Beyond IT infrastructure choices: An analytical model supporting the implementation of a tax standard

A Comparative case study of the adoption of IT Infrastructure and Governance for AEOI standard in The Netherlands and Indonesia

R.A. Kurnia

Beyond IT infrastructure choices: an analytical model supporting the implementation of a tax standard

A Comparative case study of the adoption of IT Infrastructure and Governance for AEOI standard in The Netherlands and Indonesia

By

Rizky Amalia Kurnia
Student number: 4615069

in partial fulfillment of the requirements for the degree of

Master of Science
in Management of Technology

at the Delft University of Technology,
to be defended publicly on 17th January 2019

Graduation Committee

Chairman /First Supervisor	: Prof. dr. Ir. M.W.F.H.A. Janssen,	ICT Section
Second Supervisor	: Dr. ing. V. E. Scholten,	ETI Section
Daily Advisor	: Dhata Praditya,	PhD Candidate, ICT Section

Acknowledgement

In the name of God, the most gracious and merciful.

At last, one of the significant achievements of mine in the pursue of academic has been realized. I would like to dedicate this page for the people that I am really thankful of that have been helping me reaching to this end of the journey in the Netherlands.

First, I would like to thank my graduation committee, for their endless support and guidance for me in the master thesis project. Prof. Marijn, who always been supportive and have the valuable insights and knowledge that could keep me on the track, even though several times I feel like lost, and disappearing from his reach. Victor Scholten, for which we did not get much meetings, but his valuable feedbacks never fail to amaze me for their eye-opening insights that I could never think of. Dhata Praditya, who is really patient, supportive, and has been a great person to have a discussion with. I really am grateful to have an opportunity to be supervised by all of you and really appreciate the time helps that you have given to me.

Second, to my family back home in Jakarta that would always be there to listen to every story that I have been through, the ups and down, or even the unnecessary things for when I could not control the state of my mind. Thank you for the love, and never-ending support that made me a stronger person now.

To all of my friends, the TPM buddies, Renita, Lina, Ifa, Hasan, and Ivo. My previous and current housemates, Rina, uswa, and Bosboom 2.0. And the friends that still be in the NL to this very time, Rafil, Yusuf, Helmi, Ka Diaz and other friends that I could not mention one by one. Thank you for the joy, laugh, and tears that we have been through. You really have a special spot in my heart!

Lastly, I would like to thank LPDP for giving me the opportunity to study here, in TU Delft.

R.A. Kurnia
Delft, January 2019

Executive summary

In 2014, the Organization for Economic Cooperation and Development (OECD) has established an international standard to fight offshore tax evasion (OECD, 2017d) since the trend of the revenue loss is estimated to be around **USD$500 billion** annually, globally (Cobham & Janský, 2017). The standard is called the Automatic Exchange of Information (AEOI) in a financial matter. It consists of three main components which are: a legal basis for the exchange agreement, the reporting rules, and data schema. These components are translated into **four requirements** that **needed to be implemented** by the participating countries **before** the execution of the automatic exchange. This research is focusing on the third requirements which are to fulfill the IT infrastructure and administrative capacity.

As an overview, the simplified reporting process begins with financial institutions in a country starts to collect their foreign customer accounts data, and submit the financial data to the tax administration. Only then the tax administration could aggregate the data based on the countries that it has been agreed to exchange with and accordingly sends the data to those countries.

However, AEOI does not prescribe the approach regarding IT infrastructure that enables the reporting from financial institutions to the tax administration. Moreover, little is known from the academic literature regarding the type of IT infrastructure that could enable the reporting of financial institutions to the tax administration. Fulfilling the IT infrastructure enabling the automatic exchange reporting is challenging, especially for the developing countries (Knobel, 2017). Why is that the case?

Firstly, different participating organizations can have their information systems which are unique to their specific needs so integration among those various systems can bring technological challenges (Fedorowicz, Gogan, Ray, & College, 2004; T.-M. Yang & Maxwell, 2011). Secondly, the complexity of the inter-organizational information sharing can contribute to the challenges due to the organizational and institutional structure that could hinder the collaboration between organizations (Luna-Reyes, Gil-Garcia, & Betiny Cruz, 2007).

Therefore, in this research, we aim to investigate the types of IT infrastructure and its governance that could enable the reporting for the AEOI purpose, while also exploring the determinants influencing the selected approach. The objective is realized by developing an analytical framework that helps in analyzing the problem and apply it to a case study in two countries which is the Netherlands and Indonesia. Thus, our main research question would be *"What are the types of IT Infrastructure and its governance enabling the reporting of tax data for AEOI purpose in a country?"*

The research is conducted through two phases, first is to come up with the initial conceptual model through literature review and content analysis. Afterward, once the model has been derived, in the second phase case study is performed to observe the relevance of the model. The data collection thus is conducted for each case through semi-structured interviews. In total,

seven interviews were conducted, two respondents from the Netherlands and five respondents from Indonesia. The interview results were transcribed and then analyzed using the qualitative analysis software Atlas.ti.

In the end, our research resulting in several deliverables and findings:

- Incorporating the concepts and theory of Inter-organizational information sharing, IT infrastructure, governance structure, and factors influencing the Inter-organizational information sharing, we propose an analytical model that could be used in identifying the types of the IT infrastructure and Infrastructure governance, as well as recognizing the factors that should be taken into consideration.

- There are two types of different IT infrastructure and its governance approach that we have identified through the case study, and the chosen approach has their contextual factors that influence the selection approach.

- Initial assessment of IT capability, experience and resource and the creation of business case were found to be essential to be done since it will yield in the goals and affect the kind of decisions for the IOSs. In other words, we did not find which types is superior or the best-fit for the implementation because at the end of the day, the infrastructure will depend on the contextual factors that affect the needed requirements.

This work contributes to the existing literature about AEOI implementation by providing an empirical based AEOI implementation in the context of IT infrastructure. Additionally, this research also contributes to the generation of a preliminary exploratory model to analyze the AEOI implementation strategies in the IT infrastructure context by investigating two countries with different nature (the developing and developed country). Moreover, the result of this research also enriching the current body knowledge of inter-organizational information sharing by identifying the type of infrastructure and governance and confirming and adding some of the influencing factors exists in the literature.

From a practical perspective, the insights gained from this study may be of assistance for the program manager of AEOI implementation in their decision making regarding the type of infrastructure and Infrastructure governance. The lesson learned that we derived from the two cases could provide insights on what critical issues/concern faced by the participating countries perhaps can be used as benchmarking criteria for the program managers of AEOI implementation as well as the policymakers in the OECD department as the input to improve the assistance for both developing and developed countries.

Table of Contents

List of Figures

List of Tables

1 Introduction

This chapter introduces us to the background story of the study. Firstly the introduction about the topic, which in this case, regarding the inter-organizational information sharing and the international data exchange in the financial matter is presented. Following that, we try to pinpoint the main problem that is highlighted in this study and elaborated the research objective and questions accordingly. Lastly, we present the outline and structuring of the thesis report.

1.1. Background

In 2014 the Organization for Economic Cooperation and Development (OECD) established international standard enabling countries to exchange financial data called Automatic Exchange of Information (AEOI) standard (OECD, 2014). The objective of the initiatives is to fight offshore tax evasion because it is considered one of the crucial concerns for countries globally for its devastating effect in the revenue loss (OECD, 2017d). A study by Cobham & Janský (2017) showed that globally, the revenue loss is estimated to be around **USD$500 billion** annually (Cobham & Janský, 2017). Thus, it is perceived that the AEOI standard can be a powerful tool for achieving international tax transparency for its enforcing power that enables the exchange of income related data within participating countries (Panayi, 2016).

The basic process of how the exchange between participating countries is conducted is depicted in the following **Figure 1**.

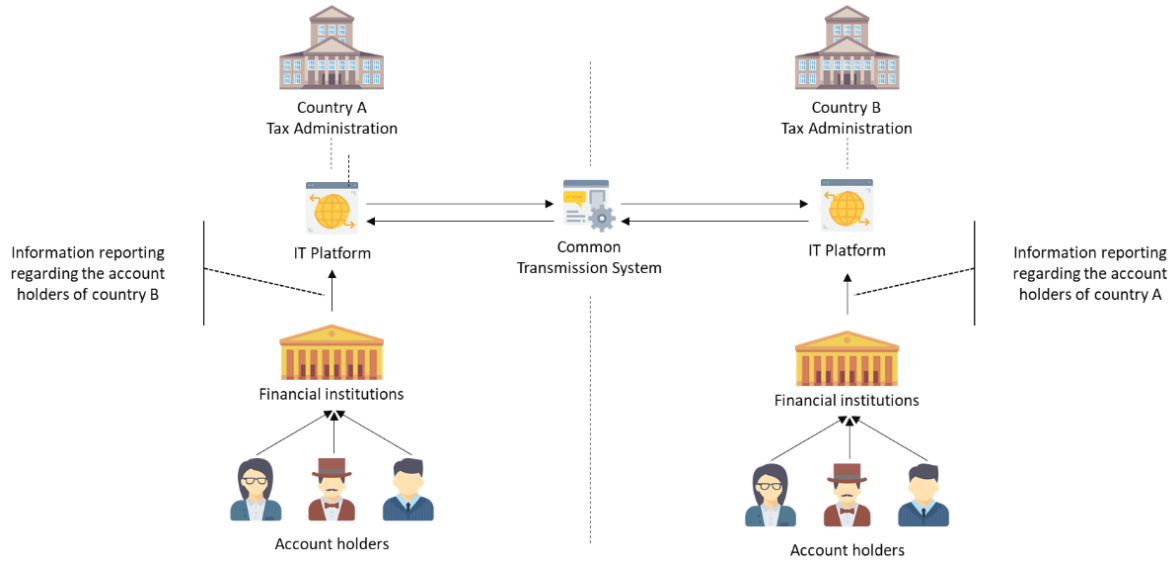

Figure 1 The process of automatic exchange described by the standard (OECD, 2018)

As can be seen from the above figure, first the financial institutions need to collect the required financial data of their customers which are the account holder. Then the data needs to be submitted to the tax administration using an information technology platform or an information system. Afterward, the tax administration will aggregate the data based on the

country residence and send the data to other countries' tax administration. The exchange of financial data between countries' tax administration can be facilitated by the Common Transmission system (CTS). Now, we might wonder what does the AEOI standard entails and what needs to be fulfilled for its effective implementation.

The AEOI standard consists of three components, which are: (1) Competent Authority Agreement (CAA); (2) Common Reporting Standard (CRS) and (3) CRS XML Schema (McGill, Haye, & Lipo, 2017) as depicted in **Figure 2** below. Therefore, in this research, the term AEOI standard will refer to those components. The complete version of the standards includes the commentaries between the CRS and the CAA, and the CRS implementation handbook (OECD, 2015)

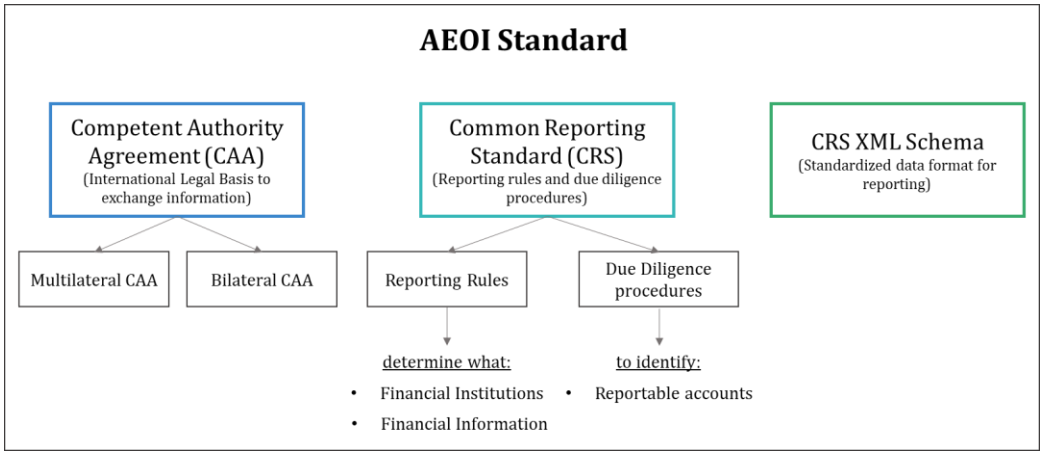

Figure 2 Components of AEOI standard

These components are translated into the four key requirements to be implemented before the execution of the automatic exchange between countries. **Figure 3** shows the four requirements.

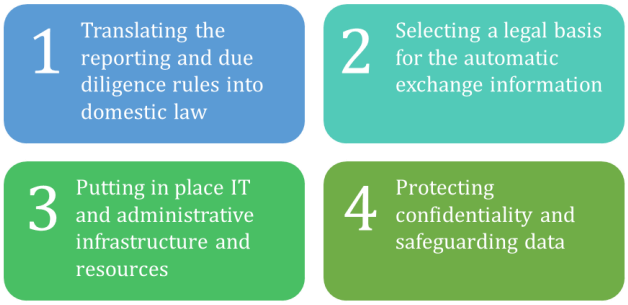

Figure 3 Four key requirements to be fulfilled before the execution of automatic exchange (OECD, 2017d).

Once the requirements have been in place, the exchange process can be carried out. Thus, in this research, the four requirements will be briefly observed and discussed, but the main focus will be on the third requirement. The next section will delve into this matter further.

1.2. Problem Statement

Regarding the third requirement of implementing the standard, AEOI does not prescribe the approach for the IT infrastructure that enables the reporting from financial institutions to the tax administration. Moreover, little is known from the academic literature regarding the type of IT infrastructure that could enable the reporting of financial institutions to the tax administration. The majority studies of AEOI mainly focused on the economic and political perspective of implementing the AEOI (Arbex & Caetano, 2016; Carnahan, 2015; Fischer & Rohner, 2016; Urinov, 2015). Thus, each participating country could have a different approach in implementing the AEOI standard in their IT infrastructure to facilitate the reporting of CRS report, in which financial institutions must submit to the tax administration (the blue dotted line in **Figure 4** depicts the scope of analysis for our study).

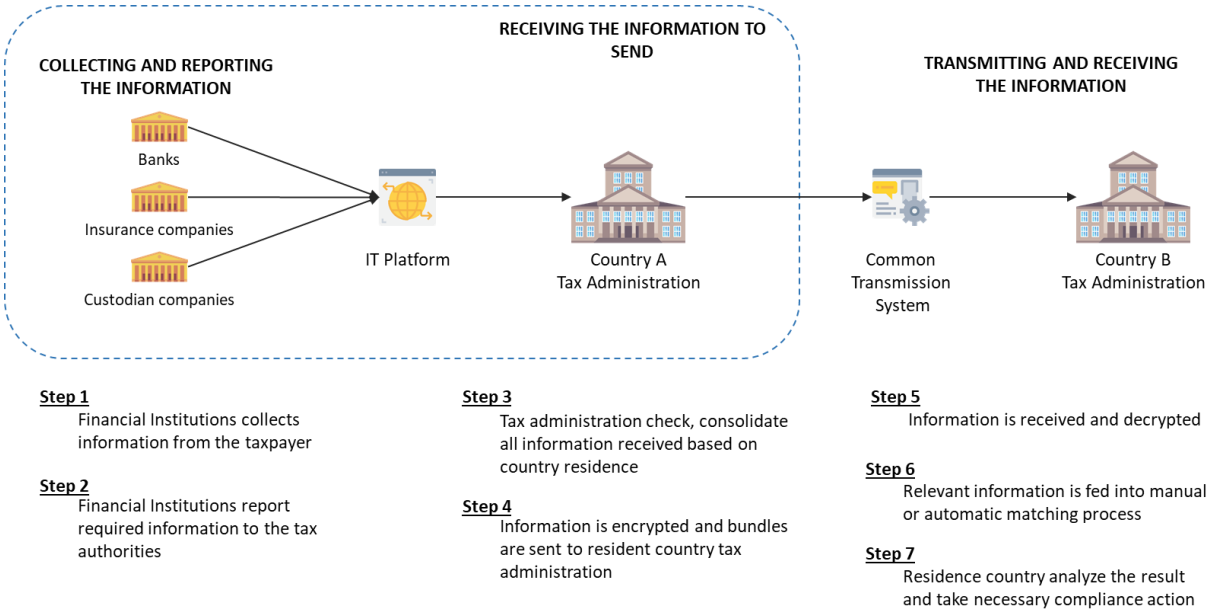

Figure 4 The reporting process for the automatic exchange adapted from (OECD, 2012)

As the process is shown in the above figure, exchange of data between financial institution to the tax administration, can be categorized as one form of the inter-organizational information sharing that takes place between multiple organizations (Gil-Garcia & Sayogo, 2016) enabled by the interconnection of different information systems (Barki & Pinsonneault, 2005). Fulfilling the IT infrastructure enabling the automatic exchange reporting is challenging especially for the developing countries (Knobel, 2017). Why is that the case?

Firstly, different participating organizations can have their information systems which are unique to their specific needs so integration among those various systems can bring technological challenges (Fedorowicz, Gogan, Ray, & College, 2004; T.-M. Yang & Maxwell, 2011). Secondly, the complexity of the inter-organizational information sharing can contribute to the challenges due to the organizational and institutional structure that could hinder the collaboration between organizations (Luna-Reyes, Gil-Garcia, & Betiny Cruz, 2007) and often it might require changes in the business process of the organizations (Gil-Garcia, Chengalur-Smith, & Duchessi, 2007). Also, the governance in place would also affect the effectiveness of the collaboration within the inter-organizational context (van den Broek & van Veenstra, 2015).

Therefore, it is important to understand the determinants underlying the success of inter-organizational information sharing (Pardo, Cresswell, Dawes, & Burke, 2004).

Based on the previous explanation, we noted that there are two levels of abstractions in the problem. First, little is known regarding the empirical study on the type of IT infrastructure and governance that enable the reporting of automatic exchange of information between the financial institutions and tax administration. Second, the complexity of inter-organizational information sharing highlights the importance of understanding what kind of factors influencing the effectiveness and success of such initiatives. Therefore, we would like to address those two issues, which are related to the types of IT infrastructure and governance arrangements enabling the implementation of AEOI standard and also to explore the determinants that influence the selection of the arrangements.

1.3. Research Objective and Questions

Based on the previous problem statement, this research aims to investigate the types of IT infrastructure and its governance that could enable the reporting between the financial institutions to the tax administration to fulfill the AEOI purpose while also exploring the determinants influencing the selected approach. The objective is realized by developing an analytical framework that helps in analyzing the problem and apply it to a case study in two countries which is the Netherlands and Indonesia.

After having the objective defined, the next step would be the formulation of the main question of the research:

Main research Question

What are the types of IT Infrastructure and its governance enabling the reporting of tax data for AEOI purpose in a country?

To help answer the main research questions, a set of research sub-questions are then formulated as follows. A firm understanding of the domain is a prerequisite for every research. Thus, the first two sub-question is intended to understand the domain of AEOI and explore the relevant concepts and factors in the current literature about inter-organizational information sharing. The sub-questions are formulated as follows:

Sub-question 1

What are the concepts related to inter-organizational information sharing theory that could support the analysis of AEOI implementation in IT infrastructure and its governance?

The first sub-question is divided into several questions as follows:

a. What are the requirements to implement the AEOI standard?
b. What kind of inter-organizational information sharing system in the literature that relevant to AEOI?
c. Who is the stakeholder involved in an inter-organizational information sharing?
d. What kind of governance modes are there in inter-organizational information sharing context?

The next thing we would like to know is regarding the factors that might influence the selection of the IT infrastructure and its governance. Therefore, the second sub-question is formulated as follows:

Sub-question 2

What are the factors from the literature on inter-organizational information sharing that are relevant for IT infrastructure and its governance?

The two sub-questions above will be answered through literature review including the academic literature, as well as report and implementation handbook about the AEOI standard. By answering the first and second sub-questions, we could have the theoretical lens that serves as the initial model/framework for the case study.

As the theoretical lens has been established, the next thing to do is to comprehend the empirical part of the research, which is the implementation of the AEOI in the two countries. Accordingly, the third sub-question is formulated as follows:

Sub-question 3a

How does the Netherlands fulfill the third requirements of AEOI standard in their IT infrastructure?

Sub-question 3b

How does Indonesia fulfill the third requirements of AEOI standard in their IT infrastructure?

The third sub-question will be answered by conducting the case study. Literature review and interviews with the relevant stakeholders and analyzing the relevant documentation from the organizations and websites will be used as the data collection method in the case study. Hence, answering the third sub-question provides insights on how each country implement the AEOI in their technological landscape.

Once the overview of the implementation within two case studies is in place, the next thing we would like to know is whether there are differences or similarities of adopted approach, as well as the factors influencing the decision regarding IT infrastructure and governance. Therefore, the fourth sub-question is as follows:

Sub-question 4

Why does a particular IT infrastructure and governance is adopted and what are the determinants that influence the selected approach?

To answer the fourth sub-question, a cross-case analysis will be performed. The analysis of similarities and differences in the implementation approach undertaken by the two countries

could provide important insights for the future improvement of AEOI implementation in developing countries, specifically Indonesia.

