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Master's Programme in Information Networks

Digitalising Justice: Goals, Metrics and Unintentional Outcomes in Case AIPA

An empirical analysis of Finland's digitalisation project in the judiciary

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Master's thesis
2024

Aalto-yliopisto
Aalto-universitetet
Aalto University

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Title of thesis Digitalising Justice: Goals, Metrics and Unintentional Outcomes in Case AIPA

Programme Master's Programme in Information Networks

Major Digital Ethics, Society and Policy

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Collaborative partner The University of Helsinki Legal Tech Lab

Date 29.02.2024 **Number of pages** 70 + 4 **Language** English

Abstract

The digital administration of justice has become an integral part of modern society. In Finland, the Material Bank (Aineistopankki — AIPA) project, initiated by the Ministry of Justice, aims to develop the operations of the prosecution offices and general courts by transitioning from paper-heavy working methods to electronic workflows in legal processes. The implementation of the AIPA system has been gradual, starting in 2017, with the final phase, handling of criminal cases, set to be introduced in the spring of 2024.

The objective of this study is to examine unintentional outcomes of the AIPA project. This is done by mapping the goals set for the project and by inspecting how the achievement of these goals has been measured. The study reviews the literature on the digitalisation of the administration of justice, along with qualitative empirical research. The empirical research is conducted through semi-structured interviews with 13 individuals from various Finnish District courts and people involved in the AIPA system design. This is supplemented by the analysis of the project's enterprise architecture description.

Based on the interviews, the primary goals of the AIPA project were to enhance organisational efficiency by streamlining workflows by reducing paper and by having a unified system. Furthermore, user-centricity and quality of services were prioritised in the project. The success metrics have focused mainly on usability and project management.

Overall, interviewees view the AIPA system positively, and digitalisation is perceived as a necessary change in courts and prosecution offices. However, it appears that the project development has focused on measuring short-term goals, which has not provided sufficient insight into how well the long-term objectives are achieved. This has led to the emergence of unintended consequences.

The study provides an overview of the outcomes of the digital transformation on the administration of justice and explores how the AIPA project can serve as an example of development in public administration. Additionally, it lays the foundation for further research on monitoring the impacts of the AIPA system.

Keywords digitalisation of justice, administration of justice, law and technology, case study, science and technology studies, STS

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Aalto University

Tekijä Adeola Ikuesan

Työn nimi Oikeuden digitalisointi: Tavoitteet, mittarit ja tahattomat vaikutukset AIPA-hankkeessa

Koulutusohjelma Master's Programme in Information Networks

Pääaine Digital Ethics, Society and Policy

Vastuuopettaja/valvoja Yliopistolehtori Risto Sarvas, TkT

Työn ohjaajat FT Terhi Esko

Yhteistyötaho Helsingin yliopisto Legal Tech Lab

Päivämäärä 29.02.2024 **Sivumäärä** 70 + 4 **Kieli** Englanti

Tiivistelmä

Yhteiskunnan digitalisaatio ulottuu myös lainkäyttöön. Oikeusministeriön käynnistämän Aineistopankkihankkeen (AIPA) avulla pyritään kehittämään syyttäjälaitoksen ja yleisten tuomioistuinten toimintaa siirtymällä sähköisiin työtapoihin lainkäytössä. AIPA-järjestelmän käyttöönotto on ollut vaiheittaista ja se alkoi vuonna 2017. Keväällä 2024 on tarkoituksena ottaa käyttöön järjestelmän viimeinen osa, johon sisältyy rikosasiat.

Tämän tutkimuksen tavoitteena on tarkastella AIPA-hankkeen tahattomia vaikutuksia. Tätä tutkimuskysymystä taustoitetaan tutkimalla projektin tavoitteita ja tavoitteiden mittareita. Tutkimus sisältää kirjallisuuskatsauksen liittyen oikeuden digitalisaatioon ja julkishallintoon sekä laadullisen empiirisen tutkimuksen. Empiirinen tutkimus on toteutettu puolistrukturoituina haastatteluina, joihin osallistui 13 henkilöä. Haastatteluihin osallistui sekä AIPAn loppukäyttäjiä Suomen eri käräjäoikeuksista että AIPAn suunnittelussa mukana olleita henkilöitä. Sen lisäksi analyysissä on hyödynnetty projektin kohdearkkitehtuuria.

Tutkimuksen tulosten perusteella tavoitteiden keskiössä on ollut tehokkuuden lisääminen siirtymällä yhtenäiseen järjestelmään, työnkulkujen sujuvoittamisella ja paperityöstä irtautumalla. Sen lisäksi käyttäjäkeskeisyys ja palvelun laatu ovat olleet projektille tärkeitä prioriteetteja. Tavoitteita on mitattu muun muassa käyttäjäkyselyiden avulla sekä projektinhallinnan mittareilla.

Haastateltavat suhtautuvat AIPA-järjestelmään pääsääntöisesti positiivisesti ja digitalisaatio koetaan välttämättömänä muutoksena tuomioistuimissa sekä syyttäjälaitoksessa. Toisaalta tulosten perusteella voidaan sanoa, että projektissa ollaan keskitytty lyhyen aikavälin tavoitteiden mittaamiseen, mikä ei ole antanut riittävästi käsitystä siitä, miten hyvin pitkän aikavälin tavoitteet saavutetaan. Tämä on johtanut tahattomien seurausten syntymiseen.

Tutkimus tarjoaa katsauksen siihen, miten digitaalinen murros vaikuttaa lainkäyttöön ja pohtii, miten AIPA-hanke voi toimia esimerkkinä julkishallinnon alojen kehittämisessä. Lisäksi se luo perustan jatkotutkimukselle AIPA-järjestelmän vaikuttavuuden seuraamiseksi.

Avainsanat Digitaalinen julkishallinto, oikeuden digitalisaatio, tapaustutkimus, oikeusteknologia, tieteen ja teknologian tutkimus

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Preface and Acknowledgements

I am truly grateful to have had the opportunity to delve into the topic of digitalisation of justice for my thesis—a topic that was initially unfamiliar to me but of significant societal importance. The process has been occasionally challenging but always enlightening.

I would like to extend my sincere thanks to the Helsinki University Legal Tech Lab for giving me the chance to explore the subject. Specifically, I want to thank Terhi Esko for advising the work and for providing me with abundant literature. Your compassion and help have guided me through this project.

I want to express my gratitude to all the interviewees who generously shared their expertise despite busy schedules. I hope that my work not only contributes value to the academic discourse but also sparks new conversations and ideas among you.

I would like to thank my supervisor, Risto Sarvas, from Aalto University, who has enthusiastically encouraged me to delve deeper into this complex subject. Thanks to Hilma for peer support and study company. Additionally, heartfelt thanks to my mother, other family members, and friends who have supported me throughout the process.

As I conclude this thesis, I recognise that it is also the culmination of my studies at Aalto University. These years have raced by like a whirlwind, and I extend my thanks to everyone who has been part of the journey.

Helsinki, 29 February 2024

Adeola Ikuesan

Symbols and Abbreviations

Abbreviations

AIPA	Aineistopankki (Finnish translation of *Material Bank*)
CMS	Customer Management System
DARE	Digital Administration Redesigned for Everyone
DSR	Design Science Research
EA	Enterprise Architecture (English translation of *Kohdeark-kitehtuuri– KA)*
ELC	Electronic Legal Communication (English translation of *ERV Elektronischer Rechtsverkehr*)
ICT	Information and Communication Technologies
IS	Information System(s)
IT	Information Technology
KEI	Quality and Innovation Programme (English translation of *Kwaliteit en Innovatie Rechtspraak)*
PO	Product Owner
SAFe	Scaled Agile Framework
SD	Service Design
ST	Sociotechnical
SUS	System Usability Scale
TOL	Civil Trial OnLine (English translation of *Processo Civile Telematico – PCT*)
UXD	User Experience Design

1 Introduction

This work studies a digitalisation project in the general courts and prosecution offices in Finland, its goals, metrics, and unintentional outcomes. The study aims to find out how the goals and metrics set for the Finnish Material Bank (Aineistopankki — AIPA) project have influenced its outcomes.

Chapter 1 describes the background of the study and explains the relevance of the topic. Moreover, it introduces the research questions the study aims to answer and outlines the structure of the work.

1.1 Background and Motivation

Globally, digital justice has become a buzzword within the judicial community as governments and organisations are increasingly transforming and modernising their processes and tools to shift from bureaucratic practices to building digital institutions. The integration of information technology (IT) systems into the public sector transforms how public services are delivered and produced (Fountain, 2005).

The efforts to promote digitalisation of administration has been evident also at the governmental level of Finland. Many government programmes have highlighted digitalisation and its necessity in public administration. For example, one target of the former Prime Minister Marin's government was to establish a program to promote digitalisation, ensuring that public services were digitally accessible to citizens and businesses by the year 2023 (Valtioneuvosto, 2019). Additionally, Prime Minister Orpo's government emphasises digitalisation as a possibility to make operations in the public sector more efficient and envisions Finland as the forerunner of digitalisation globally (Valtioneuvosto, 2023). However, in the realm of public administration, the digital revolution is more than a technological shift, it is a fundamental reshaping of how government serves its people. In other words, the focus extends from mere technological implementation to the ways the administration can enhance for example transparency, efficiency, and responsiveness to citizen and end-user needs.

This study delves into a specific digitalisation initiative, the Finnish Material Bank (Aineistopankki — AIPA) project, initiated by the Ministry of Justice. The AIPA project seeks to modernise general courts and prosecution offices by transitioning from paper-heavy working methods to electronic workflows in legal processes (Koulu & Hakkarainen, 2018, p. 96). This involves the development of new digital work methods and a unified system to support new work practices, replacing existing separate systems for criminal and dispute cases (Oikeusministeriö, n.d.). The transformation introduced by the AIPA project holds significance for general courts, including District courts, courts of Appeal, and the Supreme Court. Due to the scope of the study, only District courts are the focus. The legacy systems in use, some characterised by technical deficiencies, hinder electronic document storage, processing, transfer, and archiving, relying on paper-based processes for case initiation and information exchange.

Despite a growing body of literature on digitalisation in the justice sector, the complexities and multifaceted nature of this phenomenon remain understudied. Public authorities often encounter challenges in implementing e-justice programs as planned, with issues ranging, for example, from service-specific solutions to ineffective communication between systems (Di Natale & Cordella, 2022; Parviainen et al., 2017). Additionally, although there is interest in new ways of working and technologies within Finland, the small amount of digitalisation research in the legal context is surprising (Kontiainen et al., 2021). Kontiainen et al. (2021) suggest that to know how legal workers' work practices, identity, and role in society are being shaped by legal technology there is a need for more long-term empirical research. This research aims to contribute to understanding these complexities by examining the unintentional outcomes of the AIPA project.

To bring context, the Finnish state's central administration includes the ministries together with the government agencies and institutions in their administrative branches. Each ministry within its mandate is responsible for addressing matters falling under the Government's authority and ensuring the efficiency of administration. The judiciary forms its own entity in the state administration. It includes independent courts of law. (Ministry of Finance Finland, 2024)

AIPA is a project set up by the Ministry of Justice to digitalise the processes of the General courts. Judiciaries are constitutionally independent, but practically they operate in the framework of government (Reiling, 2009). Therefore, it is essential in this study to bring into context principles and ideals related to public administration. Although the digitalisation project is situated in the court system, it is directed by the public administration organisation, which has been responsible for implementing the overall architecture for the system to be built. There are references to the architectural principles of public administration in AIPA's architectural design and these principles were viewed as useful guidelines in the project (*Aineistopankki - Kohdearkkitehtuuri*, 2013).

For these motivations, the expectations and ideals of public administration are considered when discussing the AIPA project of the general courts, as these ideals may have been included in the AIPA project as well. In addition to the courts' jurisdictional role, courts take care of non-judicial administrative matters such as access to information requests. Such activity is considered public administration instead of adjudication, although it takes place in courts. Thus, public administration discourses can be useful when discussing the AIPA project. Therefore, the work addresses the concepts of 'public administration' and the 'administration of justice' in parallel, which may benefit the case study by including perspectives from both viewpoints.

Digitalising public administration should embody and endorse principles of good administration. The good administration discourse revolves around specific legal principles that must be realised by law. Good administration is a fundamental right in Finland, outlined in the Constitution (Section 21). It is specified mainly in the Administrative Procedure Act (434/2003). In addition, good administration is an umbrella term for many rights and legal principles such as right to be heard, right to have a reasoned decision, right to appeal, right to a fair trial, right to access public documents et cetera. However, good administration does not have self-evident ways of definition since the concept itself is radically undetermined (Koivisto, 2014).

The Administrative Procedure Act does not directly govern the actions of the judicial system. However, as mentioned at the beginning of the chapter, it can indirectly influence the technological development, for example, through technology architecture. Nevertheless, the tensions between administrative law and digitalisation are an interesting perspective to consider. Thus, how can the concept of good administration be incorporated in public administrative digitalisation projects or judicial digitalisation projects? It is unclear how to balance human values in technological design (Friedman, 1996) which suggests that incorporating requirements of good administration to a digital system is a challenge itself.

There are multiple discourses to approach the tensions in the relationship between administrative law and digitalisation, as well as changes in power, control, and their forms. Pöysti (2018) introduces four different discourses related to digital administration: (1) the legal discourse that focuses on the realisation of the rule of law, fundamental and human rights, and legal certainty, (2) the efficiency discourse, closely related to economic and administrative efficiency, (3) the ethical-moral discourse concentrating on justice, ethics in the development of administration and technology and (4) the administrative political discourse.

Different actors, often with divergent backgrounds and motives, participate in various discourses, leading to distinct perspectives and emphases in the discussion. For example, in Finland the focus tends to be on technology, productivity, and cost-effectiveness, stemming from the strong position of Information and Communication Technology department at the Ministry of Finance. Additionally, the Ministry of Finance's general position in Finland's public administration plays a significant role in the discourse on administrative efficiency. This leads to the efficiency discourse being the most prevalent when discussing digitalisation projects. In contrast to Sweden, where the discourse on digitalisation is focused more on citizens and the balanced combination of democratic rule of law, legal certainty, and administrative efficiency. In Finland, the citizen is seldom present in administrative policy. (Pöysti, 2018)

The discourses lay an example of a foundation and ideals on what could be aimed when designing new technologies. To ensure the efficiency, administrative legal rules and legal principles in digital administration, these principles need to be incorporated into the technical and operational architecture, as well as in the software code (Pöysti, 2018). However, the field of law is by nature highly normative and regulative, having its baseline on fundamental judicial principles making the realm extremely complex to digitise (Di Natale & Cordella, 2022). Empirical studies highlight the conflicting logics that must be integrated when applying law and technology (Di Natale & Cordella, 2022).

