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**DIGITAL IDENTIFICATION AND E-  
SIGNATURE TO IMPROVE CROSS-  
BORDER COOPERATION IN EUROPEAN  
UNION IN CIVIL CASES**

Master's thesis

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**DIGITAALNE IDENTIFITSEERIMINE JA E-  
ALLKIRI PIIRIÜLESE KOOSTÖÖ  
EDENDAMISEKS EUROOPA LIIDUS  
TSIVIILASJADES**

Magistritöö

Juhendaja: Eric Blake Jackson  
PhD Kandidaat

Tallinn 2023

## **Author's declaration of originality**

I hereby certify that I am the sole author of this thesis. All the used materials, references to the literature and the work of others have been referred to. This thesis has not been presented for examination anywhere else.

Author: Marii-Elisa Pärna

05.05.2023

## **Abstract**

Secure, dependable, and time-efficient communication between courts and other competent authorities is essential for effective cross-border judicial cooperation in the European Union. To achieve successful digital cooperation, EU countries need to have functional e-governments that their citizens can and want to use. IT systems in use must be interoperable with other systems and data protection must be guaranteed. Electronic ID and e-signature must be used to securely work with digital systems both nationally and within cross-border cases.

This study focuses on finding out the intent of the EU Member States on what are the best ways forward with digitalizing judicial cross-border case-handling. A survey was carried out and based on the answers the thesis offers solutions and ideas for moving forward with digitalization. Many EU countries indicated that a unified e-CODEX based case management system is needed, but they also acknowledged that it will take longer than being able to securely forward case documents via e-mail. This is why the author of the thesis is proposing to use national eIDs and e-signature to enhance digital cooperation.

Keywords: digitalization, eID, eIDAS, e-signature, cross-border cooperation, interoperability, EJM-Civil Network, e-Justice.

This thesis is written in English and is 72 pages long, including 7 chapters and 15 figures.

## **Annotatsioon**

Piiriülese õiguslase koostöö tõhustamiseks Euroopa Liidus on oluline, et kohtute ja teiste pädevate asutuste vaheline suhtlus oleks turvaline, usaldusväärne ja ajaefektiivne. Edukaks digitaalseks koostööks peavad ELi riikidel olema funktsionaalsed e-valitsused ning digitaalsete avalike teenuste olemasolu. Riikide kodanikud peavad oskama ning tahtma olemasolevaid teenuseid kasutada. Kasutatavad IT-süsteemid peavad olema teiste süsteemidega koostalitlusvõimelised ja andmekaitse peab olema tagatud. Samuti on oluline elektroonilise isikutuvastuse ja e-allkirja kasutamine, et digitaalsete süsteemidega töötamine oleks turvaline nii siseriiklikult kui ka piiriüleste juhtumite puhul.

Käesolev magistritöö keskendub Euroopa Liidus piiriülese justiitskoostöö digitaliseerimise võimalustele, võttes aluseks Euroopa justiitsvõrgustiku tsiviilasjades. Töö eesmärk on välja selgitada, mis on võrgustiku liikmete meelest parimad lahendused piiriüleste menetluste digitaliseerimiseks, mis on suurimad murekohad ja probleemid ning mis tasemel on digitaliseerimise protsessi hetkeseis ja valmisolek erinevates liikmesriikides. Võrgustiku liikmete arvamuse välja selgitamiseks viidi internetis läbi küsitlus, kus paluti vastata 14-le küsimusele. Küsimustik edastati kõigi ELi liikmesriikide (v.a Taani) EJN võrgustiku kontaktpunktidele.

Paljud vastajad märkisid, et Euroopas on vaja ühtset, turvalist ja kasutajasõbralikku e-CODEXil põhinevat juhtumihaldussüsteemi, kuid tunnistasid ka, et see võtab rohkem aega kui dokumentide turvaline edastamine e-posti teel. Sellest lähtudes teeb lõputöö autor ettepaneku digitaalse piiriülese koostöö tõhustamisel pöörata suuremat tähelepanu eIDd ja e-allkirja kasutamisele, et täielikult digitaalne koostöö oleks võimalik ka enne ühtse süsteemi loomist ning tehnilist rakendamist kõigis liikmesriikides.

Märksõnad: digitaliseerimine, elektrooniline identiteet, eIDAS, elektrooniline allkiri, piiriülene koostöö, EL infosüsteemide koostalitlusvõime, EJN võrgustik

Lõputöö on kirjutatud inglise keeles ning sisaldab teksti 72 leheküljel, 7 peatükki ja 15 joonist.

## List of abbreviations and terms

CA	<i>Central Authority</i>
CP	<i>Contact Point</i>
DESI	<i>Digital Economy and Society Index</i>
EIF	<i>European Interoperability Framework</i>
eID	<i>Electronic Identification</i>
eIDAS	<i>electronic IDentification, Authentication and trust Services</i>
EJN	<i>European Judicial Network</i>
EJN-Civil	<i>European Judicial Network in Civil and Commercial matters</i>
ESIGN	<i>Electronic Signatures in Global and National Commerce Act</i>
EU	<i>European Union</i>
GDPR	<i>General Data Protection Regulation</i>
HCCH	<i>Hague Conference on Private International Law</i>
IT	<i>Information Technology</i>
ICT	<i>Information and Communication Technology</i>
IMI	<i>Internal Market Information System</i>
MS	<i>Member State</i>
OOP	<i>Once Only Principle</i>
PKI	<i>Public Key Infrastructure</i>
SDGR	<i>Single Digital Gateway Regulation</i>
UETA	<i>Uniform Electronic Transactions Act</i>

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## **1 Introduction**

For efficient cross-border judicial cooperation secure, reliable, and time-efficient communication between courts and other competent authorities is necessary (Proposal for Regulation No 910/2014 amendment, 2021). To be able to communicate to each other through digital channels, countries need effective e-Governments. For this, use of electronic identities (eID) is essential. It ensures communication with the competent authorities without a medium, meaning, it loses the need to provide physical identification (Lentner et al., 2016). Before identification, building successful and functional e-government essentially requires working infrastructures, resolved policy issues and interoperability between systems (Layne & Lee, 2001). Resolving the interoperability issue is essential and inevitable for successful cross-border cooperation.

One of the aims of the eIDAS (electronic Identification, Authentication and trust Services) Regulation was to ensure that electronic transactions would have the same legal validity across borders within the European Union (EU) as paper-based transactions have. The goal is to have a unified system across EU where digital signatures of different Member States have the same value as hand-written signatures (Regulation (EU) No 910/2014, 2014). In December 2021 the proposal for a “Regulation of the EU Parliament and of the Council on the digitalisation of judicial cooperation and access to justice in cross-border civil, commercial and criminal law cases” was released. It stresses out the need to make digital communication as the default channel for EU cross-border judicial cooperation communication and data exchange. For that, amongst other things, issues regarding assurance levels of the e-signatures of different Member States, interoperability of their IT systems and data protection must be addressed (European Commission, 2021).

There is not one simple and quick solution to remove all the obstacles and make a digital Europe fully work at once. There are many technical shortcomings that need addressing, but also legal matters and questions regarding interoperability and trust. Although digitalization has been an important area of focus in EU for a longer period, the COVID-19 pandemic further prioritized the need for speeding up digitalization in the justice

sector. EU citizens need to have access to justice from their homes, if need be, and for that digital resources are needed. It is in the interest of both, private and public sector to be able to have the tools to digitally communicate with other Member States, exchange documents and proceed with cases.

Some of the texts in this study have been also used in the author's written essays and in the research proposal for the E-Governance Technologies and Services Master's Project course of 2022.

## **1.1 Problem statement**

Around 10 million people are involved with cross-border civil proceedings in Europe, and regarding digitalization and cross-border cooperation, the judicial sector needs to catch up with an increasingly digital society (e-CODEX FAQ, 2023). The main problem this thesis attempts to clarify is that cross-border case handling needs secure and fast digital solutions. More and more people across EU travel, move to another MS, or commute for work daily to other countries. As people move freely across the borders, there must be effective legal measures and a way to efficiently initiate cases across borders to protect the rights of the ones in need. Often the cases are urgent by nature and exchanging case files by post is not a viable option.

Many EU countries do not use digital signatures nor is there a universal case management system, so exchanging data and case documents in civil cross-border cases can be complicated. Often Central Authorities communicate with each other through e-mail but for transferring documents to start official proceedings, paperback documents must be posted. Across EU digital authentication methods and digital signatures are still not unified and widely accepted. Some countries accept scanned copies of documents but in these cases, security becomes an issue as people's personal data must be protected. Sensitive personal data should not be transmitted in pdf-files across the servers.

One solution would be a unified case management system, that all Member States would start using, but as the cases are of very different nature, it can be difficult to build one solution for all situations. Digitally signing a document or a bundle of documents and then being able to use regular e-mail communication to contact other states on known contact addresses could be an easier option to speed up digitalization.

## **1.2 Thesis motivation**

The topic of this study is relevant and needs research as digitalization of cross-border judicial cooperation has been an ongoing priority for a while in EU but there are still several problems slowing down the process and preventing smooth cross-border communication and case handling. Amongst the identified problems are technical, legal and interoperability issues, identity matching, trust concerns, lack of use of eIDAS and other available technologies, also the different security levels of Member States' digital signatures (Eurosmart, 2020).

According to European Commission strategy plans digitalization is an ongoing priority and the questions of how to make Europe greener and more digital have been named as the two big challenges of our generation. Although digitalization was already a priority before, the COVID-19 pandemic highlighted even more how dependent we are on technology and how much we need available, working, and safe digital systems to communicate between each other (European Commission, 2021).

The idea of this study essentially came as the author of the thesis works in the Estonian Central Authority (CA) for the European Judicial Network (EJN) in civil cases and has seen judicial case-handling and information exchange in practice. Digital case handling is highly needed for quick cooperation, yet with many countries it is still lacking.

One of the main indicators for the thesis is the European Commission's proposal for a "Regulation of the European Parliament and of the Council on the digitalisation of judicial cooperation and access to justice in cross-border civil, commercial, and criminal matters, and amending certain acts in the field of judicial cooperation", from December 2021. The document addresses main problems that exist in cross-border judicial cooperation and access to justice within EU and largely points out the need of continuous digitalization, use of eID and e-Signature (European Commission, 2021).

## **1.3 Research questions and objectives**

The aim of this study is to understand how to improve digital cross-border communication between EU Member States. The study will mainly focus on three larger areas. Firstly, how widely is eIDAS used and how can it better the digital cooperation. Secondly, how

trusted, and common are digital channels within EU Member States, in relation to cross-border case handling in civil cases, and what are the main issues. Lastly, on interoperability and whether the use of tools like e-CODEX, and systems like IMI, ISupport or European Digital Identity Wallet will narrow the digital divide. To achieve these objectives, following Research Questions (RQ) and Sub Questions (SQ) have been drafted:

RQ1. Why are eID and e-signature not widely used within EU in digital cross-border communication in civil cases?

SQ1.1. What are the main reasons in the lack of use of eID and e-signature?

SQ1.2. What are the legal challenges for eID and e-signature recognition in the judicial context?

SQ1.3. What are the organizational challenges?

RQ2. How to improve cross-border case-handling in civil cases between the EU Central Authorities by using digital channels in the judicial field?

SQ2.1. What would be the technical tools MS would likely use for digital case handling in cross-border cases?

SQ2.2. What are the main requirements for paper-less cross-border proceedings?

SQ2.3. What are the main arguments towards a unified digital system across EU in the judicial field?

Throughout the years EU has introduced regulations, acts, and proposals to the EU Member States regarding digitalization needs. It has altered national legislations and impacted cross-border case handling, interoperability, and service provision. Yet, in practice, cross-border work in civil cases still often depends on original, hand-signed paperback documents. This thesis intends to fill the gap of what is missing in practice, why EU MS still need to mainly depend on paper.

## **2 Literature review**

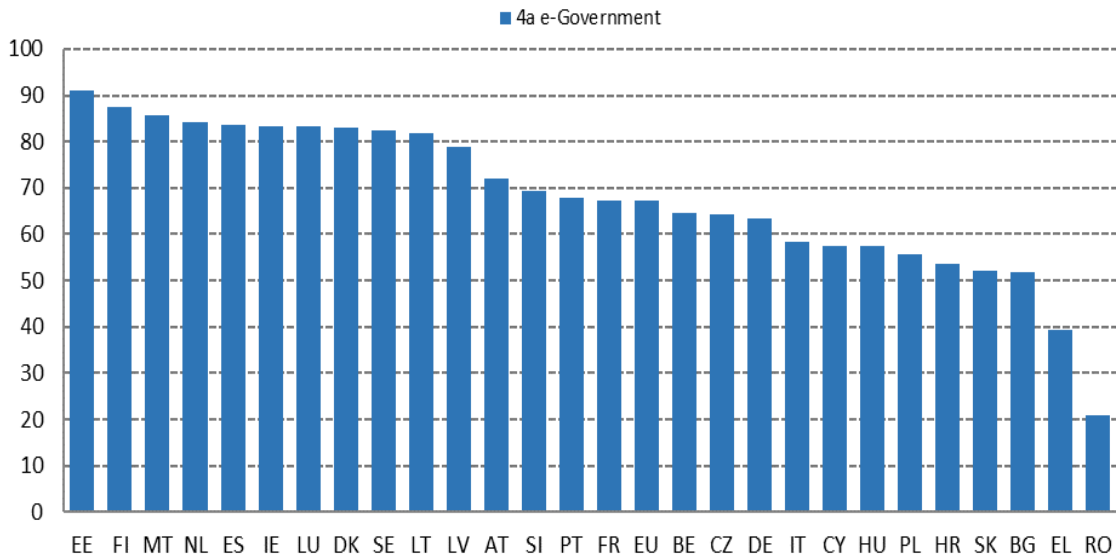
This chapter is giving a short overview on the topic and is analyzing the existing literature to address the questions set in this study. This section focuses on theoretical concepts as well as previous research that has examined European Union's readiness for digitalization. The literature review is divided into five sub-chapters to present the different key areas this thesis is analyzing.

### **2.1 Digitalization in the European Union**

Digitalization is a continuous priority in the EU, and according to the European Commission's strategy plans, making Europe more digital and connected is essential. To efficiently communicate, handle business and solve judicial problems across country borders, cross-border cooperation needs to be a central focus. Although digitalization was already a priority, the recent pandemic highlighted how reliant we are on technology and how much we depend on digital systems (European Commission, 2021).