1.4. Thesis Outline

The thesis report is categorized into seven chapters. **Chapter 2** elaborates the research approach employed in this thesis, which includes a literature review and case study. Moving on, **chapter 3** explains the theoretical foundation used in this research. Specifically, it provides the answer to the first and second sub-question which then results in the initial conceptual model that we drew from the literature and used in our analytical process. Next, **chapter 4** and **chapter 5** subsequently provides the result of the case studies that are the implementation of AEOI in the IT infrastructure of the Netherlands and Indonesia. Thus, it also provides the answer for sub-question 3a and 3b. **Chapter 6** presents the cross-case analysis of the previous result of the case study. And at last, **chapter 7** will bind together all the results from **chapter 4, 5, and 6** and try to answer the main research questions. The visualization of the thesis structure and incorporated research steps and methods is as follows:

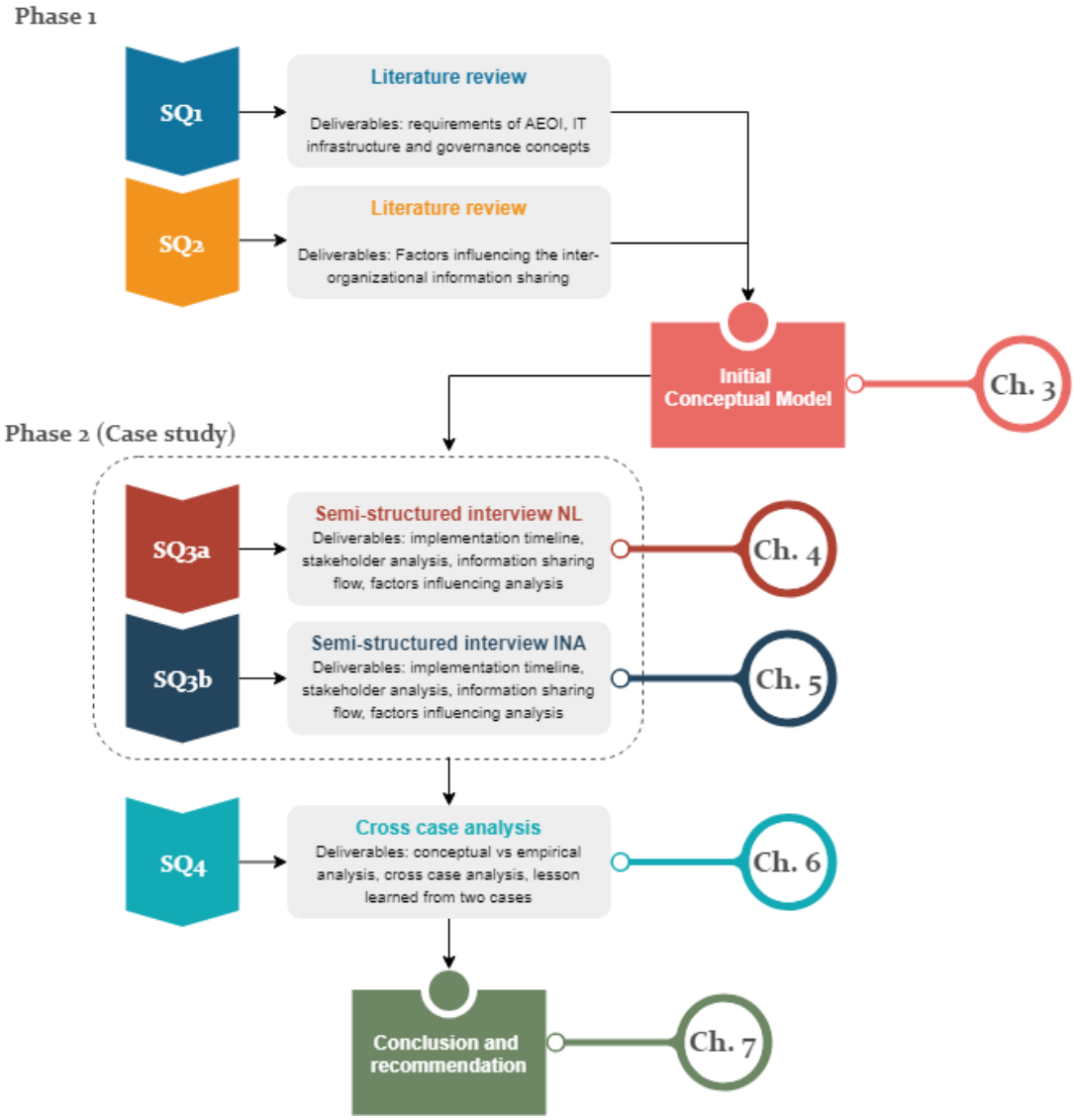

Figure 5 Thesis structure

2 Research Methodology

This chapter sets out the methodology employed for this qualitative and exploratory research. First, the case study design will be introduced, then followed by the data collection and analysis strategy.

2.1. Research Approach

As figure **Figure 5** previously shows, this research is conducted through two phases, first is to come up with the initial conceptual model through literature review and content analysis. Afterward, once the model has been derived, in the second phase case study is performed to observe the relevance of the model.

The execution of the first phase and the development of the initial conceptual model is elaborated thoroughly in **Chapter 3.** Initially, the idea of the flow of the research is that by doing a literature review, we could come up with an initial conceptual model that will be used to frame the discussion of the research. And by conducting the case study, we could observe what the empirical evidence exists that is aligned or not with the model. Thus, we could obtain the mapping of the model from literature with the empirical one. Hopefully, by conducting the cross-case comparison, we could derive the conclusion and answer to the main research question.

2.2. Case Study Design

A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not evident (Yin, 2009). Moreover, Yin also mentioned that the case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and thus provide benefits in guiding the data collection and analysis (Yin, 2009).

Considering the characteristic mentioned by Yin, case study seems to be an appropriate approach for this research since the current the implementation of AEOI is a contemporary phenomenon that applies to a particular country (which in this case includes Indonesia and the Netherlands) within a specific time. Also, different contributing stakeholders in the implementation process and the strive for depth in the analysis in this research makes case study more preferable than other research methods such as survey and experiments. In addition, case studies are particularly well-suited for extensive and in-depth descriptions of complex social phenomena (Yin, 2009).

Nevertheless, despite its strength in being able to examine contemporary events and ability to deal with a full variety of evidence (i.e., documents, artifacts, interviews, and observations), case study still has its limitations. First, it is said that there is a lack of rigor of case study research. Second, it provides little basis for scientific generalization. Lastly, case study often takes too much time, and they result in massive, unreadable documents. In response to this limitation,

the case study protocol and the researcher skills play a crucial role. The case study protocol contains the instrument, procedure, and general rules to be followed.

The following figure illustrates the phases of the case study approach in this research. First, we have the case study design, to define and select the case. In this phase also, we develop the interview protocol for the primary data collection for the research. The interview employed is the semi-structured interview, for the respondents with a different role in the implementation of AEOI, so that it provides a different perspective and thus yields to an extensive view of the implementation process.

The second phase is the data collection, which in this research we use the data mainly from the interviews and its transcription. More explanation regarding the interview and data collection is elaborated in the next section. In this research, we also incorporated the secondary data from other sources such as documents from the official websites of the government body, the information in the websites, and also the documents obtained during the interview process. By doing this, we also performed the data triangulation for the research so that we could cross-checked and integrate incomplete information derived from the interviews.

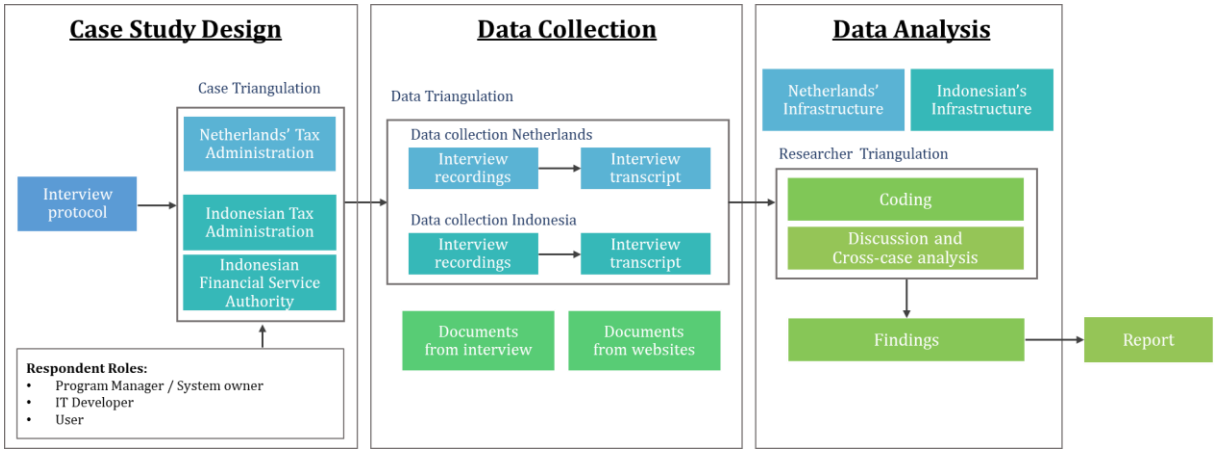

Figure 6 Case study approach adapted from (Diehl, Kuettner, & Schubert, 2013)

Lastly, in the data analysis phase, we perform coding for the collected documents from the previous steps and perform the cross-case analysis for the Netherlands' AEOI implementation and Indonesian's AEOI implementation. During this phase, we employ the researcher triangulation, which is performed by two researchers. More detailed elaboration is provided in the next sub-sections.

2.1.1. Defining and Selection of the Case

Generally, there are no ideal number of cases in a case study research since it is most likely depends on the nature of the research question, the resource available, research timeline, and availability of the case, the researcher could first decide on whether to opt for breadth (using multiple cases) or depth (within case)(Darke, Shanks, & Broadbent, 1998). To put it differently, before the identification of the research question, the researcher should keep in mind about gaining access to the relevant cases (Baškarada, 2014).

Thus, in this study we selected the case based on several criteria which are: (1) The case should capture the maturity level of the reporting system and the AEOI implementation; (2) The

information sharing arrangement depicted in the case could reveal a degree of differences; (3) Access to data regarding the implementation of the system is available. Based on those criteria, the case that we select for the research is Indonesia and the Netherlands.

Indonesia is one of the countries that affirmed to implement the standards and undertaking the first exchange of financial information in 2018 (OECD, 2017b). The initiative is enforced by the Indonesian Financial Service Authority (FSA) which first issue the regulation on mid-2015 (POJK No.25/POJK.03/2015) regarding the AEOI and thus be tailgated by the implementation of the regulation and the technical details (OJK, 2017).

There are two main governing bodies in the Indonesian's financial system, namely, the Indonesian Financial Service Authority (FSA) and the Direktorat Jendral Pajak or Tax Administration (both are under the Ministry of Finance). According to Indonesian national law, the obligation to govern the financial institutions is on the hand of the Indonesia FSA. Accordingly, all data from the financial institutions should be pooled to the Indonesian FSA first before being sent to the tax administration. For this particular reason also the Indonesian FSA has a stake in the implementation of AEOI by developing a system to collect the financial data subject to reporting, which called the SiPINA application (OJK, 2017). SiPINA is newly developed web-based application that is used by the financial institutions to report their international account holder information for the AEOI purpose. Based on our preliminary research, the decision to develop a new reporting system to accommodate the exchange of information in Indonesia is because there was no established system to fulfill that purpose. Accordingly, the data collected in SiPINA application will be accessed by the Tax Administration, for further processing.

On the other hands, the Netherlands is one of the countries that adhere to implement CRS in 2016 and has performed the first exchange of information in September 2017 (Belastingdienst, 2016). In contrast to Indonesia, the implementation of AEOI in the Netherlands is carried out solely by Belastingdienst, The Netherlands Tax Administration office at the operational level and is controlled by Ministry of Finance at the legal and regulation level. In terms of the reporting system used to facilitate the exchange, the approach preferred by the Belastingdienst is to develop the requirements in their main IT landscape. This is because they already have the IT resources in place since previously, they already engage in an exchange of information with the various type of financial institution and businesses.

The different context exists in the two cases found in the two countries, makes it interesting for the comparative case study. As was explained by Yin, the comparative case study could yield to similar results (literal replication) or contrasting results with anticipable reasons (theoretical replication)(Yin, 2009). Either way, the results would still contribute to the body of knowledge, and perhaps could provide insights for the developing countries that are in their way to implement the AEOI standard.

2.3. Data Collection and Analysis

2.2.1. Data Collection and Methods

During the process of research, the researcher may collect existing material which has been produced entirely by others known as desk research (Verschuren & Doorewaard, 2010). In this

research, the literature review will be conducted to gain the theoretical framework for the research related to AEOI standards, Inter-organizational information sharing, IT infrastructure and Infrastructure governance.

Further, document analysis might also need to be conducted to analyze the secondary data employed in the study. The secondary data as Verschuren and Doorewaard (2010) defined as "the empirical data compiled by other researchers or the researcher itself during the research projects, and can be in the form of records of interview, or databases which are suitable for making a quantitative or qualitative analysis, whether or not by using a computer". Thus, in this research, the secondary data we used are the interview recording, interview transcripts, websites, documents from the interview, and the official documents derived from the websites of Indonesian FSA, Indonesian Tax Administration.

For the primary data, a semi-structured interview is opted for this study for its flexible characteristic and thus allow the researcher to gain a deeper understanding about the interviewee's perspective (Holloway & Daymon, 2002). Also, it is possible to refocus questions or cue for more elaboration if some novel information arises (Baškarada, 2014). It is indeed relevant for this research since the interview is intended to capture the process of the implementation of AEOI in the Netherlands 's IT Infrastructure and governance and the AEOI implementation effort in Indonesia.

The interview questions are formulated in a manner that helps the researcher in leading the interviewees to explain how the implementation is carried out within their organization/country. Specifically, the questions were outlined to probe the motivation of joining the initiatives, the reporting process in place, the adopted approach for IT infrastructure that is used in facilitating the exchange of information, the factors influencing the choice of the infrastructure, and the infrastructure governance. We develop the interview questions based on the concepts that we found relevant for our research in section **Table 9** in **chapter 3** and attached the interview protocols in the **Appendix.**

Regarding the criteria for selecting the target interviewee, we include requirements such as the formal position in the organizations, the role, and involvement in the project implementations, the knowledge on strategic, organizations, or technical aspects and motivation to participate. This is to assure that rich information can be obtained. As for the execution of the interview, two interviews were conducted in English, and five interviews were conducted in Bahasa and were recorded using a digital recorder and equipped with notes with the interviewee's permission. Each interview lasted for about 90 – 120 minutes.

The following are the lists of interviews that were conducted:

Table 1 Interviewee roles

Organization	Role	Experience in the Project
Belastingdienst	AEOI Programme Manager	Project Manager of the AEOI implementation in Belastingdiesnt
Belastingdienst	Belastingdienst IT Architect	IT Architect in the AEOI implementation project in Belastingdienst
Indonesian Tax Administration	Officer International Exchange of Information in International Taxation Departement	The user in the Business department of Indonesian Tax Administration
Indonesian Financial Service Authority	Analyst in Departement of Banking Supervision	Formulate the user requirements for the SiPINA Application
Indonesian Financial Service Authority	Analyst in Departement of Information System Management	SiPINA Application developer
Indonesian Financial Service Authority	Analyst in Departement of Information System Management	SiPINA Application developer
Indonesian Financial Service Authority	Analyst in Departement of Information System Management	SiPINA Application developer

As for the preparation before the interview, a thorough review grading the topics and knowledge related to the information to be extracted should be first in place. Also, the learning of the different techniques of the interview should be carried out. In other words, an interview protocol for asking questions and recording answers will be developed first. Only then the schedule of the interviews can be arranged. It is also important to introduce the structure of the interview to the interviewees and also regarding the disclosure of the data so that the researcher and the interviewees are on the same perception. At the end of the interview session, a confirmation and recap regarding the information obtained during the interview process should be performed so that it could minimize the chance of misperception and the researcher's bias.

Thus far, this research will utilize these sets of information:

- Analysis of literature and documents related to AEOI standards implementation, factors impacting inter-organizational information sharing. This information will serve as the bases for the evaluation framework for the research.

- Qualitative interviews with the respective stakeholders in the Netherlands, which are the Tax Administration personnel and the stakeholders in Indonesia, namely the personnel from the Indonesian Financial Service Authority. The interviews aim to collect data regarding the implementation process of AEOI in each country. The area of focus comprises the reporting process, IT infrastructure, governance, and technical, organizational and inter-organizational factors that might influence the implementation process.

- Secondary data comprising the websites, documents from the interview, and the official documents derived from the websites of Indonesian FSA and Indonesian Tax Administration.

2.2.2. Data Analysis

Once the interview recording has already in place, it was transcribed for the next analysis. Two of the interviews were transcribed in English as they were conducted in the Netherlands in which English is chosen as a means to communicate with the researcher, and the rest is in Bahasa as it is the native language of the researcher and the respondents in Indonesia. Also, Bahasa is chosen as it fits with the setting and to alleviate the explanation of the implementation process. During the transcription, irrelevant information that does not contribute to answering the questions such as off-topic information, personal details, or repetition were excluded. Following the transcription, the next step of data analysis is to code the transcript. In doing so, Atlas.ti version 7 is used to assist the researcher.

Three types of coding, which is the open coding, axial coding, and selective coding were applied for the data analysis and interpretation(Böhm, Glaser, & Strauss, 2004). Open coding, as explained by Böhm, Glaser, & Strauss, 2004, is the process of "tagging" the data. In which the data are "broken down" analytically, and by employing the principle of grounded theory, the concept could emerge from the text. Thus, it can be used as the building blocks for the model.

Secondly, the for the axial coding, the concepts that have been previously discovered are then refined and differentiated. In the sense that what we are trying to identify is the category that could be placed in the center, and that a network of relationship is built around it.

Lastly, in the selective coding, we should try to figure out what "story" that the data tell given the categories, coding notes, memos and networks that have been developed previously. As a guiding principle, one could ask questions like, what is the issue? What could we learn to from the investigation? What is the central notion? What relationship does exist? (Böhm et al., 2004). In this research, the coding process is used for the stakeholder analysis and to identify the influencing factors of the information sharing arrangements.

Earlier, we stated that the study would present the cross-case analysis of the implementation of AEOI in two countries. For this purpose, we refer to the technique explained by Yin, 2009 . The cross-case analysis can involve any of the following techniques: (1) Pattern matching; (2) Explanation building; (3) Logic models (Yin, 2009). Pattern matching is the techniques that involve the comparison of predicted patterns with the one that already been observed empirically, including the identification of any discrepancy or gaps. Explanation building, on the other hand, is a certain type of pattern matching that aims to build an explanation about the case, as such a causal link about why some phenomenon happened. As for the time series analysis, the chronology of events is taken into account which described in specific rules. Lastly, the logic model is a hybrid of pattern matching and time-series analysis where an anticipated causal relationship of events is compared with the evidence from the empirical observation(Yin, 2009).

2.4. Goodness of Measurement

Yin (2009) explains that to ensure the validity of the case study research, there are steps that can be employed by the researcher, namely the triangulation in data, researcher, theory and methodological (Yin, 2009). For this research, we employed:

1. The triangulation for the data collected by using multiple sources such as from the interview recording, interview transcripts, and other relevant documents including from secondary source such as legal documents, reports, guidelines, as well as from primary source via multiple interviews.

2. As for the data analysis, we perform the Researcher triangulation which specifically takes place during the transcribing, the coding, and during the discussion and the cross-case analysis. For this triangulation, two researchers are involved.

To address the reliability issue, the case study protocol is used in this research, as previously mentioned in **section 2.3**.

3 Theoretical Foundation

This chapter gives an overview of the theoretical concepts used in this research. First, the domain of the AEOI standard is introduced, which includes what information being exchanged, who are the reporting parties, what requirements need to be fulfilled to implement the standard, and the reporting steps explained in the AEOI standard handbook. This is done to get a detailed understanding of what needs to be done and considered in implementing the AEOI standard. Accordingly, in the next section, the realm of the inter-organizational information sharing is introduced. It comprises the definition, the information sharing arrangements which composed of the IT infrastructure, infrastructure governance that could enable the inter-organizational sharing of information. Finally, the findings on the state-of-the-art research on factors influencing the inter-organizational information sharing are presented.

3.1. Conducting the Literature Review

In identifying the relevant literature for this study, Webster and Watson (2002) suggested to follow these steps:

- Start with the leading journal databases since the major contributions in the domain study are likely in them. In addition, conference proceedings with a reputation for quality should also be examined
- *Go backward* through the citations in the identified articles in the previous step so that we can determine the prior articles that need to be considered
- *Go forward* using the Web of Science to identify which articles citing the key articles identified in step 2. Also, determine which of these articles needed to be included in the review (Webster & Watson, 2002)

We adopt these steps for our literature survey in this research.

3.2. AEOI in the Academic Literature

In regard to find out what are the current trends in the academic literature, we try to search in the Google scholar and several leading journal databases such as the JSTOR, MIS Quarterly and Elsevier with keywords such as: “Automatic Exchange of Information in Tax Matter”, “AEOI CRS Implementation” “AEOI implementation in Developing countries” and “Evaluation of AEOI CRS implementation”. We found in a total of 33 relevant kinds of literature after reading through the abstract and conclusions and also take a look at the discussion part when the abstract and literature did not give enough description of the research. The number of literature found with their established year is shown in the following figures.

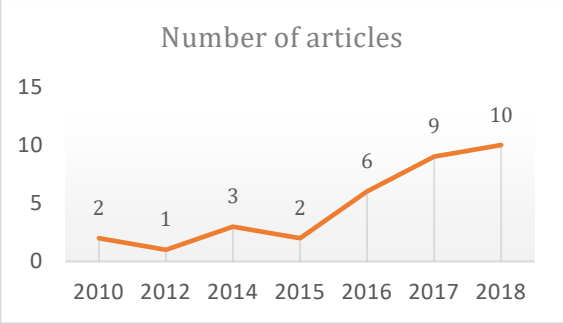

Figure 7 Literature on the AEOI standards

We also summarized the topic addressed of each literature that we found in the following tables.

Table 2 Topic addressed regarding the AEOI standard in the literature

Topic addressed	Source
Prior assessment of the important needs for AEOI standard	(Meinzer, 2010; Moss, 2016; Winkleman, 2012)
Challenges and benefits of AOEI standard	(Hakelberg, 2015; Highfield, 2017; Knobel & Meinzer, 2014; Sawyer & Sadiq, 2016; Urinov, 2015)
Evaluation of the Common Reporting standard (CRS)	(Aucejo, 2018; Casi, Spengel, & Stage, 2018; Knobel, 2017; Knobel & Cobham, 2017; Knobel & Meinzer, n.d.; Noked, 2018a; Scarfone, Kerr, & School, 2018)
Evaluation of the AEOI standard and its implications	(Fischer & Rohner, 2016; Gadžo & Klemenčić, 2017; Nicolescu, 2016; Noked, 2018b)
Implementation of AEOI standard in the country National Laws	(A. I., 2016; Akhtar, 2018; Filipova-Slancheva, 2017; Meyer-Nandi, 2018; Pessoa Tavares & Pedro Santos, 2018)
AEOI standard and privacy issues	(Cockfield, n.d.; Knobel, 2017; Noseda, 2017)

To date, little is found regarding the implementation of AEOI in terms of the inter-organizational information sharing system context. Most of the literature about implementation discussed the legal and regulatory perspective, or the benefits and the challenges faced by the developing countries. Thus, we try to complement the gap on the literature by conducting the research on the implementation of AEOI standards in the inter-organizational information sharing context by also performing a comparison between two cases, the developed country, and the developing countries.

3.3. AEOI in a Nutshell

As was pointed out in the introduction, AEOI standard is perceived to be a "tool" to in eradicating international tax evasion. The standard itself has four components, namely the (1) "Common Reporting Standard" (CRS), (2) "The Model Competent Authority Agreement" (CAA), (3) the "Commentaries of CRS and CAA", and (4) "Guidance on Technical Solutions" (OECD, 2017d).