Indeed, it is interesting that when developing large IT projects, the underlying ideals influence and shape the goals set for the projects. The goals and the way their achievements are measured, in turn, impact the final outcome and effectiveness of the project. In the AIPA project, the focus on goals related to efficiency in the enterprise architecture (EA) description indicates a strong organisational emphasis on optimising processes. The starting hypotheses for this study centre on the influence of goal setting on project outcomes and the need for a nuanced evaluation that considers both intended and unintended consequences. Thus, the starting hypotheses for the study are as follows:

- The goal-setting influences both intentional and unintentional outcomes.
- If the evaluation primarily considers the set goals and their fulfilment, it may overlook the broader outcomes beyond those goals.
- An evaluation, considering both goals and unintended consequences, will provide a more nuanced understanding of the project outcomes.

1.2 Research Objective and Questions

The research objective is to examine the unintentional consequences of the AIPA project. The study examines how the goals and metrics set for the project have influenced its outcomes. To reach the research objective I have crafted two prerequisite research questions:

RQ1: What have been the design goals of AIPA?
RQ2: What are the key metrics used to measure the success of the goals?

After answering the prerequisite questions, I will address the main research question:

RQ3: What are the unintended consequences of the AIPA project?

This study is conducted as a part of the Digital Administration Redesigned for Everyone (DARE) research project at Helsinki University Legal Tech Lab. It draws on data from thirteen interviews with individuals involved in AIPA's design, along with end-users from Finnish District courts. Additionally, these interviews were complemented with AIPA's EA description that outlines the project plan.

The literature primarily draws on Science and Technology Studies (STS), which is inherently an interdisciplinary field, examining the institutions, practices, meanings, and outcomes of science and technology and their intricate relationships with humans and values (Felt, 2017). In addition, the research also leverages other literature that expands the understanding of artefact design and evaluation, as well as service design. By doing this, the study aims to offer a wider perspective on the digitalisation of judiciary and aims to bridge the gap between academic research and practitioners' insights which is highly anticipated in legal digitalisation studies (Koulu & Hakkarainen, 2018). As AIPA is currently being implemented, it serves as a relevant example in the Finnish context. Additionally, the study could consequently work as a baseline for further studies focusing on the changing work methods of legal workers or long-term impact evaluation of the AIPA system.

The study targets three main audiences: AIPA system end-users, public administration officials, and academic researchers. By contributing empirical knowledge on the development of the AIPA project, this study seeks to enhance the understanding of a large-scale IT development project in both academic and practical contexts.

1.3 Structure of the Study

The study consists of a literature review and empirical research. The theoretical background and existing research on the digitalisation of the administration of justice and the case in question are presented in Chapter 2. Chapter 3 discusses research methodology including methods, data collection, and analysis while Chapter 4 introduces results gathered in data collection. In Chapter 5, the work is concluded by discussing the results, implications of the research, the study’s limitations, and suggestions for future research.

2 Literature Review

This chapter explores literature on the digitalisation of justice administration, focusing on the roles of goal setting and metrics, and their connection to unintended consequences. It presents three digitalisation projects in the European context to discuss current narratives and challenges associated with the topic. Furthermore, the chapter discusses the role of users in technological transformation and offers insights into the AIPA project and its background.

2.1 Digitalising Administration of Justice

The digitalisation of public administration in Finland is not a new phenomenon - computers have been used in administration already in the 1980s (Koivisto & Koulu, 2020). In fact, all European countries have invested in Information and Communication Technologies (ICT), common motivators being the increased speed and effectiveness of information flow, the opportunity to improve institutions and foster innovation (Fabri, 2009). Digitalisation and the development of new technology are increasingly prevalent in the infrastructures of legal firms, and judicial systems, simultaneously challenging the regulatory environment, legal professions, and judicial structures (Kontiainen et al., 2021; Koulu, 2018).

2.1.1 Defining Design Goals in Digital Transformation

Science and Technology Studies (STS) looks at how the things it studies are constructed. Over time, it has evolved to explore scientific knowledge artefacts, methods, materials, observations, phenomena, classifications, institutions, interests, histories, and cultures. Technological artefacts, born from the collaboration between scientists and engineers, are designed to translate the interests of a wide group of actors. For them to thrive, they must either adapt to their environments or their environments must be made to fit them. (Felt, 2017)

IT artefacts are special cases of technical artefacts that are crafted for problem-solving and consider the role of information as part of the technical design (Orlikowski & Iacono, 2001). They have traditionally been considered to be relatively stable, independent, and fixed and as a consequence, have been considered to be quite unproblematic (Orlikowski & Iacono, 2001). However, Silver and Markus (2013) highlight that the way people interact with an artefact is essential. Although the object stays the same technically, changing how people use it socially can make it seem completely different. Therefore, Silver and Markus (2013) introduce the term ‘sociotechnical artefact' or 'ST artefact' for short, to present a more accurate representation of the factors influencing the artefact.

ST artefact challenges the view that technology is not just technology, and the social is not just social. Rather, the technical and the social are always intertwined. This is a perspective challenging the concept of technological determinism within the framework of social shaping. The idea of social shaping of technology (SST) emerged within the field of STS in the last decades of the 20th century, challenging the traditional unidirectional and deterministic view of the relationship between society and technology (Bijker & Law, 1992; MacKenzie & Wajcman, 1985). Technological determinism would view technologies as separate entities from society and their development being isolated from societal contexts. In fact, according to technological determinism, technologies operate independently of society and impact society unilaterally (MacKenzie & Wajcman, 1985).

There exists a belief that too little attention is paid to sociotechnical design and implementation. In fact, defining goals is not yet an established practice, both in Finland and globally in the public sector (Parviainen et al., 2017). According to Reiling (2009), one reason for this complexity is the varied interests within public administration, which give rise to challenges stemming from political, organisational, or technical factors, contributing to overall project complexity. If there is no willingness to limit big ambitions, it can lead to technically and financially unmanageable projects (Reiling, 2009). Furthermore, excessive complexity can lead to challenging and costly projects and might decrease the success rate of government IT projects (Reiling, 2009). Therefore, reducing complexity by starting small and taking incremental steps is crucial.

Furthermore, Reiling (2009) suggests that without a strategic vision for setting goals, it becomes challenging to determine the intended purpose of a system, resulting in undefined project outcomes and uncertainty for project management. For IT project goals to be effective, Reiling (2009) stresses the importance of drawing on a strategic vision and managing the connection of the goals with business change. In the context of judiciaries, having a strategic vision for core processes and recognising the role of information and IT is crucial. This involves redesigning processes in a way that leverages IT rather than hinders it which requires individuals with expertise in both court processes and IT to facilitate the integration of IT development and court processes (Reiling, 2009). It seems that many large-scale IT projects might set traps for themselves right from the beginning.

Silver and Markus (2013) emphasise that in addition to technical features, social design features of an artefact should be taken into account in the early phases of the design. Although it is useful to distinguish technical and social design features, the impact of sociotechnical activity often results from the interaction between technical and social aspects (Silver & Markus, 2013).

Interaction becomes an important factor in the design and planning of technical systems. According to Reiling (2009), courts typically focus on judging individual events in the past, rather than leaning towards strategic planning for the future. Reiling (2009) argues that the primary skills required for judges and court staff are those related to deciding individual cases, not necessarily strategic formation. Therefore, judiciaries aiming to enhance justice administration through IT must recognise this cultural background and its associated limitations, potentially requiring a significant shift in thinking (Reiling, 2009).

Doherty (2021) aligns with this perspective, stating that legal and design cultures differ due to their origins in distinct disciplines. Legal culture emphasises the values, norms, and traditions of the legal system. Hagan (2018) notes that the court system has evolved mainly from top-down approach, being shaped by historical precedents and having a focus mainly on the needs of judges, clerks and lawyers. Legal culture often emphasises analytical skills, formalities and hierarchical structure and the end goal is to ensure fairness, justice, and a proper functioning of legal institutions.

Software design culture on the other hand values experimentation, divergent thinking, speed and practicality instead of being tied to specific normative expectations (Doherty, 2021). Design culture embraces changes and iteration, creation of prototypes and testing them with users whilst legal culture could be viewed as more conservative, focusing on predictability and stability. Finding the baseline and ideals becomes the starting point for the development of technical systems.

2.1.2 Understanding Success through Metrics

The evaluation of an artefact is traditionally founded on the utility of the artefact and that often leads to emphasising its technical aspects (De Leoz & Petter, 2018). Furthermore, the impact evaluation of an artefact focuses typically on the direct user although it could be useful to understand the impacts on other stakeholders as well. This can lead to viewing evaluation as assessing the correspondence between functional features and intended consequences (Silver & Markus, 2013).

Parviainen et al. (2017) imply that the predominant metrics used to track the level of digitalisation are often from the perspective of service availability and usage. Most metrics concentrate on monitoring the direct benefits to the government and often overlook the broader benefits extended to citizens and businesses. The inadequacy in addressing the wider effects of digitalisation highlights the need for a holistic approach in evaluating the success of digitalisation projects. As such, the current ways of setting goals and measuring success, along with a narrow focus on the wider impacts, show that the evaluation process in digitalisation is still evolving.

In summary, the general problem with large-scale IT projects is that their goal setting is often too ambitious, as they involve the interests of many parties, and the success of the projects is not measured adequately. If measured, the metrics often do not sufficiently consider social impacts or broader consequences. Therefore, it is essential to understand that technology is not just technology, and the social is not just social. Rather, the technical and the social are always intertwined.

2.1.3 Unintended Consequences and Broader Impact

In the context of this study the term 'unintended consequences' refers to unforeseen or unpredicted results to an action. This concept has been explored across various academic fields, including natural sciences, political science, economics, sociology, and philosophy (Harris & Ogbonna, 2002). According to Monteiro et al. (2022), unintended consequences are caused by the "overflow" of action. Simply, this means that an action, strategy, or project can have multiple outcomes, both intended and unintended.

Understanding these unintended consequences is essential since they can have as much importance as the intended and because the adoption of technology is not easy to predict within an organisation (Orlikowski, 1996). Therefore, the changes that technology brings are undetermined and open-ended as well (Monteiro et al., 2022). This aligns with Bijker and Law's (1992) perspective on the social shaping of technology, suggesting that since technology evolves and adapts within societal contexts the development of technology is inherently uncertain, and technologies may manifest differently in various contexts.

In practice, organisations are often treated as fixed entities instead of being dynamic and ever-evolving ecosystems shaped by sequenced events, collaboration, and adaptability of their members. However, as mentioned in Section 2.1.1, technology is not deterministic which makes the deterministic logic incompatible with the open-ended nature of new technologies that require constant adaptation and customisation (Malone, 1995).

Within the STS literature, Langdon Winner provides a notable perspective on this matter. Winner's arguments, outlined in a paper '*Do Artifacts Have Politics?*' (1980), highlight the intentional and unintentional incorporation of political interests into the design of artefacts. In essence, Winner (1980) claims that technological artefacts have the capacity to embed and reinforce specific social and political values. This, in turn, may lead to unintended consequences that can potentially increase existing inequalities or power imbalances.

To address the challenge of minimising unintended consequences in artefact creation, De Leoz and Petter (2018) propose considering the social impacts of artefacts in the early stages of the artefact creation process. Social impact evaluation, often associated with disciplines within the social sciences, focuses on the effects or consequences experienced by individuals or groups (De Leoz & Petter, 2018). De Leoz and Petter (2018) introduce a set of potential social impact factors to guide the evaluation of design science research (DSR) artefacts (Table 1). These factors, for example, proximity of impact, institutional structures, and level of analysis, are intended to aid in choosing variables for evaluating the artefact.

Table 1. Table modified from De Leoz and Petter (2018). A list of social factors to consider in the evaluation of an artefact.

Proximity of impact	Direct	Impacts for users
	Indirect	Impacts for non-users
Institutional structures	Culture	Influence on culture (shared beliefs, customs, values)
	Way of life	Impacts to the way of life (e.g., work and interaction)
	Health and well-being	Impacts to physical, mental, and social well-being
	Political system	Effects on political systems (level autonomy, democratisation)
	Economic system	Impacts to economic systems (production, allocation, distribution of goods)
Level of analysis	Micro	Impacts of artefact to users and non-users
		Impact of artefact in altering interactions, affiliations, environments, and identities among individuals
		Societal reasons that motivate individuals to use, accept and resists the artefact

		Consideration of how an individual perceives oneself through use of the artefact
	Meso	Effects on intended groups, departments, organisations, or community that are users of the artefact
		Changes to work processes when artefact is implemented
		Effects to organisational structures when artefact is implemented
	Macro	Impacts to cross-organisational or cross-national relationships

In practice, measuring broader impacts is perceived as challenging in public administration due to multiple reasons. Firstly, Parviainen et al. (2017) suggest that setting goals and objectives for the impacts should be done with a multi-year perspective to balance diverse stakeholder interests, such as economic and user-centric considerations. Secondly, there are no established methods to assess digitalisation that would be accepted both in the public and the private sector as well as by experts and other stakeholders (Parviainen et al., 2017). Reiling (2009) confirms these claims in the context of administration of justice and states that not all projects are evaluated due to multiple reasons such as political sensitivity, lack of evaluation budget, or poor planning.

From the standpoint of social shaping, the world appears as socio-technical: people and technologies would not exist without each other, and they interact with each other mutually (Bijker & Law, 1992). The theory of social shaping guides the inspection of the AIPA project and emphasises the need to consider the technology development within the broader context of social activities. Simultaneously, the concept of social shaping provides opportunities to investigate how societal factors, existing structures, and economic influences have affected the unintentional outcomes of the project. Socio-technical change in the case of AIPA refers to how the project simultaneously produces social, societal, economic, and technical change. This change is deemed socio-technical because it results from the interplay of these diverse domains, and the change occurs through the interaction of multiple domains (Bijker & Law, 1992).

2.1.4 Case Studies of Digitalisation Projects in the Judiciary

The most evident and straightforward way to learn from projects is to look at what actually happened in those projects and then draw conclusions from that information (Reiling, 2009). Judicial public administration projects have been done globally and this section will present three European examples to demonstrate the development and challenges of the projects.