#### **2.1.1 Use of public services and cross-border services**

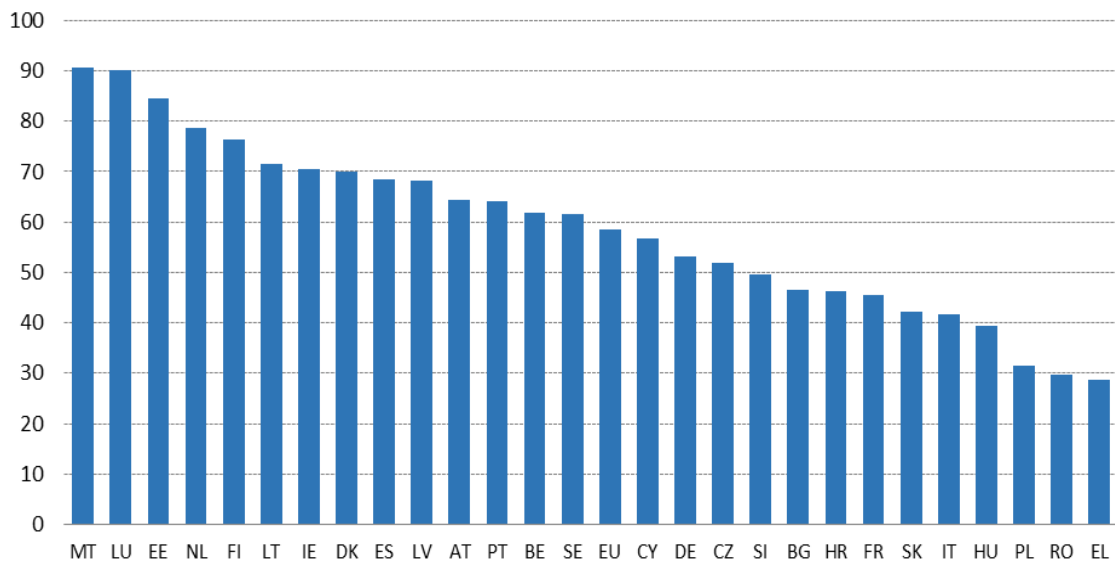
For digitalizing cross-border case-handling, national readiness of the countries is essential. It makes a difference how digitalized the country is and how many services are available online. Also, how many services are intended to be used across country borders. The online availability of different public services is becoming more common across EU. Some Member States are nationally close to the target of having all public services available online, whereas others are still far behind. According to the Digital Economy and Society Index (DESI) 2022, in the top of the list are Estonia, Finland, Malta and the Netherlands, and Romania, Greece, Bulgaria and Slovakia have the least amount of available public services in use (DESI, 2022).



**Figure 1. Digital Economy and Society Index (DESI) 2022, Digital public services**

Source: DESI 2022, European Commission.

The availability of cross-border services is even more uneven. The availability of cross-border services is measured mainly in four categories: online availability of services for citizens of other countries; cross-border user support; use of eID; and use of electronic documents in cross-border cases. For cross-border services, Malta, Luxembourg, and Estonia lead in the EU and Greece, Romania, Poland, and Hungary have the lowest scores (DESI, 2022).



**Figure 2. Cross-border services status in Member States (Score 0-100), 2021**

Source: eGovernment Benchmark, Capgemini.



### **2.1.2 e-Identification**

Traditional identification by appearance and one's physical ID-document is not possible online, for this eID is necessary. eID lets people to prove that they are who they claim they are in the virtual world, and therefor becomes the equivalent to the physical ID. Most eID systems are linked to unique identifiers, to the unique ID-code of a person. Digital identifiers connected to a person can include name, address, mobile phone number, password, or electronic signature (Lentner, 2016).

The eIDAS (electronic Identification, Authentication, and trust Services) Regulation was adopted by the European Parliament and the Council on 23 July 2014 (Regulation (EU) No 910/2014, 2014). The aim of the regulation is to create a unified system in the EU that is secure for the users and to remove existing barriers related to the cross-border use of electronic identification and authentication. The regulation also set up rules that must be followed so that the schemes of the Member States would be interoperable, and the Member States could accept and recognize each other's schemes (Regulation (EU) No 910/2014, 2014). eIDAS is based on an interoperability platform that does not create an entirely new system but connects the EU countries' national eID schemes (Berbecaru et al., 2018). By 2022, most Member States have notified their schemes (European Commission, 2019), but in practice the use differs from country to country.

Based on data provided by the EU Member States, approximately 60% of EU citizens have an eID. All Member States except Cyprus and Romania have at least one eID scheme in place in their country and 18 Member States have at least one eID scheme notified under the eIDAS Regulation (DESI, 2022).

However, since the entry into force of the eIDAS Regulation in 2018, it is recognized that the implementation of digital identity is not consistent across the MS. This is mainly because the countries have been interpreting the regulation differently. Even the eIDAS compliant Trust Service Providers across EU have varying definitions of the necessary requirements and processes. Due to that eIDAS certificates are not compatible across EU. To tackle the fragmentation two main ways have been identified: either to change mindset or to change technical implementation to allow all eIDAS compliant tools like signatures and certificates (Schmidt et al., 2021).

### 2.1.3 e-Signature

Electronic signature is a way to authenticate oneself and confirm their intent electronically. There are different ways for a person to authenticate themselves online. In low-risk situations, writing one's name and sending a letter might suffice. In intermediate risk scenarios username and password can be used, but on a high-risk level, or when sensitive data is submitted, a qualified electronic signature must be used (Lentner, 2016).

The eIDAS Regulation defines three levels of e-signatures: simple electronic signatures, advanced electronic signatures, and qualified electronic signatures.

1. Simple or standard electronic signature might be solely writing one's name under an e-mail. It is data in an electronic form that might not need any specific technology use.
2. Advanced electronic signature (AdES) must uniquely link the signatory to the signature and allow him/her to be identified; must let the signatory to retain control; and must be linked to the document so that data modification is detectable.
3. Qualified electronic signature (QES) is an AdES that must in addition be created by a qualified signature creation device (QSCD) and must base on a qualified certificate for electronic signatures. It can be considered the digital equivalent of the traditional hand-written signature (Regulation (EU) No 910/2014, 2014).

Most countries in EU have some form of an electronic signature (eIDAS Dashboard), but as their strengths and service providers differ, they're still not used generally in cross-border cases. A universally accepted, reliable, working technical solution is needed to allow EU citizens to fully participate in the digital state, while also to protect their sensitive data. Advanced e-signatures often function in the context of closed public key frameworks in specific contexts and are not used virtually outside that policy framework (Graux, 2013).

European Commission supports the use of e-signatures in EU. eSignature is a building block part of the Digital Europe Programme that aims to encourage the use of cross-border interoperable digital signatures in EU. It includes an open-source library for the creating and validating signatures; a Trusted List Manager to harmonize the technical and compliance side of e-signatures; associated standards; and an interoperability testing

solution. The Commission has also stressed out that using electronic signatures will significantly save time of proceedings, increase security of proceedings, reduce operational costs, cut carbon footprint, and eventually improve satisfaction levels of all the parties. EU Commission has also named many use cases for e-signature, one of them being international cooperation and case management (European Commission Digital Homepage).

#### **2.1.4 Digital trust and data protection**

One of the identified reasons, why digital channels or eID are not widely used is lack of trust (Eurosmart, 2020). The development of multipurpose national e-IDs has raised concerns in the fields of data protection, privacy, and security. The need to safeguard citizen's rights and sensitive data in relation to their digital identity is essential to create trust in use. The development of more and more internet and mobile platforms has also raised concerns of new cyber threats (Melin et al., 2016).

In multiple countries the use of unique identifiers in the processes and backend databases, or the use of existing personal identification numbers and linking them to eID, is a critical data protection issue. If countries cannot accept each other's digital signatures and identification methods, digital cooperation between Member States also does not work smoothly. (Lentner, 2016). Another problem connected to people's data is identity matching. It has proven even harder to match several records of the same person in different databases to a specific person, in cross-border cases. Among others, linguistics based matching and false positives have been identified as problematic (Eurosmart, 2020). Identification is done through the eIDs notified under the eIDAS Regulation. In most cases the data providers can match an individual with their digital record by using the attributes of the natural person as reported in the eIDAS minimum set of data, yet sometimes additional data is needed to assure a match. This happens because of interoperability issues and the different mandates defined in the MS eID schemes (Schmidt et al., 2021).

The eIDAS Regulation prioritizes security, transparency, and legal certainty. To make sure that the given electronic signature is trustable, the regulation proposes an EU trust mark that identifies qualified trust service providers, therefore qualified certificates, as qualified certificates are a prerequisite for cross-border recognition of qualified electronic

signatures. All trust service providers who comply with the eIDAS Regulation and have received the qualified status can use the trust mark to indicate in a recognizable and clear manner that they provide qualified services (Regulation (EU) No 910/2014, 2014).

Although digitalization is often thought to bring more data protection issues, there are also technical solutions that protect people's personal data more than in countries with less digitalization. The Once Only Principle (OOP) from the Single Digital Gateway Regulation (SDGR) stipulates that the people and the businesses who come into contact with government organizations have to provide data only once. The principal aim of it is to reduce administrative burden, reduce costs and therefore simplify and improve public services, but it also protects people's sensitive data and leads to more transparency. As data is provided only once, OOP requires public authorities to share and re-use data. However, this must be done by respecting data-protection rules and General Data Protection Regulation (GDPR) to not undermine the trustworthiness of the public service providers. Trust is an essential ingredient of the OOP and people must remain control over their data. This is why via logs they can keep an eye on who acquires their data (Wimmer, 2021). Whereas in less digitalized countries where data might not be shared between the public authorities, every agency collects their own data regarding the people, while causing more burden for them and also storing the data in various databases that might result in more data leaks.

To implement the OOP across EU, a technical system for the automated cross-border exchange of applications is necessary. Although there has been success in many MS, at cross-border level, the spread of OOP solutions is still low. More effort and research is expected from the governments and national stakeholders to successfully implement the OOP across EU (Wimmer, 2021).

## **2.2 Estonian eID and e-Signature development and use of e-services in the judicial field**

In Estonia, already in 2017, nine out of ten internet users exchanged information with the government online instead of going to physical offices or filling out paper forms. It's common in some Member States for example Scandinavian countries, but still uncommon in many countries, where most internet users are not engaged in e-governance. If usage

of e-services is not common within a country, it is unlikely that digital channels are their first choice in cross-border communication (Stephany, 2018).

Estonia is one of the first countries to incorporate digital identification and digital signature into state-critical infrastructure. The strength of the Estonian e-governance system lies in the data exchange layer X-Road. It is a peer-to-peer data exchange system and a technological framework that enables the X-Road members secure online data exchange while ensuring evidential value. It combines a public key infrastructure (PKI), complex software components for safe data sharing, and systematic organizational techniques, and follows principles of data quality, data protection and the once-only-principle (Lips et al., 2023).

Almost 90 % of the population in Estonia uses internet regularly, 99.6 % of banking transactions are done electronically, 95 % of people submit their tax declarations electronically and 95 % of health data in hospitals or in general medical sector's systems are stored digitally. In total, 99 % of public services are available online; only divorce cannot be fully concluded online. The identity of every citizen or a foreign resident is based on a permanent 11-number long individual ID code. It is not considered to be sensitive data. ID card is the only mandatory personal identification document. It is issued and valid based on the identification code and person's photo. The card's chip includes two electronic certificates: one allowing the digital authentication of a person – the digital ID, the other enabling the card holder to sign documents electronically. Estonian e-signatures trust level is the highest possible levels: qualified electronic signature (QES), meaning it is equal to a handwritten signature (Tupay, 2020).

Estonian ID-cards were launched in 2002. One of the main reasons for a second identity document was to implement electronic signature possibility. A software called "DigiDoc Client", which allows the creation and verification of electronic signatures, is part of the ID-card software package and can be installed on any computer connected to a smart card reader (Martens, 2010). More than 800 million digital signatures have been given in Estonia since its launch (RIA, 2022).

Although, Finland was the first country who introduced their eID in 1999, the project failed popularity wise as the ID-cards were mainly recognized as secondary travel documents (Rissanen, 2010). When Estonia introduced their ID-cards and eID, the ID-

cards were equipped with a chip and certificates to allow multi-purpose use and were made mandatory for all citizens. Also, to make sure people see the benefits of the digital use of the card, from the start cooperation with banks and telecom companies was highlighted. The ability to use internet-banking, log into self-service environments of telecom and utility companies, use the eHealth platform and do taxes online, while also being able to use the ID-card as an entrance card to sports clubs or loyalty card to stores, has guaranteed the success of the card (Martens, 2010). Simplicity of use, functionality, awareness, trust, safety, confidentiality, control, empowerment, and transparency are seen as the key success criteria for Estonia's eID system (Tsap et al., 2020).

Due to the wide use of eID and e-services, judicial proceedings in Estonia can be held almost entirely digitally. This is why Estonia can also in cross-border cases accept digital documents, as it is possible to communicate with the courts and other administrative authorities digitally. Estonia has been moving towards a digital court system since 2002. Nowadays the heart of Estonian judicial system is the e-File and its accompanying e-File portal and KIS2 court information system. The system allows the judicial procedures to be fast and is through different portals accessible to parties and to court employees. Data is entered only once and will remain accessible in the system. All communication between parties and the court is electronic. A claim can be sent 24/7. Although the possibilities have been there since 2014, paper documents remain possible, and are especially important in cross-border cases (e-Justice factsheet, 2020).

Since 2015 the courts have slowly been moving towards fully paperless proceedings, meaning even inside the courts the files are kept electronically. The COVID-19 pandemic and remote work necessity has accelerated paperless proceedings, also digital proceedings with foreign states, especially with EU Member States, are now more common. Necessity for new online tools and video hearings demanded new hardware, faster and updated solutions, and quick training of staff. This emphasized even more the need for constant digital transformation and added funding to the area (Asi, 2021).

Hearings are under normal conditions mostly held physically, but video-hearings or hybrid hearings are an option. The courts in Estonia have specific technical equipment for holding video-hearings. For example, in the new Tallinn courthouse of Harju County Court, there are also rooms for parties to proceedings to be able to participate remotely in

the proceedings if they themselves have not the necessary technical equipment (KHN, 2020).

Estonia is also testing the use of Artificial Intelligence (AI) in the judiciary system. Many decision-making processes are routine and can be made faster and more efficient by using automation and software robots. Some examples would be issuing summons, monitoring the payment of state fees, appointment of judges and trial times. Artificial intelligence is not widely used in judicial systems across the globe, but many countries are in the trial phases or using it on certain aspects. In Estonia and Finland, for example, personal data in court rulings is automatically anonymized using automatic anonymization (Net Group, 2019). The more the national systems within the countries are digitalized and automated, the easier digitalizing systems over EU will become. When the technical tools are there and the benefits are seen by the users, it becomes mainly a matter of interoperability and legal harmonization.