The CRS sets out the reporting rules and the standardized due diligence procedures that need to be performed by the financial institutions in identifying and collecting the financial information for the reporting (McGill et al., 2017). Thus, it provides a framework for the financial institutions regarding the financial account to be maintained, collected, and reported to the tax administration (OECD, 2012).

The Model CAA, on the other hand, is the documents that specify the financial information to be exchanged and specify when and how the exchange to be processed between countries. In this case, the CAA is the legal basis for countries to provide and exchange information in which it could be in the form of multilateral or bilateral relationship.

As for the Commentaries, it is provided to help illustrate and interpret the CRS and the CAA. Lastly, the Guidance on technical solutions describes the standardized XML schema for the data exchange.

Let us now turn to what should be done by a country to implement the standard. If we recall from the introduction earlier, we already familiar with the four core requirements to implement the standard, which is shown in **Figure 3**. Now we want to take a closer look at each requirement. As cited from the implementation handbook, these requirements can be fulfilled sequentially using any order, or in parallel.

3.3.1. Requirement #1: Translation of the CRS to the Domestic Law

The first requirement stated that the participating country needs to translate the CRS which consists of reporting and due diligence rules into their domestic law (OECD, 2015). This is to ensure the compliance of the financial institutions to carry out the reporting procedures and to ensure consistencies of the scope and quality information among exchanging jurisdictions or countries. Essentially, the CRS rules compromising the area which is depicted in **Figure 8**.

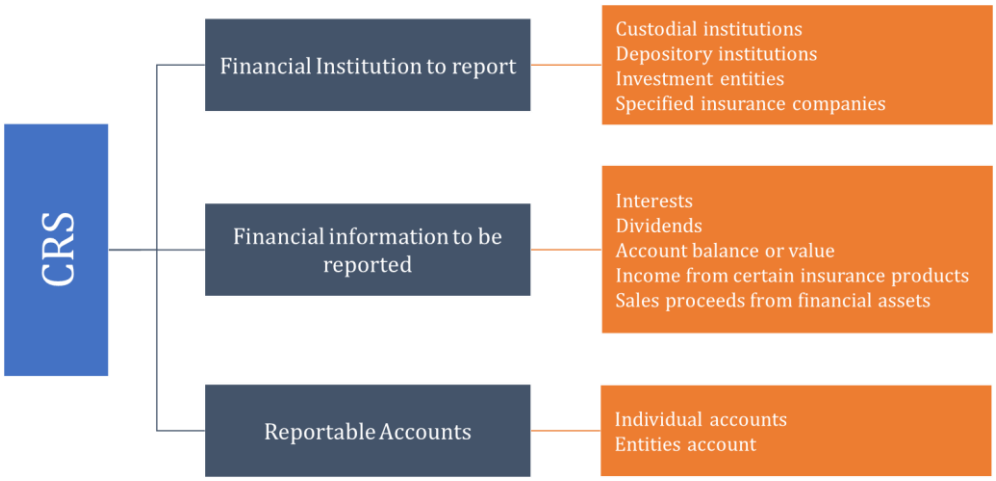

Figure 8 The areas comprised by the CRS

However, in translating the CRS into the domestic law, there are some key points to consider, as such:

As has been set out by the CRS can be translated into a different level of details in the domestic law which are the primary legislation, secondary legislation, and official guidance or a set of

domestic FAQs (Frequency Asked Questions) (OECD, 2012). The **primary legislation is** comprising the high-level procedures of collection and reporting requirements such as the scope of the reporting and the application of provisions obligations, including the non-compliance sanctions and the provisions to enable the subsequent introduction of more detailed reporting requirements. In which is elaborated in the secondary legislation/regulations. The **secondary legislation** as stated earlier contains the more detailed aspects of the CRS. The **guidance** or **domestic FAQs** on the other hands usually sets out the remaining areas of the Commentary (OECD, 2015).

There is, however, another approach in translating the CRS into domestic laws, namely the Optional provisions. According to the AEOI implementation book, there are areas in which the Standards provides an optional approach for the jurisdiction to adopt the one most suited to their circumstances, one example would be the additional information provisions available under the EU Directive in implementing the CRS. Most of the optional approaches are intended to provide greater flexibility for financial institutions and thus reduce their costs (OECD, 2017c).

Another key point to consider, aside from how to implement the CRS rules into domestic regulation is that to ensure the effective implementations. This can be done by the participating countries by means of doing several "recommended" practice by the standards such as: (1) Promoting and reviewing compliance by reporting financial institutions which can be done by putting efforts in raising awareness and promoting compliance; (2) Monitoring compliance through (a) Identifying reporting financial institutions. (b) Identifying risk of non-compliance; (3) Implementing a compliance review process (OECD, 2018). Again, the implementation handbook only offers the general recommended steps and procedures. However, the real implementation would vary depending on the country's specific domestic context.

3.3.2. Requirement #2: International Legal Basis Selection

Another requirement that should be fulfilled is to select the international framework that enables the automatic exchange of information between the participating countries. According to the AEOI Standard implementation book (OECD, 2017d), several legal instruments permit the automatic exchange under the standard, which includes:

- Double Tax Agreements containing the standard OECD Model Article 26
- The Multilateral Convention on Mutual Administrative Assistance in Tax Matters (The Convention), article 6 in which specifically provides the optional use of automatic exchange
- Tax Information Exchange Agreements (TIEAs) that provide for the automatic exchange of information (OECD, 2015)

However, given the large numbers of participating countries, joining the Convention is probably the most desirable as well as efficient way to ensure that the information can be automatically exchanged with the participating countries in the initiatives (OECD, 2015).

Additionally, aside from the legal instrument to enable the exchange, at the administrative level, the automatic exchanges are usually based on separate agreements between the participating countries, that defined the information to be exchanged, how it is going to be exchanged, and when does the exchange take place (OECD, 2015). This is what is defined in the Model CAA.

There are three different kinds of the Model CAA, namely: (1) Bilateral and reciprocal CAA, that sets out the agreement between two participating countries; (2) Non-reciprocal CAA that intended for the country does not have an income tax; and (3) the Multilateral CAA that enables the participating countries to have multilateral exchange relationship with other countries (OECD, 2015). By far, the most common CAA employed is the Multilateral CAA, since it significantly reduced the time and resources necessary compared to negotiate multiple bilateral CAA(OECD, 2018).

The information to be included in a Multilateral CAA includes:

a. The underlying legal instrument under which the information will be exchanged
b. The precise information to be exchanged and the time and manner of that exchange
c. The format and transmission methods, and provisions on confidentiality and data safeguards
d. Details on collaboration on compliance and enforcement
e. Details of entry into force, amendments to, suspension and cancellation of the MCAA (OECD, 2018).

3.3.3. Requirement 3: Putting in place the necessary administrative and IT infrastructure

According to the AEOI standard, the broad process for the end-to-end reporting process is as depicted in **Figure 4.**

In order to successfully execute the exchange, the tax administration in the participating country needs to allocate the necessary IT and administrative capabilities. Thus, the AEOI standards mentioned three areas to consider: (1) Collection and receiving information; (2) Receiving information to send; (3) Transmitting and receiving information (OECD, 2018).

First consideration regarding the collecting and reporting the information area would be regarding the deadline for the financial institutions to collect and report the required data, which according to the MCAA would be nine months after the end of the calendar year. Thus, the financial institutions could have the window of nine months to collect the information. Further, the tax administration should also decide on what kind of format has applied the information to be exchanged. This could refer to the CRS XML schema that has been provided within the standard. In regard with the transmission between the financial institutions with the tax administration, the standards did not prescribe one mandated solution, rather it only stated that the transmission channel and protocols, or the employed encryption mechanism meets the minimum required standards, so that it could ensure the confidentiality and integrity of the information.

Second, regarding the receiving the information to send, the tax administration of the sending country should ensure that they have the appropriate operational security in receiving and maintaining the data. In addition, there should also be a validation mechanism regarding the format of the data which is through the CRS XML schema validation and other parameters that are described in the CRS Status Message User Guide.8. This process needs to be in place to make sure that the financial institutions have effectively implemented the standards, and to ensure that the data will have relevance to the receiving jurisdiction.

Third, for the transmitting and receiving the information area. Once the tax administration has encrypted and bundled the data according to the residence countries, the person in charge could send the data via the Common Transmission System (CTS). CTS is a secure and encrypted channel, provided by the OECD, to assist the exchange of information between countries. CTS is equipped with the latest IT-security standards, and the participating countries can send and receive information using a server-to-server link-up (SFTP) and a browser-based manner (HTTPS). The data being transmitted through CTS should be in a common schema structure, which in this case is the CRS XML schema so that it allows the standardized reporting under CRS.

3.3.4. Requirement 4: Protecting confidentiality and safeguarding data

Prior to sending the information with, the participating countries need to ensure whether their partners have met the required level of confidentiality and data safeguards. Thus, for this purpose, the Global Forum, part of the OECD, carried out a preliminary confidentiality and data exchange assessments (OECD, 2017c). Once the results have been published, the jurisdiction could perform a temporary non-reciprocal information exchange, to all the exchange partner to ensure that their confidentiality and data safeguards meet the required standards. As for the countries with identified weaknesses from the assessment results, specific recommendations are made to address the encountered issues, and those countries are required to develop an action plan to resolve the issues.

These requirements are going to be the key area of evaluation in this research and served as the outline of the whole implementation process.

3.4. Inter-organizational Information Sharing

A considerable amount of studies has been established regarding inter-organizational information sharing. For example, Dawes (1996) defines that information sharing is the exchange of information within and across government agencies or alternatively provide them the access to the information (Dawes, 1996).

From a more technical perspective, Barki and Pinsonneault (2005) propose that inter-organizational information sharing can be perceived as the collaboration of different information systems or telecommunication technologies to share data using a common conceptual schema among entities such as groups, departments, or organization (Barki & Pinsonneault, 2005).

A more comprehensive definition by Gil-García, et al. (2010) stated that inter-organizational information sharing is a concept which consists of multi-dimensional components: (1) trusted social networks; (2) shared information; (3) integrated data; (4) interoperable technical infrastructure (Gil-García, J. R., Pardo, T e Burke, 2010). Trusted social networks refer to linked social actors who know and trust each other. Shared information can be in the form of tacit and explicit knowledge in the form of a formal document, email messages, faxes, or informal talk. As for the integrated data, is the integration of data at the level standardized data elements. The interoperable technical infrastructure refers to the system that can communicate at the hardware/operating level system (Gil-García, J. R., Pardo, T e Burke, 2010).

The definitions above have an overarching consensus regarding the components that involved in the information sharing which are the stakeholder which is different organizations, the system being used, and the information or data being exchanged. Therefore, in this study, we focus our analysis on the IT infrastructure and the governance of the infrastructure. This is important to understand, as the study by Klievink, Bharosa, and Tan (2016) argue that governance mechanism and information technology infrastructure are interrelated, and they are considered as an information sharing arrangement in the form of public-private platform.

And thus, in the context of inter-organizational, public-private platform is defined as a governance structure (decision making, control mechanism and ownership structure) and information infrastructure (systems, interfaces, ontologies and data standards) interconnecting two or more different actor from both public and private sector (Klievink et al., 2016).

3.5. Information technology (IT) Infrastructure

3.5.1. Definitions

One of the early definition of the IT infrastructure that we found is based on the study of Davenport & Linder (1994) that stated IT infrastructure is a part of the organization capability to manage information which is intended to be shared (Davenport & Linder, 1994). Elaborating more on that, later Duncan (1995) specified that IT infrastructure consists of a related IT resource that include; 1) platform or hardware; 2) networks or telecommunication; 3) Data; 4) applications; that support the continuity of the business of the firm (Duncan, 1995).

Later, Broadbent, Weill, & Neo (1999) argue that IT infrastructure is the base foundation that determines the budget for IT capability comprising the technical and human aspects, that is shared throughout the form embodied in the reliable services and is coordinated centrally (Broadbent et al., 1999). In line with Broadbent et al., Chung, Jr., & Lewis (2003) also proposed in their study that IT infrastructure should be defined comprising two major components, that is the technical IT infrastructure and the human IT infrastructure (Chung et al., 2003).

In this research we rely on the definitions by Duncan (1995), focusing on the two out of the four components of the IT infrastructure, that is the **application** and **data** which is discussed in the next subsection**.**

3.5.2. Focus area of IT infrastructure in this research

Inter-organizational information system (IOS)

Inter-organizational information sharing system as defined by Barrett and Konsynski (1982) is a system that includes the sharing of resources between organizations (Barrett & Konsynski, 1982) thus it could enable the flow of information between organization beyond the organizational boundaries (Johnston & Vitale, 1988).

Regarding the infrastructure enabling the information sharing, Yang, Pardo, & Wu, (2014) in their study proposed a different category of how information can be shared among the boundaries of the government agencies, namely the (1) Centralized type; (2) Semi-Centralized

type; (3) Decentralize type. Each of the infrastructures has their typical determinants that influence the decision making for their adoption (T.-M. Yang et al., 2014).

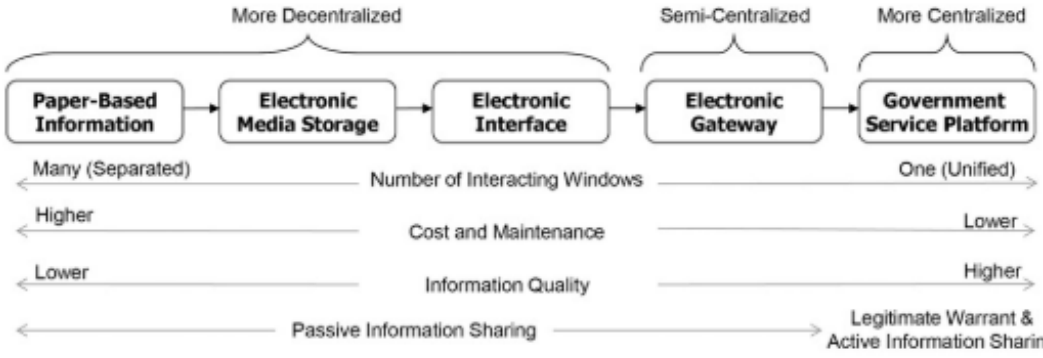

Figure 9 The determinants and major types of information sharing (T.-M. Yang et al., 2014)

The first type of IOS is the *decentralized type* in which most of the information shared is through paper-based, electronic media storage, and electronic interface. Using this type information sharing, the requesting party and the reporting party needs to setup different windows to enable the sharing of information, and of course, it affects the cost for development and maintenance, which can be high.

The second type of IOSs is the *semi-decentralized type* which is illustrated through an electronic gateway. Electronic gateway is designed to realize a real-time information search and verification. So the value that is intended for improvement is the timeliness and currency of the shared information. The idea of an electronic gateway is that one agency that needs to provide the report will develop a gateway, and the requesting agency needs to implement the gateway in their system. Thus the reporting agency could maintain a single window to share information, and therefore they can have a control mechanism over what information needs to be shared across boundaries. Despite its promising value, the electronic gateway could also become costly and complicated when there are more requesting agencies that want to set up the connection to their back-end system. The picture in **Figure 10** depicts the illustration of an electronic gateway.

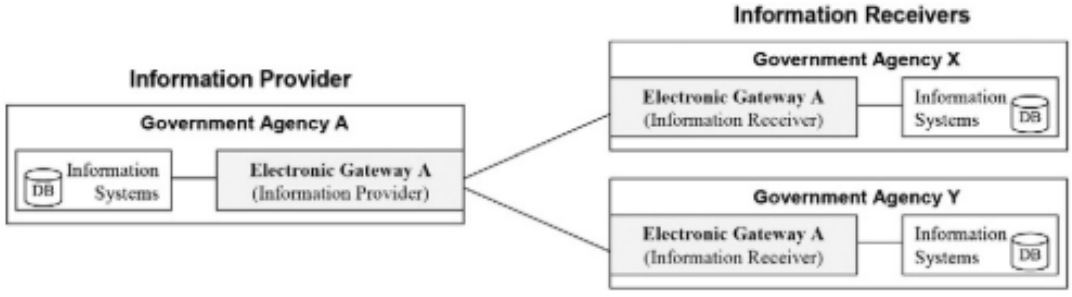

Figure 10 The type of semi-decentralized: electronic gateway (T.-M. Yang et al., 2014)

The third type is the *centralized type*, which is the Government service platform (GSP). The GSP is designed with the purpose of enclosing the complexity of technology and maintenance, by developing a single platform. It is developed by employing an open standard approach, which is web service. In this case, the GSP is designed as the intermediary that enables the inter-

organizational information sharing. The idea behind the GSP is that it employs the star-shaped network so that any organization that wishes to exchange the information could connect to the GSP through the interface from their legacy system and thus they could perform the information sharing. The benefits of this kind of infrastructure would be the reduced cost and effort for each organization involved since the maintenance would be handled by one responsible government agency.

Nevertheless, one of the drawbacks perhaps occurs when more agencies participate in the star-shaped network. Since the main responsibility of the intermediary system is to maintain the complex information flows and business logic while also connecting each participating legacy interfaces, the stability and efficiency of the GSP could degenerate alongside with the rising load. The infrastructure of the GSP type information sharing is depicted in **Figure 11**.

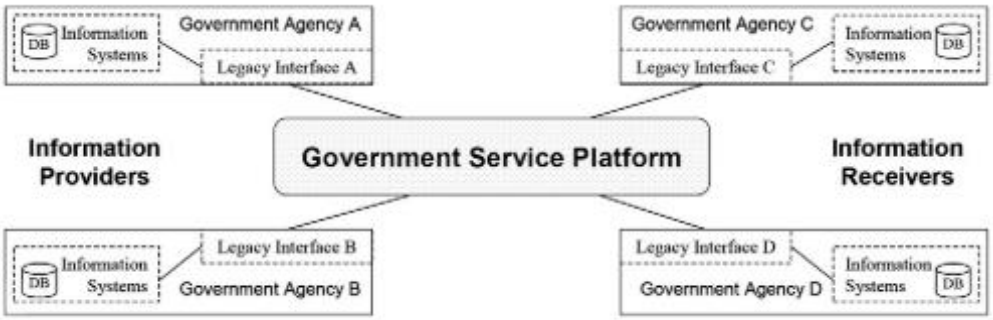

Figure 11 The Government Service Platform type of information sharing (T.-M. Yang et al., 2014)

IOS based on interconnection

In the same vein, De Corbiere et al. (2010) in their study propose a new configuration for the Inter-organizational information systems (IOSs) from a structural linkage perspective to complements the previously established IOS forms. The structural linkage refers to the interconnection of the sending partner and the receiving partners in the inter-organizational information sharing context. As shown in the following figures, there are three forms of IOSs along the continuum, which the two on the extreme continuum are the previously established form by Choudhury (1997) namely the dyadic IOSs and the Multilateral IOS. The intermediary between the two forms is called the hybrid forms of IOSs. Let us now turn to these forms one-by-one.

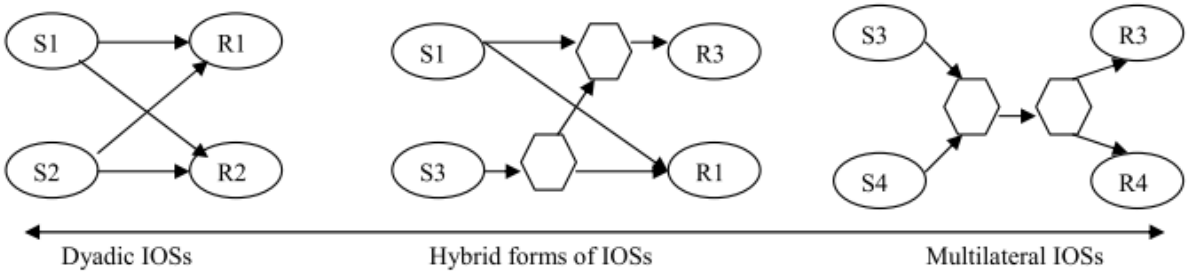

Figure 12 The continuum of IOSs by De Corbiere et al. (2010)

According to Choudhury (1997) in the dyadic IOS, it is defined that the sending partners build a direct electronic link to the receiving partners. While on the other hand, in the multilateral

IOSs, there could be a single system that is used to communicate with all the partners, so the sending partners do not need to build a direct connection to each receiving partner. As for the hybrid form of the IOS, De Corbiere et al. (2010) defines that it is the IOSs form that could interconnect partners with different preference on the structural linkages, meaning that there exists partner that implement the dyadic linkage and multilateral linkages.

Data management

Within the domain of government information sharing, Bekkers (2007) in his study explained four types of back-office data integration model. The first type is the *centralized database*, in which one pool of shared information database is created in the super-ordinated organization so that the other participating organization could provide the relevant information.

The second type utilizes the *interface type* to facilitate information flow between organizations. For this case, each organization should develop their interface in order to share the information. The third type is the *information broker* type which uses intermediary information service that facilitates the exchange of information based on the requesting or the reporting organizations requirements. Lastly, there is a *shared database type* in which the relevant information is collected and stored in that database and that the information can be used and re-used by other organizations. The back-office data integration model is shown in **Error! Reference source not found.**.

