish public administration. However, this explanation should not be overstated, as according to Jalonen (2022, p. 96), good governance is an objective that is not always achieved in practice. According to the Ministry of Finance (n.d.), AI technologies can reshape the structures and practices of public administration. However, they do not challenge the fundamental values or principles of good governance, but they may raise ethical questions in new contexts. For example, these technologies can have both direct and indirect effects on administrative activities that differ from those associated with previous information technologies (Valtiovarainministeriö, n.d.).

The Ministry of Finance continues this discussion by stating that public authorities have a responsibility to act impartially, independently, and equally. Their actions must be transparent, appropriate, and acceptable. In addition, public authorities must safeguard the legal protection of parties involved and ensure the proper implementation

of official accountability. These requirements also apply to the use of artificial intelligence in all public and administrative activities (Valtiovarainministeriö, n.d.).

Therefore, it is important to examine the principles of good governance in greater detail, given their central role in Finnish public administration and their continued relevance in the governance of AI. According to Mäenpää (2024, p. 94), the general principles of good governance include equality, purpose limitation, impartiality, proportionality, and the protection of legitimate expectations. These principles are defined in Section 6 of the Finnish Administrative Procedure Act. Mäenpää further argues that the independence of administrative action can be regarded as an underlying premise supporting the other principles (Mäenpää, 2024, p. 94).

Continuing the discussion, Mäenpää (2024, p. 94) argues that the principles of administrative law can be defined and examined separately in broad terms. However, the distinctions between these principles are not always clear-cut in practice. As a result, several principles of administrative law may be applied simultaneously or in an overlapping manner (Mäenpää, 2024, p. 94). Furthermore, these principles apply to all forms of public administrative activity regardless of their form or content. In other words, they govern not only administrative decision-making but also the provision of public services and other forms of administrative action. The principles are particularly important in situations where the choices made by public authorities may affect individual rights or interests (Mäenpää, 2024, pp. 95–96).

Next, the five principles of good governance are examined individually to provide a more detailed overview of their content and practical implications. According to Mäenpää (2024, p. 96), the principle of equality is linked to Section 6 of the Constitution of Finland. In essence, public authorities are required to treat all individuals dealing with administrative matters equally. According to this principle, equal treatment must be afforded to all persons who may be parties to a case under consideration. Furthermore, equal treatment must also be extended to those whose rights or

interests may be affected by the handling of the matter, regardless of whether they are directly involved in the administrative process (Mäenpää, 2024, pp. 96–97).

The principle of purpose limitation requires that the exercise of public authority must be tied to purposes defined by law and otherwise consistent with legal requirements. The use of administrative powers must be based on legitimate grounds, and decisions cannot be motivated by irrelevant considerations or improper objectives (Mäenpää, 2024, p. 105). Furthermore, the principle of impartiality requires public authorities to act objectively and independently. In this context, objectivity means that administrative actions and decisions must not be based on inappropriate considerations or factors unrelated to the proper exercise of public authority. Independence, in turn, means that authorities must act autonomously, particularly in relation to improper external influence (Mäenpää, 2024, p. 109).

The principle of proportionality requires that administrative measures must be proportionate to the objectives they seek to achieve. The proportionality of a specific measure is assessed by considering whether it is appropriate, effective, and suitable for achieving a legitimate objective. In addition, the necessity of the measure must be evaluated considering the rights and interests of those affected. If a measure imposes negative consequences, it must not restrict individual rights more than is necessary to achieve its intended purpose (Mäenpää, 2024, p. 112).

Finally, according to the principle of the protection of legitimate expectations, public authorities must consider and safeguard individuals' justified expectations. In administrative practice, this means that legal subjects should be able to rely on the consistency and predictability of administrative action. Authorities should not unexpectedly, and especially not retroactively, alter their practices in ways that adversely affect an individual's rights or interests. For example, an error in a decision generally cannot be corrected to the detriment of a party without that party's consent (Mäenpää, 2024, pp. 116–120).

As the principles of good governance are expected to influence the use of artificial intelligence in public administration, it is useful to consider how these principles may apply in practice. Starting with the principle of equality, it may be interpreted as requiring that AI-supported systems do not discriminate against particular groups of citizens and that individuals in similar situations are treated consistently. The principle of purpose limitation may imply that AI systems should only be deployed for purposes that fall within a municipality's statutory responsibilities and legal mandate. Similarly, the principle of impartiality suggests that AI-assisted recommendations should not replace independent administrative judgement, as public authorities remain responsible for the decisions they make.