### **2.3 European initiatives**

European Commission has acknowledged digitalization, including promoting electronic communication, use of e-signature and making sure authentic instruments in digital form have the same value as paper documents, a priority. In the 2021 proposal EU Commission also mentions strengthening cooperation and interoperability with using systems like eCODEX and the European Digital Identity Wallet (Proposal for Regulation No 910/2014 amendment, 2021). e-CODEX is based on a distributed architecture and enables national ICT systems to communicate with each other through a network of decentralized access points and exchange legal documents, forms, evidence, or other judicial information, in a secure manner. A trust mechanism is installed to allow legally valid communication (Taal et al., 2019).

The Commission is planning to introduce a decentralized IT system that can be used for case handling under several EU instruments. The system will be introduced in batches, the first two instruments to be implemented being the Service of Documents Regulation (SoD) and the Taking of Evidence Regulation (ToE). Case management with the first two instruments could be introduced within the year 2025 and the rest of the instruments will be gradually implemented in the coming years depending on the success of the system.

The objective is to reach full digitalization of all the instruments by 2029 (European Commission, 2021).

Next to digitalizing the direct cross-border cooperation instruments used by the public authorities, the Digital Identity Wallet would be a safe way for EU citizens to prove their identity and exchange electronic documents (Proposal for trusted and secure Digital Identity, 2021). An example proving the worth and workability of digital wallets, are the COVID-19 vaccination certificates (Sedlmeir et al., 2021). Also, there is the Internal Market Information System (IMI), a tool for EU authorities to communicate with each other and exchange legal requests like requests for legal assistance or information about foreign law in a secure manner. As a closed system, it also guarantees high level of data protection (Regulation No 1024/2012, 2012). For exchanging maintenance cases the iSupport case management system has been developed and is being tested in many EU MS and HCCH members (HCCH, 2019). All these applications and systems are meant to strengthen cooperation in Europe and maximize the potential of the digital transformation (European Commission, 2021).

### **2.3.1 e-CODEX**

It has been decided that the e-CODEX system would be the most suitable tool for facilitating the digitalization of cross-border judicial cooperation procedures in civil and criminal matters. E-CODEX aims to make cross-border justice and communication accessible for all citizens, businesses, legal practitioners, and public authorities within the EU. It is an interoperable technological tool that consists of software components to enable a secure connectivity between national systems. It provides the justice sector with an interoperable solution to connect the IT systems of competent national authorities, like courts or other competent organizations. The e-CODEX system should be considered as the preferred solution for the establishment of an interoperable, secure, and decentralized communication network between the national IT systems in the area of judicial cooperation (Regulation (EU) No 2022/850, 2022).

Currently not many EU Member States use e-CODEX. With the adoption of new legislative proposals, European Commission aims to make e-CODEX the gold standard for secure digital communication in all EU countries. In 2023, the Commission fully



entrusts oversight of this system to the Agency eu-LISA headquartered in Estonia (European Commission, 2020).

e-CODEX is based on distributed architecture. It enables national ICT systems to communicate and exchange messages with each other and with European instances through a network of decentralized access points. There is no use of a centralized system. e-CODEX allows the exchange of legal documents, forms, evidence, or other judicial information, in a secure manner. A trust mechanism is installed to allow legally valid communication. An agreement called the Circle of Trust is signed by all e-CODEX participating countries, to accept the legal validity of documents, and the identification mechanisms and signatures of other Member States. e-CODEX does not change existing IT solutions or laws in the participating countries but uses already existing systems. It is also closely connected to eIDAS (Taal et al., 2019).

The e-CODEX system consists of two pieces of software: a gateway, which allows the exchange of messages between other gateways, and a connector, which allows national IT systems to exchange messages. The connector provides functions like the verification of electronic signatures in the security library and proof of delivery. Also, there have been developed data format templates for digital forms to be used in specific civil and criminal proceedings (Regulation (EU) No 2022/850, 2022).

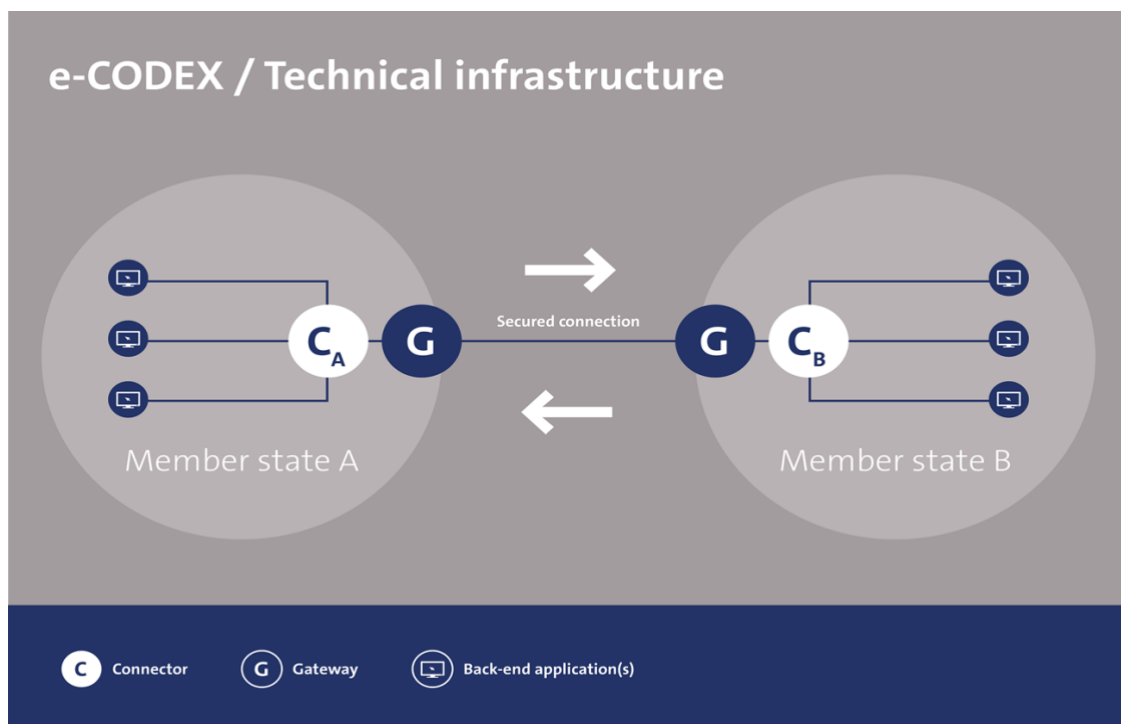


Figure 3. e-CODEX technical infrastructure

### **2.3.2 The Internal Market Information System (IMI)**

IMI is an online tool developed by the European Commission in cooperation with EU MS to provide the countries a secure portal to exchange information. It offers a centralized communication mechanism to facilitate cross-border information exchange and mutual assistance between the MS. IMI can be used in all EU languages and is simple to use due to pre-defined and translated workflows. It helps the authorities to identify needed competent authorities in other states and exchange enquiries, including queries that contain sensitive personal data. IMI can facilitate different types of requests, like “one to one” request between two parties, “one to many” notifications to share more general information, repositories to share information about a specific policy area, and public interfaces that let external actors to communicate with competent authorities. One to one exchanges are most relevant from the case-handling viewpoint in judicial cross-border cooperation. The requests base on structured content that consists of pre-defined questions or information and reactions to these. The Commission and the MS together draw up the pre-defined content in each legal area based on EU legislation (Regulation (EU) No 1024/2012). Although it is a safe portal for information exchange, it does not provide cross-border case-management functions.

### **2.3.3 iSupport**

iSupport is an electronic case management system developed for countries to securely exchange cases that fall under the EU 4/2009 Maintenance Regulation and the 2007 Hague Conference on Private International Law (HCCH) Child Support Convention. It is available in English, French, Spanish and Portuguese and is meant for all EU MS and HCCH participants to use and has both EU and non-EU participants (HCCH, 2021). iSupport has features to initiate, process, follow-up and provide status reports on outgoing and incoming cases and functions for payments, arrears, and interest monitoring, but it does not have electronic signature verification and is accessible by username and password. iSupport uses the e-CODEX technology and complies with the requirements of the eIDAS Regulation (HCCH, 2019). iSupport could be a unified case-management system used by all parties, but as it is intended mainly for maintenance recovery cases, it only solves part of the problem in cross-border judicial cooperation.

## 2.4 Interoperability

As EU has a wide plan for digitalization and there are many systems, platforms and programs that are meant to pave the way to a unified digital state, interoperability between systems is essential (European Commission, 2004).

Interoperability is key for digital transformation and for cross-border cooperation. It allows competent authorities to exchange relevant information electronically with each other and with citizens and businesses in a way that is understandable to all parties. It addresses the following layers:

1. legal issues, for example by ensuring that legislation does not create unjustified barriers to the re-use of data across different policy areas;
2. organizational aspects, such as requiring formal agreements on the terms and conditions applicable to interactions between organizations;
3. data/semantic issues, like ensuring the use of common descriptions of the data exchanged;
4. technical issues, like the establishment of the necessary information system environment (European Commission, 2017).

Based on this the European Interoperability Framework (EIF) gives an interoperability model classified into four layers: legal, organizational, semantic, and technical interoperability. Analyzing these layers can give a better understanding into the interoperability issues.

As interoperability in general allows data exchange across distinct information systems, legal interoperability provides jurisdictional diversity without the lock-in effects of one specific system. The goal of legal interoperability is to ensure that organizations operating under different legal frameworks, policies and strategies can work together (Tréguer, 2012). Semantic interoperability is especially important to ensure that data exchange follows commonly established standards. It is often viewed that data sharing is a technological or administrative issue, yet it should be considered a regulatory and/or legal issue (Schartum, 2013). Organizational interoperability in EU context refers to the integration or harmonization of processes between organizations and the formalization of

relationships between European public service providers and consumers. Technical interoperability includes applications and infrastructures that connect systems and services (European Commission, 2017).

## **2.5 Judicial cooperation**

Judicial cooperation in civil matters in the EU means cooperation between Member States (often through Central Authorities), their courts and other judicial authorities dealing with cross-border civil matters. The matters can include recognition and enforcement of judgments, service of documents and taking of evidence, legal aid, family matters or questions regarding applicable law or jurisdiction (Kramer, 2018). EU citizens should not be discouraged from exercising their rights. Legal systems of the Member States differ from each other, and they may be complex and incompatible with each other, but that should not become a barrier for the citizens. Some of the principal instruments to improve access to cross-border justice are the principle of mutual recognition, and the direct judicial cooperation between the Central Authorities, national contact points of the EJM network and national courts (Bux & Maciejewski, 2022).

Some of the main goals of the EU in the field of judicial cooperation in civil matters, are:

1. Ensuring a high level of legal certainty for citizens in cross-border civil matters;
2. Ensuring citizens quick and effective access to civil justice in cross-border cases;
3. Facilitating the means of cross-border cooperation between the courts and other competent authorities of the Member States;
4. Promoting the training of courts and judicial staff.

Another way to facilitate judicial cooperation in civil matters is the development of information and communication technologies. The project was launched in June 2007 and resulted in the European e-Justice Strategy. The tools that were worked out include:

1. European e-Justice portal designed to give information about different EU regulations and procedures and bring access to justice closer to the citizens;
2. Use of videoconferencing during court proceedings;

3. Innovative translation tools like automated translation systems;
4. Dynamic application forms and a European database of legal translation.

Also, to give an overview about EU judicial systems and cooperation is the Commission's annual EU Justice Scoreboard – an information tool designed to help the EU achieve more effective justice by giving objective, trustworthy and comparable data on the quality, independence and efficiency of justice systems in all Member States (Bux & Maciejewski, 2022). The 2022 Scoreboard focuses more on digitalization, than the previous editions have. Particularly it discusses the digital readiness of the EU countries, procedural rules allowing digital technology in courts, actual use of digital tools and technologies, available electronic communication tools of the countries, and online access to courts and published judgements. According to the data provided, most Member States have some kind of electronic case management system or tools for secure electronic communication. Also, in most Member States, courts have digital tools at their disposal. Yet less than half of the Member States have digital-ready procedural rules, which prohibits them to fully use the tools in cross border cases (EU Scoreboard, 2022).

EU Commission's proposal of 2021 does not introduce new European procedures but focuses on the electronic exchange of information in the context of cross-border judicial cooperation and access to justice. At EU level there are many instruments designed to improve cooperation, but most of them do not focus on digital channels. The Digitalization Regulation aims to make cross-border judicial proceedings faster and more efficient by digitalizing existing communication channels of the Member States, that should lead to cost and time savings, less delays in court proceedings, a reduction of administrative burdens and increase of resilience to force majeure situations. The commission emphasizes that it is essential to establish at Union level a unified IT tool allowing fast, direct, interoperable, reliable, and secure cross-border electronic data exchange between competent authorities. (European Commission, 2021).

### **3 Research methodology**

The research goals and objectives of this thesis determined the use of qualitative research method. Qualitative methods are preferred when it comes to the study of an ongoing and complex phenomenon (Flick, 2009). The author of this thesis used a case study method, as case study method can successfully be implemented when a contemporary phenomenon needs to be investigated in depth and within real-world context (Yin, 2009). Firstly, the research questions were identified, and comprehensive literature review was conducted, to gain understanding on the scope of the topic, of potential problems and the research gap. Several challenges were identified and based on these a survey was created.

Two main research questions this thesis is finding answers to, are “why are eID and eSignature not widely used within EU in digital cross-border communication in civil cases?” and “how to improve cross-border case-handling in civil cases between the EU Central Authorities by using digital channels in the judicial field?”. All the research questions started with either “how”, “what” or “why”, and based on the research questions the study is contributing to the knowledge of organizational, social, and political phenomena, so case study method was definitively chosen (Yin, 2009).

The study is of analytic and exploratory nature. The research strategy was observational, describing and explaining and there were no pre-determined models or assumptions guiding this study. Case study research was done based on the European Judicial Network in civil cases, and triangulation was used to ensure validity and credibility of the thesis. A triangulation research strategy was carried out. Method triangulation, theory triangulation and data source triangulation were used to achieve goals (Carter et al., 2014). EU governmental papers were worked through and interpreted, also data was collected from different types of people who work for the EJM network. Triangulation is mostly used to deepen and strengthen the understanding of a matter and create a fuller picture. All data sources can be biased, so triangulation is used to ensure validity as much as possible and bring out contradictions (Jentoft & Olsen, 2019).

### **3.1 Data collection**

To establish the credibility of the thesis, data source triangulation was used, by using many different sources of evidence. Using multiple sources in a case study is essential for in-depth analyses and presenting and understanding the context (Yin, 2003). The analysis in this thesis is based both on primary and secondary sources of data. Sources like peer-reviewed scholarly papers and books, European Union governmental decrees, proposals, regulations, decisions, reports, working papers, articles and statistics provided by the Member States and the EU Commission were used and new data was collected via a questionnaire. A questionnaire survey was carried out within 26 EU MS Central Authorities of the European Judicial Network (EJN), as Denmark does not participate in the EJN. The target audience was not large, but the objective was to gain understanding on how EU Member States see the future of digitalization of cross-border communication and case handling in their work. Qualitative content analyses of the survey results were done and used to support the insights collected through the rest of the research.