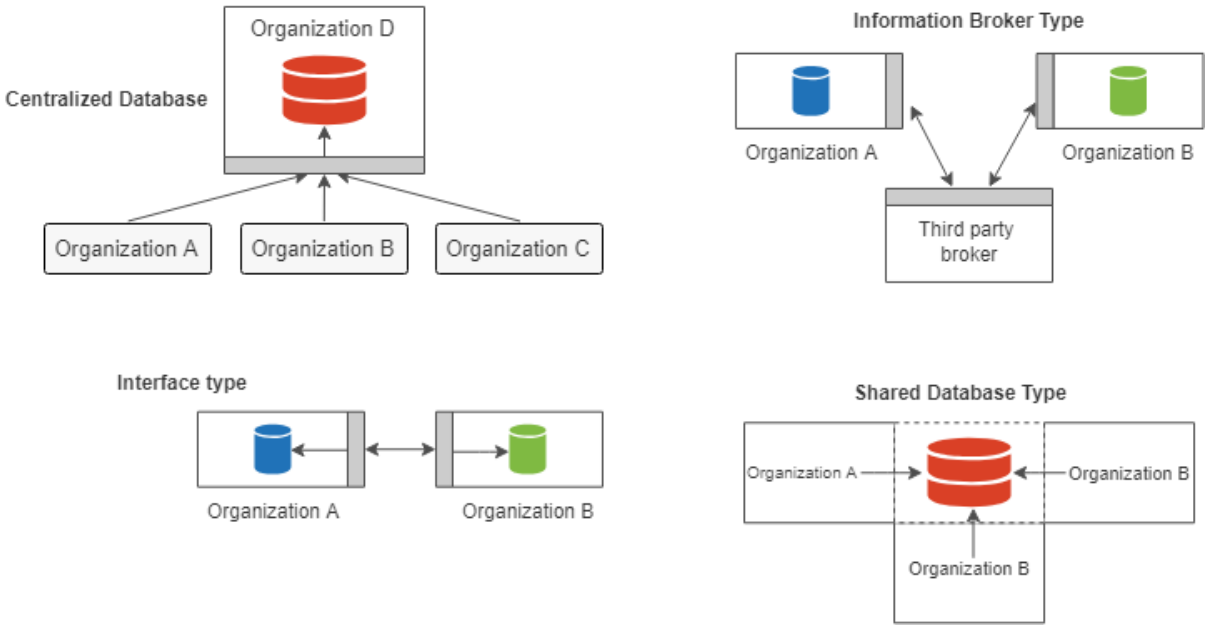

Figure 13 Four types of back-office integration by Bekkers (2007) adapted from (T.-M. Yang et al., 2014)

Stages of IT Architecture developments

Ross (2003) introduces the stages of IT architecture developments:

1. **Application silos architecture** – the architecture consists of stand-alone applications rather than an integrated one.
2. **Standardized technology architecture** – the IT architecture is becoming more of enterprise-wide and provide efficiency by technology standardization and centralization.

3. **Rationalized data architecture** – the enterprise-wide architecture expands, including also standardized data and process.
4. **Modular architecture** – the architecture is leaning towards a global standard, incorporating a loosely coupled application, data, and technology components. (Ross, 2003)

The characteristic of each stage is shown in the following table.

Table 3 Characteristic of each learning stage by (Ross, 2003)

	Application Silo	Standardized Technology	Rationalized Data	Modular
IT Capability	IT applications serve isolated business needs	Firm-wide technology standards	IT focused on wiring core process	Modules enable business model extensions
Key Management Innovation	Technology-enabled change management	Standardization and exception management, refresh	Recognizing essence of the business	Practices facilitating reusability
Business Case for IT	ROI of applications	Reduced IT costs; interoperability	Improved business performance; integration	Speed to market; Strategic agility
Locus of Control	Local control	Senior management support of CIO	Senior management, IT, and process leadership	Senior mgmt, IT, process, and local leadership
Key Governance Issues	Estimate, measure, communicate value	Establish (local/ regional/ global) standard setting, exception & funding processes	Determine core processes and funding priorities	Define boundaries for business experiments

In this research we use the architectural stage to help us analyze the current state of the IT infrastructure in the Netherlands and Indonesia, so that point of improvements could perhaps be identified.

3.6. Infrastructure governance

As explained earlier, the governance in this study refers to the decision-making structure and the communication between the stakeholder involved in the information sharing. Regarding the communication between stakeholder. Fedorowicz et al. (2010) in their study on the barriers to inter-organizational information sharing had classified the typology of stakeholders involved in an inter-organizational information sharing environment as described in the following table.

Table 4 stakeholders in inter-organizational information sharing (Fedorowicz et al., 2010)

Stakeholder group	Description
Data controller	The person or entity that has the authority in determining the purpose and usage of the collected data
Data subject	An individual which data is collected for the information sharing purpose
Data Provider	Data controllers provide the data for the information sharing purpose, but not necessarily use the data
Secondary Stakeholders	Groups or individuals that influence the data controller but not necessarily interact with the system (Fedorowicz et al., 2010)

The data controller refers to the person or entity that have the authority in determining the purpose and usage of the collected data. The data subject is the individual which data is collected for the information sharing purpose. The data provider is the person or entity that provide the data for the information sharing purpose, but not necessarily use the data. Lastly, the secondary stakeholder refers to the groups that could have an influence on the data providers but not necessarily interact with the system. Usually, the secondary stakeholders consist of the legislator, associations, or public interest organizations (Fedorowicz et al., 2010).

As regards to the governance structure, previous studies have revealed that there is a widely known dichotomy such as the hierarchical and network structures. However, in this research, we use the definition from a study by Cumming (2016) to identify the governance structure. In his study, he complimented the already founded hierarchical (top-down or bottom-up) and network (peer-to-peer) approach with the heterarchical structure as illustrated in **Figure 14**.

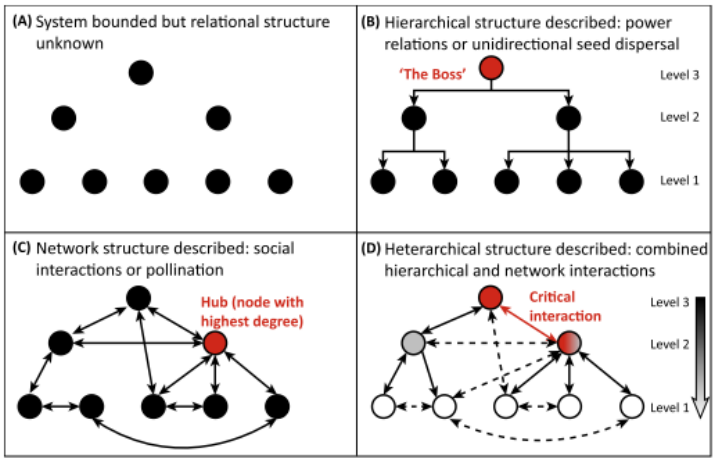

Figure 14 Governance structure (Cumming, 2016)

As shown in the figure above, hierarchical structure somehow bridging the ideas of hierarchical institutional and organizational power theories with the interaction and connectivity of the actors in the network and thus provide a conceptual tool for the analysts to have a richer and contextualized perspective regarding governance structure (Cumming, 2016).

3.7. Factors Influencing the Inter-Organizational Information Sharing

Previous studies have established the main determinants of inter-organizational information sharing. Yang & Maxwell (2011) identified that the sharing of information, especially in the public sector, is influenced by three broad categories of factors, namely (1) Organizational and managerial perspective; (2) Political and Policy Perspective, and (3) Technological perspective. The factors in each category can either hinder or have positive impacts on the inter-organizational information sharing. The determinants of inter-organizational information factors as proposed by Yang & Maxwell (2011) is shown in **Figure 15.** Several interesting findings of their study are as follows:

- Several factors have a direct effect on the inter-organizational information sharing namely, the organizational boundaries of bureaucracy, different operation procedures,

control mechanisms, and workflows, trust, lack of resource, and concerns of information misuse by other organizations.

- Legislations and policies can have either direct and indirect effect for the inter-organizational information sharing. Legislation and policies are found to have positive impacts on the inter-organizational information sharing in which it increases trust among the participants, could alleviate concerns, and able to provide funds and resources in facilitating the information sharing initiatives

- IT capability in an inter-organizational environment needs to consider the technical ability of the participants to be able to integrate the shared information from various system

Figure 15 Influencing factors framework proposed by (T.-M. Yang & Maxwell, 2011)

Enriching the previous study, Gil-Garcia and Sayogo (2016) propose a framework to assess the success of the inter-organizational information sharing project. The model they used composed of four categories of influencing factors: (1) Managerial and organizational; (2) Political and institutional; (3) Information and technology; and (4) contextual. The framework they proposed is depicted in **Figure 16**.

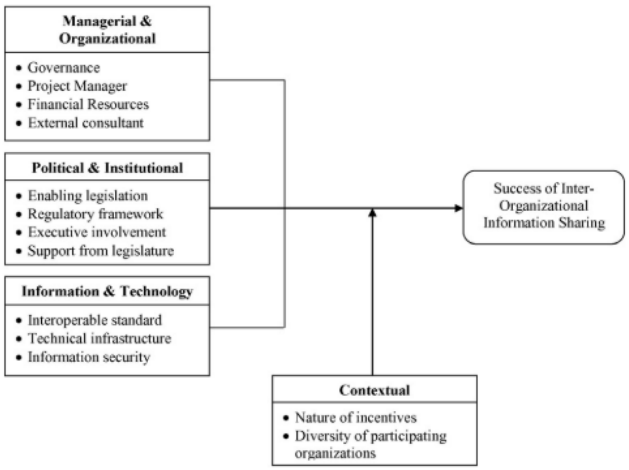

Figure 16 Influencing factors of Inter-organizational information sharing by (Gil-Garcia & Sayogo, 2016)

In their research, Gil-Garcia and Sayogo (2016) performed the quantitative analysis of the significance of the factors in each category. The results yield that four factors became the key factors for the success of inter-organizational information sharing as follows:

- Project managers. The existence of specifically assigned project manager is central to the success of the initiatives.
- Financial resources. Adequate financial resource influences the success of inter-organizational information sharing initiatives.
- Interoperable standards play a key role, especially the existence of standardized methods and metadata to ensure the interoperability of varied data sources involved in the information sharing initiatives.
- Technical infrastructure is found to be the most important determinants than other factors.

Interestingly enough, the results of Gil-Garcia and Sayogo (2016) found that political and policy factors are not statistically significant since the roles of those factors are multidimensional and depend on the specific case. However, the factors under political category can still have the implicit influence when it comes to the commitment to provide resources and funding, and also regarding the way to govern the usage of the information (Gil-Garcia & Sayogo, 2016).

However, in this study, we try to employ and extend the model proposed the previous study by Praditya and Janssen (2017) which aimed to identify the influencing factors of information sharing arrangements. The model used in the study is depicted in **Figure 17** and were derived based on the Technology Organizational and Environment framework. There are three classifications of factors used, which are Organizational, Inter-organizational and Technological.

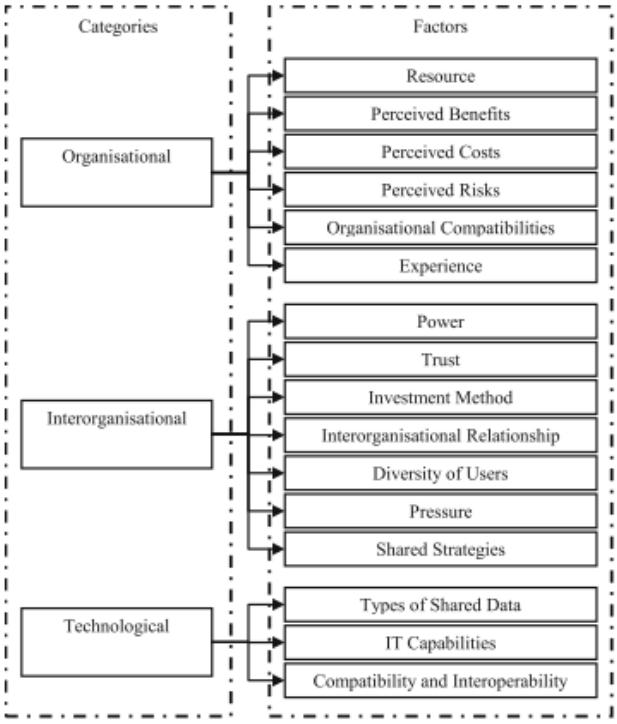

Figure 17 Lists of determinants adopted from (Praditya & Janssen, 2017)

The organizational category consisted of factors such as resource, perceived benefits, perceived costs, perceived risks, organizational compatibilities, and experience. Organizational compatibilities, as they explained, included factors firm size, firm structure, firm governance, and firm strategy. Similarly, (Singerling, Klievink, de Reuver, & Janssen, 2015) found that firm size and availability of the resource is indeed influencing the information sharing arrangements specifically regarding the decision to choose the information sharing system configuration (Singerling et al., 2015).

Moreover, in the inter-organizational category, the factors of the model by Praditya and Janssen (2017) include power, trust, investment methods, inter-organizational relationship, diversity of users, pressure, and shared strategies. Power and trust in the inter-organizational context especially influence the willingness to participate in the inter-organizational information sharing initiatives (Arendsen, Peters, Ter Hedde, & Van Dijk, 2014; Luna-Reyes et al., 2007; Singerling et al., 2015) and thus it can be a crucial consideration for organizations in their choice of it infrastructure and infrastructure governance.

Lastly, in the technological category, the factors included are types of shared data, IT capabilities, and compatibility and interoperability. The IT capabilities comprise the standardization of data, the volume of data and transaction of data, and also the types of data used. In the same vein, several studies also found that the success of inter-organizational information sharing is determined through the choice of the technical infrastructure (Gil-Garcia & Sayogo, 2016; Singerling et al., 2015; T. M. Yang & Wu, 2014).

3.8. Synthesizing the Literature

In this section, we present the proposed conceptual model that we derived based on the literature that has been described in the previous sections.

So far, from the literature we could derive the criteria to implement the AEOI Standard which are:

- **Requirements 1:** The participating country should have the basis for providing the required information by employing the enforcement of due diligence procedures within their local legal system, which include the translation in the: (1) Primary legislation; (2) Secondary legislation; (3) Guidance/ Frequently asked questions;
- **Requirements 2:** The participating country should have the chosen international legal basis that enables them to exchange information with other participating countries.
- **Requirements 3:** The criteria from each focus area to be considered are as follows: (1) Deadline for financial institutions' reporting, the format data used for exchange, and the transmission channel used to enable the reporting; (2) The existence of validation mechanism and the operational security in receiving and maintaining the data; (3) The encryption and whether the participating country use the CTS provided by OECD.
- **Requirements 4:** The participating country should meet the sufficient level of security to ensure the confidentiality and safeguarding of data, by employing a certain level of security standard, and bypassing the standard security assessment by the OECD.

Having those criteria at hand, we would like to assess the implementation of the requirements in the information sharing arrangements in each case, by examining the chosen approach of IT infrastructure and the infrastructure governance. The IT Infrastructure comprises of the IOSs type and the chosen data management approach. While for the infrastructure governance, we would like to assess the governance structure for the IT specification and IT implementation, and also how the involved stakeholders interact during the implementation process.

Based on the previous explanation also, some factors might have an influence to each chosen approach for the IT infrastructure and the infrastructure governance. Thus we would like to identify which of the factors found from literature is relevant in our scope of study. Accordingly, the simplified version of the initial conceptual model that we used in this study based on the literature is depicted in the following figures.

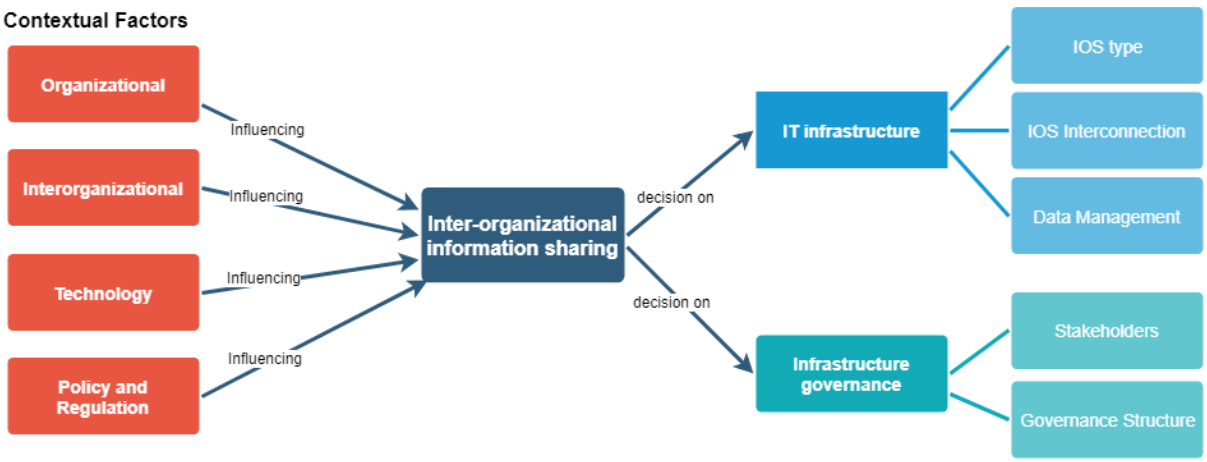

Figure 18 Simplified initial conceptual model from the literature

We derived the initial conceptual model by conducting the content analysis of the relevant literature using software Atlas.ti 7. The following figure showed the result of the content analysis that we performed and will be used as an input for our next phase of the research, that is the case study.

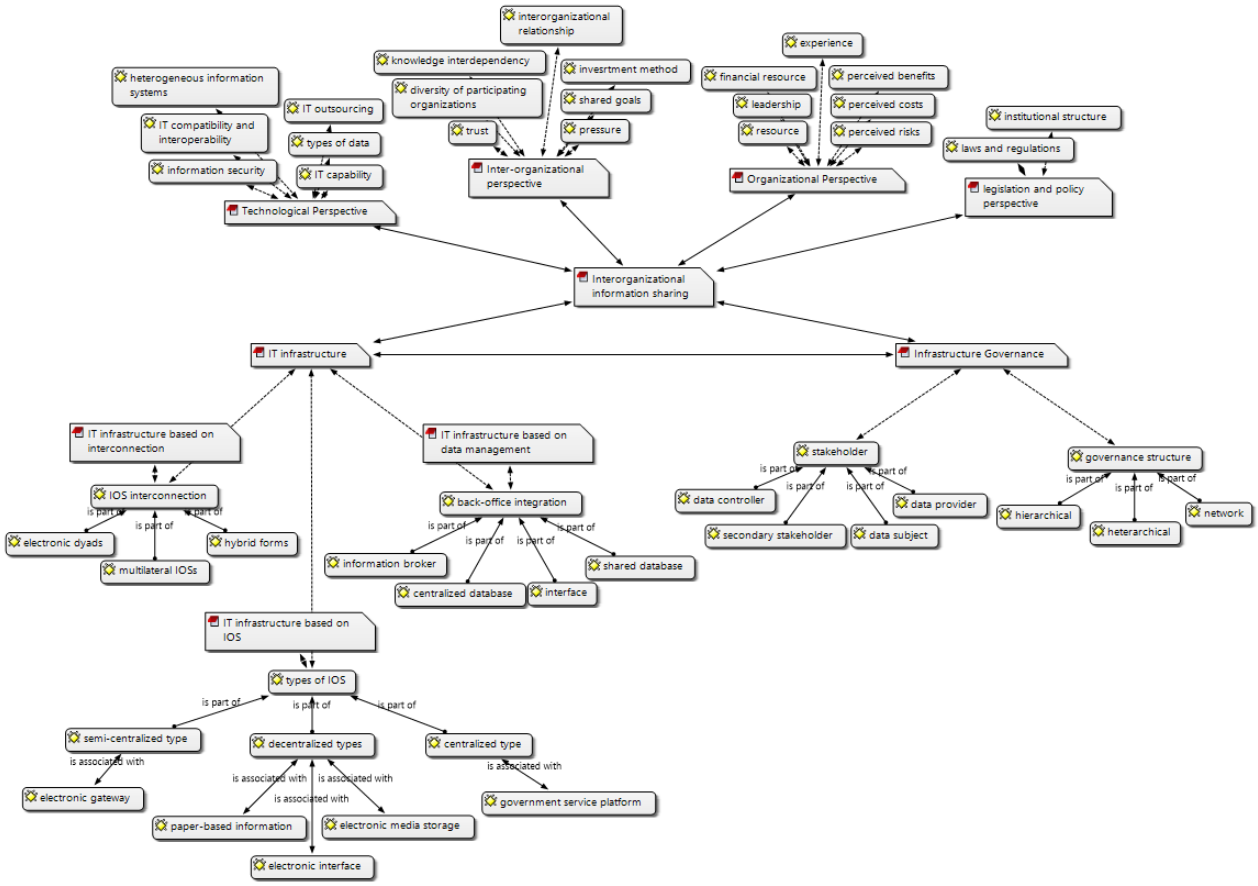

Figure 19 Proposed conceptual model derived from the literature

The upper part of the model, is the determinants of the inter-organizational information sharing that we found on the literature, comprising four categories: 1) Technological perspective; 2) Organizational perspective; 3) Inter-organizational perspective, and 4) Legislation and policy perspective.

Technological perspective

Table 5 Description of technological factors

Factors	Definition	References
IT capability	Technical ability to integrate shared information from the heterogeneous information system	(T.-M. Yang & Maxwell, 2011)
IT compatibility and interoperability	The existence of the standardized technology, process or data	(Praditya & Janssen, 2017)
Information security	Protection to ensure the security of the information included in the system and transmission	(Gil-Garcia & Sayogo, 2016)
Types of shared data	The standardized data used, amount of data, and the number of transactions	(Praditya & Janssen, 2017)
Heterogeneous information systems	Varied information systems of different platform, schemas, and qualities	(T.-M. Yang & Maxwell, 2011)
IT outsourcing	The existence of contractors that are used to develop the information systems	(T.-M. Yang & Maxwell, 2011)

Organizational perspective

Table 6 Description of organizational factors

Factors	Definition	References
Resource	Lack of resources in terms of staff shortages	(T.-M. Yang & Maxwell, 2011)
Financial resource	Limited availability of financial resources	(T.-M. Yang & Maxwell, 2011)
Leadership	Executives involvements such as positive management supports, attention, and active engagements	(Gil-Garcia & Sayogo, 2016)
Perceived cost	The projected cost that determined during the implementation of the project, during the use of the system, and maintenance of the system.	(Praditya & Janssen, 2017)
Perceived risk	The risk that is projected throughout the related to the prior, during and after the implementation of the project	(Praditya & Janssen, 2017)
Perceived benefits	The motivation of the organization in regards to the economic aspect of the technology adoption	(Praditya & Janssen, 2017)
Experience	Experience of the organization for doing the information sharing initiative	(Praditya & Janssen, 2017; T.-M. Yang & Maxwell, 2011)

Inter-organizational perspective

Table 7 Description of Inter-organizational factors

Factors	Definition	References
Pressure	External pressure that might affect the organizations in joining the initiatives	(Praditya & Janssen, 2017)
Trust	The organization's belief that other organization will perform actions that will result in positive outcomes	(Praditya & Janssen, 2017)
Inter-organizational relationship	The established relationship between information providers and receiver that has been in place	(Praditya & Janssen, 2017)
Shared goals	Shared motives and strategies within the participating organizations	(Praditya & Janssen, 2017)
Investment method	How the implementation project is financed	(Praditya & Janssen, 2017)
The diversity of participating organizations	The number of different natures of the participating organization	(Gil-Garcia & Sayogo, 2016)
Knowledge interdependency	Interdependency of knowledge between the information provider and receiver	(Gil-Garcia & Sayogo, 2016)

Legislation and policy perspective

Table 8 Description of the Legislation and policy factors

Factors	Definition	References
Laws and regulations	Legal and policy regulation exists that facilitate or drive information sharing initiatives	(Gil-Garcia & Sayogo, 2016; T.-M. Yang & Maxwell, 2011)
Institutional structure	Legal, regulatory and policy framework in which the government agency operates	(Gil-Garcia & Sayogo, 2016)

These determinants are perceived to have a relationship with the Inter-organizational information sharing in terms of the decision regarding the IT infrastructure and infrastructure

governance. Thus, we would like to explore whether the influencing determinants are likely to be found in the empirical observation, through conducting the case study.