The principles of proportionality and the protection of legitimate expectations add another dimension to the governance of AI in municipalities. The principle of proportionality may require that high-risk AI technologies are used only when they are appropriate and necessary for achieving a legitimate objective. For example, the use of technologies such as facial recognition may be difficult to justify in some cases. Finally, the principle of the protection of legitimate expectations may require citizens to understand how AI influences administrative processes and to trust that similar cases will continue to be handled in a consistent and predictable manner over time.

The Ministry of Finance concludes the discussion by stating that the use of AI technologies requires public administrations to be sensitive to the impacts of AI on citizens, citizens' rights, society, and the environment. Although AI technologies are not autonomous actors comparable to humans, they are complex software systems capable of learning and operating with a greater degree of autonomy than previous technologies. Public authorities must therefore ensure that the use of AI promotes the general objectives of public administration, including open governance that supports active citizenship, administrative efficiency and effectiveness, and a society founded on trust and the protection of fundamental rights (Valtiovarainministeriö, n.d.). Below is



a table summarising the principles of good governance and their applications for AI use in municipalities.

**Table 1.** Principles of good governance and their applications for AI use in municipalities. (Author's own development).

| Principle of good governance          | Applications for AI use in municipalities                                      |
|---------------------------------------|--------------------------------------------------------------------------------|
| Equality                              | Ensure AI systems do not discriminate against citizens.                        |
| Purpose limitation                    | Use AI only for legally justified municipal purposes.                          |
| Impartiality                          | Maintain human oversight and objective decision-making.                        |
| Proportionality                       | Use high-risk AI applications when appropriate and necessary for the task.     |
| Protection of legitimate expectations | Ensure AI-supported processes remain transparent, predictable, and consistent. |

While the principles of good governance provide an important foundation for the governance of artificial intelligence in public administration, they must also be translated into practice when AI systems are deployed and used. Therefore, Kovač and others (2025, p. 494) state that from an administrative law perspective, the AI Act represents a significant advancement in the regulation of artificial intelligence. Although it builds on existing regulatory frameworks, particularly the GDPR, it addresses important issues related to automated decision-making and the use of AI by public authorities (Kovač et al., 2025, p. 494).

An example of an AI application that illustrates the practical implications of the AI Act is Grade AI. This example was selected because Saalasti (2025) demonstrates how Grade AI can be integrated into Kuntarekry, a recruitment platform widely used by Finnish municipalities. Grade AI is an AI-powered recruitment assistant designed to enhance recruitment efficiency and reduce recruiters' administrative workload by minimizing the time spent on routine tasks. Importantly, the system functions solely

as a decision-support tool and does not make recruitment decisions independently. Saalasti classifies Grade AI as a limited-risk AI system under the EU AI Act's risk-based framework (Saalasti, 2025), which will be examined more in depth later.

In accordance with the AI Act, AI may support recruiters in tasks such as screening applications, but final hiring decisions must remain under human control. AI can also be used to organize applicants according to objective criteria, including education, work experience, and language proficiency. While these tools can improve the efficiency of applicant processing, candidates may not be excluded from the recruitment process without human review and oversight (Saalasti, 2025).

The AI Act also imposes important restrictions on the use of AI in recruitment. According to Saalasti (2025), AI systems must not automatically reject applicants without human approval, and screening processes cannot rely on algorithms that may incorporate hidden biases or discriminatory patterns, for example those derived from historical recruitment data. Furthermore, recruitment decisions must remain transparent and explainable. As a result, AI systems may not assess or filter candidates based on criteria that cannot be clearly justified, such as vague personality assessments or profiling models lacking a transparent rationale (Saalasti, 2025).

The AI Act classifies many employment-related AI systems as high-risk because of their potential impact on individuals' career opportunities, livelihoods, and fundamental rights (Khlud, 2026, p. 1). However, AI systems that do not pose significant risks to health, safety, or fundamental rights and that do not materially influence decision-making outcomes are excluded from this category. These include systems that perform limited procedural tasks, support or improve the outcomes of completed human activities, identify patterns or deviations in previous decisions without replacing or influencing human judgment, or carry out preparatory functions (Rigotti et al., 2026, p. 6). Given that generative AI applications such as Grade AI are primarily intended to optimise recruitment processes, Rigotti and others (2026, p. 5) argue that

such applications would generally be classified as limited-risk AI systems under the EU AI Act.