#### **3.1.1 Survey**

Case study provides a great bridge from qualitative evidence to mainstream research. Theory building from case study is relevant and popular, because it is a method likely to produce theory that is accurate, interesting, and testable. It involves one or more case and various other data sources (Eisenhardt & Graebner, 2007). Case study approach involves both quantitative and qualitative techniques, like surveys, audits, interviews, and observations. Data triangulation is advocated to increase validity and to develop a holistic picture of the researched event (Crowe et al., 2011). Questionnaires can be the primary strategy for data collection or be used with other techniques. Questionnaires are preferred when answers to many straightforward questions are needed, and the respondents are expected to answer to the same questions. Also, they remove interviewer bias and allow anonymous answers (Mills et al., 2010).

Questionnaires are one of the most widely used techniques for primary data collection in research. Questionnaire is a written list of either open-ended or closed-ended questions given for the respondents to answer. Information is directly collected from them in an anonymous way. Quality of the responses depends largely on the respondents trust on the topic and on how the questions are formed (Parajuli, 2004). Compared to interviews,

questionnaires enable to cover a wider area and receive data from a larger amount of people. Also, respondents can answer in their own time and as questionnaires are impersonal by nature, the answers might be more honest and thought through than those given during an interview (Gangrade, 1982).

The questionnaire used for data collection for this thesis consisted of 14 questions. Two of the questions were general questions to give information about the country for which the respondent is giving answers about and the role of the respondent in the EJM network. There were 8 multiple-choice questions, on 6 of which the respondents could add their own answer if they did not find a suitable one on the list. 4 last questions of the survey were open-ended questions. The questionnaire is provided in Appendix 2 at the end of the thesis.

The author used Google Forms to create the questionnaire and to collect answers from the respondents. The survey was conducted in English as it is the main working language for the EJM network. The survey was distributed by e-mail, and it was anonymous. The e-mail addresses of the respondents were not collected, and responses were limited to one response per respondent to eliminate biases.

### **3.1.2 Survey participants**

The survey was conducted on a maximum sample of 139 contact points from 26 Member States. It was forwarded to Belgium, Bulgaria, Czech Republic, Germany Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, and Sweden.

In most Member States there are 1-4 assigned contact points, but in larger countries there might be more. For example, 17 in Germany, 22 in Greece, 6 in Spain or 12 in Poland (EJM Factsheet, 2022).

Although the study aimed to target all the contact points, realistically it is not known how many of them actually received the survey, as often there are one or too public e-mail addresses per Member State, even though there might be more contact points. Altogether the invitation to submit answers was forwarded to 45 e-mail addresses. Information regarding the contact points and Central Authorities of the Member States is often private



and the professional e-mail addresses of the national contact points are accessible only to the authorities exercising judicial functions. Public contact details are findable on the European e-Justice Portal.

The survey was uploaded on the 23<sup>rd</sup> of February 2023, and it remained open for the respondents to submit answers until the 28<sup>th</sup> of March 2023.

The survey received 27 responses from 14 EU Member States.

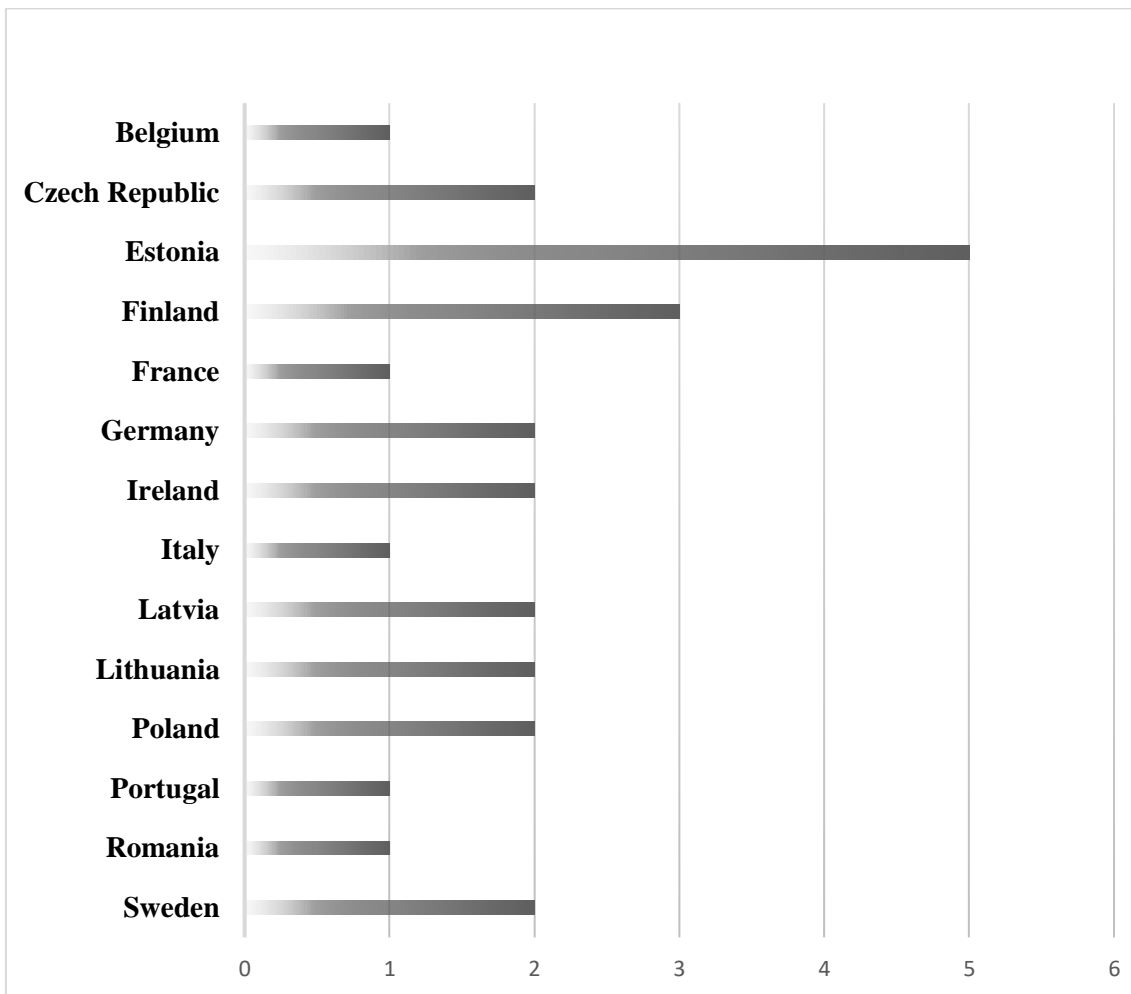


Figure 4. Number of responses

### 3.1.3 Validity

To achieve reliability and validity of the research there are several tests that can be performed. There are different techniques to increase internal and external validity and credibility of the research (Riege, 2003). Firstly, data triangulation approach was used, and data was gained from multiple different sources. Secondly, to increase credibility, before sending the questionnaire to the participants, it was looked on by an Estonian EJM

contact point working with international cases, to check for biased questions or incorrect facts in the questions. To increase internal validity, results were cross-checked during the data analyses and to establish credibility, reached conclusions were discussed with colleagues. To increase external validity, the new collected evidence was compared to the existing literature and examined in the discussions phase.

When creating the questions of the survey, face validity, content validity, construct validity and criterion validity were considered. The questions were designed so that they're unambiguous, clearly understandable, and relevant. They were generated considering the existing literature and outlined issues. Also, they were created, so that the survey is useful and related to an outcome (Taherdoost, 2016).

### **3.2 Data analyses**

Surveys primarily produce numeric data or narrations by the respondents. Numeric data is mainly produced when respondents are asked to rate or rank items and narrations are responses where the respondents can use their own words in stating their opinions (Fink, 1995). In this thesis the aim of the questionnaire was to collect textual data, therefore most of the questions, even if they provided several options to choose from, also had a space for the respondents to elaborate the answer and express their opinion. Also, some of the questions were completely open-ended.

A survey with open-ended questions that allows respondents to provide answers in an unstructured open-text format, is considered a useful method of receiving authentic and unexpected data and highlighting the diversity of opinions. Open-ended survey questions are especially useful when asking questions about complex topics where there is reason to believe that opinions differ (Rouder et al., 2021). Also, open-ended questions where respondents are not restricted to closed categories can help to explore certain issues in more depth than closed-ended questions that mainly aim to measure something (Forman & Damschroder, 2007).

Qualitative data must be described and summarized and can be tested by using different analytical techniques. There are various options, how to analyze qualitative data. The main idea is to understand the goals of why the data was collected and based on that choose the best approach to analyze the data (Lacey & Luff, 2001). Qualitative thematic

analysis and was used to analyze survey data as it is a flexible method that helps to discover patterns and themes within the data and interpret different aspects of the research (Braun & Clarke, 2006). Thematic analysis offers theoretical freedom in interpreting textual data, and leaves room for discussion and debate (Nowell et al., 2017).

Additionally, comparative analysis was used to compare the answers of the EU MS to the DESI 2022 country reports of the EU countries and other available literature. DESI is monitoring the overall digital performance of the EU countries and mentions use of eID and cross-border cooperation in their reports (DESI 2022). Comparative analysis allows to compare new data to already existing data and the view of the world and by found patterns analyze the topic further and establish credibility (Bolbakov et al., 2020).

Quantitative analysis was not primary for this thesis, as the thesis is concentrating on the opinions of the EJN network members of different MS, not the numerical information, but to express the amount of the represented EU countries and the roles of the respondents, descriptive statistics was used to describe basic numerical data.

## **4 The Case: European Judicial Network in Civil and Commercial matters (EJN)**

European Judicial Network in Civil and Commercial matters (EJN-Civil) is a network of judicial officers across European Union formed in 2001 by a Council Decision 2001/470/EC. It started to operate a year later, in December 2002. It aims to improve, simplify, and expedite efficient and effective judicial cooperation between Member States in civil and commercial matters to benefit EU citizens in cross-border cases. The network operates in an informal way and intends to provide support in the implementation of EU civil justice instruments in daily legal practice. It does not try to replace other international instruments but complies with them. All Member States except Denmark participate in the EJN (Council Decision 2001/470/EC).

To further improve judicial cooperation, cross-border litigation and borderless access to justice, the decision was amended in 2009 to further widen the network, include other judicial professionals and to increase and specify the tasks of the national contact points. It was pointed out that to maximize the potential of the network lawyers, solicitors, barristers, notaries, and bailiffs of the Member States need to be included in the network and its meetings (Decision No 568/2009/EC).

### **4.1 Who are the EJN?**

The EJN civil network has more than 500 members. Each member state must designate at least one Central Authority and at least one contact point. Rest of the network may consist of bodies and central authorities specified in EU law, professional associations representing legal practitioners directly involved with EU law, liaison magistrates, and other useful judicial or administrative authorities and associations responsible for judicial cooperation in civil and commercial matters (EJN factsheet).

By 2022 EJN-civil has approximately 505 members in 27 EU countries, of which 139 are contact points. There are 124 designated central authorities, also 166 judicial or administrative authorities and 70 other legal practitioners' organizations, like lawyers, bailiffs, and notaries unions, are part of the network (EJN infographic, 2022).

## **4.2 The objectives of the EJM**

The responsibilities of the EJM contact points come directly from the Council's Decision the network was established with and its amendments. The first aim of the EJM was to form a functioning network and establish an information system that could provide information to legal specialists and the public and that would be regularly maintained and updated. The second aim was the practical application of EU instruments, regulations, and conventions (Council Decision 2001/470/EC). Contact points must handle the requests and applications of judicial cooperation from other Member States as fast as possible. The importance of an electronic register and digital means was already mentioned in the amending decision of 2009 (Decision No 568/2009/EC).

EJM contact points deal daily with direct case-handling and often urgent cases in the areas of matrimonial matters, custody, access, maintenance, taking of evidence, service of documents, succession, legal aid, monetary claims, recognition, and enforcement of judgements. Child related matters like child abductions or parental custody and access cases need to reach the other Member State as quickly as possible. Next to e-mail communications, sensitive personal data must be transferred, and courts often need signed documents to start proceedings. (EJM factsheet). Quick means of communications and safe and efficient document exchange is essential. Contact points help judicial authorities with enquiries regarding another country's applicable law or specific cross-border cases and help to solve problems with judicial cooperation and find best practices to expediate proceedings (EJM infographic, 2022).

## **4.3 Case description**

The EJM Network is a network that requires fast and efficient exchange of documents and case files. At the same time people's personal data must be kept safe. There are several European Initiatives in creation or in a trial phase to provide case management systems for fast case handling. Most systems allow management only for specific types of cases but as often contact points deal with different types of cases use of e-mail communication could be most efficient. This thesis aims to find out EU Member States opinion and intent on the use of e-signature and eID both nationally in their state and internationally in cross-border proceedings. The thesis also intends to find out the MS opinion whether digital

channels could be primary in international cases concerning urgent matters. To collect data a questionnaire was created and forwarded to the contact points of 26 EU Member States (all except Denmark, who does not participate in the practical case-handling under EU regulations) using publicly available e-mail addresses.

EJN Network as a case was selected for two principal reasons. Firstly, it is an extensive network functioning across the European Union and has members in all the Member States. Secondly, it deals with practical legal cases that are often time-critical and will benefit from the use of safe and efficient digital solutions. Also, the case is current regarding the European Commission's December 2021 proposal, where the Commission emphasizes on the need to digitalize cross-border judicial cooperation. The proposal focuses on the importance of electronic communication, the need for secure infrastructures and the necessity to ensure the validity and acceptance of e-signatures (European Commission, 2021).

The respondents were selected based on their role in the network and based on the publicly available contact details of the network members. The sample is not large, but as this case focuses on a specific area and specific network, there were enough respondents to get insight into the situation and problems this thesis targets and to answer the research questions raised. It is difficult to determine the right sample size, but more important than how many subjects are selected, is the number of valid responses (Al-Subaihi, 2003). The questionnaire was sent to all the Member States to gather information from different countries. The respondents were mainly the contact points and central authorities of the countries. In some countries other network members, e.g., judicial officers, answered to the questions as well, when they directly had experienced the necessity and limitations of cross-border communication.

## 5 Survey results

This chapter presents the results this study obtained via a survey organized withing the EJM-Civil Network. In the beginning of the survey the respondents were asked about the country they're representing and what is their work position in the network.