3.9. Summary of Chapter 3

This chapter has reviewed the relevant literature that becomes the bedrock of the research. Additionally, if we recalled the first two sub-questions in this research, which is to find the relevant concepts and factors to capture the implementation of AEOI in the inter-organizational information sharing. We could already get the answer by now as depicted in the table below.

Table 9 summary of the concepts used in this research

Theory	Concepts	Source
IT infrastructure	Definition and components of IT infrastructure comprising: hardware, network, data and applications	(Duncan, 1995)
	Types of IOSs • Decentralized: Paper-based, Electronic media storage, Electronic interface • Semi Decentralized: Electronic gateway • Centralized: Government Service Platform	(T.-M. Yang et al., 2014)
	IOSs typology based on interconnection • Dyadic IOSs • Hybrid IOSs • Multilateral IOSs	(De Corbiere et al., 2010)
	Types of data management in information sharing • Type A: Centralized database • Type B: Interface connection between the database • Type C: Hub/third party broker • Type D: Shared database	(Bekkers, 2007)
IT Architectural Stages	Learning stages of the IT architecture: 1. Application silo architecture stage 2. Standardized technology architecture stage 3. Rationalized data architecture stage 4. Modular architecture stage	(Ross, 2003)
Infrastructure Governance	Stakeholder in Inter-organizational Information sharing • Data subject • Data provider • Data controller • Secondary stakeholder	(Fedorowicz et al., 2010)
	Structure of the governance: • Hierarchical structure: describe the power relations or unidirectional seed dispersal • Network structure: describe social interaction or pollination • Heterarchical structure: describe combined hierarchical and network interactions	(Cumming, 2016; Medaglia, Hedman, & Eaton, 2017; Stephenson, 2009)
Influencing factors	Comprising factors from Organizational, Interorganizational, Technological and Legislation and policy perspective	See **Table 5**, **Table 6**, **Table 7**, and **Table 8** above

4 The Netherlands' case study

This chapter presents the results for the implementation of AEOI in the Netherlands, derived from the interview transcript and the coding results. First, the timeline of the implementation is shown and how the four requirements of AEOI is implemented in the Netherlands is described. Second, an explanation of the infrastructure governance and the involved actors during the implementation is provided. Afterward, the information flow diagram is presented followed by the BPMN diagram of the reporting process in the next section. Subsequently, the identified factors influencing the information sharing arrangements are elaborated.

4.1. Fulfilment of Four Key Requirements of AEOI

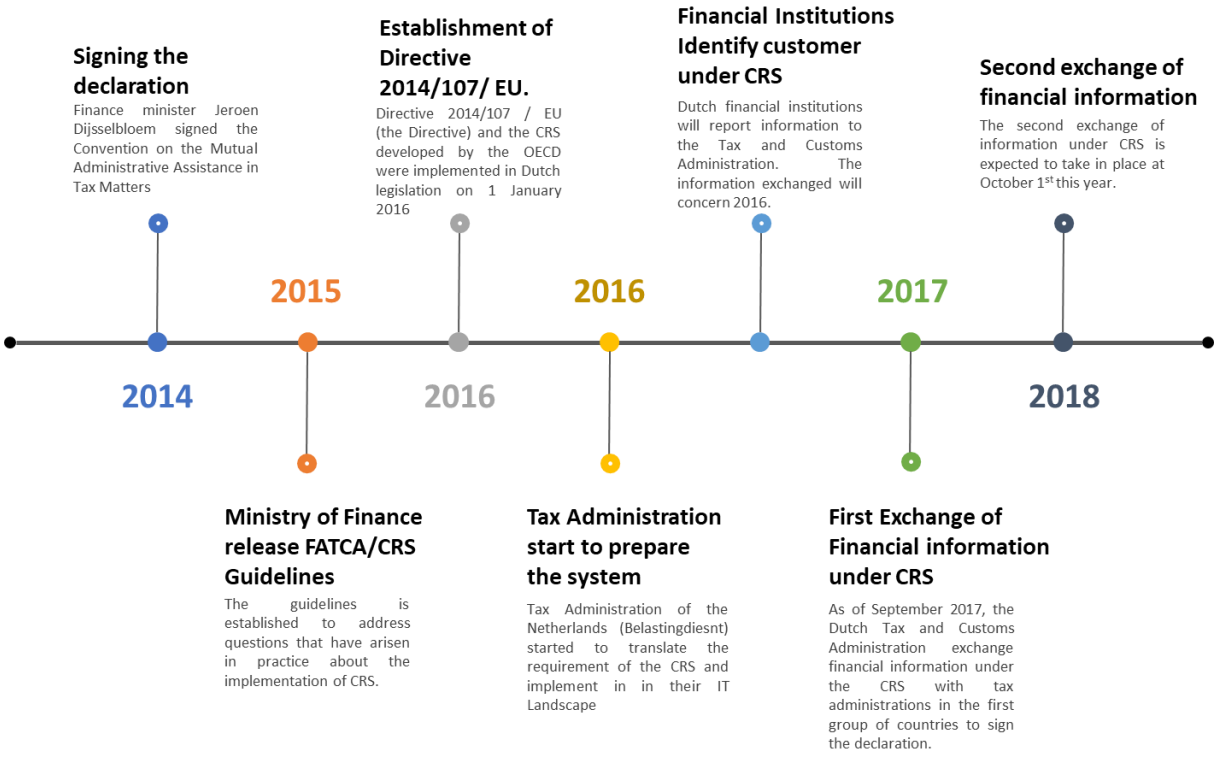

Figure 20 Timeline of key events

The implementation of AEOI in the Netherlands can be seen in the above figure of key events timeline. Started in the year of 2014, marked by the signing of the Convention on the Mutual Administrative Assistance in tax matters by the Ministry of Finance and followed by the established FATCA/CRS guidelines. In the following years in 2016, the EU established a directive amending the previous directives regarding the obligation of automatic information exchange for the member states. And accordingly, the Netherlands through its Belastingdienst (Tax administration) prepare the system to enable the automatic exchange.

Accordingly, the financial institutions in the Netherlands need to prepare themselves to provide the required data and to perform the due diligence procedures in order to do so. Thus, in 2017 all is wrapped, and the Netherlands performed their first exchange of CRS reporting by October

1st, 2017. Hence this year, they have performed the second exchange in October 2018. Further detailed on the fulfillment of the four requirements of the AEOI is elaborated below.

Requirement 1: Translating the reporting rule and due diligence into domestic law, including rules to ensure their effective implementation

The translation of the due diligence procedure in the Netherlands is in three levels in the regulation system, which is the primary legislation, the secondary legislation, and the guidelines. The interesting fact founds in the implementation is that since the Netherlands is one of the member states of the European Union (EU), the directives that have been ratified in the EU level, has a higher degree of power in the regulation system. Thus, as we can see in the table below, there are two primary legislations in the Netherlands, which is the council directive of EU, and the Act Implementation Common Reporting Standards. For the secondary legislation, there is an implementation decree on identification and reporting rules common reporting standard which provides detailed instructions on the rules of due diligence. As for the guidelines, there is Guideline FATCA / CRS with technical explanatory notes to the NL IGA and the CRS regulations.

Table 10 Legislation of Implementing the AEOI CRS in the Netherlands (OECD, 2017a)

Level	Regulation /Policy number	Issue Addressed
Primary legislation (EU Level)	"Council Directive 2014/107 / EU" (DAC 2) (The Council of the European Union, 2014)	Acknowledging the importance and perceived benefits of the global standard for automatic exchange of information, mandating the implementation of the standard by the member states of European Union.
Primary Legislation (National Level)	"Act Implementing Common Reporting Standard" (King of the Netherlands, 2015)	Mandating the obligation to implement the EU directives of DAC2 regarding the tax-related information exchange, and to enforce the implementation of the "Common Reporting Standard."
Secondary Legislation	"Implementation Decree on Identification and Reporting Regulations Common Reporting Standard" (King of The Netherlands, 2015)	Comprising the set of requirements for the financial institutions to identify and report the needed data for the CRS reporting.
Guidelines / FAQ	"Guideline FATCA / CRS with technical explanatory notes to the NL IGA and the CRS regulations" (The State Secretary for Finance, 2016)	Providing the details and answers for the questions regarding the adoption of "NL IGA" and CRS in practice.

In addition, to ensure the effective implementation, specifically for the financial institutions has the capability to perform the due diligence procedures and provide the required data, Belastingdienst is collaborating with the Audit Service companies (Auditors) and organize training for the auditors so that they could perform audit for the financial institutions regarding the due diligence procedures.

Requirement 2: Selecting a legal basis for the automatic exchange of information.

According to the interviewee from Belastingdienst, within the EU countries, the chosen legal basis for the exchange is the Multilateral Competent Authority Agreement on Automatic Exchange of Financial Account Information' (MCAA). However, for the countries outside the EU, the bilateral relationship is chosen.

Requirement 3: Putting in place IT and Administrative infrastructure and capabilities

Based on our findings in the literature section previously, in order to fulfill the third requirements, there are three main areas that need to be considered. The first area is regarding the collecting and reporting the information. For the data collection deadline, the Netherlands proceed with the deadlines set out by the standard for the CRS report data collection which is the first nine months of the calendar years. So, the financial institutions could collect and report their data in between January and September each year, and thus the exchange will take place in the 1st October of the year.

Regarding the data format used in the exchange, XML is chosen, by also using the CRS Schema provided by the standard. Regarding the transmission channel, Digipoort infrastructure is used to enable the system-to-system reporting from the financial institutions to the Belastingdienst. More explanation on the transmission channel is provided in section 4.3 of this chapter.

For the second area, the receiving information to send, the parameter to be fulfilled is regarding the operational security in receiving and maintaining the data and regarding the validation mechanism. The operational security in receiving and maintaining the data in the Netherlands implementation is facilitated by the system-to-system connection from the financial institutions to the Belastingdienst thus it minimizes the possibility of a data breach by the unauthorized officer. Moreover, there is also an authentication and authorization during the sending data to the Digipoort, so that only authorized financial institutions could send the data. As for the validation mechanism, there are two step validations, the first one regarding the header structure of the message, which takes place in the Digipoort, and regarding the structure of the message which takes place in the internal system of Belastingdienst.

Lastly, regarding the transmitting and receiving the information, the report received by the Belastingdienst will first be validated and then aggregated. This is being done by a different application because the Netherlands used general tooling in their internal system to perform each function. After the data has been aggregated, it will then be encrypted by another application prior to sending to another country. And for transmission channel to send it to another country, the CTS (common transmission system) by OECD is used.

Requirement 4: Protecting confidentiality and safeguarding data.

In order to protect the confidentiality and safeguarding of data, the reporting process in the Netherlands is executed by using a system-to-system connection, and most of the process is already automatic. One interesting fact also, based on the interview result, we found that the Netherlands used the **Goal binding strategy**. This strategy stated that you could only use the data that you have received for the purpose that has been agreed. The data cannot be used for

another purpose outside the agreed one. The strategy thus helped in assuring the confidentiality and safeguarding of the data.

4.2. Infrastructure Governance

There are eight stakeholders identified in the implementation of AEOI in the Netherlands interorganizational context. As we can see in **Figure 21,** there are three levels of the stakeholder involved, and the main actor in the implementation is the Belastingdienst.

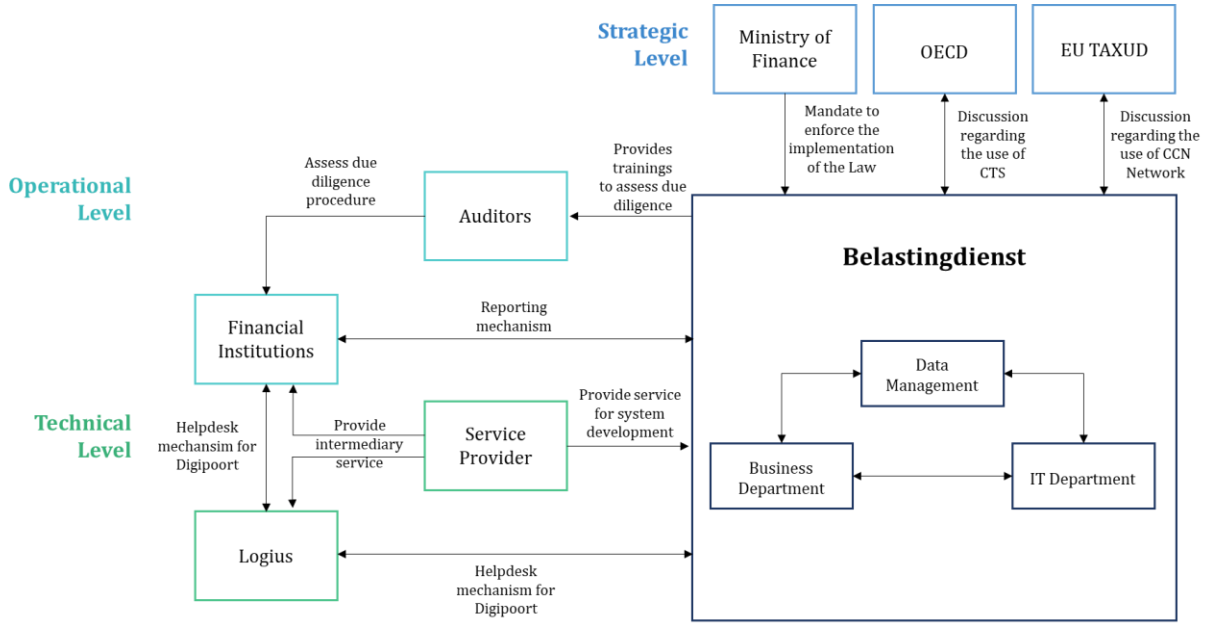

Figure 21 Stakeholder interactions derived from the interview

Firstly, there is the strategic level which consists of the Ministry of Finance, OECD, and EU TAXUD. The interaction between Belastingdienst with the secondary stakeholders identified here are mostly regarding the high-level discussion on whether the regulation or the technical interoperability matters for the inter-jurisdiction. The Ministry of Finance, for example, has established the act to implement the AEOI/CRS per 2016 in the Netherlands, and thus mandate the Belastingdienst as the operational government body to be responsible for enforcing the law.

About OECD, Belastingdienst is also involved in the development process of the (Common Transition System) CTS that used to exchange the report between countries. According to our interview with the respondent from Belastingdienst, the development process of CTS also involved several member states of the EU especially on discussing the requirements and regarding the make-or-buy decision. But still, the final decision is on OECD, which they agreed to develop a system in which they benchmark the functionality from the system used to enables FATCA reporting. FATCA, in this case, is the agreement to exchange financial information to the US.

Regarding the use of CCN network, Belastingdienst is corresponding with the EU-TAXUD (European Taxation and Customs Union) especially regarding the use of SPEED-2 gateway – a network gateway to connect non-EU countries to the member states – which is elaborated more in the next section.

Secondly, at the operational level, there are the financial institutions and the auditors. In this case, it is clear that the financial institutions have a role as a data provider for the reporting. But the interesting point is that there is also the involvement of Auditors, which is considered as the secondary stakeholder, to ensure that the financial institutions have the eligible capability to provide the correct required data. So, in this case, Belastingdienst has trained the Auditors regarding the due diligence procedures, how to conduct the procedures, and what kind of data should be reported. The Auditors then performs the audit for the financial institutions so that they could be sure that the financial institutions have performed the due diligence procedures as recommended in the AEOI standard.

As for the technical level, there are Logius and the service provider. Logius is the organization under the Ministry of Internal Affairs of the Netherlands, and they are responsible for the Digipoort. Logius provides the external helpdesk mechanism for the Digipoort to the Belastingdienst and the Financial Institutions. On the other hands, there is also the service providers that have a role in the implementation. In this research, the service providers refer to the IT services companies involved and not constrained to one specific organization. First, they are involved in the development of a system for the internal system of Belastingdienst and regarding the intermediary service between financial institutions to the Digipoort by Logius.

If we turn to the change management exists regarding the reporting of AEOI, based on the interview results, any changes regarding the AEOI, for example like the XML schema, will be first discussed with the member states and the OECD. Once there is one consensus, each country should implement that in their context. As for the Belastingdiesnt, the range of period to get the changes implemented is around three or four months. This is due to their complex internal system, and they also need to discuss the changes to the financial institutions.

However, since the main responsibility to implement the AEOI in the Netherlands is given Belastingdienst, the governance structure employed related to AEOI is quite straightforward, which is the hierarchy structure. In terms of the general infrastructure, involving the Digipoort infrastructure in general, from the explanation above we could see that it is more of heterarchical with the strongest link is between the Belastingdienst and Logius.

The detailed information on their roles and interest/issues is provided in the following table.

Table 11 Stakeholders of AEOI implementation in the Netherlands

Stakeholder group	Actor	Roles	Issue(s)	Interest(s)
Data Controller	**Belastingdienst**			
	Business department	• Determine system requirements and goals • Ensure that the carried-out process conform to tax laws	• The different result of perceived cost and benefits • The uncertainty of profit income forecast	• Achieve ROI on the IT investment • Could detect and obtained tax revenue
	IT department	• Determine the development of the system	• The complexity of maintaining the big system	• Provide efficient IT process

		• Determine the implementation decision in the IT system • Execute the implementation of requirements from the business department • Perform maintenance of the system	• Incompatible infrastructure component • Difficulties in tracking error in the development environment	• Obtain future benefits of the current building block of the IT infrastructure • Timely time to market for IT development Ensure the effectiveness of parallel developments in the IT landscape
	Data management	• Process incoming information • Prepare outgoing information • Perform analysis of data received from other countries	• Incompatible components due to update patch of other components	• Timely data analysis • Provide the required data • Ensure the data could be processed by other countries
Data Provider	**Financial institutions**	Provide required information to Belastingdienst	• Development and maintenance cost to provide information for the CRS reporting	• Provide the right data with the required data quality • Confidentiality and safeguarding of account holder data
Secondary Stakeholder	**Ministry of finance**	Establish the law and regulation for the implementation of AEOI and CRS in the national legal system	• Compliance with the regulation by financial institutions • Enforcement of the regulation by Belastingdienst	• The AEOI standard is implemented properly • The law and regulation are enforced properly
	OECD	• Monitor the implementation of AEOI Standard in member countries • Develop and maintain the CTS	The existence of several challenges faced by member countries in implementing AEOI	• The AEOI standard is implemented properly • All countries could actively participate in the information exchange
	EU TAXUD	Develop and maintain the CCN Network	Compatibility issue with the gateway to connect to non-EU countries (Speed-2)	• Ensure integrity of CCN Network • Ensure interoperability and compatibility of the gateway to connect with non-EU countries
	Logius	• Provide IT service to route information/report to the internal system of Belastingdienst • Provide a supporting mechanism for the Digipoort	Reliability of Digipoort for handling bulk message for the reporting	• Ensure Belastingdienst receive the correct data • Provide timely service for helpdesk and support mechanism related to Digipoort
	Auditor	Assess the capability of financial institutions to perform due diligence procedures	Adequate and service or assistance for the financial institutions in performing due diligence rules	Ensure financial institutions could provide the required data
	Service Providers	Provide service for the development of a system or as the intermediary between financial institutions and logius	Implement the correct solution needed	• Provide desirable service within the agreed time • Receive proper fee

4.3. IT Infrastructure in the Netherlands

The following figure depicts the information flow diagram of the CRS reporting process of the Netherlands. Based on the result of the interview, two IOSs are identified in the Netherlands in

which the first one is Digipoort that facilitates the reporting from a financial institution to Belastingdienst, and the other is the Common Transmission System (CTS) that facilitates the exchange with another country. However, for this research, we will only focus on the first IOSs since it is relevant to the research scope, which is the third requirements of AEOI. Let us walk through the flow of the information for the reporting starting from the financial institutions.

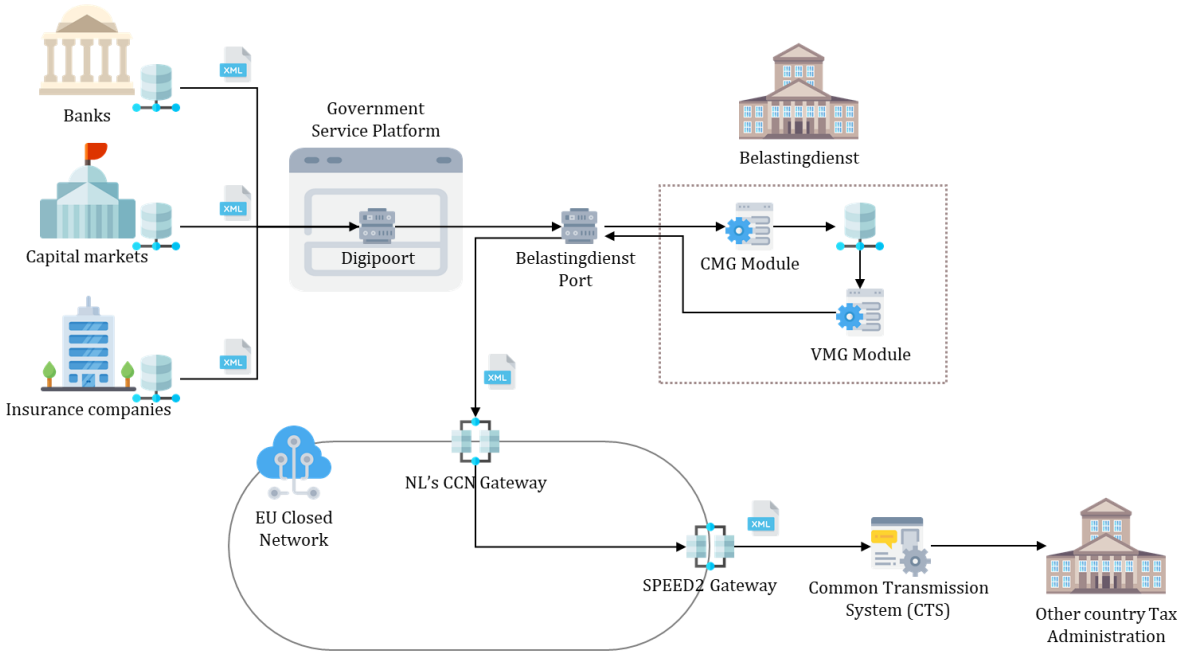

Figure 22 Information flow diagram for AEOI reporting in the Netherlands based on the interview results

Firstly, the financial institutions which comprise of the banks, the capital markets, and insurance companies, need to send the required report in XML format to the Digipoort. Digipoort is a Government Service Platform that connects the government's body in the Netherlands to the private sectors. In Digipoort, the XML report is being validated for their header structure so that the data could be checked for the authorization and authentication. Once it has been validated, it will be routed to the intended government port, which for this AEOI purpose is the Belastingdienst port. Regarding the data management, Digipoort does not store the XML report in its infrastructure, so in this case, Digipoort is acting only as the hub for the messages that are intended for the government body in the Netherlands.