In the Netherlands in 2012, a Quality and Innovation Programme (KEI) programme was introduced for digitalising the entire civil and administrative procedures of the judicial sector. The goals for KEI project were to enhance the efficiency and accessibility of judiciary processes, and to reduce administrative workloads of the courts (Di Natale & Cordella, 2022). However, the KEI project failed, only a few months prior to its planned launch. One suggested reason for the project's failure were conflicting goals. The project encountered difficulties because it tried to achieve both cost reduction and quality improvements. The issue lied in a misconception that the use of the new IT system would directly lead to cost reductions. The ideal of reducing the administrative workload was strongly opposed by the employees since they perceived it would mean cutting off staff (Di Natale & Cordella, 2022).

Another example is the Austria's Electronic Legal Communication (ELC) system from the 1990's. The initial aim was to establish a fully electronic production system, in which it is possible to share petitions with courts, as well as receive decisions and documents from the courts, particularly in civil cases (Koch & Bernroider, 2009). Interestingly, the system was not solely designed for the use of courts. The goal was to enable the use of the system to external customers such as lawyers as well, which was expected to expedite proceedings (Koch & Bernroider, 2009). External customers would have both the essential information and the capability to initiate new actions by submitting claims or similar petitions. There were legislative adjustments that were made to accommodate the ELC system. The available figures on time and cost reductions of ELC are favourable and user interviews revealed high satisfaction levels to the system (Koch & Bernroider, 2009). Early user involvement, an incremental development strategy, and collaboration with key entities were identified as best practices. The uniform system not only eased the development process but also facilitated the re-use of technical components (Maurer, 2007).

A Civil Trial OnLine (TOL), the electronic judicial platform in Italy was initiated in 2000. The system was designed to facilitate the filing and exchange of documents in civil cases. Initially, the system had a decentralised architecture, with each of the 165 local bar councils developing their own access points to TOL. However, the complexity and costs associated with this decentralised approach led to the Ministry to transition to a more centralised architecture in 2011. Apart from complexity in the architecture, the need to reduce the multitude of legal work practices developed by Italian courts into a unified system contributed to slowing down the adoption of the system. Additionally, the project faced challenges related to the involvement of internal users, which resulted in low usage for many years. Despite criticism, TOL has gained uniformity in court operations by streamlining data, documents, and procedures across the Italian judiciary. (Contini & Reiling, 2022)

What is common between all the examples, is that reduction of complexity and human agency seem to be the most critical dimension to the digitalisation of the judiciary. Complexity in these cases have resulted in changes in development and slower adoption of the system. Regarding human agency, Kontiainen et al. (2021) emphasise the technological revolution being not only about technology, but about changes in human interaction and social structures.

2.1.5 The Role of Users in Technological Change

For a long time, users were regarded insignificant as agents in technological change although their abilities and involvement have been increasingly recognised in many fields, including STS (Hyysalo & Juntunen, 2024). According to Hyysalo and Juntunen (2024), the long dismissal of users and the gradual realisation of their importance lies in the invisibility of their contributions. Often, users overlook the significance of their actions, and even when they do recognise them, they are rarely documented. Even if someone does document these actions, the records are often not accessible to the individuals responsible for making decisions, translating, and shaping technological systems (Hyysalo & Juntunen, 2024). This invisibility has brought up the need to develop research designs that would better capture the users' contributions such as ethnographies and large representative surveys (Hyysalo & Juntunen, 2024).

This shift in focus towards understanding users becomes worthy of attention also because effective use of technology requires that individuals have a conceptualisation of the technology. People's actions are moulded by assumptions, expectations, and knowledge which then shape their interactions with technology. Orlikowski and Gash (1994) define these technology-related interpretations as technological frames. Because a technological artefact can be interpreted by multiple social groups and individuals, each individual and group can hold a differing view on its purpose, context, power, knowledge base, and the artefact itself (Orlikowski & Gash, 1994). These interpretations are often not explicitly expressed or discussed which can lead to unintended outcomes such as misaligned expectations, conflicting actions, and unforeseen consequences such as resistance and scepticism (Orlikowski & Gash, 1994).

For instance, beliefs about optimal work processes, the appropriate division of labour, the level of autonomy for employees are all assumptions deliberately or implicitly incorporated into information technology by systems planners and designers (Orlikowski & Gash, 1994). This influence can manifest in different ways within the system; for instance, software developers may adopt a more technical perspective, treating technology as a tool to be designed, executed, and deployed for specific tasks, while users may possess more domain-specific knowledge.

Since everyone has their personal and shared meaning of what kind of affordances technical systems hold, there is a need to examine, what kind of differing views on the technology users have. Thus, it is worth examining what the users want. However, knowing that is a challenging endeavour because people's preferences are highly complex and contextual, and they can be internally contradicting (Lyngs et al., 2018). To facilitate this, Lyngs et al. (2018) suggest that the development of technology should go beyond focusing on immediate tasks related to a specific product. Instead, designers should see technology not as a one-time, finished product but as an ongoing support system (Lyngs et al., 2018). They are advised to think about how these systems will affect people's lives in the long run, which requires a deeper understanding to make sure the systems match users' bigger goals and values.

Digitalisation already has many effects. In the legal context, the use of digital tools has been proven to transform people's perception of the profession of legal workers, their professional skills, and their professional identity (Kontiainen et al., 2021). Different aspects of digitalisation can be approached through the transformation of work practices. This has been studied, for example, through changes in individual work methods (Kontiainen et al., 2021). Although an individual's working methods primarily convey subjective daily impacts of digitalisation, they also reflect a broader cultural shift affecting not only individuals but also the legal profession.

Legal work is increasingly carried out using digital tools. Finnish legal professionals seem to combine traditional paper-based work methods with digital ones based on what is feasible within the work community and make sense for the tasks at hand. However, expertise is changing. For example, in the legal profession, as well as in the work of doctors and teachers, there has traditionally been a strong perception of work autonomy. Technological tools and organisational changes, shifting from individual work towards collaborative work, have, however, led to conflicts with the ideal of autonomy, resulting in the standardisation of work practices. The standardisation of work practices means that experts are bound to standardised work methods and cannot deviate from them – potentially impacting experiences of control and ownership of work. (Kontiainen et al., 2021)

In conclusion, the technological revolution is not just about technology, but about changes in human interaction and social structures. This observation directs attention to exactly how the utilisation of digital tools affects the nature of legal expertise work. It appears that large-scale IT projects are common, but their goal setting is often ambitious due to diverse interests, and success is often inadequately measured. If measured, the metrics often overlook social impacts or broader consequences, with efficiency discourses dominating discussions. The unintended consequences are frequently left unaccounted for in metrics, emphasising the interconnectedness of technical and social aspects in systems. The presented case studies demonstrate that the complexity of systems and organisations is a challenge in development. Additionally, incorporating users into processes is crucial. By taking these factors into account, the systems appear to be more successful.

2.2 Case Study: AIPA Material Bank Project

Finland sought to digitise the working practices of the Finnish prosecution offices and general courts: District courts, courts of Appeal and the Supreme Court through the AIPA project established in 2010 by the Ministry of Justice. AIPAs main vision was to shift to digital working practices and to create an information system entity to support new working methods (Koulu & Hakkarainen, 2018, p. 95). The information system entity enables the National Prosecution Authority and the general courts process electronically all their judicial activities from case initiation to its resolution and archiving (Oikeusministeriö, 2010).

2.2.1 Design and Development

The Ministry of Justice established an AIPA project office which has the overall responsibility for the work carried out in the project. The AIPA project office plays a pivotal role in shaping the project's direction. The project office staff defines the overarching goals, deciding what is crucial and how to prioritise the goals. The responsibility extends to sorting the goals, making decisions, and wielding the authority to move the project forward.

Within the AIPA project, decisions are navigated through a structured hierarchy, visualised in Figure 3. A steering group oversees the project, but the project office is in the main role of directing the project (Koulu & Hakkarainen, 2018). The project office takes charge of working groups and the IT project itself (Koulu & Hakkarainen, 2018). The working groups are smaller groups focusing on a specific topic or area within the project and the groups have varied during the project.

The IT project follows a Scaled Agile Framework (SAFe), a methodology for project development. Agile is a flexible and iterative approach to project management and software development that prioritises collaboration, adaptability, and the delivery of small, functional components in short iterations (Hussain et al., 2022). The key principles of Agile include breaking down work into iterations, fostering communication and collaboration, seeking customer feedback throughout development, adapting to changing requirements, and aiming for continuous delivery of components. The SAFe framework has gained prominence in recent years because of its focus on applying core agile principles and practices at scale within large organisations (Hussain et al., 2022).

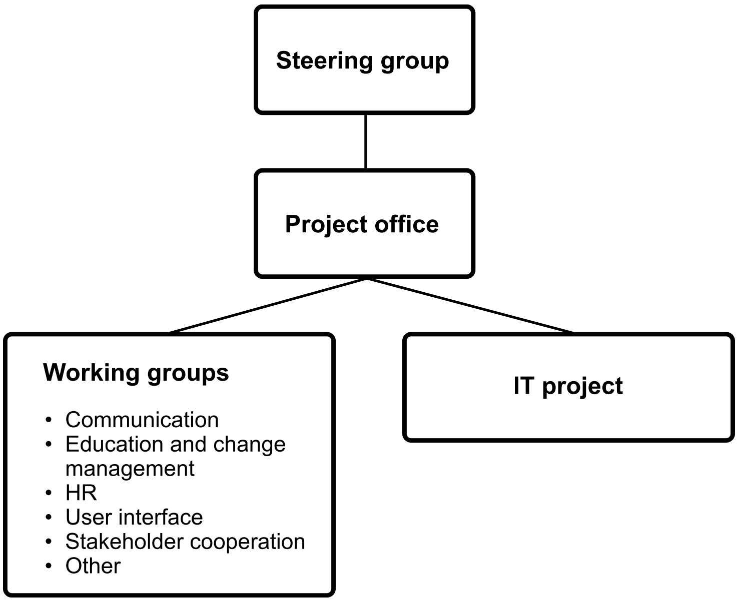

Figure 1. AIPA's decision making structure.

To ensure that the information system would meet the criteria of the end users, the project office hired professionals from the courts and prosecution office to work solely for the project. Thus, the power of decision-making was given to legal professionals, judges, prosecutors and secretaries working in the general courts, and prosecution offices (Koulu & Hakkarainen, 2018). For example, some people worked as Product Owners for the project. Additionally, end-users were involved in other ways such as in usability surveys and end-user testing.

2.2.2 Background and Societal Circumstances

The initial steps of the AIPA project date back to 2007 when the Ministry of Justice established a working group to investigate the development of the case management process in the general courts. The systems in use at the time, and some still in use to this date, had deficiencies, not enabling sufficiently electronic ways for storing, processing, transferring, and archiving documents related to cases. Additionally, the initiation of cases, as well as the information transfer between authorities and clients mainly occurred in the form of paper documents. In other words, the transfer of paper documents between the trial investigation authorities such as the police, customs, and the prosecution office and between the courts was common and there was little capability for electronic transfer. (Oikeusministeriö, 2010)

Thus, a new system was aimed to guide the processing of legal matters in a way that makes the legal process easier and reduces the possibility of human errors (*Aineistopankki - Kohdearkkitehtuuri*, 2013). Figure 1 visualises the possible progression of a criminal or a civil case in the Finnish legal system and the various judicial instances through which a legal case may proceed. It illustrates how multi-stage a case can be and the involvement of various stakeholders in its processing. However, the figure does not include all possible stakeholders that may be involved in the process, nor does it address the information flow within the entities. However, it illustrates the significant need to improve the transfer of information between stakeholders and within the court instances.

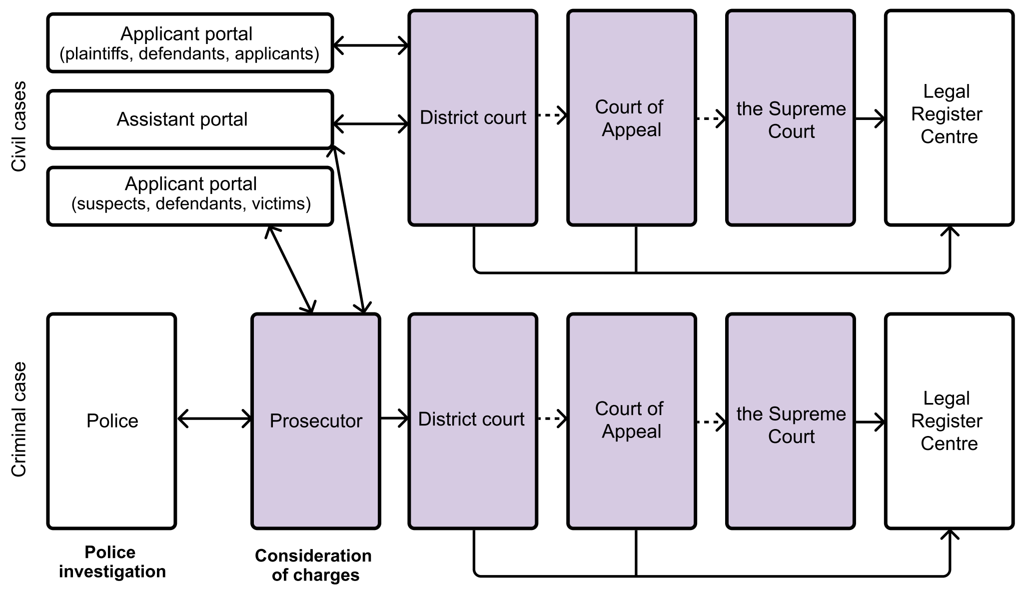

Figure 2. Case flow in criminal and civil cases within the judicial system in Finland. Modified based on AIPA's enterprise architecture description.

Within the courts and prosecution offices, a key objective was the development of internal case management processes. The improved archiving, standardisation of information content and process chain, and development of statistics and reporting were central development areas. Furthermore, an electronic service portal was envisioned to cater to the needs of citizens and businesses (Oikeusministeriö, 2010).

The legacy systems in use faced multiple problems and some systems in use have reached the end of their lifecycles. The legacy systems, such as Sakari, Tuomas, and Lotus Notes-based systems are technologies from the 1980s and 1990s (Oikeusministeriö, 2010). For example, Sakari, a case management system for criminal cases manages the case flow of the prosecutor's offices and the courts and has links to the systems used by the police as well (Fabri, 2009). However, since the technology is outdated, it is difficult to find developers for its maintenance and development. In addition, the systems were created as monoliths, large entities that are composed in one piece, leading to increased lifecycle risks. In other words, the system is becoming technologically outdated which then prompted the need for development of a new information system.