There were 27 responses from 14 different EU Member States. The most responses (5) were from Estonia; 3 from Finland, 2 from Czech Republic, Germany, Ireland, Latvia, Lithuania, Poland, and Sweden; and 1 response from Belgium, France, Italy, Portugal, and Romania. 12 countries (Bulgaria, Greece, Spain, Croatia, Cyprus, Luxembourg, Hungary, Malta, the Netherlands, Austria, Slovenia, and Slovakia) did not participate. Altogether 53.85 % of the asked EU Member States gave their answers. Of the maximum sample of 139 contact points the survey was targeting, 19.42 % of the answers were received, but considering that the survey was forwarded to 45 available e-mail addresses, and Denmark was excluded, the response rate was 60 %.

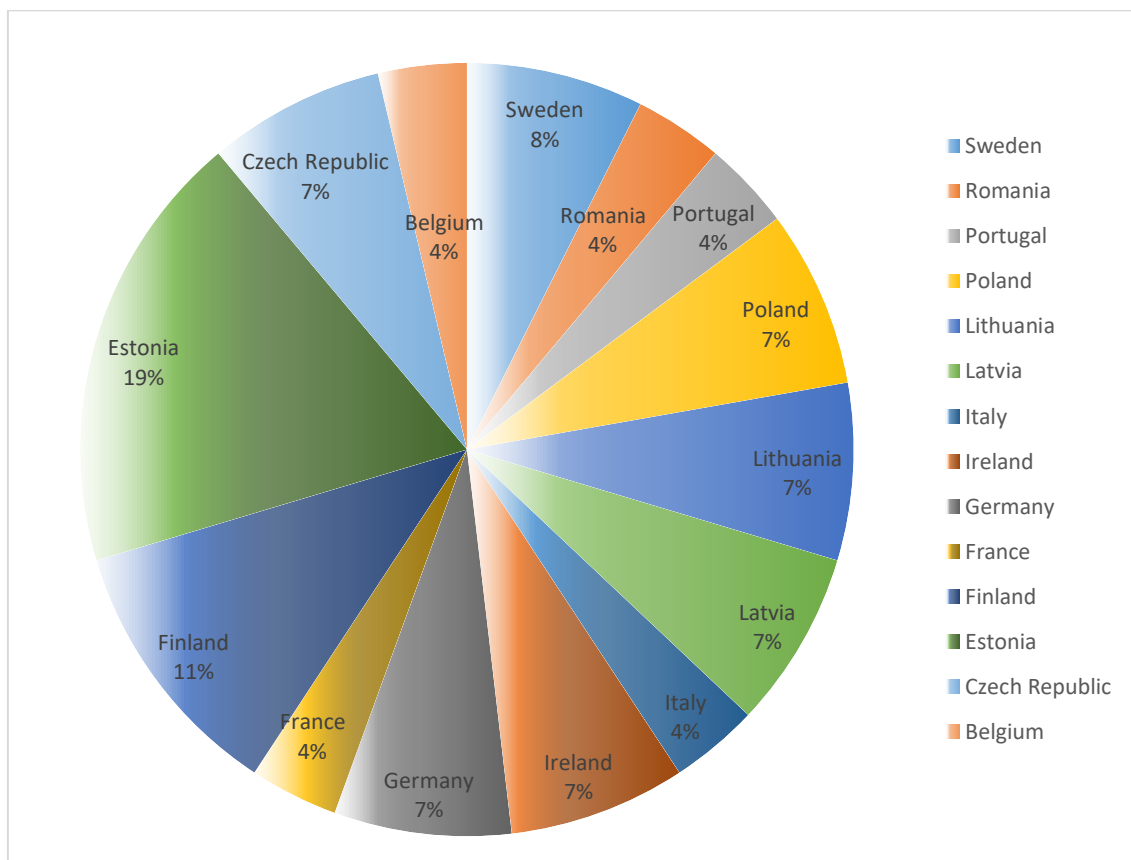
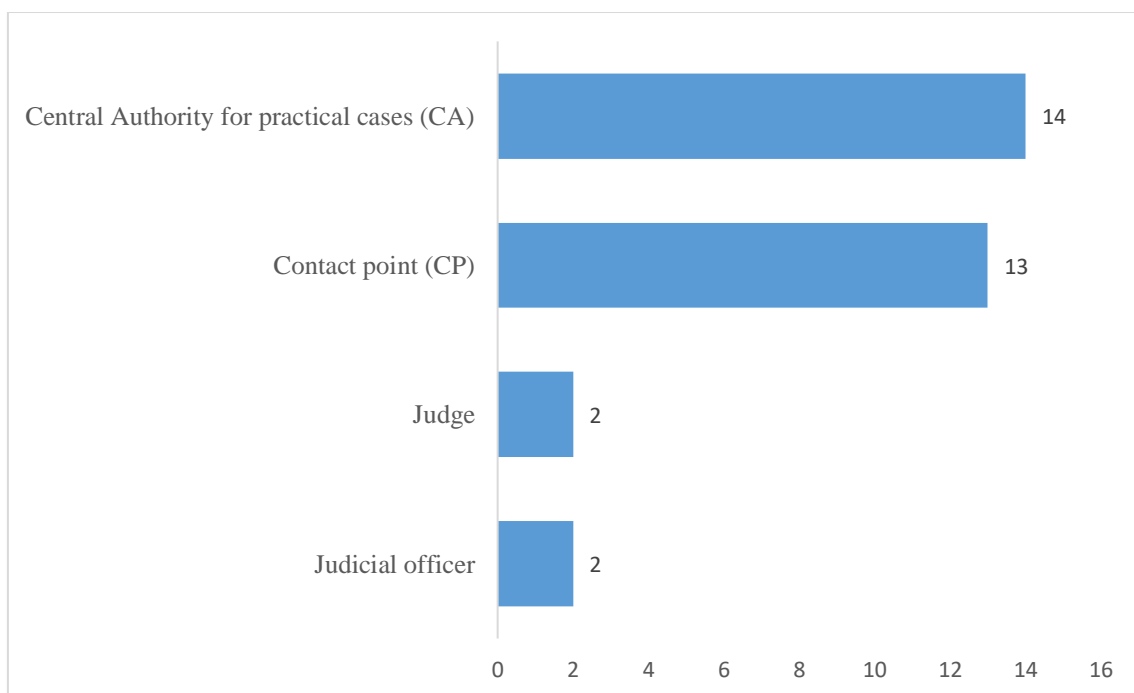


Figure 5. Survey respondents by countries

Most of the respondents were the contact points of the EJN network. Some of the respondents work as both, the contact points for the EJN Network and as practical caseworkers in the Central Authority of their country under some regulation. This is why there are more responses to this question than actual respondents. 53.85 % of the respondents work at the CA of some EU MS, meaning they work with practical cases and exchange documents with other EU countries daily. 50 % of the respondents are the CP-s, dealing with EJN enquiries and other matters that in cross-border matters mostly include e-mail communication. 15.38 % of the respondents work as judges or in courts or other competent authorities that are also involved with cross-border matters.



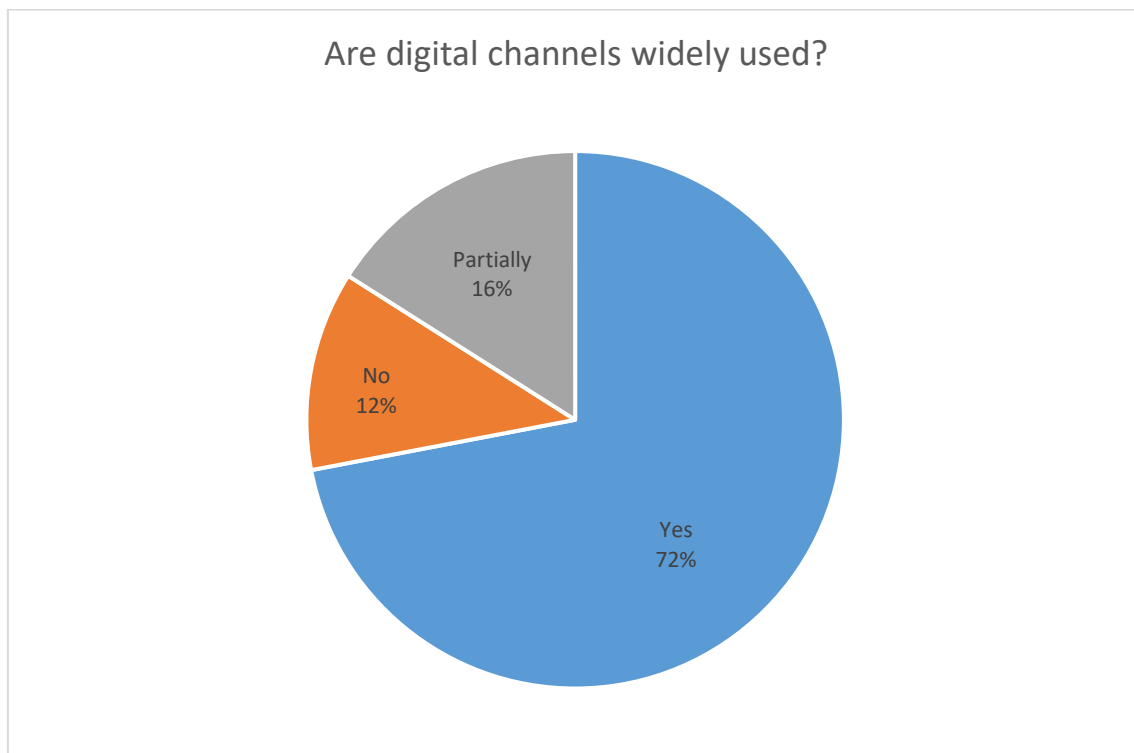
**Figure 6. Roles of the survey respondents**

Rest of the survey was focusing on collecting data regarding digitalization in the EU Member States, more specifically about the use of eID and eSignature and how it influences the work of the EJN network members. The thesis is trying to find out reasons why digital channels are often not used in international cooperation in judicial matters. For that, the respondents were first asked how popular are the use of eID and eSignature in their country, and if digital channels are used widely.

18 respondents (72 %) said that electronic communication is popular in their country and digital channels are widely used. 12 % of the respondents (from Germany and Romania) said that digital channels are not widely used. 16 % of the respondents (from Czech



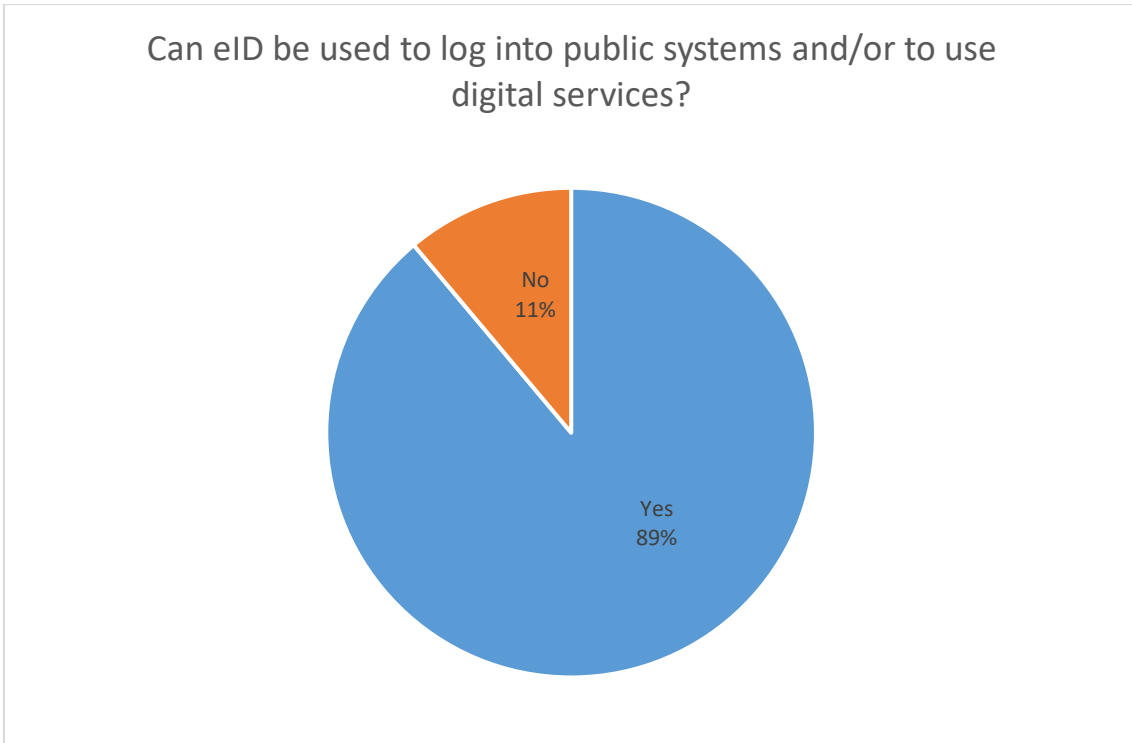
Republic, Poland, and France) agreed that digital channels are used but are not the primary channel for all communications.



**Figure 7. Responses to question 3**

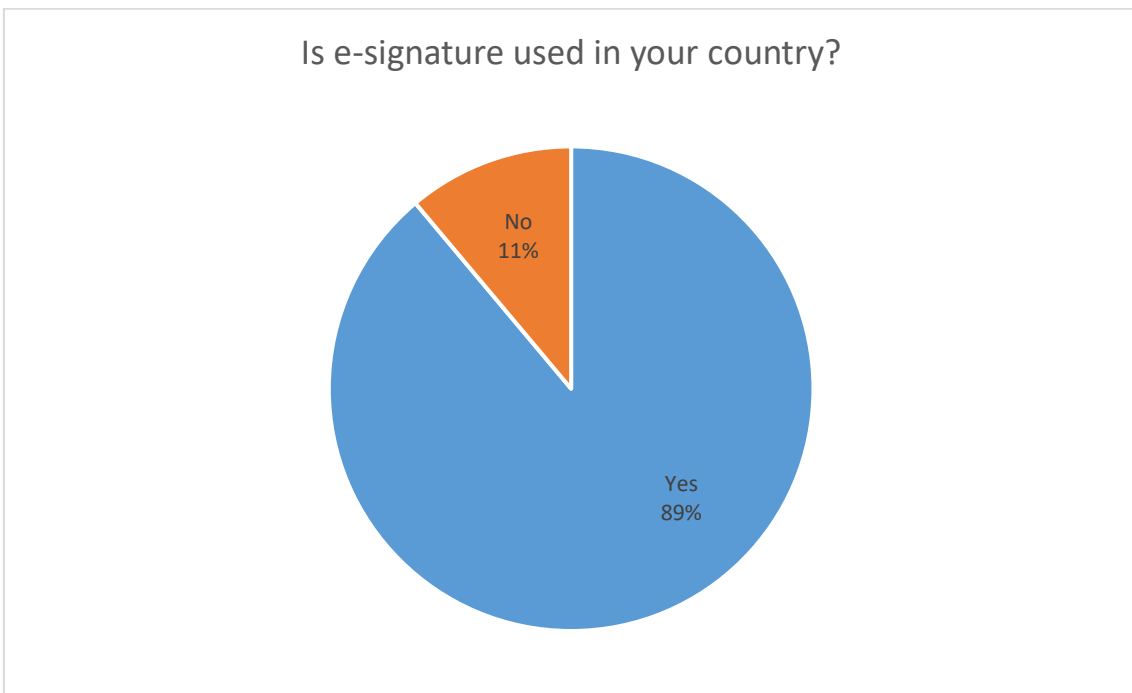
24 respondents (89 %) of the survey from Belgium, Estonia, Finland, France, Germany, Ireland, Latvia, Lithuania, Poland, Portugal, and Sweden replied that it is possible to use eID to log into their state's e-services. A respondent from Italy indicated it is possible but not very widely used. Only people from Romania and Czech Republic replied that it is not possible yet but explained that the countries are working towards it.