Once the report has reached the port of Belastingdienst, it will be forwarded to the Belastingdienst internal legacy system, the CMG module which will perform the structure validation of the received data and store them in the internal storage. The next step would be to aggregate the data based on the country residence and thus encrypt the data accordingly prior to being sent to other countries. These processes are executed in the VMG module. The output from the VMG module, which is the encrypted data, will then be sent to the EU closed network called the Common Communication Network (CCN) through the Belastingdienst port.

For the CCN, the Netherlands has its own CCN gateway to send and receive information from inside and outside the EU. From the CCN gateway, if the receiving country is a non-EU country, the data will be sent to the gateway called the SPEED-2 gateway, and accordingly sent to the

CTS. If the receiving country is the EU member states, the data will be sent from the NL CCN gateway to the member state's own CCN gateway without using the CTS.

CTS is the second IOSs identified in this case, which is provided by OECD to enable the automatic exchange between countries. CTS has two kinds of mechanism, which is the upload-download mechanism and the system-to-system mechanism. For the Netherlands, the implemented mechanism is the system-to-system by linking the internal system to the CTS. For the receiving countries, if they implement the system-to-system mechanism, they could directly receive the data. However, with the upload-download mechanism, first they will receive the notification that there are incoming reports from other countries, and afterward, they could download the reports.

One interesting point from the information flow in the Netherlands is that the reporting process from the financial institutions has employed the system-to-system sharing mechanism and the internal process happened in the Belastingdienst are also fully automated. Thus, there is a minimum human involvement in terms of the reporting process. The motivation for choosing the mechanism will be elaborated within the next two sections.

Thus far, we already have the bigger picture of the flow of the information in the Netherlands, and if we reflect on the theories in **section** Error! Reference source not found. the infrastructure for the IOSs – Digipoort – in the Netherlands is categorized as the centralized type by using the Government Service Platforms, and having the characteristic of multilateral IOSs since Digipoort is used for the sharing of information between many private organizations to many government bodies.

In terms of the data management, we can see that the Netherlands applied the type C in which they used an intermediary service (Digipoort by Logius) to facilitate the exchange of information from financial institutions to Belastingdienst. However, it is important to note that in this case, the Digipoort does not store the message, rather it only facilitates the first validation for the XML report and then forwards it to the gateway of Belastingdienst, that is the Belastingdienst port.

4.4. Process Alignment

The following figure is the simplified BPMN model for the reporting process from financial institutions to Belastingdienst, with the assumption that the financial institution that required to report is registered and under the supervision of the Belastingdienst and is included in the category of financial institutions that are required to perform the CRS reporting.

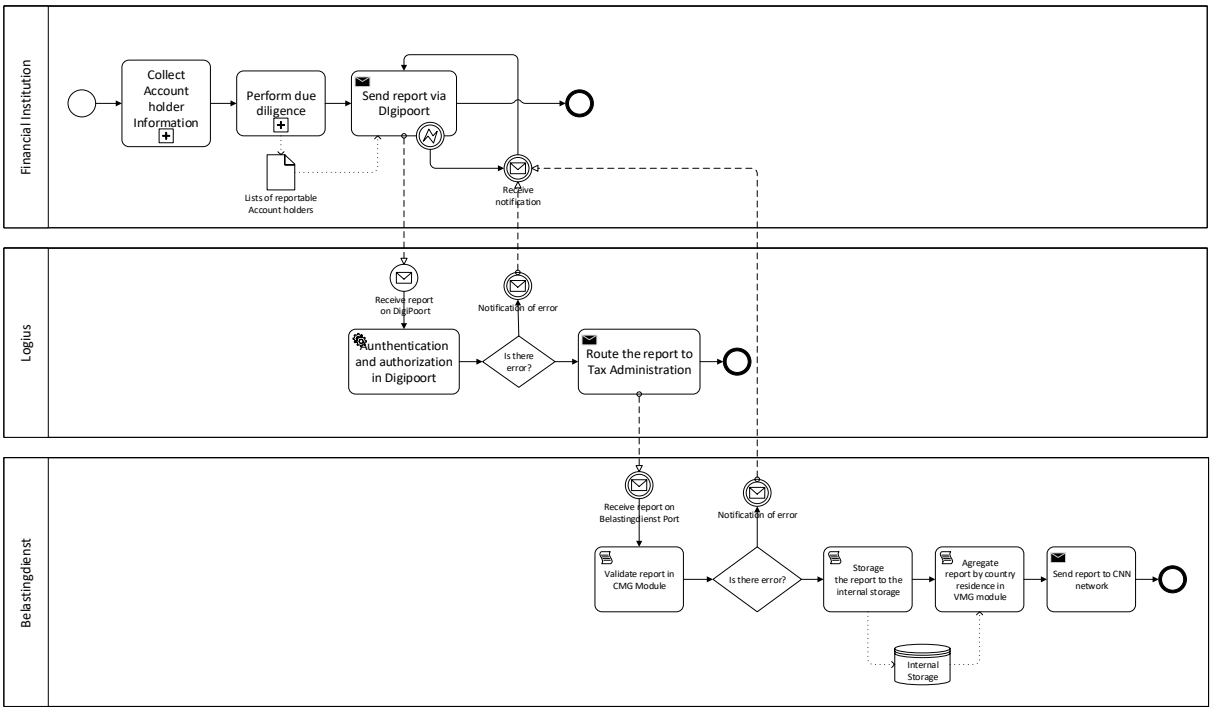

Figure 23 Reporting process in the Netherlands

As we can see from the above figure, there are three stakeholders involved in this reporting process. Firstly, for the Financial institutions, they need to collect the account holder information that is required to be reported, and then perform the due diligence procedures on the lists of account. If we recall the explanation from the previous chapter, the due diligence rules are the set of procedures to identify which account needs to be reported and to what extent the detail of the account should be reported. This process produces a list of reportable account holders. Next, the financial institutions must send the report to the Belastingdienst via the Digipoort. And accordingly, Digipoort will perform the validation mechanism and thus forward the report to Belastingdienst port.

Next, after receiving the report in the Belastingdienst port, their data will then be forwarded to the CMG module of the internal system of the Belastingdienst to be validated for its structure and content. If there is no error on the report, they will be directly stored in the internal storage of Belastingdienst. Afterward, the data will be aggregated based on the country residence, in the VMG module and also be encrypted prior to sending the report to the EU CCN (Common Communication Network).

All and all, this prevailing process in the Netherlands' AEOI implementation is already aligned with the suggested generic process in the AEOI implementation book.

4.5. Factors Influencing the Information Sharing Arrangements

Based on the analysis of the interview results that have been done using the Atlas.ti version 7, we derived the following network views that illustrate the influencing factors of the chosen infrastructure and governance structure in the AEOI implementation in the Netherlands.

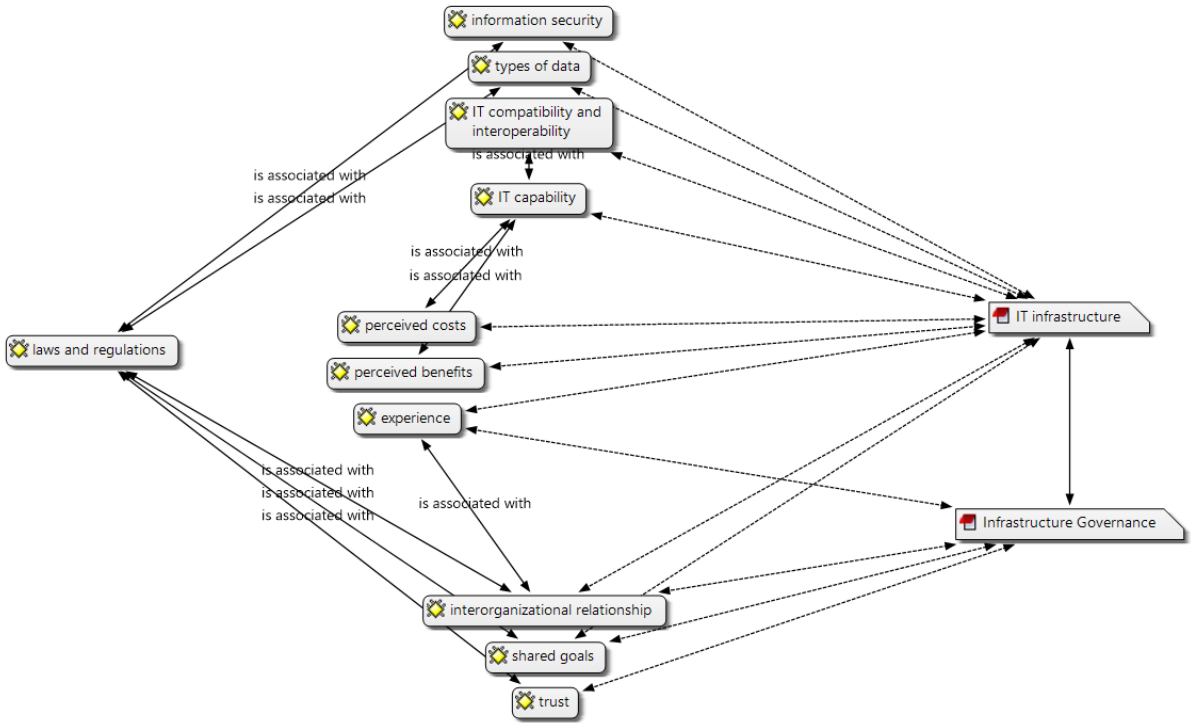

Figure 24 Influencing factors in the Netherlands

As shown in the above figure we found interesting result, which is not only the already define factors influencing the choice of infrastructure and governance, but there exist association relationships within the factors itself.

Legislation and policy perspective

The first factor is the laws and regulations which is associated with the other influencing factors such as Information security, the type of shared data, inter-organizational relationships, shared goals, and trust. The regulation, in this case, refer to the EU Directives, OECD guidelines, and the national act and decrees imposed by the government of the Netherlands.

The regulation is associated with the information security and type of shared data because it defines the required functions and data format that should be used in the reporting of AEOI. Moreover, regarding the shared goals, "**the goal binding**" strategy found in the Netherlands laws and regulations proved to be enhancing the trust within the participating organizations. Also, the regulation is facilitating the inter-organizational relationships as it obliged the financial institutions to report the data to the tax administrations.

In this case, we see that laws and regulations in the Netherlands only have indirect relationships to the choice of infrastructure and infrastructure governance.

Technological

The first category that is being assessed by the Netherlands in implementing AEOI in their IT infrastructure is the current IT environment that they have, which in this research is referred to as the IT capability. The current IT capability of Netherlands is considered to be mature and

well established. The fact that they already have the Digipoort infrastructure, general tooling (standardize IT process) in the internal system of Belastingdienst has shown that they already have the established IT compatibility and interoperability. And it is found that it influences the choice of their IT infrastructure, which is using the Government service platform (Digipoort).

IT capability, of course, does not stand alone in this case, for it is closely related to the interoperability and compatibility and also perceived benefits. Regarding the interoperability and compatibility, as mentioned earlier, Netherlands already have the Digipoort infrastructure that enables the reporting of private sectors to the government, and also the use of CCN (EU close network) and CTS to ensure the interoperable data exchange within EU and outside EU. Because of the existence of the established IT environment, the Netherlands perceived that it would be more expensive to build a whole new system rather than using the one that already in place. Therefore, we found that there is an association between the IT capability factor and the perceived cost and perceived benefits.

Organizational

From the organizational perspective, perceived benefits, perceived costs, and experience are the factors that we identified exists and have an influence on the choice of IT infrastructure and infrastructure governance. The perceived benefits that we found in the Netherlands are that by using the current IT environment, they could develop a building block, that could make the future exchange easier since they already have the general tooling. Regarding the perceived cost, as mentioned earlier also, because they already have everything in place (IT capability and IT maturity) it would be more expensive to build a whole new system, rather than using the existing one. For the experience factor, the Netherlands previously has already the experience of reporting financial information both inside and within the member states of EU. So, the new reporting requirements such as AEOI does not become a big obstacle for both the financial institutions or the Belastingdienst. Because they already familiar with the type of shared data such as XML and XBRL.

Inter-organizational

In the inter-organizational relationship perspective, since the Netherlands has previous experience in the financial reporting, whether it is domestic related reporting or the reporting within EU Belastingdienst has a good relationship with the involved stakeholder such as the financial institutions and Logius, and also to the OCED since the Netherlands also involved in the CTS development. Thus, this factor influences the choice of infrastructure and governance structure.

4.6. Summary of Chapter 4

In summary, this chapter explained how the Netherlands accommodate the AEOI reporting in their country. Therefore, we could already answer the sub-question 3a as follows:

- Firstly, the four requirements of AEOI should be in place. Meaning that there should be the legislative rules in place, the chosen international legal basis, the IT Infrastructure, and administrative capability and also the sufficient degree of confidentiality and data safeguarding in the information system.

- As for the IT infrastructure, the chosen infrastructure is the centralized – multilateral IOSs. Meaning that in accommodating the reporting, the Netherlands used a government service platform (Digipoort) that facilitate the reporting of financial institutions to the Belastingdienst. The Digipoort infrastructure is a multilateral IOSs because it could facilitate information sharing from private sectors to the many government bodies in the Netherlands, although in this case, the government is only the Belastingdienst.

- Regarding the governance structure, the identified structure is heterarchical, in which many stakeholders are involved. However, there is a strong link between two players here that is the Belastingdienst and OECD.

- As for the influencing factors, IT capability, perceived benefits, and experiences become the dominant factors that influence the chosen approach for infrastructure and governance structure.

5 Indonesia's case study

This chapter presents the results for the implementation of AEOI in Indonesia, derived from the interview transcript and the coding results. The structure of the chapter is similar to the previous chapter in which first, the timeline of the implementation is shown and how the four requirements of AEOI is implemented in Indonesia is described. Second, explanation of the infrastructure governance and the involved actors during the implementation is provided. Afterward, the information flow diagram is presented followed by the BPMN diagram of the reporting process in the next section. Subsequently, the identified factors influencing the information sharing arrangements are elaborated.

5.1. Fulfillment of Four Key Requirements of AEOI

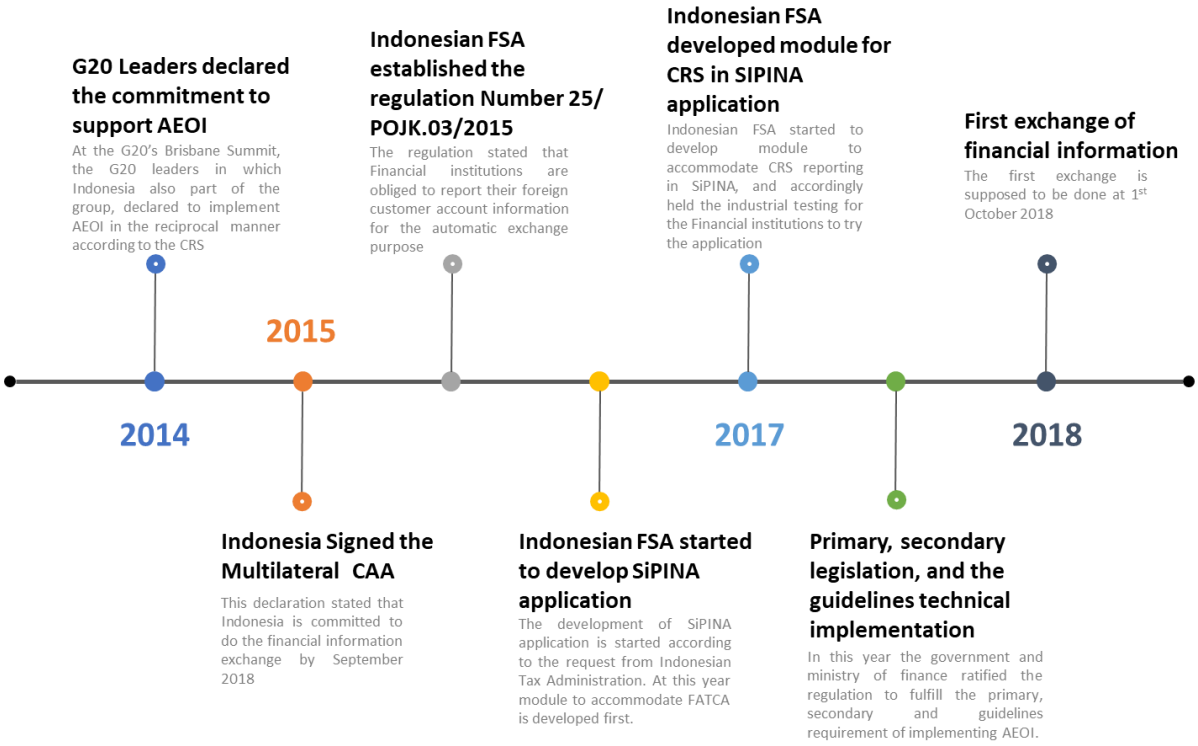

Figure 25 Timeline of key events

The timeline of key events for the implementation of AEOI in Indonesia is depicted in the above picture.

Requirement 1: Translating the reporting rule and due diligence into domestic law, including rules to ensure their effective implementation

To introduce the government structure in Indonesia, there are at least three stakeholders involved, namely the Ministry of Finance, the Tax Administration which from this point will be called as Direktorat Jenderal Pajak, and the Indonesian Financial Service Authority (FSA). But the main stakeholder involved in this case the Direktorat Jenderal Pajak and the FSA. The

Indonesian FSA is the governmental body that is responsible for supervising all the financial institutions in Indonesia. Thus, in terms of AEOI implementation, the FSA has the responsibility to create regulations and develop the system to enable the financial institution to send their report.

As for the fulfillment of the translation of CRS into the national regulation, for the primary legislation, Indonesia has fulfilled it through the established Government Regulation in Lieu of Law of The Republic of Indonesia Number 1 the Year 2017. Followed by the secondary legislation that provides more details on the reporting rules, Regulation of Minister of Finance Number 70/PMK.03/2017 as Last Amended by Regulation of Minister of Finance Number 19/PMK.03/2018 is established. And for the technical guidance, Regulation of Minister of Finance Number 70/PMK.03/2017 As Amended by Regulation of Minister of Finance Number 73/PMK.03/2017 is established that concerned the technical guidance on the access to financial information for the tax purpose.

Table 12 Legislation of Implementing the AEOI CRS in the Netherlands (OECD, 2017a)

Level	Regulation /Policy number	Issue Addressed
Primary legislation	Government Regulation in Lieu of Law of The Republic of Indonesia Number 1 the Year 2017	Concerning access to financial information for tax purposes to resolve an issue regarding bank secrecy (President of the Republik Indonesia, 2017)
Secondary Legislation	Regulation of Minister of Finance Number 70/PMK.03/2017 Last Amended by Regulation of Minister of Finance Number 19/PMK.03/2018	Details regarding the reporting rules and due diligence procedure. (Minister of Finance Republik Indonesia, 2017a)
Guidelines	Regulation of Minister of Finance Number 70/PMK.03/2017 As Amended by Regulation of Minister of Finance Number 73/PMK.03/2017	Concerning Technical Guidance on Access to Financial Information for Tax Purposes (Minister of Finance Republik Indonesia, 2017b)

Requirement 2: Selecting a legal basis for the automatic exchange of information.

The legal basis chosen in Indonesia for the automatic exchange is as follows:

1) Double Taxation Avoidance Agreement (DTAA)
2) Tax Information Exchange Agreement (TIEA)
3) Convention on Mutual Administrative Assistance in Tax Matters / MAC
4) Multilateral Competent Authority Agreement / MCAA

Requirement 3: Putting in place IT and Administrative infrastructure and capabilities

For the collecting and reporting the information area, Indonesia proceeds with the set-out deadline for collecting the information as the AEOI standard, which is the first 9 months of the calendar year. And therefore, the exchange will take place on 1st October. Regarding the data format used by the financial institution, this is where it is being interested, are the XML format and the xlsx format because not all financial institutions in Indonesia is familiar with the

metadata format such as the XML. And as for the transmission channel, there are two windows that are being used, which are the SiPINA application and the EOI portal.

SiPINA application is a web-based application developed by the Indonesian FSA, for the Financial institutions under the supervision of the FSA that have foreign customers. And EOI portal is a web-based application developed by Direktorat Jendral Pajak Indonesia to accommodate the reporting of other financial entities to report their foreign and domestic customer for the domestic purpose.

For the second area, regarding validation mechanism, the validation is being done differently between the SiPINA application and the Portal EOI application. For the SiPINA application, there is a validation module inside the application that checked on the XML structure format and the business content of the data. On the other hand, the validation of the data for the Portal EOI application needs to be done by the financial institutions prior to uploading the data to the portal EOI. More elaboration regarding these applications is provided in the next section.

Regarding the third area, the transmitting and receiving the information. The data received by the Indonesian FSA from the SiPINA application will be available to be downloaded by the authorized person of the Direktorat Jenderal Pajak. The data from the SiPINA is already encrypted, and thus to decrypt that the authorized person will receive the public key from the personnel from Indonesian FSA. The authorized personnel from Direktorat Jenderal Pajak will then checked the downloaded data from the SiPINA, and aggregate the information based on the country residence, and then send the data using the CTS.

Requirement 4: Protecting confidentiality and safeguarding data.

As to ensure the data confidentiality and safeguard, Global Forum on Transparency and Exchange of Information for Tax Purposes, part of the OECD, has performed an on-site visit assessment for Indonesia. And based on the assessment, there are several recommendations that need to be executed in order to improve the current situation. Thus, after the recommendation has been followed up and executed, in a meeting called the Preliminary Global Forum Meeting held on December 2017 in San Marino, Indonesia is declared as having fulfilled the requirements to participate in the data exchange for September 2018.