Another example is a criminal sentencing application Ritu, implemented in 2013 (Oikeusministeriö, 2009). Especially in its early days, Ritu was strongly criticised. The system was perceived as complicated to use, potentially slowing down the delivery of judgments (Kalakoski, 2014). Due to its complexity and unreliability, judges across Finland were reverting to old working methods. Over the years, efforts were made to align Ritu better with user needs, and currently, the user satisfaction has improved. However, Ritu is not an independent system but is connected to Sakari (Oikeusministeriö, 2010).

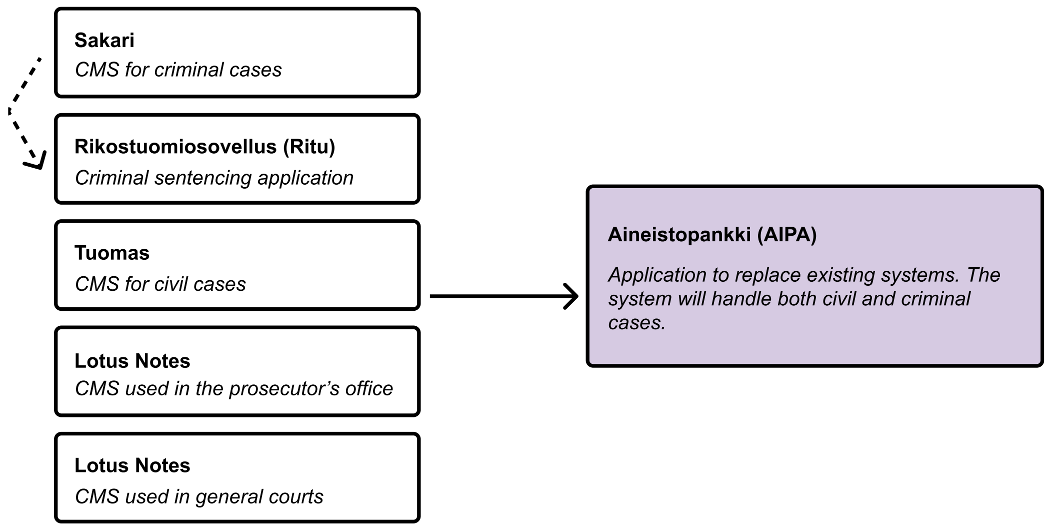

Figure 3. AIPA will replace all existing systems in use in both civil and criminal cases.

2.2.3 Implementation

The AIPA system has been gradually implemented in the general courts and prosecutor's office. The departments are currently in a transition phase where some functions can be carried out electronically according to the new operational method, while others are still performed in accordance with the old method before the official completion of the AIPA project (ought to be in 2024).

The implementation is divided into five phases, visible in Figure 4. The initial phase included the summary fine procedure and the digitalisation of secret coercive measures, followed by petitionary matters, the rest civil matters and finally, criminal cases. Criminal cases constitute the largest group, and the goal is for them to be fully electronic by the spring 2024. After implementing the criminal case component, there will be maintaining and further developing the system.

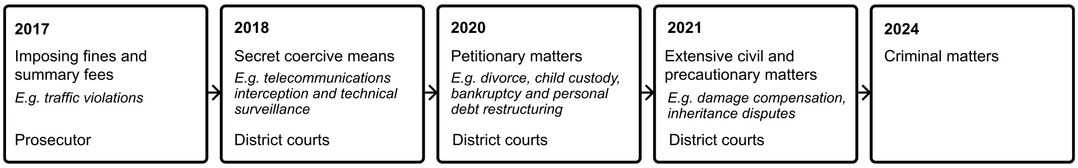

Figure 4. A simplified timeline of AIPA's implementation. Depicts the year when the component has been adopted (excluding pilots) and the organisation in which it has been implemented first.

Even before the implementation of AIPA, there has been a gradual transition to paperless legal work. Around 2013-2014, it was acknowledged that integrating digital work with the legacy systems would be an essential first step to familiarise with digital work and to ease the adoption of AIPA and reduce resistance to the change. This endeavour is called Mini-AIPA.

The discovery that AIPA in development already possessed document management functions led to the incorporation of Mini-AIPA as the first component of the broader AIPA entity. Even if users were not yet utilising the full range of AIPA case management functions, Mini-AIPA allowed for the export of scanned material to be used in processing. This flexibility in incorporating scanned materials was particularly valuable during the transition phase from traditional paper-based methods to electronic workflows.

Mini-AIPA is implemented nationally in both prosecutor's offices and public courts, although its adoption varies from office to office. The decision to implement Mini-AIPA depends on the preferences and readiness of individual offices, with some offices actively embracing it, while others may choose a more cautious approach. The level of benefit perceived by each office influences the extent to which Mini-AIPA is implemented. For example, the Supreme Court quickly adopted Mini-AIPA extensively.

The adoption of AIPA, including Mini-AIPA, is acknowledged as an ongoing learning process. For individuals accustomed to electronic workflows, AIPA may not represent a substantial change, but for those still reliant on traditional paper-based methods, the transition is considered significant. The perception of the transition to AIPA varies among individuals, with some seeing it as a considerable change, especially for those accustomed to traditional paper-based approaches.

3 Methodology

This chapter introduces the research methodology of the study. First, the chapter presents the overall methodological approach. This is followed by a section discussing the chosen data collection methods; AIPA enterprise architecture (EA) description and semi-structured interviews. After investigating how the approaches support the objective of this study, the data analysis process is presented. Finally, the chapter addresses the methodological limitations and ethical considerations relevant to the chosen methods.

3.1 Overall Methodological Approach and Rationale

The research objective is to examine the unintentional consequences of the AIPA project. The study examines how the goals and metrics set for the project have influenced its outcomes. This involves understanding users', designers', and the organisations' role in software development in a legal context. As the objective is large and complex, qualitative empirical research is employed to bring out nuanced and diverse perspectives on the phenomenon.

A qualitative approach is traditionally used for gaining rich in-depth insights into phenomena. Compared to relatively stable phenomena that some fields research, information systems (IS) is a constantly evolving and changing field (Monteiro et al., 2022), necessitating a need for qualitative study. In this case, the focus is on understanding how individuals experience the technology, make sense of it, and how individuals attribute meaning to their everyday practices with the AIPA system. Creating original insight through qualitative study is aimed at deepening the understanding of the ongoing experiences and relationships related to AIPA.

The research adopts a Science and Technology (STS) studies perspective, emphasising the social shaping of technology (SST) as a guiding theoretical framework. STS is an interdisciplinary field that explores institutions, practices, meanings, and outcomes of science and technology and their intricate relationships with humans and values (Felt, 2017). Fundamentally, STS views science and technology as the historical products of design, choices, and investments (Felt, 2017). In other words, within STS, there is a commitment to critically examine scientific and technological practices that influence societal structures by challenging assumptions and studying the broader implications of technologies. Increasingly, the expanding influence of the STS field extends into law and technology studies (Cole & Bertenthal, 2017).

The social shaping perspective has originated as a response to the criticism of simplistic forms of technological determinism (Williams & Edge, 1996). SST is a framework that investigates how social, institutional, economic, and cultural factors have shaped (1) the direction and rate of innovation, (2) the content of technological artefacts and practices, and (3) the outcomes of technological change (Williams & Edge, 1996). Thus, it aims to excel the traditional methods that only evaluate the social impacts of technology by examining the factors shaping the technology itself and how these impacts are realised (MacKenzie & Wajcman, 1985).

Complementing the STS perspective, the research applies Design Science Research (DSR), a distinct research paradigm within the IS field aimed at generating valid knowledge for designing (Van Aken, 2013). Its focus on creating and evaluating artefacts aligns seamlessly with the socio-technical perspective emphasised in this research. Thus, DSR serves as a source for artefact design and evaluation literature for the study. Additionally, this research incorporates insights from User Experience Design (UXD) and Service Design (SD) literature. The ongoing transition within the tech industry toward holistic service journeys is bringing UXD closer to SD while simultaneously, traditional services and new digital channels are getting SD closer to UXD (Roto et al., 2021). In summary, the study's approach aims to comprehensively explore the social shaping of technology while leveraging design principles, bringing together perspectives from STS, DSR, UXD, and SD literature.

The work employs a case study design, concentrating on the AIPA project. A case study provides a versatile understanding of a phenomenon through a framed perspective. Traditionally, a case study combines multiple data sources such as interviews, observations, statistics, and documents, and using only an individual source of data is not recommended (Yin, 2014). The use of multiple data sources, or so-called data triangulation is done in this study by combining both existing AIPA documents and user interviews.

3.2 Data Collection

Considering the study's emphasis on gaining a nuanced understanding of the case in question and its context, interviews prove to be particularly fitting for this endeavour. They facilitate the investigation of personal experiences in the participants' own words and perspectives. Additionally, documents related to the AIPA project were used to gain a better understanding of the background of the project. Thus, the research data for this study was collected using two primary data sources: user interviews and AIPA's enterprise architecture description.

The research material was collected in the autumn of 2023. The documents were accessed in September while the interviews were conducted in November and December. In total, thirteen semi-structured interviews were conducted. The participants belonged to two groups: Group A consisted of eight AIPA system end-users and Group B consisted of five people involved in the design of the AIPA system (see Table 2). Among the end-users, there were six court judges and two court secretaries.

Table 2. Research material.

Primary Research Material	**Secondary Research Material**
A: 8 interviews with AIPA end-users • 6 court judges • 2 court secretaries B: 5 interviews with people involved in the design of AIPA Enterprise architecture description (EA)	Purchase documents of AIPA Available summaries of user studies
Background materials: Two preliminary interviews with the project lead, documents, and publications on the AIPA project, other theses on AIPA	

3.2.1 AIPA Enterprise Architecture Description and Other Documents

AIPA project has many existing documents from the design, implementation, and adoption phases. In spring 2023, documentary data was collected, consisting of material regarding decisions made about the creation of AIPA and its predecessors, along with surveys and usability evaluations conducted in the project. The documents on the enterprise architecture of the system and purchase documents define the initial goals of the project. These documents were used in the work as a primary source of data for outlining the desired outcome of the system. In other words, they were used as a baseline for RQ1 and RQ2, describing the goals and metrics of the system.

During and after the implementation of AIPA, several user feedback interviews and questionnaires were made. The results of these feedback questionnaires were analysed and gathered into documents. The resulting documents include feedback on the usability, user experience, and effectiveness of the AIPA system. These documents were used as a secondary source of data and to elaborate the understanding of the system's goals and used metrics.

3.2.2 User Interviews

Semi-structured interviews are common in qualitative research due to their versatility and flexibility (Kallio et al., 2016). According to Kallio et al. (2016), these interviews excel in investigating how individuals perceive intricate issues, especially those of high complexity. They are valuable when delving into topics that require exploration of a certain topic or concept through the participant's personal experiences. Complex matters such as the adoption of a new technology that affects multiple areas of the interviewees' work fall into this category. While the theme of the study can be challenging to address directly, the impacts of AIPA become evident in the real-life experiences of the system end-users and the people involved in the design. These semi-structured in-depth interviews were conducted with AIPA end-users and people involved in the design of AIPA (see Table 3). The interviewee profiles are further categorised in Appendix C.

Table 3. Interview categories and the number of interviewees.

Interview Categories	Number of Interviewees
A: End-users from District courts • 6 court judges • 2 court secretaries	8
B: People involved in the design of AIPA	5
Total	**13**

The interviews with end-users were scoped to District courts. District courts handle the majority of the legal cases dealt with in Finland and serve as the primary trial courts for various legal matters, including criminal and civil cases, family law issues, and other disputes. The high volume of cases makes District courts a suitable focus for research, as they can potentially benefit significantly from digitalisation projects such as AIPA. In general, the benefit of IT systems is at its greatest where there is a big mass, and in District courts, the volumes of cases are higher compared to other court levels. Focusing on District courts allows for a more manageable and focused scope, offering specificity in exploring the implications of AIPA. Currently, there are 20 District courts in Finland, and they are decentralised across the country (*Käräjäoikeudet*, 2021).

The end-user interviewees for this research were selected to capture diverse perspectives on the use of the AIPA system. Marko Loisa, the project lead of AIPA, played a vital role in the selection process, choosing participants from varying District courts across Finland. Yet, one interviewee was found through mutual acquaintances. The interviewees had a varied representation with distinct work experiences and roles.

All selected end-users use AIPA in their daily work. To note, some of the end-users had direct involvement in the AIPA project, serving in roles such as office instructors, and end-user testers, or participating in various working groups related to the project. This connection to the project may have granted them additional insights into AIPA's development and progress but could have potentially led to a bias in the interviews. The goal of interviewing this group was to gain knowledge on how the users assumed the goal setting, and feedback process and how the end-users perceived the outcomes of the system, which are related to their work practices as well as their organisations practices.

In contrast, individuals involved in the design of AIPA were identified and selected by the thesis writer. The participants were chosen based on the variety of their roles and availability. Participants of this category had been fully employed in the AIPA project at some point, holding responsible roles in its development. This set of participants was expected to offer insights into the underlying motivations and reasons behind goal setting. They were also considered valuable sources of information on the measures of success and the overall outcomes of the system, contributing to a holistic understanding of AIPA's development.

Due to the flexible nature of semi-structured interviews, the duration of the interviews ranged from 45 minutes to one hour. The interviews were recorded and transcribed into text and the data was used anonymously in the analysis. The interview template was constructed of three parts: goal setting of AIPA, metrics and feedback, and outcomes of the AIPA system (Appendices A and B). The interviews were conducted on the premises of Helsinki University, Helsinki District Court, or via Microsoft Teams online meetings. The interviews were conducted by the thesis writer. Researcher Terhi Esko participated in the interviews with the people involved in the design of AIPA.

3.3 Qualitative Content Analysis

The data gathered from the interviews was analysed by using qualitative content analysis. Qualitative content analysis is a method used for analysing diverse data such as verbal and visual data (Harwood & Garry, 2003). Content analysis can organise data into categories which then facilitates a more convenient analysis and interpretation of the information (Harwood & Garry, 2003). Tuomi and Sarajärvi (2019) state that content analysis shares common features with discourse analysis, as they both aim to find meaning from the data. However, content analysis seeks meanings found in the text rather than how meaning is produced (Tuomi & Sarajärvi, 2019). In this study, the approach is ethnographically inspired, highlighting interviewees' experiences. The study adopts a bottom-up approach, centring the interviewees' knowledge at the forefront.