According to the DESI report of 2022, more than 60 % of the EU citizens have an eID. 18 of 27 MS have reported an eID scheme under the eIDAS Regulation, and 25 MS have at least one eID scheme in place in their country. Slovenia has started with the notification process in June 2022 (DESI, 2022). Bulgaria is also in the middle of proceedings and Austria has completed the notification process within 2022. Hungary, Greece, Finland, and Ireland have yet to notify an official scheme (European Commission, 2019). Cyprus and Romania are the only MS that do not have a scheme in place, but they have indicated they are working towards it (DESI, 2022).



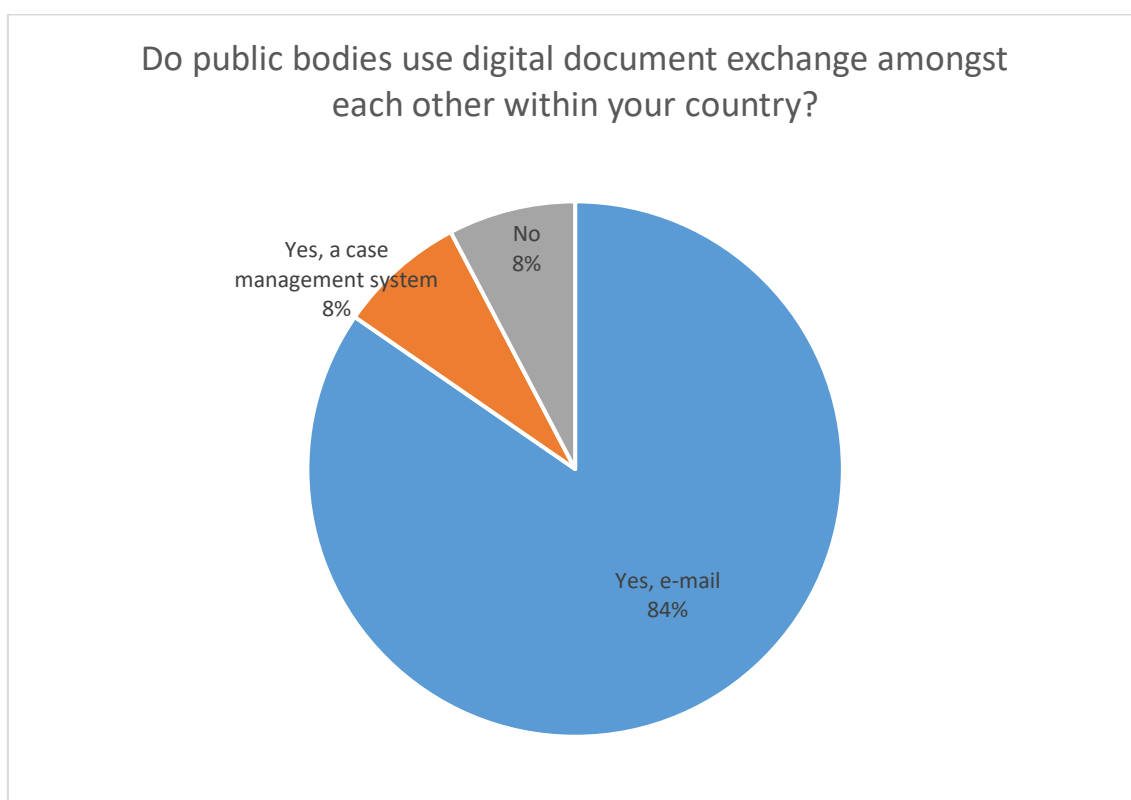
**Figure 8. Responses to question 4**

The survey replies regarding the use of e-signature nationally in the country where the respondent is from were similar. 24 people (89 %) replied e-signature is used in their country and respondents from Finland, Belgium and Romania disclose that e-signature is not widely used within their country.



**Figure 9. Responses to question 7**

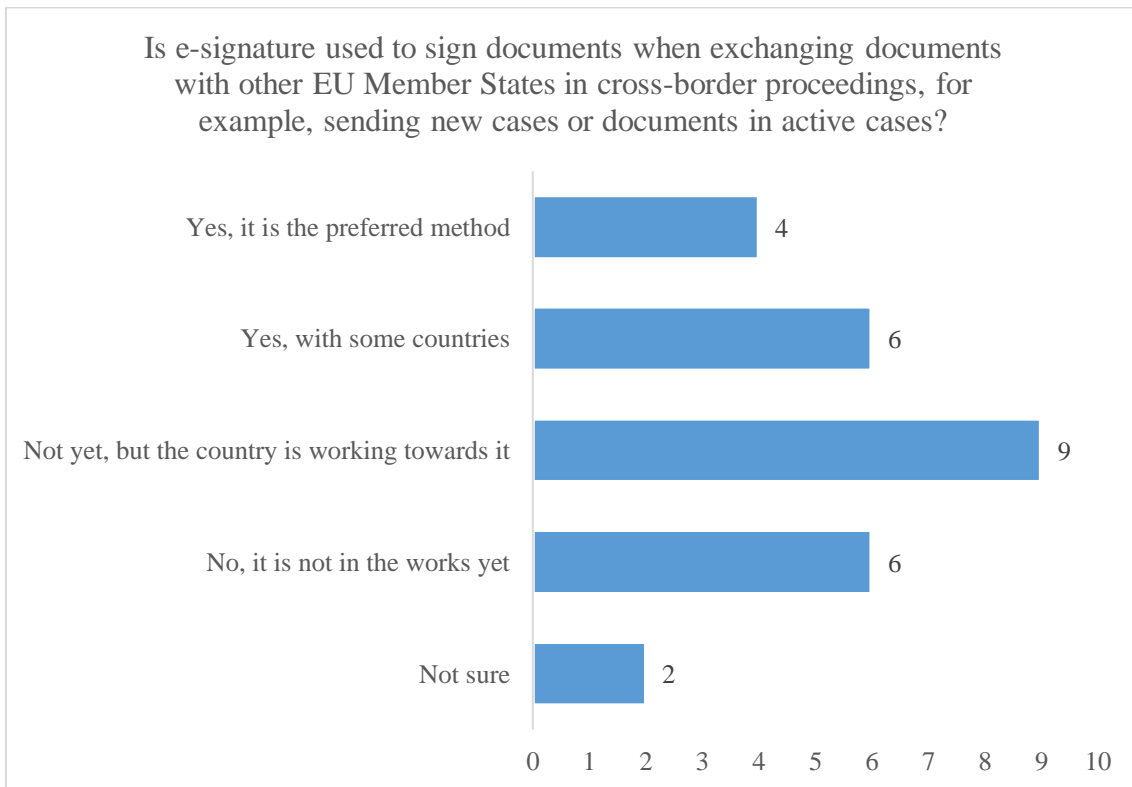
The EJM network members were also asked if public bodies like CA-s, courts, enforcement agencies or other competent authorities in the country exchange documents mainly digitally or they also require original documents by post. Majority of the respondents said that e-mail is primarily used. Respondents from Estonia replied that in court proceedings a national case handling system is mainly used, and the court files are more often created digitally. Respondents from Germany disclosed that non-digital means are still often used, as courts need paperback documents.



**Figure 10. Responses to question 5**

Considering their previous responses, the MS were asked if also in cross-border cases digitally signed documents are exchanged via e-mail. The results were very different from the questions regarding national case-handling, indicating that only a few countries, consider it as the most effective method. Some countries including Estonia, Latvia and Lithuania replied that e-signature is used when exchanging cases between the Baltic countries. Respondents from Czech Republic, Belgium, Germany, Poland, France, and Romania indicated that the country is taking steps towards this. Sweden and Italy replied it is not yet used and has not been made a priority.

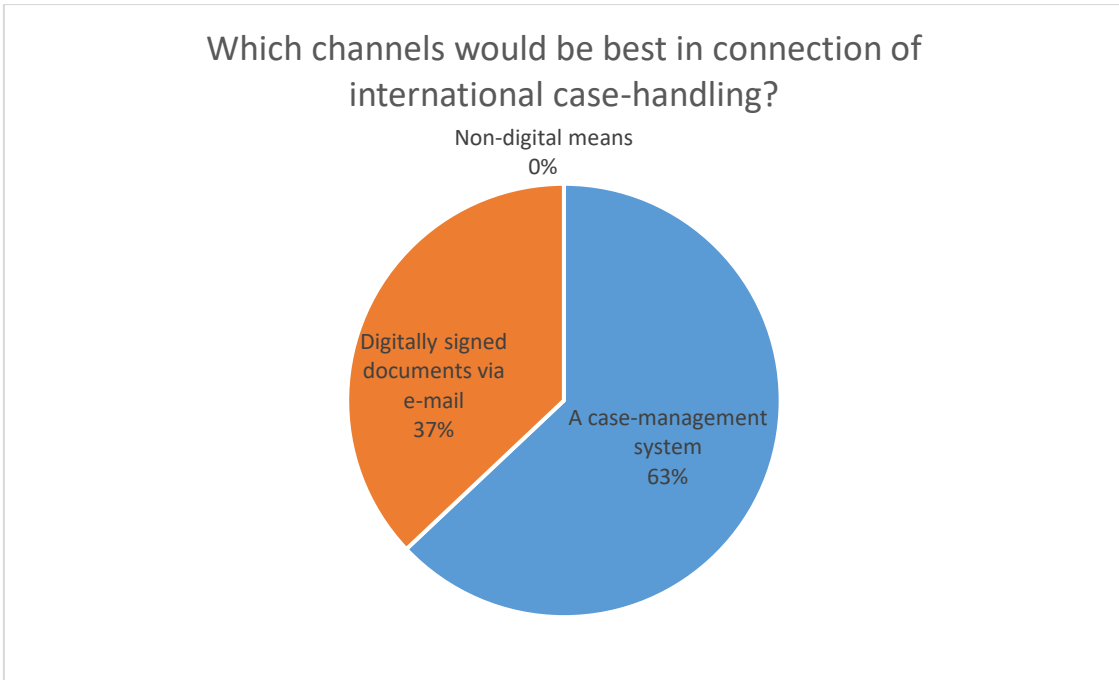
Comparing the data with the DESI report of 2022, Malta, Luxembourg, and Estonia are the top three countries in EU for cross-border services availability. Greece, Romania, Poland, and Hungary are the nations with the least cross-border flexibility and development. The DESI report was taking into account cross-border user support, the use of eID, possibility to use electronic documents, and the availability of online electronic services (DESI, 2022).



**Figure 11. Responses to question 8**

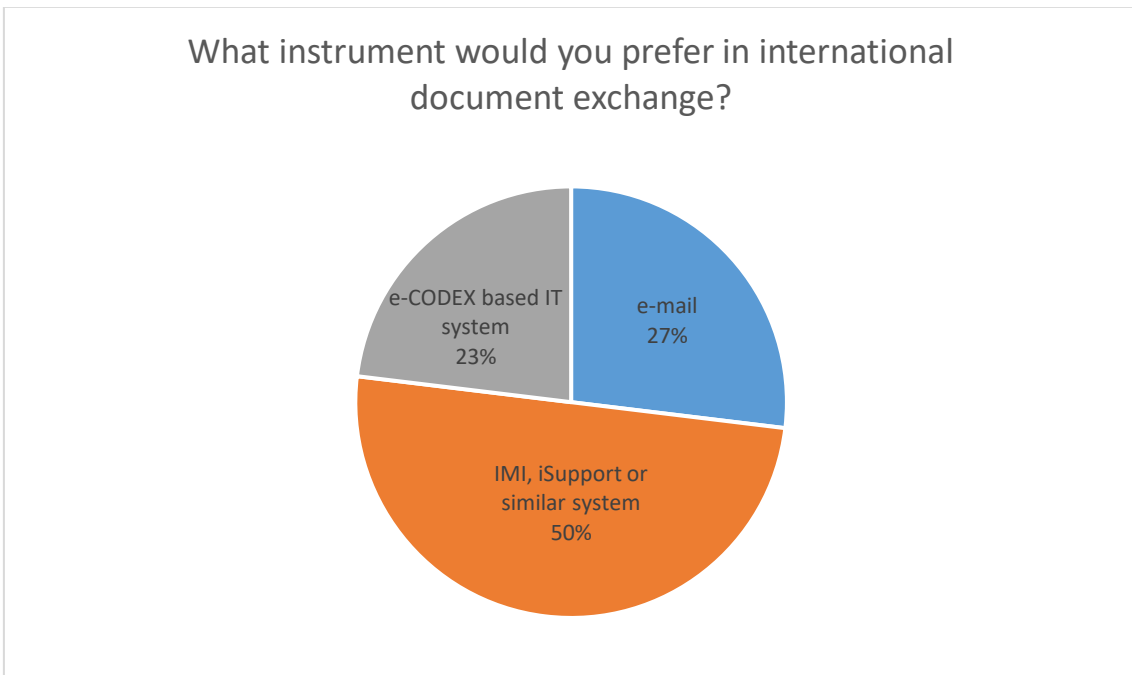
Further questions of the survey were asking the opinions of the EJM network members, what they believe are the most efficient ways forward regarding digitalization and use of e-channels.

Firstly, they were asked, what they believe is the best way of exchanging cases. None of the respondents thought exchanging cases by post or fax would be the way forward. 10 respondents thought the use of e-mail and digitally signing documents would be the best way, and 17 of the respondents answered that there should be a unified case-management system within EU.