However, the classification of Grade AI as a limited-risk system rather than a high-risk system under the AI Act may be more nuanced than initially appears. The application of the Act demonstrates that the boundaries between different risk categories are not always clear in practice. This was also reflected in the survey results, where respondents identified uncertainties related to the interpretation of the regulation. While Rigotti and others (2026, p. 6) previously noted that certain AI systems are exempt from the high-risk category, they also emphasize that these exemptions do not apply to profiling systems, including AI tools used in hiring processes.

According to Saalasti (2025), Grade AI evaluates applicants exclusively based on objective criteria established in accordance with recruitment legislation. In addition, regular bias testing is conducted to ensure that the system does not reinforce discriminatory patterns, and the AI does not process personal characteristics such as applicants' names, age, gender, or ethnic background (Saalasti, 2025). These characteristics suggest that Grade AI may fall outside the types of profiling systems that raise the greatest concerns under the AI Act. However, it remains open to interpretation whether the evaluation and categorisation of applicants performed by the system would qualify as profiling under the AI Act.

Nevertheless, Saalasti (2025) also mentions that in Finland, public-sector recruitment is highly regulated, requiring hiring decisions to be made transparently and based on objective criteria. The use of AI may undermine trust if applicants perceive the recruitment process as unfair or biased. Furthermore, applicants have the right to understand how their applications have been assessed, meaning that AI-assisted screening decisions must be transparent, explainable, and capable of being justified (Saalasti, 2025). While the EU AI Act has a significant influence on the use of AI in recruitment,

these pre-existing regulatory requirements may help explain why the Act was perceived as having only a limited impact by the survey respondents.

To conclude, the findings suggest that the EU AI Act has had a moderate impact on both the use and governance of artificial intelligence in Finnish municipalities. While the regulation does not appear to have substantially altered the overall level of AI adoption, it may have contributed to the development of governance practices, particularly through the increasing prevalence of ethical AI guidelines. At the same time, many of the principles promoted by the AI Act are already reflected in existing frameworks, such as the principles of good governance. The main challenge for municipalities is not the incorporation of new values and principles, but the practical integration of these principles into governance practices as AI technologies continue to develop rapidly.

### **5.3 Revisiting the AI trilemma in Finnish municipalities**

The findings of this study provide support for the AI trilemma presented in the theoretical framework. Finnish municipalities appear to recognise the potential benefits of AI and are actively experimenting with its use in areas such as strategy, planning, and administrative support. At the same time, respondents highlighted concerns related to interpretation, expertise, and implementation, demonstrating that the adoption of AI is not only a technological issue but also a governance challenge. The survey findings therefore reinforce the argument that AI adoption, ethical considerations, and regulation are closely interconnected rather than separate dimensions of municipal AI governance.

Related to the regulatory challenges highlighted in the trilemma, Kovač and others (2025, p. 497) discuss that while the wider EU regulatory framework demonstrates a growing recognition of digital risks, effective governance continues to require clear legal rules, balanced safeguards, and the protection of individual rights. As a hybrid of binding legislation and policy guidance, the AI Act presents challenges related to

effective enforcement. Understanding its provisions requires not only legal compliance but also the ability to adapt to evolving technological and institutional contexts (Kovač et al., 2025, p. 497).

As a result, municipalities may need to invest in legal expertise, collaborate with relevant stakeholders, and in some cases favour more transparent AI solutions over more advanced alternatives. The barriers include compliance costs, limitations on data access, restrictions on use cases, legal uncertainty, disparities in institutional capacity, and ethical considerations (Jørgensen & Ma, 2025, p. 19). Considering these challenges, future EU legislation may benefit from adopting a “less is more” approach (Kovač et al., 2025, p. 496).

However, the empirical findings suggest that the relationship between the three dimensions may be less conflictual in practice than initially implied by the theoretical discussion. While the literature frequently highlights the risk that regulation may hinder innovation and reform, the respondents generally perceived the regulation’s impact on AI use as moderate rather than substantial. This may partly be explained by the fact that most AI applications used by municipalities do not appear to fall within the high-risk category of the AI Act and are therefore subject to fewer regulatory obligations. At the same time, the increase in ethical AI guidelines suggests that regulation may also support AI adoption by providing municipalities with clearer guidance regarding responsible AI use. In this respect, regulation may not only constrain innovation but also facilitate the sustainable adoption of AI technologies.