The collected data was analysed using coding. Coding is often represented as a fundamental tool for data processing in qualitative methodology (Coffey & Atkinson, 1996). It can be viewed as one of the tools of data analysis as well as an initial phase in handling qualitative data. The coding was conducted using the software ATLAS.ti. In this study, the overarching categories were 'goals', 'metrics', and 'outcomes'. Within each category, more specific codes were used to capture more granular information. For instance, under the category 'goals', there were codes such as 'paperless legal work', 'streamlining of work', or 'user-centricity'. Although the main categories stemmed from the research questions, the topics brought up in the interviews were categorised without predetermined codes, allowing themes and insights to emerge from the text itself.

As a final step, themes were identified. According to Green et al. (2007), the process of developing themes is not just about describing the problem at hand but rather involves interpreting and understanding the issue being investigated. In the analysis, it was especially useful to count the quantities of codes emerging from the interviews and compare those to the ones in the EA description. This increased the depth of the analysis and provided means to interpret the themes in a way that benefitted the research objective.

3.4 Ethical Considerations and Limitations

In terms of research ethics, a case study is usually prone to a problem of bias due to the nature of the research in which the researcher needs to know the phenomenon and its issues beforehand (Yin, 2014, p. 76). This can be avoided and minimised by data triangulation and maintaining transparency in the data collection and analysis processes.

Regarding interviews, the research follows ethical principles by the Finnish National Board on Research Integrity TENK guidelines (Finnish National Board on Research Integrity TENK, 2019). The participants of the interviews were sent information on the interview context and purpose and were asked to fill out a consent form before the interview. This ensured that the interviewees were fully informed of their rights and offered them transparency of the overall research objective, data usage, and confidentiality amongst other things.

To conclude, the study aims to serve as a case study of a socio-technical phenomenon in the field of justice. The aim of the study is not to provide objective truths, but instead current perspectives on how the end-users and people involved in the design perceive the status of the AIPA project, its goals, metrics, and outcomes. While the results represent common roles in the District courts, the research will inevitably leave out many perspectives.

4 Results

The results are presented in three parts. The first part addresses Research Question 1 by presenting the goals of AIPA. The second part discusses the metrics and ways to measure the success of AIPA and thus answers Research Question 2. The third, concluding part, answers Research Question 3 by examining the unintentional outcomes of AIPA.

The quotes in this chapter are from the interviews but they have been translated from Finnish into English and in some cases, condensed to eliminate speech fillers that bring no added value content-wise. I have aimed to preserve the original tone of the quotes. The results analysed are derived from multiple interviews but due to the nature of qualitative study, they are still individual, subjective experiences.

While I address the goals of the project in this chapter, occasionally the impacts of the goals are also touched on in the accounts, as the distinction between goals and impacts is sometimes subtle. However, the direct and intentional impacts are not presented or analysed in more detail since they are out of the scope of this study.

4.1 Goals of AIPA

The goals of AIPA were broadly categorised into different topics in the enterprise architecture (EA) description, briefly listed below (see Table 4). The table displays the high-level goals addressed in the EA and the number of times they have been mentioned in the description. The EA description mentions overall 82 different goals and shows a high frequency of efficiency indicating a strong organisational emphasis on optimising and streamlining processes. Further, user-centricity plays an integral role in the design.

However, the present chapter does not directly follow the EA emphases. Instead, the emerging themes from the interviews guide the structure of the chapter. These themes are, for example, a unified system, paperless legal work, user-centricity, and quality of services. The decision to structure the chapter around emergent interview themes reflects a qualitative and inductive research approach that prioritises real-world insights over the predetermined EA framework.

Table 4. The high-level goals of the AIPA project according to the enterprise architecture description.

High-level goal	**Times mentioned in the EA**
More efficient operations	37
Needs of end-users	11
Legal protection	8
Fair trial	6
Safety of use and protection of information	5
Effective legal remedies	5
Interoperability	5
Securing operations	3
Right to a court hearing	2
Total	**82**

4.1.1 Unified System Streamlining Work

Section 2.2 introduced the shortcomings of the legacy systems and the pressure to develop digital working practices that initially created the push for organisational change and the AIPA system. According to the goals mentioned in the EA description and in the interviews, the overarching goals are explicit.

> *"In broad terms, there were two main goals: transitioning to digital work in legal matters in the prosecutor's offices and general courts. And then, constructing and implementing an information system that supports this new way of working. Everything done in the project is somehow related to these two main themes." B3*

In the interviews, the goals related to the digitalisation of work and the AIPA system are frequently discussed simultaneously and viewed as overlapping. The interviewees express their understanding of the broader scope of AIPA as a tool for digitalising the legal process, streamlining work, and establishing a unified system for these purposes.

> *"Well, I would somehow think that when the courts are so congested, they've probably aimed at streamlining the work to make different stages faster. And then, indeed, I would imagine that general digitalisation has been a significant factor." A5*

"Well, it's a good starting point that there's just one system." A2

"The technical target was to have one data repository that all legal entities could use and to streamline operations, remove unnecessary steps, eliminate redundant work, and possibly reduce the need for supporting staff." B5

The EA description is aligned with the broader context in aiming to digitalise legal practices. The following goals, from the EA description, outline the vision for the digital transformation of legal proceedings:

- A unified system where the prosecutor's offices, District courts, courts of Appeal and the Supreme Court perform all functions related to legal proceedings in electronic form at the document level, from case initiation to resolution and archiving.
- AIPA-enabled electronic case initiation, processing, resolution, and archiving.
- Creation of common processing models, automating parts of the processing, and establishing predefined processing stages.
- Streamlining and enhancing the efficiency of case processing.
- Streamlining and accelerating session handling.
- Reforming the work and procedures of the judiciary
- Targeting staff resources more towards the substantive handling and resolution of cases.
- Aligning staff skills and tasks in a more purposeful manner
- Utilising electronic document processing to reduce time-consuming routine and redundant tasks.
- Reducing the workload and costs associated with archiving.
- Decreasing the need for copying and postal work.

Related to the concept of a unified system, the possibility to integrate AIPA into stakeholders' systems was viewed as a goal. Courts engage with various stakeholders, including the Police, the Finnish Institute for Health and Welfare, Finnish Customs, and the Finnish Border Guard. It was envisioned that for example, police investigation materials would automatically transfer to court materials and elsewhere, without the need to print from one system and manually enter to another. Instead of having multiple systems that need to communicate with each other, everything would go through one system, AIPA. The implementation of AIPA was thus noted to improve communication among these entities. Furthermore, the emphasis on better integration was observed to reduce the reliance on paper communication and the need to send documents via email, aligning with the idea of structured data and contributing to the concept of paperless legal work.

> *"One important aspect and a practical way to ease the work is the presence of different interfaces in AIPA that connect to various stakeholders. This serves as a crucial facilitator, enabling the smooth exchange of information in both directions. And, of course, it also makes things easier for citizens, ensuring that processes may progress more smoothly and swiftly." B1*

> *"At the moment, most of the documents we receive come to us [the courts] via email. So, our registry office records those matters, and all incoming emails are registered." B3*

4.1.2 A Vision of Paperless Legal Work

One goal was to expedite processing by ensuring that information moves and stays up-to-date easily in electronic form. Thus, processes no longer advance solely through paperware as they are partly established in an electronic system. Paper has been considered essential in legal work (Scheffer, 2007). Reading incoming papers, making notes, delegating papers between the judge and a secretary, and signing papers have played a significant role in legal worker's everyday tasks. Digital tools were thus viewed as potential disruptors of the old way of working.

The interviews with the end-users emphasised a vision of paperless legal work. Paperless legal work is expected to affect both session work and office work and in fact, many interviewees had already witnessed changes in their work in that regard.

> *"I guess the goal was to shift to an electronic system to get rid of paperwork." A5*

> *"The reduction of such mechanical work, so that both secretaries and judges could use their time for more interesting and essential matters. It's not about going through those piles of paperwork." B4*

The EA description acknowledges paperless legal work and mentions goals such as 'less paper communication between offices' and 'reduction in the number of paper documents.' These goals are linked to a category of digital efficiency. Furthermore, the objective was to minimise both the effort and costs related to archiving, with a specific focus on reducing copying and mailing tasks.

In many end-user interviews, the interviewees dismissed the notion of paper when discussing goals but brought up the topic when talking about changes in their work. For example, one of the interviewees explained how they conceptualise their work differently with the electronic way of working. Several interviewees mentioned comprehensive management as one of the challenges in their work, which AIPA already, in some way, helps to alleviate. On the other hand, users anticipated other features in AIPA that would further help ease the management of work. Thus interestingly, the interviewees viewed paperless legal work mainly as a new way of managing work and did not necessarily associate that directly with efficiency although the EA description acknowledges managing the work queues as a means of improving efficiency.

> *"Previously it was really all about paperwork, so sometimes when we talked about a child protection entry, I too would wave it around, saying 'Is this how it looks, what was this evidence you're referring to?' Now it's good if it can be on the screen, so then everyone immediately sees that it's this one." A5*

> *"I have a certain kind of work queue or list of cases under my name; I glance at them several times throughout the day. And I perceive those cases differently. It's a tremendous change. Before, I only had stacks of paper on my desk." A3*

Additionally, in the interviews, it was emphasised that secretaries considered paperless work important because it specifically impacts their tasks. In conclusion, paperless legal work is mainly viewed as a sub-category of improved overall efficiency and has links to streamlined workflows both from individual and organisational perspectives.

4.1.3 A User-centric System

Usability was an essential consideration from the very beginning of the project, stemming from both the Ministry of Justice and the project office. It was identified as one of the key goals in building the AIPA system.

> *"The AIPA system was initially marketed as user-centric. The goal was to develop a system that supports everyday tasks and specifically considers the user perspective in its development to best support daily work." A1*

The interviews with people involved in the project highlighted that the goal of usability in the context of AIPA refers to the system's overarching functionality for its intended purpose, specifically, serving the core functions of legal work. While visual aspects were considered for a pleasant and efficient user experience, the primary emphasis lay on fulfilling the system's fundamental role in facilitating legal tasks.

The EA description defines goals from the users' perspective on several viewpoints:

- Good usability, user-friendly and flexible
- Archive for documents
- Search functionalities
- Distribution of cases
- Personnel's skills and tasks are aligned in a more purposeful manner than before.

Users' perspectives were considered by involving them in the design of the AIPA system. As mentioned in Chapter 2, individuals have been participating in the development of AIPA as Product Owners, in the working groups, and/or in end-user testing.

> *"The idea was to bring judges and secretaries from the field to work on the AIPA project to create the system. These Product Owners hired for the project had the task of developing the system for a specific sector. They made decisions on the direction in which the development should proceed." A1*

> *"So when we have Product Owners, representatives of the user community from the project office; judges, secretaries, presenters, prosecutors, they guide the daily work as Product Owners. And then, user prioritisation and the user's perspective are constantly present in the development work." B3*

The end-user comments emphasised also the importance of communication between a judge and a legal secretary. AIPA enables colleagues to share information on specific cases and thus improve communication.

> *"And then I can mention one more, which is a really handy feature in AIPA, and that's the comment field. So, since I have a work partner who takes care of all the practical stuff, the court clerk, it's really good that we can use the comment field to convey information to each other on a case-by-case basis." A5*

Another topic brought up by end-users was the flexibility of work that AIPA enables. The possibility to work remotely and to take care of tasks remotely was viewed mainly positively in the interviews.

“For my work, the possibility of remote work is really important and, related to that, the flexibility that I can handle all signing-required tasks immediately. I don't have to remind myself to do it later when I go to the workplace; I can take care of all of them right away.” A5

“So, then I might be able to work more from the cottage because I have two screens, and everything is electronically available.” A3

The goals related to user-centricity faced criticism, particularly with an interviewee expressing dissatisfaction with what they perceived as a misalignment in the system’s development priorities. They suggested that the system should have been more closely aligned with the needs of legal users. To support this viewpoint, some comments were made in the interviews to highlight instances where AIPA operates slowly in courtrooms, not meeting user expectations.

“It feels like that system should have been developed more in line with the conditions of the legal user and courtroom work, rather than solely based on the conditions of the system, data protection, security, and system development.” A3

“So, it’s so slow to open each document from there one by one, even if it were to operate at the same speed as in the office, which, for some reason, it doesn’t do in our courtrooms. This may be due to our courtroom technology, which hasn’t been updated.” A1

4.1.4 Cost Savings

The need to cut expenses in public administrations has been prevalent in multiple government programs in the 2000s. According to the interviewees, AIPA is viewed as an opportunity to respond to external pressures for cost savings and productivity improvements. The people involved in the project explained how the public legal sector is committed to productivity improvements and that the overall savings in the administration sector contribute to achieving this goal. Additionally, the EA description acknowledges keeping costs reasonable as a goal related to efficiency.

“But AIPA is seen more as an opportunity to respond to pressures for savings coming from elsewhere and to such objectives.” B3

"Probably, the intention was to achieve resource savings, with the system performing some of the tasks traditionally handled by secretaries. This would lead to a reduction in the workload of legal secretaries, decreasing their number." A1

The question was what the ways would be to achieve cost-saving. Efficiency improvements and manual work reductions were measures to respond to them. Most benefits that digitalisation is assumed to bring are related to the liberating effects of technology. For example, a common assumption is that technology frees up time from mundane tasks and enables people to spend time on tasks that truly matter. This may be an illusion since the adoption of new technologies requires learning, planning, and changing work practices that might have been prevalent for a long time. This was also acknowledged in the interviews.

Some judges reflected that archiving and therefore cost saving did not have personal significance to them, but they considered the overall work-saving aspect of the office crucial and necessary. The court secretaries on the other hand found archiving as a significant means to save time.

"The judge doesn't handle the archiving personally. The fact that we avoid paper archiving doesn't personally matter to me. Of course, from the perspective of the entire agency, it has significance in terms of saving time." A1

"So, there's no need to do manual archiving. I perceive that as a time-saving measure." A7

4.1.5 Improving Quality of Services

One theme that emerged in the interviews was the expectations for AIPA to improve the quality of services that the general courts and prosecutor's office produce. According to the EA description, matters such as improving quality and enhancing equality were viewed as part of AIPA's goals:

- Developing operational methods and improving the qualitative level of solutions
- Shortening the overall duration of legal proceedings
- Enhancing equality in processing times
- Facilitating communication between the client and the authority handling the case
- Including a party portal, assistant portal, and authority portal for case tracking and information exchange to AIPA.