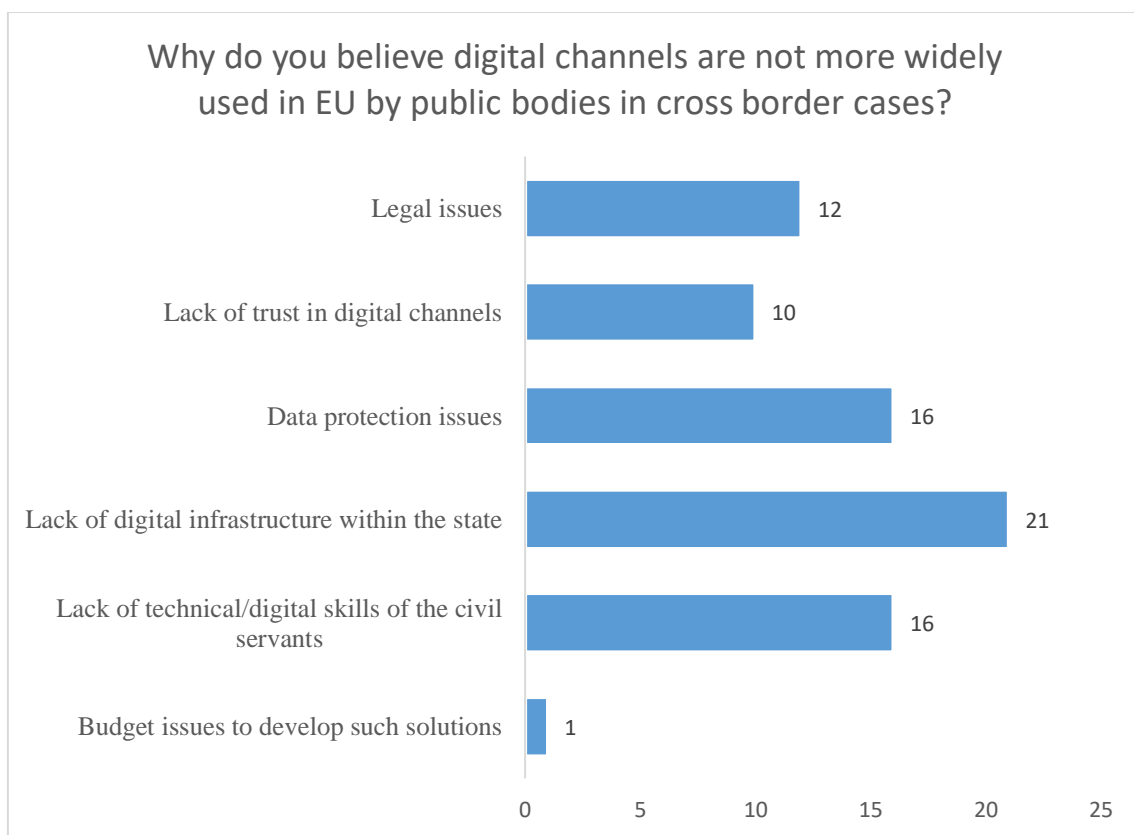
**Figure 12. Responses to question 6**

As all respondents agreed some sort of digital solution is needed for international case handling, they were also asked to specify their preferred instrument for this. Majority of the respondents leaned towards a case-management system over sending digitally signed documents via e-mail. Also, 6 respondents specified that especially an e-CODEX based IT system would be preferred.



**Figure 13. Responses to question 10**

Also, the questionnaire asked the respondents to list what do they believe are the reasons behind why digitalization is taking time in international matters. It was a multiple-choice question, where the respondents could choose as many options as they thought relevant and add their own thoughts. The respondents believe that lack of digital infrastructure within the state is the most critical issue (26.92 % of the registered answers). Closely following are data-protection issues and lack of technical skills amongst the civil servants (both equally 20.51 % of the answers). Legal issues and lack of trust in the digital channels were also named as significant reasons and budget concerns were also mentioned by one respondent.



**Figure 14. Responses to question 9**

The last 4 questions of the survey were completely open-ended questions for the EJM network members to elaborate more on their previous replies and thoroughly explain in their own words their thoughts regarding digitalization of cross-border case-handling and best possible means for it. The respondents were asked to further describe what is needed to move towards paper-less proceedings. Also, if they believe that digital channels must be mandatory for administrative authorities to use, and if EU is even ready for digital case-handling at present times. The exact questions were as follows.

11. What do you believe is needed to move from paper-proceedings to paper-less proceedings?

12. What do you think are the main reasons e-signature is not used in international cases?

13. Do you think digital channels should be made primary in international cases concerning urgent matters like maintenance/custody/child abduction/access cases? Please elaborate.

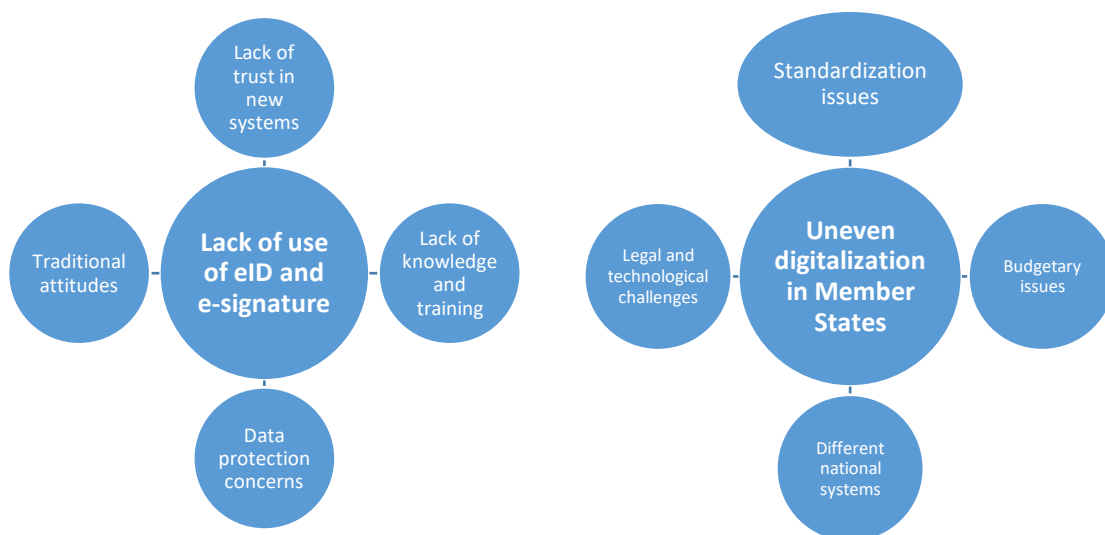
14. Do you believe EU is ready for digital case-handling? Please elaborate.

Answering to the last 4 questions was not mandatory but most respondents chose to do so and were expressing their opinions on the topic. The answers to these questions are further discussed in the discussion chapter of the thesis.

## 6 Discussion

The following discussion is based on the results of the survey that asked questions directly from the EU Member States. It is comparing the results with proposals, surveys and other data from EU Commission and other existing literature on digitalization within the EU. In this chapter the author of the thesis also expresses her own views and opinions on the topic. The aim of the discussion chapter is to contextualize the results of the study and answer the set research questions in a clear and concise way.

Uneven digitalization level in the EU can be attributed to a combination of many factors, including differences in infrastructure, technology adoption, legal frameworks, economic conditions and even cultural factors and traditions. Because of this, it can be challenging to use electronic channels in cross-border cooperation as the infrastructure and procedures differ and countries are often unable to accept each other's solutions. This thesis analyzes different aspects of international case-handling to help improve digital cross-border communication between the EU Member States. It explores how widely are eID, eIDAS and e-signature used; how trusted and accessed are digital channels by EU MS; and if the use of a unified case handling system and e-CODEX can accelerate digitalization.



**Figure 15. Main identified issues regarding digital cross-border cooperation**



## **6.1 Why are eID and e-Signature not widely used within the EU in digital cross-border communication in civil cases?**

Being able to digitally identify oneself is mandatory for digitalizing societies. eID provides a possibility for people to be able to authenticate themselves and provide proof of who they are, when trying to use electronic services. To log into systems, for example a case-handling system for legal cross-border proceedings, having a secure authentication method is a must. To be able to use e-mail and transmit documents safely in a digital container, e-signature connected to an eID is needed. It seems clear that both eID and e-signature are essential for digitalizing cross-border cooperation in EU, yet in practice there are still several challenges.

Many survey respondents indicated that digital case-handling is not common in cross-border cases, because digitalization in the Member States is on different levels and in several MS the infrastructure is not yet in place. According to the DESI report of 2022, online availability of services in the MS and especially the availability of cross-border services is uneven. When in the countries that are in the top of the list, over 90 % of the people use e-Government services, in the countries that are in the bottom of the list, only 20-40 % of the population does. The medium across EU is 65 % which is quite high, but what is concerning, is that according to the DESI report 12 of the 27 countries rank below that (DESI, 2022).

As digitalization is a continuous priority in the European Union, EU institutions should consider the inconsistent and uneven level of digitalization while creating new services and tools or improving those already in use. This will help prevent some countries from advancing too quickly while others are falling far behind. When new and useful solutions are worked out, but many Member States are not able to use them because of legal or technical reasons, it may not result in faster digitalization or innovation, which is the ultimate goal.

### **6.1.1 What are the main reasons in the lack of use of eID and e-Signature?**

Regarding the lack of use of eID and e-signature in international cooperation the respondents of the survey proposed many possible reasons. Lack of knowledge, unwillingness to try new solutions, lack of trust in new systems, and data protection

concerns were often mentioned. Some MS answered that as there is no wide use of e-signatures in the EU yet, their state has also not been actively participating in developing the necessary systems. Many MS expressed their opinion that e-signature should be the preferred method within the country first and only then international cooperation can be discussed.

It was often mentioned by the survey respondents that one of the biggest issues is that the EU countries use different national systems which are in many areas incompatible with each other. National eID systems in essence are different. One solution might not work for all, but they must be interoperable. eIDAS is aiming to achieve interoperability, but there are still several challenges (Pöhn et al., 2021). As well as the eID schemes, the e-signatures of the MS are of different strengths and do not comply with each other. There is need for continuous technical innovation and development of common technical standards, guidelines, and best practices. Through new technologies usability, security, and interoperability of electronic identification and e-signature trust services can be improved.

It was on many occasions mentioned that changes in procedures within the Member States need to happen during the same time as EU makes steps towards digitalization. If the courts and other judicial institutions still require paperback documents as original documents, it is of little use that the applications exchanged between Central Authorities are signed by electronic signatures and the communication happens fully digitally. Whole proceedings need to be able to be held digitally.

One respondent indicated that in the USA electronic signatures are valid in all the states and granted the same legal status as handwritten signatures. EU could use this as a general example and harmonize the legal requirements so that the e-signatures would be valid in all EU countries. This could encourage the MS to use e-signatures more and develop their systems if they can be sure that their e-signatures are recognized across EU and using the digital solutions can therefore save time and effort for them.

IN the U.S. electronic signatures are protected by two legal acts: U.S. Electronic Signatures in Global and National Commerce (ESIGN) and Uniform Electronic Transactions Act (UETA). Electronic signatures are legal in all the states and both ESIGN and UETA are used in most of the states. Under both, ESIGN and UETA, electronic

signatures are valid and legally binding. E-SIGN especially has been concentrating on harmonizing the legal requirements and different state laws across the U.S., so that the electronic signatures are recognized across states borders (Plitt et al., 2015). Although the technical side and security levels differ a lot, EU could benefit from harmonizing the rules and regulations concerning the e-signatures strengths, their technical attributes, and trust providers in the EU, so that the signatures of the EU countries would be created in a matter that they are interoperable with each other and accepted in cross-border matters across the union.

### **6.1.2 What are the legal challenges for eID and e-Signature recognition in the judicial context?**

To encourage efficient communication and cooperation between EU Member States and overcome existing legal challenges withing cross-border case-handling in civil proceedings, a well-coordinated and standardized strategy needs to be worked out and implemented.

Digitalizing judicial cross-border cooperation includes a larger field than just the communication part. To digitalize cooperation, it means that the countries cooperating need to have national digital infrastructure set, including procedures for judicial governance. Digital procedures must also follow the rules of fair procedure; therefore, IT development requires ongoing alignment and re-alignment of IT, procedural legislation, and its interpretation. This applies to the overall judicial governance framework not just IT governance. As digital methods become the norm for managing proceedings, courts and other judicial authorities must ensure that when combining regulation and the use of technology, fundamental rights principles and fair procedure are guaranteed (Reiling & Contini, 2022).

The legal systems and procedural norms in the EU Member States might differ substantially, which can make cross-border cooperation difficult. Harmonization of rules across EU Member States is critical for tackling the legal problems related to eID and e-signature, as well as assuring their widespread adoption and success in the EU. Without harmonization it cannot be ensured that the countries' eIDs or e-signatures are recognized and accepted across borders.

Another valid concern is regarding data protection and privacy. eID and e-signatures entail the processing of personal data, which is governed by the GDPR (Regulation EU 2016/679, 2016). GDPR compliance is mandatory in the design and implementation of eID and e-signature systems. Data protection concerns are largely connected to the lack of trust in digital channels, so making sure that the principles of data minimization, transparency and security are followed; data subjects rights are well protected; and all data breaches are addressed immediately, are a step closer to peoples' trust in the IT tools and the digital possibilities.

### **6.1.3 What are the organizational challenges?**

The main identified organizational challenges include standardization, interoperability, implementation, and adoption issues. eID and e-signature systems need to be interoperable across the EU to be effective. Harmonizing the applicable regulations and developing specific cross-border authentication mechanisms like the unified case-handling system can be of help. Next to legal harmonization, common technical standards should be developed to guarantee technical interoperability when linking systems and services. Ensuring standardization and interoperability can help to reduce the time and cost burden on citizens, legal professionals, and governments alike.

To reduce implementation and adoption issues, raising awareness of the eID and e-signature technologies in the form of training programmes or information campaigns among legal professionals and EU citizens can also assist. Understanding the systems and their benefits can increase trust in the users and reduce human errors resulting in possible future security issues.

## **6.2 How to improve cross-border case-handling in civil cases between the EU Central Authorities by using digital channels in the judicial field?**

The concept of e-Justice covers a wide range of actions like filing a case online, accessing case law online, a possibility to participate in video-hearings, and the ability for courts and other legal professions to access case files electronically and exchange materials via electronic channels. The use of integrated e-Justice platforms for the exchange of data and documents, and electronically managed judicial procedures, are increasingly

becoming the default standard for case handling. The administration of justice is therefore consequently moving from paper to electronic means.

There are many critical areas in the use of e-Justice and digital case-handling. The standardization of procedures in the MS is necessary, so that they could be managed under the same systems. Also, digitalization of workflows is mandatory to be able to benefit from technological advancements. For example, electronic case-handling becomes meaningless, if service of documents is still done via using postal services. It needs to be analyzed what digitization means to the civil servants and service users and they should be involved in the development of the new procedures. Electronic transformation in the judicial field only has value when the lawyers, government officials and other civil servants choose to participate and voluntarily exchange traditional ways for the IT tools (Brocca, 2022).