## 6 Conclusions

### 6.1 Main findings and contributions

This thesis examined the implications of the EU AI Act for Finnish municipalities, focusing on two research questions: (1) whether the AI Act facilitates the implementation of artificial intelligence by providing a clear regulatory framework, and (2) how the AI Act has influenced the use and ethical governance of AI in Finnish municipalities. The findings provide a nuanced picture, highlighting both the benefits and the practical challenges associated with its implementation.

Regarding the first research question, the results indicate that respondents generally perceived the AI Act as moderately clear. However, significant uncertainty remained related to the interpretation of key concepts, the responsibilities of different actors, and the practical implementation of the regulation. The open-ended responses further revealed challenges related to limited expertise, organisational resources, and the need for continuous learning and adaptation. Therefore, it cannot be concluded that the EU AI Act fully resolves the regulatory uncertainty experienced by Finnish municipalities. Instead, the findings suggest that practical implementation guidance and organisational learning play an important role in the interpretation and application of the regulation.

Regarding the second research question, the findings suggest that the AI Act has had a moderate impact on both the use and governance of artificial intelligence in Finnish municipalities. The regulation does not appear to have substantially changed the overall level of AI adoption. However, the prevalence of ethical AI guidelines increased considerably compared to previous surveys conducted before the AI Act entered into force. This finding suggests that the regulation may have contributed to the development of governance practices. At the same time, many principles promoted by the AI Act were already reflected in existing governance frameworks.

From a theoretical perspective, this study contributes to the literature by developing the AI trilemma framework from previous research and applying it to the municipal context. The empirical findings support the applicability of the framework for understanding the complex world of AI ethics and regulation in Finnish municipalities. However, the results suggest that the tensions between these dimensions may not always be as clear as initially implied. Regulation was generally not perceived as a major obstacle to AI adoption, particularly because many municipal AI applications fall outside the high-risk category of the AI Act. Nevertheless, the findings demonstrate that effective AI governance requires municipalities to balance innovation, ethical considerations, and legal compliance.

The study also has practical implications for municipal administration. The findings suggest that municipalities should continue investing in AI-related expertise and training. Ethical guidelines alone are unlikely to ensure effective compliance with regulatory requirements. Practical implementation also requires impact assessment mechanisms, organisational learning, and cooperation among relevant stakeholders. Municipalities should therefore view AI governance as an ongoing process.

While the AI trilemma was developed as a conceptual framework for this study, it may also serve as a practical tool for public management. The framework enables municipalities to assess AI initiatives from three interconnected perspectives rather than focusing solely on technological opportunities. Public officials can use the trilemma to identify potential trade-offs and support a balanced approach to AI adoption. For example, before implementing a new AI system, municipalities could evaluate how the system contributes to organisational objectives, whether it aligns with principles such as transparency and accountability, and what regulatory requirements should be considered. This way, the AI trilemma can promote the responsible governance of artificial intelligence in the public sector.

## 6.2 Limitations and suggestions for future research

Several limitations should be considered when interpreting the findings of this study. First, while the survey included respondents from municipalities located in different parts of Finland, the number of respondents was relatively small. Therefore, the findings should be interpreted as indicative rather than fully representative of all Finnish municipalities. In addition, respondents with a stronger interest in artificial intelligence may have been more likely to participate in the survey, which could have influenced the results.

Second, the study was conducted during the early stages of the AI Act's implementation. Many provisions of the regulation are still being introduced, and municipalities are continuing to adapt their practices. As a result, perceptions regarding the clarity and impact of the regulation may change in the coming years as organisations gain more experience and additional guidance becomes available.

Third, most respondents appeared to use relatively low-risk AI applications, such as tools supporting strategy, planning, communication, and administrative tasks. Therefore, the findings may not fully reflect the experiences of municipalities deploying high-risk AI systems, which are subject to more extensive regulatory requirements under the AI Act.

Future studies would benefit from a broader sample and a higher response rate. The AI trilemma may also be used as a conceptual framework, as it integrates relevant concepts observed in the literature and in practice. Future research could examine how the relationships between AI adoption, ethics, and regulation differ across municipalities of varying sizes and organisational capacities. Furthermore, future research could pay particular attention to municipalities using high-risk AI systems, as such organisations may face different regulatory challenges than those identified in this study. This would provide a more comprehensive understanding of how the



requirements of the AI Act influence AI adoption, governance practices, and innovation in the municipal sector.