5.2. Infrastructure Governance

The government structure for financial sectors in Indonesia is slightly different from the Netherlands case. In Indonesia, aside from the Tax Administration, hereafter we refer the Indonesian tax administration as Direktorat Jendral Pajak, there is another government body that involved in the implementation of AEOI in Indonesia, that is the Indonesian Financial Service Authority (FSA). This is because the authority of supervising the Financial Institutions is on the FSA, and it is stated on the national law. Therefore, every information provided by the financial institutions must first be reported first to the FSA prior to being sent to the Direktorat Jenderal Pajak.

As we can see in the figure below, there are three levels of the stakeholder involved, and the main actor in the implementation is the Direktorat Jenderal Pajak and Indonesian Financial Service Authority (FSA).

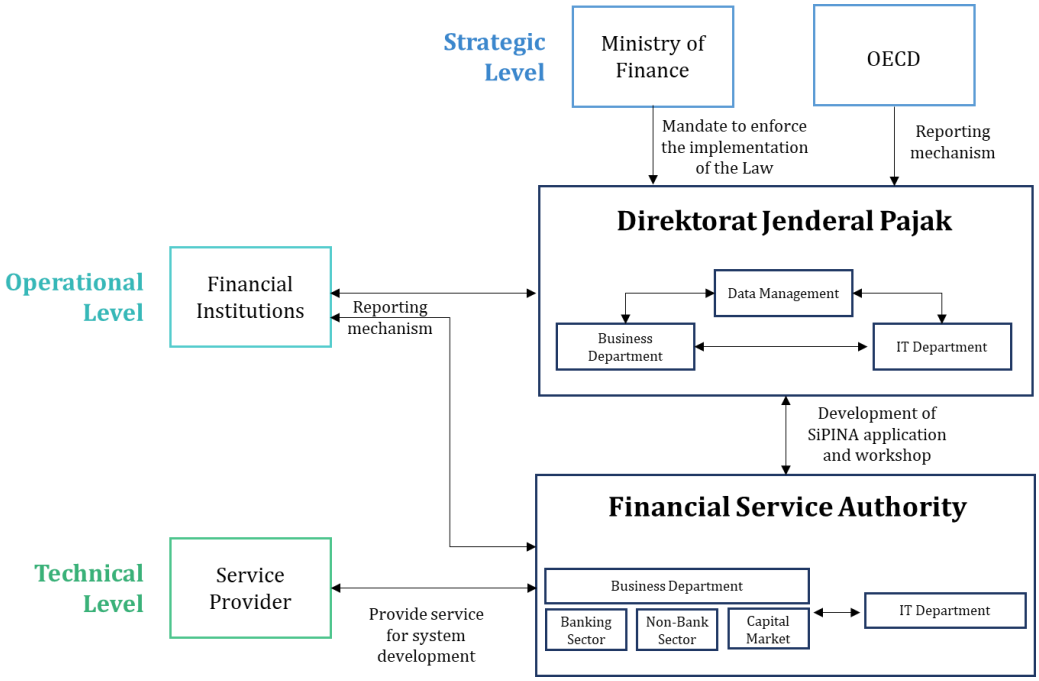

Figure 26 Stakeholder interactions in Indonesia (derived from interview results)

At the strategic level, there are the Ministry of Finance and the OECD. The Ministry of Finance is the highest hierarchy in this case that gives a mandate to both Direktorat Jenderal Pajak and FSA to implement the AEOI and CRS reporting. Regarding OCD, the interaction between OECD and Direktorat Jenderal Pajak is related to the reporting mechanism, that is the assistance and assessment of confidentiality and safeguarding data.

Indonesia, the reporting of AEOI is divided into two kinds, the AEOI reporting for domestic, and the AEOI reporting for foreign customer. The AEOI reporting for the foreign customer is under the FSA. So, the financial institutions that required to report send their report to the FSA. On the other hand, the AEOI reporting for domestic is intended for Direktorat Jenderal Pajak. And it is applied to the other entities and the financial institutions outside the supervision of FSA,

As for each of the reporting, there are two different systems that are being used. The first one is the system developed by the FSA, called the SiPINA application and the second is the system developed by Direktorat Jenderal Pajak called the EOI portal application. These two systems are newly developed in order to fulfill the requirement of AEOI purpose.

The interaction between the Directorate Jendral Pajak and FSA occurs during the development of SiPINA system and through the workshop regarding CRS and SiPINA application for the financial institutions. As for the development of SiPINA system, Direktorat Jenderal Pajak instructs the requirements to be fulfilled and the type of data format to be in place.

Let us now turn into the operational level. As previously mentioned, in Indonesia the financial institutions have an obligation to report to Direktorat Jenderal Pajak and FSA and the separation regarding which financial institutions need to report to Direktorat Jenderal Pajak, and which to FSA has already been stated in the National Law.

For the technical level, it is related to the development of SiPINA application. Here, the application owner of SiPINA is the Business department of the FSA. The first phase of the system development is the creation of user requirements. This is done by the business department of FSA with the Direktorat Jenderal Pajak, together in a coordination meeting they produce the user requirements for the SiPINA application. Then, the user requirements are translated by the IT Department of the FSA into the User System Specification. And during this time, they perform the assessment on whether to develop it in-house or to use a service provider for the implementation. The chosen decision then to use the service provider.

In regards for changes, should there be any changes required for the data formats or other functionality, the root instruction comes from the Direktorat Jenderal Pajak to the business department of FSA as the application owner. The business department then communicates the changes to the IT department, and accordingly, the changes will be carried out.

Based on the above explanation and reflecting the theories in the previous chapter, we can identify the governance structure employed in Indonesia is hierarchical, with the Direktorat Jenderal Pajak is the "leader" of the implementation.

The detailed information on their roles and interest/issues is provided in the following table.

Table 13 Stakeholders of AEOI implementation in Indonesia

Stakeholder group	Actor	Roles	Issue(s)	Interest(s)
Data Controller	**Direktorat Jendral Pajak**			
	Business Department	Execute the exchange of information	• Awareness of the Financial Institutions regarding the new reporting obligations • Lack of resource (personnel) that understand the CRS • Capability to analyze the obtained data • Lack of experience in automatic exchange of information	• Indonesia could actively participate in the initiative by providing the required reporting • Voluntary compliance for reporting by the Financial Institutions • Obtain tax income from the bulk data received from offshore
	IT Department	Develop and maintain the Portal EOI web-based application	Fulfill the deadline to deliver a ready transmission channel for the domestic reporting (EOI portal application)	Integrated system-to-system reporting in internal Indonesia

	Data Management	Prepare the reporting files needed for the exchanges	Capability to analyze the obtained data	• Provide the correct required data • Attain benefits from the received tax data from another country
	Financial Service Authority Business Department	• Create Policy and Regulation to support AEOI implementation • Develop a system to enable reporting from financial institutions • Translate the law requirements into the user requirements • The system owner for the SiPINA Application	Awareness of the Financial Institutions regarding the new reporting obligations	• Provide the correct required data to Tax Administration • Compliance of financial institutions to properly perform the reporting
	IT Department	Develop and maintain the SiPINA web-based application	Flexibility and scalability of SiPINA application for the future	System-to-System connection to Direktorat Jenderal Pajak and withdraw temporary storage to accommodate report from financial institutions
Data Provider	**Financial Institutions**	Provide required information to FSA and Direktorat Jendral Pajak	Development and maintenance cost to provide information for the CRS reporting	• Provide the right data with the required data quality • Confidentiality and safeguarding of account holder data
Secondary Stakeholder	**Ministry of finance**	Establish the law and regulation for the implementation of AEOI and CRS in the national legal system	• Compliance with the regulation by financial institutions • Enforcement of the regulation by Direktorat Jendral Pajak and Indonesian FSA	• The AEOI standard is implemented properly • The law and regulation is enforced properly
	OECD	Monitor the implementation of AEOI Standard in member countries Develop and maintain the CTS	The existence of several challenges faced by member countries in implementing AEOI	The AEOI standard is implemented properly All countries could actively participate in the information exchange
	Service Providers	Provide service for the development of the system	Implement the correct solution needed	Provide desirable service within the agreed time Received proper fee

5.3. IT Infrastructure in Indonesia

As previously mentioned, there are two applications being used in Indonesia to facilitate the reporting process for the financial institutions, in which each application is governed by different government bodies. For the financial institutions under the supervision of Indonesian FSA, including the banks, the capital markets, and the non-bank sectors, such as insurance

companies they need to report the identified foreign customer accounts to the SiPINA. And for other entity and financial institution outside the supervision of FSA, they need to also submit the CRS reporting for the domestic customer to the Direktorat Jenderal Pajak. The following figure illustrates the information flow.

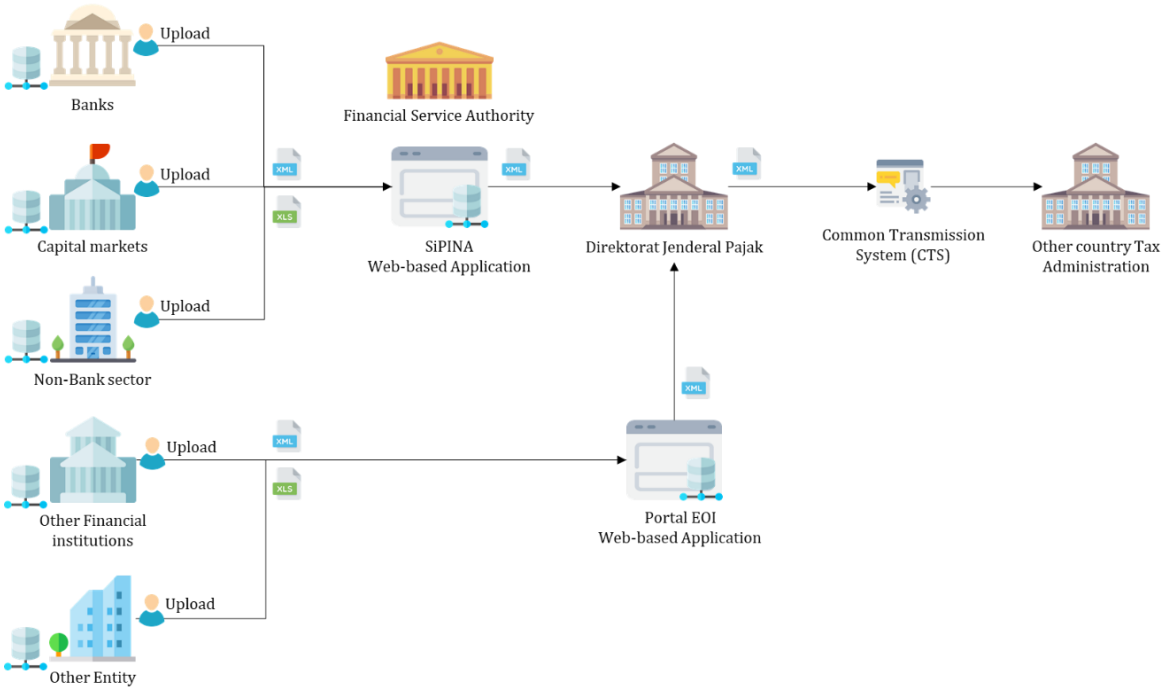

Figure 27 Information flow diagram for AEOI reporting in Indonesia based on the interview results

As we can see in the above figure, there are two IOSs that are used in accommodating the AEOI reporting namely SiPINA application and Portal EOI application. Both systems are a web-based application in which financial institutions can upload their prepared report. SiPINA and Portal EOI could receive two kinds of file inputs, which is the XML file and excel files. This is due to not all financial institutions in Indonesia is familiar and has the capability to produce the XML report.

As for the SiPINA application, if the uploaded report is already in XML format, it will be validated for the structure of the XML schema. However, if the report is in Excel format, it will be converted into XML first, and then be validated afterward. In case the report has already appropriate with the required format, it will be stored into the temporary database in SIPINA. Hence, if there is an error in the report, there will be a notification log in the application regarding the error description, and accordingly, the financial institutions need to re-submit the report. After that, the data can be aggregated either by their country residence or by the financial institutions that report the data. The final output from the SiPINA application is an encrypted XML file for the Direktorat Jenderal Pajak.

Things are a little bit different from the Portal EOI application in terms of the validation mechanism. The financial institutions, in this case, need to validate the format of the report, whether it is the XML or the excel file, using the validation tool from the Direktorat Jenderal Pajak. Once the report has been validated, it needs to be encrypted with the provided tools from Direktorat Jenderal Pajak also, and after that, it can be uploaded to the Portal EOI application.

Since the final data should be pooled in Direktorat Jenderal Pajak to be aggregated an encrypted prior to the CTS, there is a cut off for the financial institutions to submit their report to the SiPINA and Portal EOI so that after all data has been collected, the personnel from Direktorat Jenderal Pajak could access the SiPINA, and download the XML report. Once the data from the SiPINA application and Portal EOI has been downloaded, the personnel from Direktorat Jenderal Pajak (International taxation division) will aggregate the data by country residence, encrypt it and upload it to the CTS.

Thus, based on the description above, we could identify that the chosen infrastructure for the IOSs in Indonesia – SiPINA application and Portal EOI application – is the semi-centralized type using the gateway infrastructure, and having the characteristic of hybrid IOSs.

5.4. Process Alignment

Figure 28 is the simplified BPMN model for the reporting process from financial institutions to the FSA and Direktorat Jenderal Pajak, with the assumption that the financial institutions that required to report are registered and under the supervision of the of the FSA and Direktorat Jenderal Pajak, and are included in the category of financial institutions that are required to perform the CRS reporting. There are three different lanes depicting each actor involved in the reporting process, namely the financial institutions, Indonesian FSA and the tax administration, that is the Direktorat Jenderal Pajak.

Firstly, the financial institutions need to collect the account holder information that is required to be reported and then perform the due diligence procedures on the lists of account. Afterward there is two distinct processes depicted by the exclusive gateway indicating that for the financial institutions under the supervision of FSA, they need to login first to the SiPINA application, and upload the required report in either XML or excel formats. From there they need to wait for about 3 – 5 minutes for the validation result. If the validation is successful, the process for the financial institutions is done.

As for the other entity and financial institutions outside the supervision of FSA, after they have the lists of reportable accounts, they need to perform the validation for the report using the provided validation tool from Direktorat Jenderal Pajak. After that, they need to also encrypt the report prior to being uploaded to the EOI report using the encryption tool. Once the report has been encrypted, they could log in to the EOI portal application and then upload the encrypted report. Thus, the report has been stored in the EOI portal application.

Regarding the process in the Indonesian FSA, as explained in the previous section, once the report is uploaded in SiPINA application, it will first be checked for the completeness, and then validated for the structure. If there is no error occurred, the report will be aggregated by country residence or by the financial institutions and then stored in the temporary storage of the SiPINA, and the process for the FSA is finished there.

Once the data has been stored in SiPINA application and Portal EOI, it is ready to be downloaded for the personnel in Direktorat Jenderal Pajak (tax administration). Once the data has been downloaded, it should be decrypted first, and accordingly, the personnel from the

Direktorat pajak could aggregate the data by country residence, and then encrypt it so that it can be uploaded to the CTS.

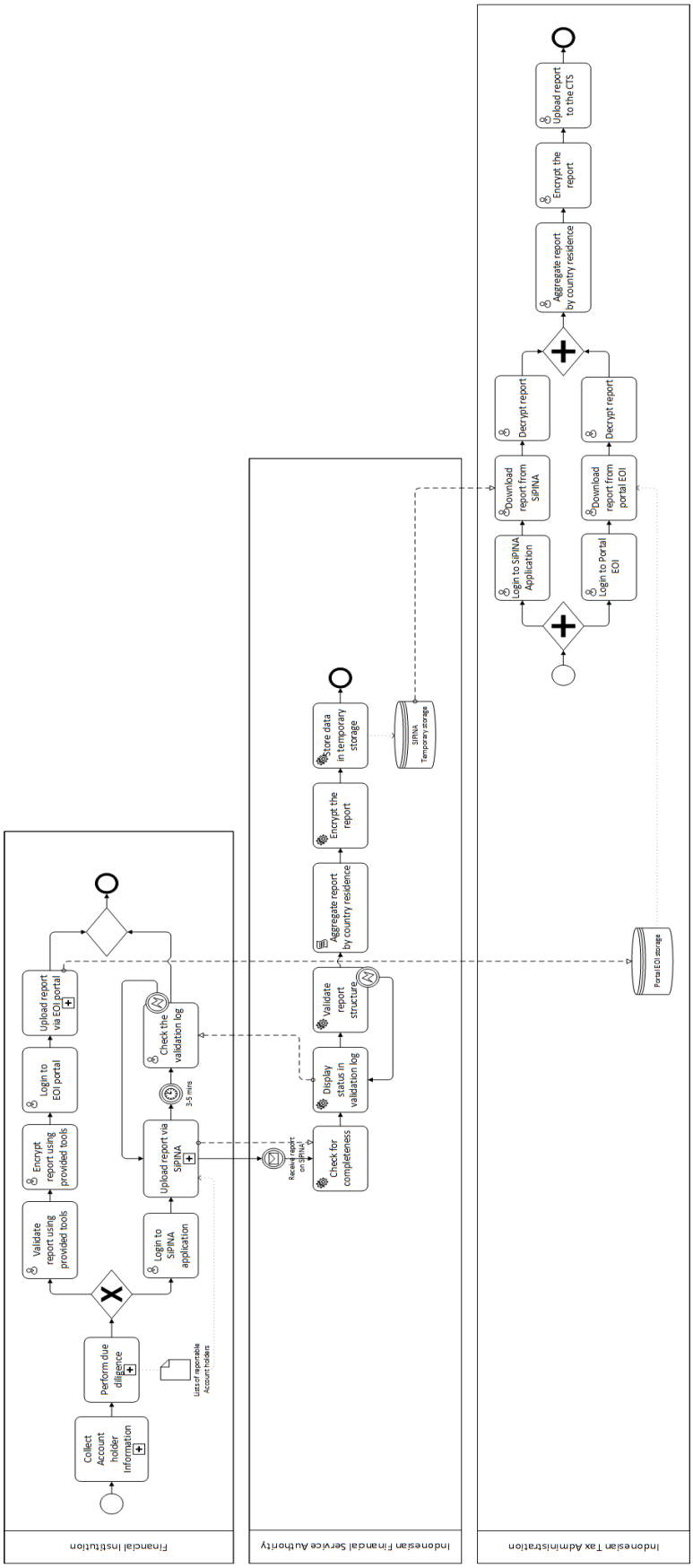

Figure 28 Reporting process in Indonesia

5.5. Factors Influencing the information sharing arrangements

Based on the analysis of the interview results that have been done using the Atlas.ti version 7, we derived the following network views that illustrate the influencing factors of the chosen infrastructure and governance structure in the AEOI implementation in Indonesia.

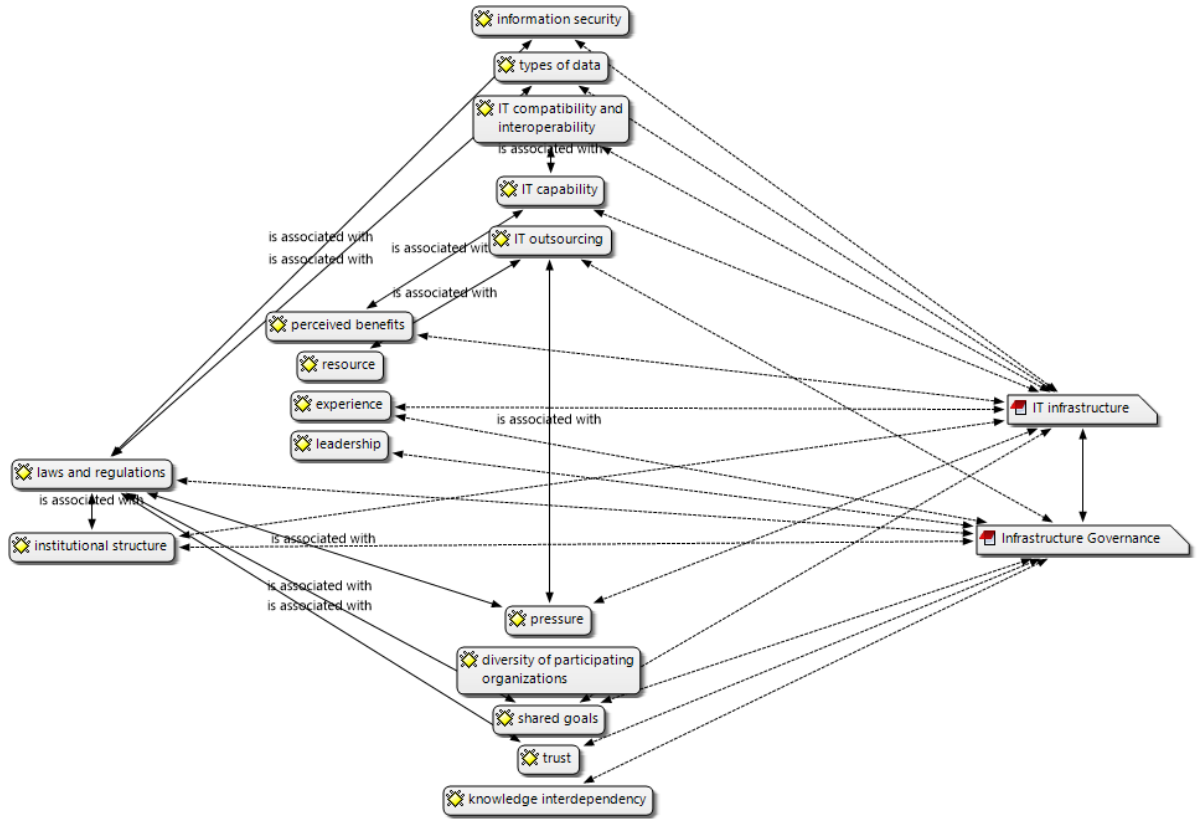

Figure 29 Influencing factors in Indonesia

As seen in the figure above, there are not only influencing the relationship between the factors and the choice of infrastructure and governance, but also association relationships within the factors itself.