The goal was to minimise the number of errors. Renewing the processing chain was viewed to reduce the occurrence of human errors and thereby enhance legal protection and legal certainty.

> *“[...] there was an expectation that when all the necessary data is in electronic form, the number of unnecessary errors can be reduced. This, in turn, aims to improve legal protection by minimising simple mistakes.” B2*

> *“There were very old systems where information didn’t flow between them smoothly. There was a need to... I can’t say exactly if it transferred somehow, but information had to be moved from one system to another. Then the problem arose that the information might not have transferred correctly, and that weakened legal certainty.” B5*

According to the interviewees, it was viewed that the end-users of the legal process such as citizens would benefit greatly from enhanced quality of services when the legal process is more standardised and there is more time to formulate solutions.

> *“That, in a certain way, the use of the system might force it so that there isn’t as much variation anymore in how work is done. Even in document management, there will probably be more standardised guidelines on how to proceed and perform tasks. In that way, I would see that it might be possible that outwardly, our operations appear more consistent. And the documentation that comes from here might then be less variable.” A3*

> *“Certainly, one could say that there is the opportunity and time to formulate solutions of sufficient quality, always in accordance with the nature and scope of the matter. Quality with sufficient efficiency.” A6*

> *“The goal of improved usability and more efficient work is evident in faster case resolutions. Cases are also of higher quality as the system can perform certain automatic checks, eliminating the possibility of manual errors. It’s a win-win situation in that sense. Working is more enjoyable for users, and customers also benefit.” B3*

> *“If we talk about a case discussed in a session, it should be thoroughly prepared both before and after that session. When the case has been well-prepared, it is easier to handle, and then a high-quality decision can usually be produced more quickly.” A6*

In conclusion, the interviewees perceived potential in AIPA in standardising work processes and enhancing consistency, particularly in document management. The focus on enhancing efficiency was seen as having a positive impact on both system end-users such as judges and secretaries as well as citizens.

4.1.6 Conclusions on Goals

The interviews revealed that, especially in the beginning there were slightly different views on what goals could and should be pursued. As a result, the goals changed and evolved over the years. Those involved in designing the AIPA system believed that one reason for this was a lack of realism about what was practically feasible. This was influenced by the fact that the understanding of judges and secretaries, and then the consultants' knowledge of the technical possibilities, did not quite align during that stage.

> *"Perhaps initially, the thought was to easily accommodate everything within one system, and then it has been realised that it might not be so easy to bring everything into one system. So, overly optimistic might be the word that I was looking for concerning those goals." A8*

> *"I have retrospectively returned to some initial target state descriptions, what we aimed for. There, both very trivial and easy things that are somehow realised quite easily, self-evidently, coexist. And then in the very next sentence, there might be something 'UFO', something that we know, okay, if we wanted this kind of automation, whatever is described there, what it would require. It would require such data, such reasoning logic, such performance, which is not realistic at all concerning the current AIPA." B2*

One reason for ambitious goal setting was the history of the legacy systems. According to the interviewees, technical solutions, for example, were initially designed ambitiously because the shortcomings of legacy systems were known.

> *"I think that there should always be an option for individuals to submit paper documents, such as written summons or responses, so it's not entirely possible to assume that everyone can engage in electronic services. At least not yet, maybe it could be the case several decades from now." A5*

In addition to the goals mentioned in the previous sections, other goals existed. The number of goals in the EA description is high and some of the goals did not receive as much attention in the interviews as others. Some goals, for example, goals on reliability were frequently mentioned in the interviews. The interviewees mention that there have been some issues in the current versions of AIPA that the system has not worked as intended or the whole software has been down. Since the legacy systems have been in use, this has not posed a large issue because in such cases, it is possible to continue work in another system. However, after AIPA is fully implemented and legacy systems are no longer in use, the end-users worry that.

> *"I would see that especially when all the cases are in AIPA, reliability would be the top priority [of goals]. It cannot happen that one morning you try to log in [to AIPA] and it doesn't work." A6*

4.2 The Measures of Success of AIPA

Throughout the AIPA project, the project office consistently prioritised the evaluation of project progress and actively sought user feedback. Evaluating the results of information systems is essential because the systems are mainly social systems that incorporate a technical aspect (Osita-Ejikeme, 2021).

4.2.1 System Usability Score (SUS) and Surveys

One of the main usability measurements of AIPA was the System Usability Scale (SUS). SUS is a questionnaire consisting of 10 questions that users answer on a scale, and the scores are then calculated to assess the overall usability of a system (Brooke, 1996). Thus, the overall usability is displayed as a SUS score, ranging from 0 to 100 where higher scores indicate better usability.

In AIPA, the SUS tests played the role of a compass, guiding and helping the people working on the project understand how users experience the system in different phases and when certain functionalities were released. The scores obtained from the questionnaires throughout the project ranged from "okay" (40) to "almost excellent" (84) depending on the feature measured. This gave the project office an estimate of how well things were progressing and what should be prioritised in the development.

> *"So, thinking about what influences this [SUS score] and what are the functions that bring the most significant usability benefits and improvements in user experience. These can then be prioritised on the development backlog within that agile framework." B3*

"Roughly, a questionnaire provides information about what, and an interview explains why. So, qualitative, and quantitative aspects go hand in hand." B4

The interviewees mentioned that the SUS metric helped the project to understand the factors influencing usability. In other words, higher scores indicated that the functionalities released were satisfactory whilst lower scores served as triggers to search for more information on what affected the scores. SUS metrics and in-depth interviews were viewed as complementary methods to gather user feedback. The combination of quantitative questionnaire data and qualitative interview data led to a more comprehensive understanding of user experience. Having a holistic view of the user experience is in line with Brooke's (1996) view that the usability of an artefact is always defined by the context in which the artefact is being used.

Nearly all end-users had answered questionnaires regarding AIPA and the new work methods. The interviewed end-users believe that improvements to the system have been made based on the feedback. However, the opinions on the questionnaires and their importance vary. Also, some interviewees had a role where they directly communicated with the project office and could express their thoughts directly to the people in the decision-making roles. Thus, the interview pool does not fully reflect the opinions of a regular end-user who does not have this possibility.

"Well, I'm generally happy to respond to them [questionnaires] because, of course, I hope that based on them, possible improvements will be made." A6

The SUS metric received some scepticism both from the people working on the project office and the end-users. The criticism from people working on the project mainly acknowledged that the depth of the questionnaires might not reveal the main issues and concerns of the users. Furthermore, usability is acknowledged as a goal but simultaneously viewed as a challenging goal when dealing with complex processes. The implementation of usability into interfaces becomes difficult when dealing with intricate functionalities. Despite some criticism, the interviewees considered the SUS metrics a useful and valuable metric for the process. One end-user highlighted limitations in the survey questions, suggesting that they may not provide adequate room for users to address specific problem areas within the AIPA project.

"Probably SUS measurements are better than nothing. [...] Personally, I feel that the SUS measurement may not be very substantial. It's more of a subjective measure, but it doesn't tell much about

whether the actual goals regarding the ease, accuracy, and clarity of processing have been fulfilled." B2

"However, usability was a central goal. Yet, this poses a kind of dilemma, in that if the process is very complex, where every nuance needs to be embedded as it has always been, implementing usability into the interface becomes genuinely challenging. A complex functionality simply cannot be implemented in a straightforward manner." B5

"Well, let's say that the way the questions are framed is often such that there might not be room to provide all the feedback that could be given. So, there may be specific problem areas within the AIPA, which the survey creators are aware of, and the questions are crafted in a way that makes it difficult to address the actual issue." A1

4.2.2 User Interviews and Usability Tests

Interviews were conducted throughout the project and user interviews were held both with individuals and groups from distinct roles and court levels, including judges and clerks from District courts, courts of Appeal, and the Supreme Court. The involvement of various stakeholders was considered important for the project. The interviewees highlighted that the fundamental purpose was to assess the functionality and effectiveness of the presented content and to gather user feedback and impressions from the end-users.

"The main goal of usability testing is to determine whether what we present actually works or not. Another goal is to capture some user feelings about what kind of thing of this type is coming." B4

The design process was aimed to be iterative, avoiding spending too much time on planning. Instead, the focus was on getting feedback on the system quickly. Even rough prototypes were shared with a low threshold which provided necessary information on the usability. This approach was considered useful for the project office.

The interviews conducted for the project included both group and individual sessions. As discussed in the preceding section, alongside the System Usability Scale (SUS) evaluations, it was crucial to have the expertise of a usability professional to observe the process. The comments on giving feedback varied among the end-users.

"But in my opinion, especially when there were those AIPA clinics, and it was in the testing phase, I think they took the user experience

and the user's opinion seriously. They wanted to hear it, and probably, I would assume, they did whatever they could." A5

"So, overall, a pretty good experience [of giving feedback], but I'm not entirely sure if the observations I made really had any significance." A8

The quotes highlight the importance of user feedback in the development and testing phases of the AIPA project. While one interviewee perceived a positive approach to user input, the other expressed uncertainty about the concrete impact of their observations.

4.2.3 Insights from Project Management Tools

Multiple project management tools were used to get more insight into the project's development. Budget tracking was emphasised. One notable method involved the use of a forecasting tool, considered as a metric, to address challenges in determining budget and time allocation within the agile model. According to an interviewee, this forecasting tool measured the current implementation capacity of teams against the remaining scope. This tool was viewed as helpful when managing the project.

"We naturally have various budget tracking methods, and then we have our own, which could also be considered a metric, but it's a forecasting tool. In an agile model, one challenging aspect is when there's a lot to do, determining how much budget and how much time is needed to build the entire structure [...] We have a separate forecasting tool where we measure the current implementation capacity of the teams compared to the remaining scope." B3

Two cost-benefit analyses were conducted to measure the impact. The emphasis was on assessing the functionality of the AIPA system and comparing digital work to traditional paper-based methods. This provided insights into the anticipated benefits of the AIPA system.

Furthermore, various tools and measurement methods were discussed. For instance, an impact assessment was carried out each time after a release. The assessment focused on the current state while working with legacy systems and processes entering production at that time. Additionally, diverse metrics, including time estimates for different stages in processing a case with legacy systems versus AIPA, were used for evaluation.

4.2.4 Conclusions on Metrics

The project's long duration and extensive scope inherently pose challenges to consider what the core metrics for the project could be. As stated earlier, usability was the focus, although it is a vast area itself. The interviewees reflected on the future directions for measuring. One interviewee discussed the management of scope in large development projects such as AIPA. Another interviewee brought up the topic of knowledge-based management. Since the entirety of the AIPA system is not yet in use, the interviewee suggested that after the system is implemented and fully in use, it becomes easier to evaluate its effectiveness.

> *"The management of scope is something I've been pondering about—what could be helpful in that regard. How can we envision the future years ahead in a large development project? How much time, budget, and team execution capability are needed, and how will it evolve?" B3*

> *"Then, when the system is in use, it's much easier to see what works and what doesn't. And we can, in a way, target the development efforts based on real information." B2*

In summary, the AIPA project is large which indicates that managing the entirety, time, finances, and team performance, is essential. It was understood that the project was not solely about technology and technological metrics. Instead, it is a journey exploring how technology, user experience, and good project management come together.

4.3 Unintentional Consequences

The interviews about AIPA revealed several outcomes closely tied to previously discussed goals (Section 4.1). AIPA has changed how judges work on cases, handle documents, communicate, and work remotely. While direct consequences are intriguing, what's more fascinating is the unintentional consequences mentioned by interviewees. Since the AIPA system as a whole has not yet been implemented, it is challenging to try to understand its true unintentional effects in the long term. Nonetheless, the interviews provided valuable insights.

4.3.1 Digital Transformation of Work Practices

In the pursuit of a transition to digital work practices within general courts and prosecution offices, the implementation of AIPA has been met with both anticipation and resistance. Interviewees expressed their concerns about the adoption of AIPA. There exists a looming threat that AIPA might not fully fit the existing ways of working. Interviewees are worried that not all people will accept AIPA, and they might stick to their old ways of working which could lead to AIPA being relegated to a secondary role.

> *"So, the threat scenario would, in a way, be that AIPA wouldn't break through. In the sense that people would forcibly cling to their old work methods." B2*

One interviewee reflected on the intended goal of AIPA as the primary document management platform. However, the acknowledgment that documents are frequently worked on elsewhere, such as network drives, reveals a misalignment between the system's intended functionality and its actual usage. Another interviewee expressed the difficulties related to document management. The goal was for AIPA to be so functional that users are inclined to use it primarily, but the reality suggests a different narrative.

> *"And perhaps I already recognise that the goal was to shift towards using AIPA as the document management place. And now I acknowledge that quite a lot of those documents are actually worked on somewhere entirely different, namely on network drives. And that probably wasn't the goal. The goal was that the system is so functional that you feel inclined to use it primarily." A3*

> *"In AIPA, managing documents is more difficult compared to using a network drive. On a network drive, we can arrange documents into folders, making it easier to visually comprehend the content." A1*

One interviewee brought a perspective that mitigates blame on AIPA. They acknowledge that diverse working methods have always existed, suggesting that the challenges may not solely be the system's fault but could additionally be attributed to the inherent diversity in how individuals approach their work.

> *"I don't think it's AIPA's fault, so to speak, that people have different working methods. I believe people have always had different working methods." A4*

The topics revealed in the interviews call for further exploration into addressing the gaps between intended functionalities and user practices and refining AIPA to align with the diverse working methods of its users.

4.3.2 Product Owners' Role in the Implementation of AIPA

In the development of AIPA, subject matter experts such as court judges and court secretaries played a significant role in the design of the system.

These individuals were familiar with the practicalities of their work and were tasked with translating the user perspective into the AIPA system as Product Owners. These people working as Product Owners came along to the project voluntarily. As the project progressed in the ten years of development, some comments were made on the changing roles of Product Owners, losing touch with the practical needs over the years. Additionally, one interviewee highlighted the disruption in communication and connection between system developers and users, indicating a breakdown of communication over time.