### **6.3 Use of artificial intelligence tools**

Generative artificial intelligence tools (Microsoft Copilot and ChatGPT) were used for language editing and improving readability during the preparation of this thesis. Artificial intelligence was not used to generate research data, survey responses, empirical findings, analyses, or conclusions. The author takes full responsibility for the content of this thesis.

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## Appendices

### Appendix 1. Survey questions (Original Finnish and English Translation)

**1. Kuinka usein hyödynnät tekoälyä työssäsi?**

*(How often do you use artificial intelligence in your work?)*

- En lainkaan *(Not at all)*
- Harvoin *(Rarely)*
- Satunnaisesti *(Occasionally)*
- Usein *(Often)*
- Päivittäin *(Daily)*

**2. Millä osa-alueella hyödynnät tekoälyä? (Valitse yksi tai useampi)**

*(In which areas do you use artificial intelligence? Select one or more.)*

- Markkinointi ja viestintä *(Marketing and communication)*
- Talous *(Finance)*
- HR *(Human resources)*
- Opetustoimi *(Education)*
- Data-analytiikka *(Data analytics)*
- Prosessien automatisointi *(Process automation)*
- Johtaminen ja päätöksenteko *(Leadership and decision-making)*
- Strategia ja suunnittelu *(Strategy and planning)*
- Jokin muu, mikä *(Other, please specify)*
- En hyödynnä tekoälyä *(I do not use AI)*

**3. Onko organisaatiossasi käytössä tekoälyn eettisiä periaatteita?**

*(Has your organisation established ethical principles for the use of artificial intelligence?)*

- Kyllä *(Yes)*
- Ei *(No)*
- Eettiset periaatteet ovat valmisteluvaiheessa *(Under preparation)*
- En tiedä *(I do not know)*

**4. Oliko organisaatiossasi käytössä tekoälyn eettisiä periaatteita ennen EU:n tekoälyasetuksen voimaantuloa (1.8.2024)?**

*(Did your organisation have ethical AI principles in place before the EU AI Act entered into force on 1 August 2024?)*

- Kyllä (Yes)
- Ei (No)
- En tiedä (I do not know)

**5. Kuinka paljon tekoälyasetus on mielestäsi vaikuttanut organisaatiossasi käytössä oleviin tekoälyn eettisiin periaatteisiin?**

*(To what extent has the AI Act influenced ethical AI principles in your organisation?)*

- Ei lainkaan (Not at all)
- Vähän (A little)
- Jonkin verran (Moderately)
- Melko paljon (Quite a lot)
- Erittäin paljon (Very much)

**6. Mikä tekoälyasetuksessa on mielestäsi epäselvää? (Valitse yksi tai useampi)**

*(What aspects of the AI Act do you find unclear? Select one or more.)*

- Riskiluokat ja niiden jaottelu (Risk categories and their classification)
- Toimijoiden vastuu (Responsibilities of actors)
- Käsitteiden tulkinnanvaraisuus (Interpretation of concepts)
- Asetuksen toimeenpano ja valvonta (Implementation and supervision)
- Mikään asetuksessa ei ole mielestäni epäselvää (Nothing is unclear)
- Jokin muu, mikä (Other, please specify)

**7. Tässä voit halutessasi avoimesti kertoa, mikä tekoälyasetuksessa on mielestäsi epäselvää.**

*(You may describe in your own words what you find unclear in the AI Act.)*

**8. Kuinka paljon tekoälyasetus on mielestäsi vaikuttanut tekoälyn käyttöön yleisesti organisaatiossasi?**

*(To what extent has the AI Act influenced the use of AI in your organisation?)*

- Ei lainkaan *(Not at all)*
- Vähän *(A little)*
- Jonkin verran *(Moderately)*
- Melko paljon *(Quite a lot)*
- Erittäin paljon *(Very much)*

**9. Kuinka selkeäksi koet tekoälyasetuksen kokonaisuudessaan?**

*(How clear do you find the AI Act overall?)*

- Erittäin epäselvä *(Very unclear)*
- Melko epäselvä *(Fairly unclear)*
- Kohtalaisen selkeä *(Moderately clear)*
- Melko selkeä *(Fairly clear)*
- Erittäin selkeä *(Very clear)*

**10. Tässä voit vielä halutessasi kirjoittaa avointa palautetta tekoälyasetuksesta, esimerkiksi miten kehittäisit asetusta.**

*(You may provide additional feedback on the AI Act, for example how it could be improved.)*