### **6.2.1 What would be the technical tools MS would likely use for digital case handling in cross-border cases?**

Almost  $\frac{3}{4}$  of the survey respondents replied that their preferred option would be a widely used case-management system, but it was in many cases specified that it should be a user-friendly e-CODEX based IT system. There are different case-management systems in the works and being tested in many MS now, but a system that could be used exchanging cases and documents under different EU regulations could be the unified solution that is missing now. User-friendliness is an important factor on what to concentrate on while developing new tools. When a system is difficult to navigate and more time-consuming than the previous solutions, practitioners might not be interested in using it at all. The buildup of the system needs to be logical and the functionalities understandable and necessary for the type of case-handling it is aimed for.

The aim of the EU Commissions' proposal for the Digitalisation Regulation is to make digital communication between the EU competent authorities mandatory. The idea is to extend already existing IT tools like e-CODEX or eEvidence Digital Exchange System (eEDES), which are already used regarding criminal matters. The Service of Documents and Taking of Evidence IT systems that will be applied starting from mid 2025 will also base on the eEDES. SoD and ToE are the first two digital judicial cooperation instruments to be able to use with the new IT system, the rest of the instruments will slowly follow.

The implementation of them will be introduced in batches throughout the coming years with a target to complete full digitalization by 2029 (European Commission, 2021). The author believes that considering the slow reception this far and the survey replies, the most successful way forward is to keep the technical tools as simple and user-friendly as possible. The systems should be alike, interoperable, and developed using the same IT tools. Introducing new solutions gradually rather than all at once is a wise strategy, but it is important to take into account that they must be interoperable and not contradict each other.

The Commission proposes a decentralized IT-system that allows to facilitate communication, data and documents between courts and other competent authorities. Rules on the use of videoconferencing and other technologies will be introduced. Also, details of the duties of data controllers and data processors will be explained. With the gradual approach, it is assumed that the existing IT systems will be expanded to all cross-border judicial communication governed by EU judicial cooperation instruments. The MS can either connect their national IT systems to a decentralized network or adopt the free software solution proposed by the Commission (European Commission, 2021). The author agrees that a possible best solution for the future could be an IT-system that can be used for case management under different EU regulations, but with the gradual approach and all the existing challenges, it is necessary also to concentrate on harmonizing the rules and regulations concerning electronic signatures in the EU. Before the availability of a well-functioning unified case-management system, electronically signed case documents would be the fastest solution for digital case-handling.

### **6.2.2 What are the main requirements for paper-less cross-border proceedings?**

Lack of trust, lack of technical infrastructure, lack of innovative and user-friendly ideas, lack of technical skills, legal issues, security and data protection issues were mentioned in the survey results as the biggest challenges that hold back the implementation of potential unified case-management system. Although most MS generally indicated that they believe a case-handling system would be the best technical solution in the future, it was mentioned that forwarding digitally signed documents by e-mail would be the logical first step and could probably require less implementation time and technical changes. Still, before, it could be used union-wide, there must be common standards and legislation in place to avoid legal and data protection issues.

The author believes that although EU countries are at different points with digitalization, introducing the use of electronic signatures in cross-border cases would be quicker than implementing a unified case management system. Electronic signatures can be implemented mainly with existing technologies, whereas a unified case management system would require substantial investments in infrastructure, technology, and regulatory frameworks and significant coordination among EU Member States. Both solutions are ultimately important and necessary, but to innovate and improve cross-border cooperation now, exchanging digitally signed case documents would be a great start.

If eID is not used in every EU MS and the countries do not accept each other's digital signatures it is difficult to speak about fully digital cross-border cooperation. Rules must be standardized regarding the various service providers and the strengths of the signatures. An advanced technical solution is needed that provides unity but also security. It was also mentioned that after the tools are there, there should be legislation in place that obliges MS to use the digital channels. Some of the survey respondents believe that more specific and stricter instructions from the EU institutions are needed to speed up digitalization.

As mentioned before, MS are at very different stages with digitalization and there is serious lack of infrastructure in some states, also, the aging population and the ages of the civil servants themselves, were pointed out as worrisome. Next to technical and digital advancements traditions and formalities play a great role in moving towards paper-less proceedings. The definition of original documents should be widened and generalized in many countries before digital documents can be accepted as original documents by courts or notaries. Some respondents believe that this will start changing with a generation shift to more technologically advanced public employees.

Lack of infrastructure might be the most critical issue that needs solving, but at the same time there must be great concentration on the manpower. In many countries e-services or digital channels are not widely used nationally, so public officials might also need more intensive training. The training should include the instructions on how to use the IT tools but also an introduction into the essence of the systems, general explanations about what using them entails and how data is exchanged between the systems. Also, there should be strong focus on cybersecurity and data protection. A lot of distrust can be based on the

lack of training. To start trusting the digital channels peoples' views and attitudes need to change and for that they have to see the benefits of the new tools before the threats regarding them. Sending documents by regular post, couriers, or fax, can also cause data breaches, yet they are used with more confidence than digital channels because they are more familiar.

### **6.2.3 What are the main arguments towards a unified digital system across EU in the judicial field?**

Digital case-handling can reduce the cost of legal proceedings, simplify the processes, and reduce administrative burden, make the proceedings more transparent and increase public trust by providing access to case information, enhance cybersecurity, protect the privacy of the parties, and in general improve effectiveness and efficiency of judicial proceedings and legal case-handling.

The respondents of the survey were asked if EU is ready for fully digital case-handling and document exchange. Regardless of the mentioned challenges, most of the respondents agreed that digitalization is a way forward. They believe EU is ready and it is about time that the union as a whole moves on with digitalizing cross-border cooperation. Main reasons that were pointed out were that in many countries private sector is more digitalized than the public sector and public sector needs to catch up. Also, during the recent COVID-19 pandemic many countries were initially left paralyzed. To avoid such situations in the future, digital infrastructure needs to be in place, rules must be standardized, and the users need to be trained and have trust in the systems. It was also mentioned that the conveniency of working remotely and not needing to depend on paper files might be one of the reasons that pushes civil servants towards digital channels.

Although most EJM network members believe that the time for digital case-handling is now, they stressed out that digitalization must be implemented slowly and thoughtfully. Some of the respondents worried that although EU institutions are focused on digitalization, not all Member States might be ready for it now. The move forward should not exclude some of the EU countries. This is why the Commissions proposed gradual implementation is essential. Also, continuous support from EU institutions is needed.

All in all, the survey respondents believe that digital channels should be made primary for CA-s and other public institutions. The proceedings would become less time



consuming and lead to results quicker. Especially in time-critical cases like child abduction or custody cases and other family matters, digital channels need to be preferred and used to avoid delays. Sending documents by post can take weeks, also documents might get lost or damaged. Digital cases can be looked through faster, stored easily and always opened in a digital casefile when needed to continue working with the case. In family matters cases can be closed but then re-opened after a certain time period. Keeping statistics regarding the cases will also be simpler with digital case files, therefore also re-opening cases and giving necessary information to the parties during an ongoing case or when a new incident related to a previous case needs dealing with.

### **6.3 Recommendations**

Improving cross-border cooperation in the EU will require a joint effort by governments, international institutions, businesses, and the whole civil society. The EU can create a more integrated, thriving, and sustainable Europe by addressing legal, financial, and social barriers while promoting cross-border cooperation. It is necessary to strengthen institutional frameworks, for example create new institutions or agencies that are solely responsible for supporting cross-border cooperation, provide more funding for international projects, and establish harmonized legal frameworks that encourage cross-border cooperation. Cross-border infrastructure needs to be developed, and a culture of knowledge-sharing, and capacity-building must be encouraged. There should be training programs, and knowledge and best practices sharing platforms for professionals from different sectors. The EJM network is a great example of having regular meetings and discussions on different matters including digitalization and digital case-handling.

This thesis aims to offer solutions for improving digital cooperation by listening to the opinions of the professionals working daily with practical cases in the EU. The EJM Contact Points and practical case workers have expressed their opinions on the challenges of digitalization connected to their work and what would they prefer for the future. EU institutions should take the views of the practitioners into account as they have been and will be using the systems and solutions and can offer valuable input on their functionality and user-friendliness. The EU Working Groups should also always include practitioners.

Harmonizing the rules and regulations across the EU concerning the use of eID and e-signature will allow digital case-handling before the unified case-management IT-system

will be available. Focusing on that will strengthen and speed up cross-border cooperation and document exchange in the legal field. After providing the functioning tools, digital channels should be made a default option for communication and document exchange for public institutions. Also, with further digital cross-border cooperation and more experience with digital case-handling the Member States could be more at ease with eventually using a fully electronic IT-system. The gradual implementation of new tools, continuous training and awareness-raising are equally as important.

## 7 Conclusion

Effective and efficient digital cooperation between Central Authorities of the EU Member States depends on all the below-mentioned factors. States need to have well-functioning e-governments and their citizens must use and trust their e-services. Electronic systems need to be interoperable and secure and for data protection eID and e-signature should be used. For legal cooperation, work processes in the judicial system, e.g., public administration offices and courts, need to be at least somewhat digitized. Digital channels should be the default option for public institutions to guarantee timely case management.

Research objectives of the thesis were accomplished, and the set research questions were answered. The goal of the thesis was to understand where digitalizing judicial cross-border cooperation stands in the views of the Central Authorities of the EU Member States, and to figure out how to increase digital cross-border case-handling among the countries. The study concentrated on three major areas:

1. How broadly are eID, eIDAS and e-signature used, what are the main issues, and how can it improve digital cooperation.
2. How trusted and common are digital channels within EU Member States for cross-border civil case-handling and what are the key issues.
3. Interoperability of systems and the adoption of a unified case-handling IT system and the use of technologies like e-CODEX.

Derived from the research areas, the two main research questions of the thesis were searching for answers to why aren't eID and eSignature used more in the EU for digital cross-border cooperation in civil cases and how can cross-border case-handling between the EU Central Authorities in the judicial field be improved by using digital tools.

1. Why are eID and e-signature not widely used within EU in digital cross-border communication in civil cases?
2. How to improve cross-border case-handling in civil cases between the EU Central Authorities by using digital channels in the judicial field?

Based on the replies to the survey organized withing the EJM network members, data from EU reports, articles and statistics, and other existing literature, it can be summed up that digitalization in EU is still uneven, despite the efforts of the EU institutions. Digitalization of cross-border communication depends largely on what is the state of digitalization nationally in the countries. The countries that are more advanced regarding digitalization are also more supportive and interested in digitalizing cross-border case handling as they have seen the benefits nationally.

The most effective method to advance digitalization may not be through rapid technological advancement, but rather through the harmonization and standardization of legal and technical standards across the EU. Many countries need both financial and technological support to first nationally reach to a level that allows digital cross-border cooperation. eID and e-signature are both essential to cross-border cooperation, but they must be used nationally in all the countries to be able to use them in international cases.

According to the survey and the DESI report of 2022, most EU countries are in an opinion that digitalization is a way forward in cross-border case-handling. Most EJM network practitioners and caseworkers prefer a unified case-management system, but the IT tool should be an e-CODEX based user-friendly, logical, and secure system that is interoperable with national systems. As changing to an interoperable digital IT system takes time and needs gradual implementation, it is equally as important to focus on harmonizing the technical requirements, rules and legislation governing electronic signatures in the EU. Exchange of electronically signed case documents would be the quickest answer for digital case-handling prior to the release of a well-functioning unified case-management system.

## **7.1 Limitations and future work**

The main limitation of this study is the method of sampling. Convenience sampling was chosen in the survey as the data was needed from a specific group of respondents and not all the contact details were available. Convenience sampling is often not deemed ideal because it does not ensure that the results are representative of all the people (Patton, 2002). Not all the EU Member States answered to the survey, so the rest of the countries might have different opinions on the topic.

Another limitation connected to the previous one, is the number of survey respondents. The survey received 27 responses from 14 different EU countries. The goal was not to receive hundreds of responses as the target group is very specific and not large itself, but the aim was to reach to as many EU Member States as possible, to gain knowledge of the opinions of the different countries.

There were respondents from more than half of the EU Member States, so the author believes the data was sufficient to continue with the study. Also, the data received via a survey was consistent and did not contradict other existing literature or previously conducted surveys on the topic. The data of this thesis is especially valuable, as the opinions of the practical caseworkers under different EU instruments were received. To overcome limitations in the future work, the data from the EU MS could be asked over a longer time-period and via more official channels like working together with the EU Commission or other European Institutions.

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## Appendix 2 – Questionnaire for the EJM Network members

Link to the questionnaire:

[https://docs.google.com/forms/d/e/1FAIpQLSdyd0KCaF9Y77NsUYgb0J\\_Ck-uo87XoxclUuWbdLrzoZXJeeg/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSdyd0KCaF9Y77NsUYgb0J_Ck-uo87XoxclUuWbdLrzoZXJeeg/viewform?usp=sf_link)

1. EU Member State (country):

2. Function:

- Central Authority for practical cases (CA)
- Contact Point (CP)
- Judge
- Other

3. Are digital channels and electronic communication widely used in your country by public bodies?

- Yes
- No
- Other

4. Can eID (electronic identity) be used in your country to log into public systems and/or use digital services?

- Yes
- No
- Other

5. Do public bodies, e.g. central authorities/courts/enforcement organizations use digital document exchange amongst each other within your country?

- Yes, e-mail
- Yes, digital case management system
- No

6. Which channels would be best in connection of international case-handling?

- A unified case management system in EU

- Digitally signed documents via e-mail
- Non-digital means
- Other

7. Is e-signature used in your country?

- Yes
- No

8. Is e-signature used to sign documents when exchanging documents with other EU Member States in cross-border proceedings, for example, sending new cases or documents in active cases?

- Not yet, but the state is working towards it
- No, it is not in the works yet
- Yes, it is the preferred method
- Yes, with some states. Please elaborate, which states (under other):
- Other

9. Why do you believe digital channels are not more widely used in EU by public bodies in cross border cases?

- Lack of trust in digital channels
- Data protection issues
- Lack of digital infrastructure within the state
- Lack of technical/digital skills of the civil servants
- Legal issues
- Other

10. What instrument would you prefer in international document exchange?

- Digitally signed documents via e-mail
- IMI, iSupport or another similar case management system
- Documents sent by regular post
- Other

11. What do you believe is needed to move from paper-proceedings to paper-less proceedings in EU?

12. What do you think are the main reasons e-signature is not used in international cases?

13. Do you think digital channels should be made primary in international cases concerning urgent matters like maintenance/custody/child abduction/access cases? Please elaborate.

14. Do you believe EU is ready for digital case-handling? Please elaborate.