> *"What was initially good when the AIPA project was being implemented; they brought in these Product Owners from the field. The original idea was to gain practical insight, but now the problem is perhaps that as this AIPA project has been ongoing for ten years, those individuals who initially transitioned from the field to the project are no longer in tune with the practical needs. The substantive expertise inevitably diminishes when bound to the technical side." A1*

> *"What has been prevalent for me in all this work with AIPA or in the planning of work methods is precisely the prevailing feeling or thought that those who develop the system, even if there are those with a judicial background, at some point along the way, the connection and communication between them and those who will use the system have been disrupted. And that has been really harmful." A3*

The interviewees reflected on the nature of the court judge's work which requires attention to detail. Subject matter experts had to quickly grasp a significant amount of technical knowledge and there was a need for cross-cultural communication between the technical experts for example data analysts and judges.

> *"In criminal cases, there are a lot of small details that must be remembered. [...] It quickly fades from memory when you're not constantly grappling with them." A1*

> *"Of course, I can think that if we have a criminal case, there will always be at least one charge. I can think about functional aspects like these, but still, the successful transformation of everything into a genuinely logical data model has been quite a challenging task." B2*

One interviewee expressed linguistic and cognitive disparities, suggesting that misalignments in words or sentences may stem from differences in thought patterns and comprehension.

"Those words or sentences did not align. This is also a linguistic issue, perhaps stemming from differences in thought patterns or even in linguistic comprehension. It might be related to the fact that individuals oriented towards information systems can mentally visualise the process, foreseeing how it unfolds, whereas those unfamiliar with system development may only comprehend it when observed in practice." B5

In conclusion, the interviews revealed that delegating responsibilities to judges and secretaries for directing the design work were viewed mostly positively. However, there is a possibility to result in unintended outcomes. The Product Owners might lack the specific expertise in software development needed for the job. Furthermore, the long duration of the project may directly contribute to the emergence of unintended consequences, such as a decline in substantive expertise.

4.3.3 The Slow Adoption of AIPA

The interviews revealed that the slow adoption of AIPA has received criticism among the end-users. Staff members have been repeatedly instructed to reserve calendar space for the release of the next feature of AIPA, criminal matters, only to receive last-minute information that the system is not ready. This has led to frustration among staff members, creating a sense of disbelief about the actual implementation.

"We have now had to instruct the staff three or four times to leave space in their calendars for the potential Criminal AIPA, and then, a couple of weeks before the planned use, we get notified that the system is not ready, so forget about it. There has probably been some frustration among the staff for this reason and a bit of disbelief about whether it's really going to happen." A1

"Well, of course, the credibility of AIPA has been somewhat undermined by the fact that we were supposed to adopt the system a long time ago. It creates a feeling as if we were supposed to implement it again in the fall, and we had prepared well for it. So, we cleared our schedules, ready to start using AIPA. We were prepared. The training sessions had been conducted and so on. It was a bit like taking away candy from a child." A7

"It's because the system was supposed to be ready years ago. And it [the release date] has always been changing. Even now, it was supposed to be implemented in the fall. I don't know if it has changed

> *since they started the training sessions. Some say that people's opinions might change when they start using it. But it's quite unfamiliar to everyone, except, of course, on the civil matters side. Yet, even from there, perhaps more negative than positive feedback has been received about it." A2*

The delays and uncertainties have contributed to changing perceptions. One interviewee mentioned that the delays might give a feeling that there are quality issues with the system. Additionally, despite positive training experiences and the system being perceived as user-friendly, the constant delays have created unfamiliarity and scepticism towards the system.

> *"It's a kind of mental anticipation that is associated with it. Now it's coming, and then, ah, it didn't come after all. It also gives users a signal that something problematic is on the way because this happens again." A7*

> *"What we have presented about Criminal AIPA in training, we provided training to one local training agency within our department in the fall of 2021. The reception was relatively positive. It was perceived as a fairly user-friendly system, and making logical decisions there was considered straightforward. At least, I haven't heard very negative feedback about it." A1*

The people involved in the design discussed the challenges that were related to the long duration of the project. One interviewee expressed that one lesson learned was that any further development projects should be smaller in scale, both temporally and financially.

> *"Because perhaps the most important lesson at this metalevel of AIPA is that we never want such a large project again. All subsequent actions must be smaller both in terms of time and money." B2*

5 Conclusions

This chapter concludes the main results of the study, presented in Chapter 4. The goal of this work was to empirically study the goal setting and metrics of the AIPA project and reflect on the possible emerging unintentional outcomes of the project. The study's thesis is that the project development has focused on measuring short-term goals, which, however, has not provided sufficient insight into how well the long-term objectives are achieved. This has led to the emergence of unintended consequences.

The thesis is based on the notion that user-friendliness has played a crucial role in the project, evident in both interviews and the enterprise architecture description. User involvement has been highly significant for the project, driven by previous experiences with shortcomings in the legacy systems. The goal of user-friendliness has been measured mainly through System Usability Scale (SUS) evaluations, highlighted in interviews by both end-users and people involved in AIPA's design. SUS evaluations were considered the primary method for measuring usability, guiding project development, and aiding in feature prioritisation. According to the interviews, the SUS metric helped the project to understand the factors influencing usability in a way that higher scores indicated that the functionalities were satisfactory whilst lower scores served as triggers to search for more information on what affected the scores.

While SUS assessments have been supplemented with interviews, it appears that SUS metrics have mainly been used for project guidance. The scores were perceived as an excellent tool for considering usability during project development. However, positive SUS results do not necessarily guarantee overall long-term goal achievement. End-users noted that the depth of SUS questionnaires might not reveal the functionalities' main issues, and individuals involved in design acknowledged the challenge of implementing usability in complex interfaces.

Concerns were raised regarding the risk of focusing too much on details and individual features, potentially leading to dysfunctionalities and issues in adopting new working methods. Such examples were highlighted in the interviews. As stated by the interviewees, there is a risk that the users might stick to their old ways of working which could lead to AIPA being relegated to a secondary role. In conclusion, the study reveals unintended consequences related to the overall perception of AIPA's functionality and services from the users' perspective. The issues extend beyond user interface problems but rather relate to the broader user experience of the AIPA system.

6 Discussion

This chapter further discusses the results and explores the implications of the study for both public IT projects and academic research. The validity of the research is then considered. Lastly, future research opportunities are considered. To provide the practical insight from the AIPA project, the results of the empirical research (presented in Chapter 4) are reflected to the literature (Chapters 1 and 2) and further discussed in this section. As presented in Section 1.2, the research questions set for the empirical research were as follows:

RQ1: What have been the design goals of AIPA?
RQ2: What are the key metrics used to measure the success of the goals?

RQ3: What are the unintended consequences of the AIPA project?

To shortly summarise the results from Chapter 4, the AIPA project had multiple goals. Most of the goals were related to making operations more efficient by a unified system that streamlines work, by getting rid of paper in legal work and by focusing on user-centricity and quality of services. The work of legal workers such as court judges and secretaries has transformed significantly by the adoption of the AIPA system. Throughout the project, its development has been measured with project management tools, user surveys and interviews. The shift to a digitalised way of working has required a strong change in the overall operations of the courts. The end-users' feelings towards the system are mainly positive and AIPA is viewed as a necessary step towards digitalised courts. However, the results showed some unintended consequences ranging from work practices to the slow adoption of AIPA and the role of Product Owners in the project. These unintended consequences are further reflected to the hypotheses of the study which were as follows:

- The goal-setting influences both intentional and unintentional outcomes.
- If the evaluation primarily considers the set goals and their fulfilment, it may overlook the broader outcomes beyond those goals.
- An evaluation, considering both goals and unintended consequences, will provide a more nuanced understanding of the project outcomes.

Regarding the first hypothesis, based on the findings, the goal setting has played a significant role in both intentional and unintentional outcomes. Firstly, the initial setup of the project appears to have influenced the outcome of the project. As discussed in Section 1.1, Pöysti (2018) points out that efficiency discourse is particularly prevalent in Finland. It appears that efficiency thinking has influenced the principles of AIPA's enterprise architecture (EA) description. Efficiency related goals are emphasised in the EA description. However, based on interviews, user-centricity was a key goal of the project and in development, the AIPA project office actively incorporated end-users in the process. This could mean that the project has tried to incorporate a lot of different interests in the project simultaneously. According to Reiling (2009), one reason for this is the diverse interests within public administration, although it can create complexity in projects.

The project had numerous goals. As Reiling (2009) mentions (Section 2.1.1), refusing to reduce the complexity of an information system can lead to technically and financially unmanageable projects. However, according to the interviewees, the functionalities of the system could have been developed more in line with the conditions of the legal user instead of focusing on technology (Section 4.1.3). There is a possibility that the functionalities were prioritised in a way that compromises the system's overall comprehensiveness which eventually influences work practices. An example was the use of network drives in an unintended way (Section 4.3.1). This may not be a significant problem if document management features in the software are further developed, and users fully transition to using AIPA. However, there is a risk that users' new practices do not align with the intended ones, and users cling to their learned work methods.

The AIPA project office and Product Owners have had a significant role in prioritising and guiding the feature development (Sections 4.1.3 and 4.3.2). Product Owners have had to grasp technical expertise quickly. When discussing the topic in interviews, the desire was expressed for the project to focus even more on communication between the project office, Product Owners, and end-users. Communication is particularly crucial due to the project's prolonged duration and the continuously changing relevant legal expertise.

The second hypothesis suggests that if the evaluation primarily focuses on set goals and their fulfilment, it may overlook broader consequences beyond the goals. In AIPA's case, the evaluation primarily concentrated on usability. This contrasts with the EA description, where efficiency is considered more SUS evaluations gauged user satisfaction with different parts of the system. The System Usability Scale (SUS) is a widely used metric for perceived usability of a system (Brooke, 1996). However, interviewees viewed that the SUS measurement was not comprehensive enough to determine whether the actual goals regarding ease, accuracy, and clarity of processing had been fulfilled. People involved in the design of AIPA noted that SUS results helped guide the project, with good results indicating satisfaction and lower results prompting improvements and further user feedback (Section 4.2.1). However, it is worth considering whether the SUS metric is broad enough to determine the overall usability of the system or the user's experience. As mentioned in Section 2.1.3, a more comprehensive assessment of social impacts would be beneficial and could complement SUS measurements.

Comprehensive evaluation is also tied to the third hypothesis, suggesting that an evaluation considering both goals and unintended consequences provides a more nuanced understanding of the project's results. Literature supports this notion (Section 2.1.3) that considering broader social factors in evaluation can minimise the impact of unintended consequences. Evaluating unintended consequences is vital because they can be as important as the intended ones (Orlikowski, 1996).

6.1 Implications for Public IT Projects

Finland is among the most digital countries worldwide (*Digital Economy and Society Index (DESI)*, 2022). Thus, the AIPA project and the results of this study can serve as lessons learned for ongoing and future domestic and international public administrative projects. Reiling (2009) notes how learning from experience is essential for successful IT implementations. Learning from others' experience can be done by observing successes and by studying failures. Given the societal significance of the administration of justice, the study underlines the importance of fostering dialogue among various public administration stakeholders, especially between different government sectors such as ministries. The exchange of knowledge has the potential to enhance the quality of digitalisation projects and prevent the repetition of mistakes. The interviews show that those involved in the project were aware of similar efforts in other European countries and acquainted with projects for instance in Sweden. Thus, there is potential to benefit from cooperation both nationally and globally.

I propose that the project would concentrate more on developing a common language and understanding between users and people involved in the design. As stated in the literature review, software design culture is not the same as legal work culture (Section 2.1.1). Interviews highlighted cultural differences between law and technology, and these need to be considered already in the early stages of the software development. The focus on translating the legal and design goals could additionally help prevent the project schedule from stretching too much. The project's long duration may have contributed to the emergence of unintended consequences. Additionally, a shorter duration could reduce general scepticism toward the future system. This was acknowledged by the project office.

Some of the emerging themes are already familiar phenomena to the project office, and efforts have been made to address them during the project. For example, interviews revealed that the scope of the project and the challenges it brings are well-known, and in the future, it is hoped that projects will have a smaller scope. The project's scope is closely linked, for instance, to the duration of the project. Thus, this study aims to spark conversation for future dialogue.

6.2 Implications for Research

The research also aims for an academic contribution. Koulu and Hakkarainen (2018) mention bridging the gap between academic research and practitioners' insights, a highly anticipated aspect in legal digitalisation studies. This study aims to supplement empirical knowledge regarding the digitalisation of law. As noted in Section 1.1, despite interest in new working methods and technologies in Finland, the limited amount of research on digitalisation in the legal context is surprising (Kontiainen et al., 2021). Therefore, the main contribution for this study is to provide this knowledge.

The research and the research materials collected during it contribute additionally by revealing how digitalisation transforms people's perception of the legal profession, their professional skills, and their professional identity. Thus, the study has revealed topics related to legal worker's changing work. Furthermore, the research lays the groundwork for a more in-depth study of long-term consequences of digitalisation of justice.

6.3 Validity of Research

The validity of research can be evaluated in terms of internal and external validity. Internal validity refers to the accuracy and truthfulness of the results (Johnson, 1997). One strategy to improve internal validity is data triangulation which means that the researcher uses multiple sources of data in a single research study (Johnson, 1997). This work relies on two primary sources, interviews, and the enterprise architecture description of AIPA.

External validity on the other hand, explains how generalisable the results are across other contexts or groups of people (Johnson, 1997). Johnson (1997) states that typically generalisability is not the major purpose of qualitative research because often the participants are rarely randomly selected which weakens the population validity i.e., generalising from a sample to a population. To address this, the study has aimed to include variation within the sample by selecting interviewees from various District courts and different roles. The data gathered is rich, providing viewpoints from all around Finland and different user roles.

However, exploring digitalisation solely from a national administrative discourse can create an illusion of the uniqueness of the issues discussed (Pöysti, 2018). Despite the similarities in the technologies globally in use, the transformation of institutions adopting new technologies in each country is different and is affected by the traditions and history of the country's society, law, and administration (Pöysti, 2018). Thus, the research on AIPA can be especially useful in the Nordic context where the countries share similarities in societal structures and adoption of digital tools.

Furthermore, the interviewee selection process, explained in Chapter 3, has aimed to be as transparent as possible. Having this information, the readers will be able to make decisions about to whom the results may be generalised (Johnson, 1997). While a larger sample could enhance validity, due to the constraints of time and scope in this study, thirteen interviews were considered sufficient. For further validation, future research could explore the topic through additional interviews.

6.4 Future Research

This study provides insights into the field of digital transformation in the judiciary from the perspective of goals, metrics, and unintentional consequences. Multiple directions for future research come to mind. Firstly, the intentional consequences of the AIPA project could be discussed further and elaborated. While some of the direct and intentional consequences are touched on in the results, due to the scope of this study, they are not presented or analysed in more detail. However, the interview materials revealed many direct outcomes such as changes in court judges' and secretaries' work practices. Thus, paperless legal work and division of work could be topics of interest for future studies.

Secondly, delving deeper into the AIPA project's long-term impacts would be useful. The AIPA system is currently under deployment and therefore evaluating long-term impacts is too early. Evaluating the long-term impact of AIPA however, would help to understand how well the system works over time. Lastly, Helsinki University Legal Tech Lab's one objective is to emphasise the needs of law's end-users and how the digitalisation of law can provide opportunities in that area (Koulu & Hakkarainen, 2018, p. 21). While this research focuses mainly on established practitioners, the citizens' point of view would be a valuable addition to the research. The AIPA project's vision of creating a portal in which citizens can initiate and monitor the status of their cases is worthy of attention. This could be explored in themes such as ‘access to justice’ or in understanding how citizens are considered in the technical development of AIPA.

References

Aineistopankki—Kohdearkkitehtuuri. (2013).

Bijker, W. E., & Law, J. (Eds.). (1992). *Shaping technology/building society: Studies in sociotechnical change* (Nachdr.). MIT Press.

Brooke, J. (1996). SUS - A quick and dirty usability scale. *Usability Evaluation in Industry*, *189*(3), 189–194.

Coffey, A., & Atkinson, P. (1996). *Making sense of qualitative data: Complementary research strategies* (10. pr). Sage.

Cole, S. A., & Bertenthal, A. (2017). Science, Technology, Society, and Law. *Annual Review of Law and Social Science*, *13*(1), 351–371. https://doi.org/10.1146/annurev-lawsocsci-110316-113550

Contini, F., & Reiling, D. (2022). Double normalization: When procedural law is made digital. *Oñati Socio-Legal Series*, *12*(3), 656–690. https://doi.org/10.35295/osls.iisl/0000-0000-0000-1305

De Leoz, G., & Petter, S. (2018). Considering the social impacts of artefacts in information systems design science research. *European Journal of Information Systems*, *27*(2), 154–170. https://doi.org/10.1080/0960085X.2018.1445462

Di Natale, L. J., & Cordella, A. (2022). Digitising the Judicial Sector: A Case Study of the Dutch KEI Programme. In R. Krimmer, M. Rohde Johannessen, T. Lampoltshammer, I. Lindgren, P. Parycek, G. Schwabe, & J. Ubacht (Eds.), *Electronic Participation* (Vol. 13392, pp. 139–153). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-23213-8_9

Digital Economy and Society Index (DESI). (2022).

Doherty, M. (2021). The relationship between legal and design cultures: Tension and resolution. *Legal Design: Integrating Business, Design and Legal Thinking with Technology. Edward Elgar Publishing*, 32–55.

Fabri, M. (2009). E-justice in Finland and in Italy: Enabling versus constraining models. In *ICT and innovation in the public sector: European studies in the making of e-government* (pp. 115–146). Palgrave Macmillan UK.

Felt, U. (Ed.). (2017). *The handbook of science and technology studies* (Fourth edition). The MIT Press.

Finnish National Board on Research Integrity TENK. (2019). *The ethical principles of research with human participants and ethical review in the human sciences in Finland*. Finnish National Board on Research Integrity TENK. https://tenk.fi/en/ethical-review/ethical-review-human-sciences

Fountain, J. (2005). Central issues in the political development of the virtual state. *The Network Society from Knowledge to Policy*, *149*.

Friedman, B. (1996). Value-sensitive design. *Interactions*, *3*(6), 16–23. https://doi.org/10.1145/242485.242493

Green, J., Willis, K., Hughes, E., Small, R., Welch, N., Gibbs, L., & Daly, J. (2007). Generating best evidence from qualitative research: The role of data analysis. *Australian and New Zealand Journal of Public Health*, *31*(6), 545–550. https://doi.org/10.1111/j.1753-6405.2007.00141.x

Hagan, M. D. (2018). *A Human-Centered Design Approach to Access to Justice: Generating New Prototypes and Hypotheses for Intervention to Make Courts User-Friendly*.

Harris, L. C., & Ogbonna, E. (2002). The Unintended Consequences of Culture Interventions: A Study of Unexpected Outcomes. *British Journal of Management*, *13*(1), 31–49. https://doi.org/10.1111/1467-8551.00221

Harwood, T. G., & Garry, T. (2003). An Overview of Content Analysis. *The Marketing Review*, *3*(4), 479–498. https://doi.org/10.1362/146934703771910080

Hussain, W., Shahin, M., Hoda, R., Whittle, J., Perera, H., Nurwidyantoro, A., Shams, R. A., & Oliver, G. (2022). How Can Human Values Be Addressed in AgileMethods A Case Study on SAFe. *IEEE Transactions on Software Engineering*, 1–1. https://doi.org/10.1109/TSE.2022.3140230

Hyysalo, S., & Juntunen, J. K. (2024). Series of configurational movements: User activities in technology generalization. *Technological Forecasting and Social Change*, *200*, 123158. https://doi.org/10.1016/j.techfore.2023.123158

Johnson, R. B. (1997). Examining the Validity Structure of Qualitative Research. *Education*, *118*(2).

Kalakoski, V. (2014, February 14). Tietojärjestelmien ongelmat ja oikeuslaitos. *Juristiuutiset*. https://juristiuutiset.fi/tietojarjestelmien-ongelmat-ja-oikeuslaitos/

Kallio, H., Pietilä, A., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, *72*(12), 2954–2965. https://doi.org/10.1111/jan.13031

Käräjäoikeudet. (2021, June 11). https://oikeus.fi/tuomioistuimet/fi/index/tuomioistuinlaitos/tuomioistuimet/yleisettuomioistuimet/karajaoikeudet.html

Koch, S., & Bernroider, E. (2009). Aligning ICT and legal frameworks in Austria's e-bureaucracy: From mainframe to the Internet. In *ICT and innovation in the public sector: European studies in the making of e-government* (pp. 147–173). Palgrave Macmillan UK.

Koivisto, I. (2014). Varieties of Good Governance: A Suggestion of Discursive Plurality. *International Journal for the Semiotics of Law - Revue Internationale de Sémiotique Juridique*, *27*(4), 587–611. https://doi.org/10.1007/s11196-013-9329-6

Koivisto, I., & Koulu, R. (2020). *Miten hyvä halinto digitalisoidaan?: Haaste oikeustieteelliselle tutkimukselle*.

Kontiainen, L., Koulu, R., & Mäihäniemi, B. (2021). Oikeuden digitalisaatio ja juristityön arkipäivä. *Lakimies*, *119*(2), 173–199.

Koulu, R. (2018). Digitalisaatio ja algoritmit – oikeustiede hukassa? *Lakimies*, *116*(7–8), 840–867.

Koulu, R., & Hakkarainen, J. (2018). *Law and digitalisation: Rethinking Legal services*. University of Helsinki Legal Tech Lab.

Lyngs, U., Binns, R., Van Kleek, M., & Shadbolt, N. (2018). So, Tell Me What Users Want, What They Really, *Really* Want! *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems*, 1–10. https://doi.org/10.1145/3170427.3188397

MacKenzie, D. A., & Wajcman, J. (Eds.). (1985). *The social shaping of technology* (2. ed., reprinted). Open University Press.

Malone, T. W. (1995). Commentary on Suchman article and Winograd response. *Computer Supported Cooperative Work (CSCW)*, *3*(1), 37–38. https://doi.org/10.1007/BF01305841

Maurer, M. (2007). Court Automation in Austria. *Masaryk University Journal of Law and Technology*.

Ministry of Finance Finland. (2024, February 22). *Central government*. Central Government. https://vm.fi/en/central-government

Monteiro, E., Constantinides, P., Scott, S., Shaikh, M., & Burton-Jones, A. (2022). *Qualitative Research Methods in Information Systems: A Call for PhenomenonFocused Problematization*.

Oikeusministeriö. (n.d.). *Syyttäjälaitoksen ja yleisten tuomioistuinten asian- ja dokumentinhallinnan kehittämishankkeen (AIPA) jatkotoimikausi 1.12.2021–31.12.2022*. Retrieved January 13, 2024, from https://oikeusministerio.fi/hanke?tunnus=OM007:00/2015

Oikeusministeriö. (2009). *Yleisten tuomioistuinten rikostuomiosovelluksen kehittämishanke*. Oikeusministeriö.

Oikeusministeriö. (2010). *Yleisten tuomioistuinten asianhallinnan kehittäminen*. Oikeusministeriö.

Orlikowski, W. J. (1996). Improvising Organizational Transformation Over Time: A Situated Change Perspective. *Information Systems Research*, *7*(1).

Orlikowski, W. J., & Gash, D. C. (1994). Technological frames: Making sense of information technology in organizations. *ACM Transactions on Information Systems*, *12*(2), 174–207. https://doi.org/10.1145/196734.196745

Orlikowski, W. J., & Iacono, C. S. (2001). Research Commentary: Desperately Seeking the "IT" in IT Research—A Call to Theorizing the IT Artifact. *Information Systems Research*, *12*(2), 121–134. https://doi.org/10.1287/isre.12.2.121.9700

Osita-Ejikeme, U. (2021). *Evaluation of Information Systems: A Review*. *7*(6).

Parviainen, P., Kääriäinen, J., Honkatukia, J., & Federley, M. (2017). *Julkishallinnon digitalisaatio – tuottavuus ja hyötyjen mittaaminen*.

Pöysti, T. (2018). *Kohti digitaalisen ajan hallinto-oikeutta*. 868–903.

Reiling, D. (2009). *Technology for Justice: How Information Technology can support Judicial Reform*. Amsterdam University Press. https://doi.org/10.5117/9789087280710

Roto, V., Lee, J.-J., Lai-Chong Law, E., & Zimmerman, J. (2021). The Overlaps and Boundaries Between Service Design and User Experience Design. *Designing Interactive Systems Conference 2021*, 1915–1926. https://doi.org/10.1145/3461778.3462058

Scheffer, T. (2007). File work, legal care, and professional habitus—An ethnographic reflection on different styles of advocacy. *International Journal of the Legal Profession*, *14*(1), 57–80. https://doi.org/10.1080/09695950701323005

Silver, M. S., & Markus, M. L. (2013). *Conceptualizing the SocioTechnical (ST) Artifact*. *7*(1).

Tuomi, J., & Sarajärvi, A. (2019). *Laadullinen tutkimus ja sisällönanalyysi*. Tammi.

Valtioneuvosto. (2019). *Programme of Prime Minister Sanna Marin's Government 10 December 2019. Inclusive and competent Finland—A socially, economically and ecologically sustainable society*. http://urn.fi/URN:ISBN:978-952-287-808-3

Valtioneuvosto. (2023). *Vahva ja välittävä Suomi: Pääministeri Petteri Orpon hallituksen ohjelma 20.6.2023*.

Van Aken, J. E. (2013). Design Science: Valid Knowledge for Socio-technical System Design. In *Design Science: Perspectives from Europe* (Vol. 388, pp. 1–13). Springer International Publishing. https://doi.org/10.1007/978-3-319-04090-5_1

Williams, R., & Edge, D. (1996). The social shaping of technology. *Research Policy*, *25*(6), 865–899. https://doi.org/10.1016/0048-7333(96)00885-2

Winner, L. (1980). Do Artifacts Have Politics? *Daedalus*, *109*(1), 121–136.

Yin, R. K. (2014). *Case study research: Design and methods* (Fifth edition). SAGE.

A. Interview Question Template: End-users

Background Information

- Could you tell me a bit about yourself and your professional background?
- What is your current role in the District court?
- Have you used the AIPA system before? If so, for how long?

Design

- What is your perspective on why the AIPA system was developed?
- What is your understanding of the goals set for the AIPA system?
- Which of these goals are important to you? Why?
- What goals do you assume were crucial for the AIPA project?
- Did specific individuals or departments have a particular role in shaping the goals?

Implementation

- How has AIPA changed your work? / How has the AIPA system affected your daily workflow? / Have you noticed changes in work methods or processes after the implementation of AIPA? What kind?
- Have you responded to surveys related to AIPA (e.g., usability, user experience surveys)?
- What has been your experience in responding to surveys and providing feedback?
- Do you feel that changes have been made to AIPA based on the feedback?

Impact

- How do you view the long-term impact of AIPA on your work?
- How do you perceive the long-term impact of AIPA on the entire organisation (District court) and its processes?
- Do you see potential opportunities or challenges in the future regarding the use of AIPA?
- Have there been unintentional impacts from using AIPA?
- Any additional thoughts you would like to share?

B. Interview Question Template: People Involved in the Design of AIPA

Background Information

- Could you share a bit about yourself and your work background?
- What is your current role?
- What has been your role in the AIPA project?

Design and Defining Goals

- In your opinion, what factors or decisions influenced the setting of goals of the AIPA project?
- What were the main goals in the AIPA project?
- How were different goals prioritised in the AIPA project?
- Did specific individuals or departments play a special role in shaping the goals?
- What decision-making processes were involved in selecting goals?

Implementation

- Have there been noticeable concrete impacts or changes in users' day-to-day tasks due to AIPA?
- How do you think the choices made in the planning have affected end-users?
- Have there been situations where decisions had to be changed or adjusted?
- Were there challenges in collaboration, and what could be learned from these experiences?

Impact

- How has progress towards the goals been measured?
    - What kind of feedback has been collected about the AIPA project?
- How was the achievement of planning goals monitored and evaluated in the AIPA project?
- Was the monitoring of goal achievement transparent and visible to all stakeholders?
- How do you perceive the long-term impacts of AIPA?
- Do you see potential opportunities or challenges in the future regarding the use of AIPA?

- Have there been unintentional consequences from using AIPA?
- Any additional thoughts you would like to share?

C. Interviewee Profiles

Code	Group	Role
A1	End-user	Court Judge
A2	End-user	Court Judge
A3	End-user	Court Judge
A4	End-user	Court Judge
A5	End-user	Court Judge
A6	End-user	Court Judge
A7	End-user	Court Secretary
A8	End-user	Court Secretary
B1	People involved in the design of AIPA	Not specified (data protection)
B2	People involved in the design of AIPA	Not specified (data protection)
B3	People involved in the design of AIPA	Not specified (data protection)
B4	People involved in the design of AIPA	Not specified (data protection)
B5	People involved in the design of AIPA	Not specified (data protection)