Legislation and policy perspective

In the Indonesian context, the regulation is found to have a lot of associations with other factors from the technological and inter-organizational category. The regulation factors, in this case, include the OECD guidelines and the National laws and regulation related to AEOI purpose. First regulation is associated with the Information security and type of shared data in the sense that the regulations describe the requirements for the desired IT functionality such as for the validation mechanism, and also the type of shared data which is the XML format. And regarding the pressure, the regulation imposed the deadline for doing the first exchange of AEOI for Indonesia which is on October 1st this year.

The regulation is associated with the institutional structure and power in the sense that it stated the authority of Direktorat Jenderal Pajak as the "responsible" government body to carried out

the implementation, and also the authority for Indonesian FSA to be the first gate to receive the data from the financial institutions.

Based on the result, it is found that in the Indonesian case, the laws and regulations have both direct and indirect relationship to the choice of infrastructure governance and indirect relationships to the choice of the infrastructure. As for the institutional structure, it affects the both IT infrastructure and governance choice directly.

Technological

From the technological perspective, Indonesia previously does not have an established information system that could accommodate the reporting of AEOI. Therefore, it leads the initiative to develop a new web-based system so that the financial institutions could submit the report. For doing the development of the system, the Indonesian FSA did IT outsourcing under the close supervision of the IT department. By doing so, IT outsourcing helps to provide faster time to market for the system.

To facilitate the interoperability and compatibility for the reporting, the IOSs (SiPINA and Portal EOI) used in Indonesia provide two kinds of upload mechanism for the financial institutions, that is the XML and excel file uploads. And for the Direktorat Jenderal Pajak, the IOSs provide the download mechanism, because currently there is no system in Direktorat Jenderal Pajak that is integrated with the IOSs.

Organizational perspective

From the organizational perspective, the choice of using the selected IOSs and infrastructure is influenced by perceived benefits, resources, and experience factor. The perceived benefits factor comprising the consideration of the ease of use of the web-based application, and it requires a shorter time to be delivered to the market.

As for the resource, we define it as the staff shortages related to the skill of XML data format in the industry (the financial sectors) and the skill for system development in the IT department. The skill and knowledge regarding the XML influence the decision to provide the hybrid reporting (XML and excel input) in the chosen IOSs and it is also associated with the diversity of user from the financial institutions, in the sense that there are a wide range of financial institutions that are obliged to do the reporting and some of them are small-sized financial firms that have limited technology expertise.

In terms of experience, the AEOI reporting can be said as a new reporting system that Indonesia never experienced before. Thus, it is relatively difficult for both the financial institutions to understand and provide the required data, and for the FSA and Direktorat Jenderal Pajak to enforce and create the awareness of the reporting. And for this matter, the FSA and Direktorat Jenderal Pajak cooperate in providing the workshops to introduce AEOI and CRS and also providing the hotline that can be used for financial institutions regarding the CRS reporting mechanism in SiPINA and Portal EOI.

Interorganizational perspective

In the inter-organizational perspective, the factors influencing the infrastructure and governance is the diversity of user, pressure, power, and institutional power. The diversity of user as mentioned above influence the choice of network type. For the pressure, it is the deadline to participate in the automatic exchange in this year that drives the selection of web-based application system, as it is relatively faster to develop.

The institutional structure and power also have an influence on the governance structure. In Indonesia, the FSA has the power and authority to supervise the financial. Therefore, the FSA is becoming part of the reporting chain as the first pooling of data from financial institutions before it is forwarded to Direktorat Jendral Pajak.

5.6. Summary of Chapter 5

In summary, this chapter explained how Indonesia accommodate the AEOI reporting in their country. Therefore, we could already answer the sub-question 3b as follows:

- Firstly, the four requirements of AEOI should be in place. Meaning that there should be the legislative rules in place, the chosen international legal basis, the IT Infrastructure, and administrative capability and also the sufficient degree of confidentiality and data safeguarding in the information system.

- As for the information sharing arrangement, the chosen infrastructure is the semi-centralized – hybrid IOSs, which means that in accommodating the reporting, Indonesia used a web-based system that resembles a type of gateway in facilitating the reporting from financial institutions to the FSA and Direktorat Jenderal Pajak.

- Regarding the governance structure, the identified structure is hierarchical, in which the leading organization is Direktorat Jenderal Pajak.

- As for the influencing factors, institutional structure, pressure, and diversity of users become the dominant factors that influence the chosen approach for infrastructure and governance structure.

6 Cross-case Analysis

This chapter presents the cross-case analysis of the previous result of the case study. First, a recap of the overall implementation is explained, followed by the analysis of the advantages and disadvantages of each implementation approach. Additionally, the analysis of differences in factors influencing the information sharing arrangements will also be presented.

6.1. Comparison of the conceptual model to the empirical results

In this section, we provide a comparison of the initial conceptual model from the literature, with the empirical results that we obtained from the case studies. **Figure 30** shows the mapping of the model with the results in the Netherlands case and **Figure 31** shows the mapping with the results in the Indonesian case.

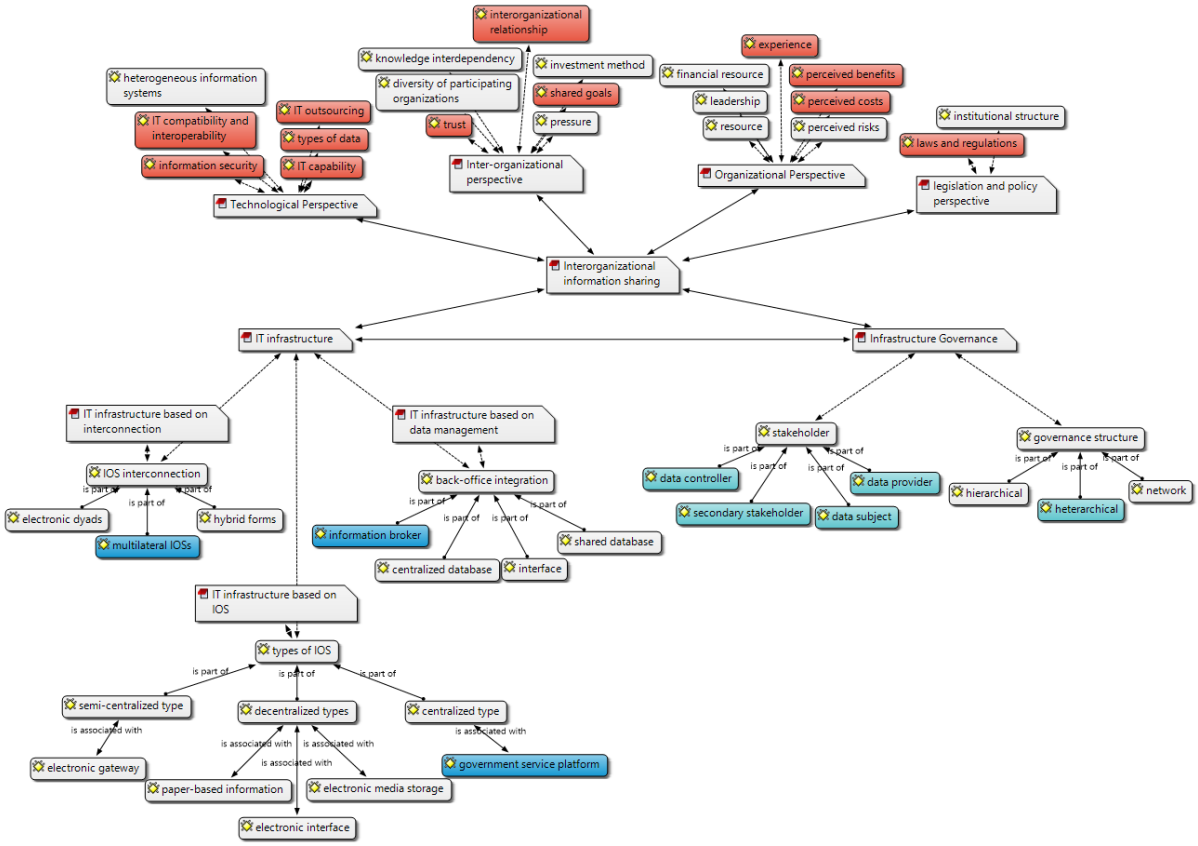

Figure 30 Mapping of the initial conceptual model to the empirical result of the Netherlands case

Overall, this findings are consistent with the previous literature in **chapter 3** in the sense that the model is relevant and can be used for classifying the possible types of IT infrastructure and Infrastructure governance that support the implementation of the third requirement of AEOI.

However, regarding the influencing factors, though in **section 4.5** and **section 5.5** we have found the indication of possible direct and indirect relationships between the factors and the decision of IT infrastructure and infrastructure governance, further research - the quantitative

one would be preferred - is needed to make sure that the relationship is proven to be valid and reliable.

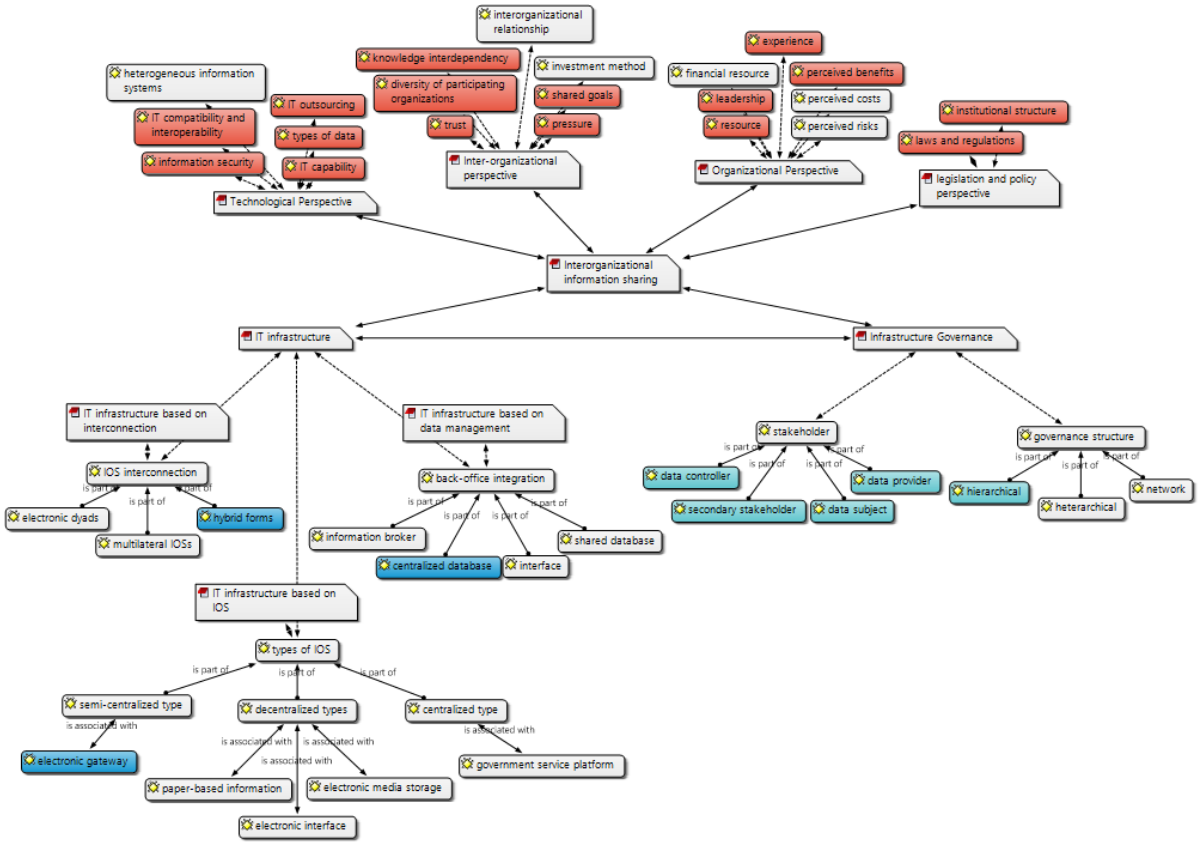

Figure 31 Mapping of the initial conceptual model to the empirical result of the Indonesian case

One interesting finding that we found in both cases regarding the influencing factors is that heterogeneous information systems, investment methods, and perceived risk is not found to be mentioned by the respondents. We hypothesize that for the investment methods, it does not matter since the AEOI initiatives is a national-scale obligatory project that has full support from the government, so in this case, it is found to be not relevant.

As for heterogeneous information system, in the Netherlands, their current IT capability has overcome the challenge of the heterogeneous information system and thus it is not considered as a relevant factor. Regarding perceived risk, it does not found to be mentioned either by the respondents, and this is aligned with the result of the study by Praditya & Janssen (2017).

6.2. IT infrastructure and governance approach: NL vs. INA

Up to now, the discussion from the case study results can be summed up in the following table:

Table 14 Summarized fulfillment of AEOI requirements

Netherlands	Indonesia
Translating into domestic law *Primary EU-Level:* Council Directive 2014/107 / EU (DAC 2) *Primary National:* Act Implementation Common Reporting Standard (Act of 23 December 2015) *Secondary:* Implementation Decree on Identification and Reporting Rules Common Reporting Standard (Decree of 23 December 2015) *Guidance:* Guideline FATCA / CRS with technical explanatory notes to the NL IGA and the CRS regulations	**Translating into domestic law** *Primary:* Government Regulation in Lieu of Law of The Republic of Indonesia Number 1 the Year 2017 *Secondary:* Regulation of Minister of Finance Number 70/PMK.03/2017 Last Amended by Regulation of Minister of Finance Number 19/PMK.03/2018 *Guidance:* Regulation of Minister of Finance Number 70/PMK.03/2017 As Amended by Regulation of Minister of Finance Number 73/PMK.03/2017
The selected international legal basis Multilateral CAA	**The selected international legal basis** Multilateral CAA
Inter-organizational sharing system • Digipoort (Government service platform) • Data management: Hub (Type C) • Sharing mechanism: System-to-System	**Inter-organizational sharing system** • SiPINA web-based application and EOI portal web-based application (Electronic Gateway) • Data management: Centralized (Type A) • Sharing mechanism: Human-to-System
Confidentiality and safeguarding Has fulfilled the preliminary assessment from OECD Using the "**goal binding**" strategy for the use of data	**Confidentiality and safeguarding** Has fulfilled the preliminary assessment from OECD
IT infrastructure Centralized – Multilateral IOS	**IT Infrastructure** Semi-centralized – a Hybrid form of IOS
Governance Structure Hierarchical	**Governance Structure** Hierarchical
Dominant influencing factors • IT capability • Perceived benefits • Experience	**Dominant influencing factors** • Institutional structure • Pressure • Diversity of user

As we can see from the table above, there are two different approaches in the inter-organizational information sharing that yields in the infrastructure, and the governance structure. The choice of each infrastructure and governance structure, are influenced by the contextual factors found in each case. The Netherlands, for example, has the centralized – multilateral IOS due to the established IT capability that already in place, and influenced also by the perceived benefits that by using the current established building block they could gain future flexibility. Indonesia in the other hand, has the semi-centralized – hybrid form IOSs which mainly influenced by the pressure, diversity of user, and the institutional structure. The next sub-sections will provide more details on the comparison between the chosen infrastructure and governance and also the factors that influence them.

6.3.1. Fulfillment of four key requirements of AEOI comparison

This section compares the fulfilment of four requirements prior to the execution of automatic exchange between the two countries. In terms of the first requirement, translating the due diligence procedures into domestic law, both countries have done that by establishing the primary legislation, secondary legislation, and also the guidance as stated in **Table 14**. However, the difference exists in which the Netherlands has two primary legislation, which is the national level and the EU level because the Netherlands is one of the EU members. While Indonesia, only has one primary legislation. The position of the EU-level legislation is more powerful than the national one.

Regarding the second requirements, both countries choose the multilateral CAA, in which it sets out the agreement to exchange with several countries in one signed agreement. As for the third requirement regarding the IT infrastructure, the next section will explain it in details.

Lastly, for the fourth requirements, confidentiality and safeguarding data, both countries have successfully fulfilled the preliminary assessment from the OECD. However, one interesting point that we found is that the Netherlands is adopting the "goal binding" strategy in which the received data is allowed to be used only for the purpose that has been agreed and cannot be used for another purpose outside the agreed one. The strategy thus helped in assuring the confidentiality and safeguarding of the data in the Netherlands.

6.3.2. The comparison of the IT Infrastructure and Infrastructure Governance

The IOS used by the Netherlands is the Digipoort infrastructure due to the consideration that they already had the previous reporting experience, the current established IT maturity and also the perceived benefits of using the standardized general tooling that already in place. Therefore, as previously mentioned, the infrastructure identified in The Netherlands case is the centralized form with Government Service Platform type. Regarding the infrastructure governance, the structure involved is heterarchical in which the main stakeholder is Belastingdienst and OECD.

Using the Government Service Platform such as Digipoort were found to give advantages in for the Netherlands, as it is simplifying the windows of interaction in the sense that there is only one window for all the financial institutions, reducing the administrative burden, and increasing the quality of shared information. However, still, there are challenges for this chosen infrastructure, in which the financial institutions should have the capability to connect their legacy system to the Digipoort. And as for the future challenges, perhaps it relates to whether Digipoort still has the adequate capacity to handle the volume of shared data as it is not only being used for the AEOI purpose, but also other various reporting to the government bodies in the Netherlands.

Now if we come back to the concept of back-office data integration by Bekkers (2007) and information sharing type by T.-M. Yang et al. (2014), we found that the type of data management in the Netherlands is the type C, in which the Digipoort plays a role as an intermediary that facilitates the sharing of information between financial institutions and Belastingdienst, but does not carry out the task of aggregating the information (act as the information broker). In other words, it is aligned with the findings in T.-M. Yang et al. (2014) study that the tendency of a GSP type would employ those of type C for its data integration mechanism.

If we turn to the other case study results, Indonesia which currently not having a reporting system that could facilitate the reporting for AEOI decided to develop a new web-based system. The instruction is mandated from the Ministry of Finance to the Tax Administration and the Financial Service Authority (FSA). The FSA is involved in the system development because the authority to supervise the financial institutions is under the FSA. Therefore the data should be reported to the FSA before the Tax Administration. Due to this institutional structure, there are two separate IOSs used in Indonesia namely SiPINA application by the FSA and Portal EOI application by the Tax Administration. Both applications use a human-to-system sharing mechanism.

One interesting point in the information systems is that they received not only XML input but also excel (xlsx) input because of the diversity of user in the financial institutions. Not all financial institutions familiar with the XML data format, and also the new reporting. Thus, to accommodate the reporting, both SiPINA and Portal EOI is equipped with excel to XML converter and validator. As for the infrastructure governance, the structure in Indonesia is found to be hierarchical in which the Direktorat Jendral Pajak is having the role of the main responsible organization for the AEOI implementation.

It is identified from the case that the infrastructure in the Indonesian case is the semi-centralized which is the electronic gateways. The electronic gateway, in this case, is the SiPINA web-based application and portal EOI web-based application. The main strength of the electronic gateway approach selected in the Indonesian case is that it provides ease of use for the FIs, and also provide real-time information search and verification and therefore it provides timeliness for the data. However, the downside would be that it still has the human-to-system sharing mechanism which yields to the higher inherent risk of incorrect data due to human error. Additionally, the current sharing mechanism still also results in the administrative burden from the financial sector sides and the tax administration side. Lastly, the challenge of the gateway approach would be to increase the scalability and interoperability. The scalability will relate to the amount of data that should be handled for the upcoming years, and the interoperability regarding the automated connection with the other stakeholder, especially between the FSA and tax administration.

Overall, our findings support the previous study by T.-M. Yang et al. (2014) that stated there is a relationship between the chosen infrastructure type, in which the more centralized the type of information sharing the more stakeholder is involved, and thus the governance structure would be heading to towards the hierarchical or networked structure. Therefore, it might be challenging to meet the need of all stakeholder. However, we could not identify from our results whether the reverse relationship is also applied.

6.3.3. Process alignment comparison

In terms of the process alignment, in this case, the reporting process explained in **section4.4** and **section5.4**, carried out by the data provider and data collector, there are several differences exist. The differences are classified into two categories, the actors and the task type that should be carried out by the actors.

Regarding the actors, the significant difference is that in Indonesia, the Financial Service Authority (FSA) is involved in the reporting chain in which it is not found in the Netherlands case. The involvement of the FSA is due to the fact that the authority of supervising the Financial Institutions is on the FSA, and it is stated on the national law. Therefore, every information provided by the financial institutions must first be reported first to the FSA prior to being sent to the tax administration. As for the Netherlands, although the FSA is not involved, there is one actor involved, which is the Logius that host the Digipoort service. However, the task in Logius lane is more of a system task such as the validation mechanism, and also the routing of the report to the tax administration port.

In terms of the type of the task, most of the tasks in the Netherlands reporting process are automated type (aside from the data preparation carried out by the financial institutions), meaning that the sharing mechanism is already assisted by a system-to-system mechanism. Indonesia on the other hand still has some manual tasks that should be performed by the financial institutions and tax administration implying there exists quite high administrative burden in the reporting process. Moreover, since the web-based applications are currently not integrated between the tax administration and the FSA, there is task redundancy performed by the tax administration when processing the received report. Perhaps in the future, if the systems are already integrated, it could minimize the administrative burden as well as task redundancy for the tax administration.

6.3.4. Lesson Learned from both cases

The case study that we conducted has provided the empirical observation on how the two countries accommodated the AEOI implementation in their IT infrastructure. Several findings that we found based on our observation is that both countries assessed their current environments prior to deciding what kind of IT solution that they need. The assessment including the **IT capability** of their current IT infrastructure, **Experience** regarding the new reporting rules and data formats, and the **Resource** which related to the skill for developing the system and the knowledge related to the XML data format for the data provider.

Another thing that also found in both cases are that cost was not found to be an obstacle in both countries because there is an order from the higher government to implement the AEOI standard, and thus there is already a commitment to support the implementation. This finding contradicts the result of previous work by (Praditya & Janssen, 2017) that report perceived cost as one of the important determinants for the choice of information sharing arrangement. This could be due to the fact that for AEOI, the implementation is mandatory and bounded by the regulation implying that there already exists support from the higher regulatory bodies.

If we now turn to the lesson learned from each country's implementation, for the Netherlands, they perceive standardized messages/data is the most important things for the automated exchange, because it could speed up the data processing especially if there is a need for timely information. Also, what is found to be interesting to note is that to enforce the AEOI implementation, even more, the Netherlands is cooperating with the Auditors, in which they give training to the Auditors regarding the reporting requirements for the AEOI. The Auditors then need to perform the assessment for the reporting of financial institutions and give

statements whether the financial institutions have already the capability to provide the required data.

As from the Indonesian perspective, a dedicated team for the system development could help the implementation to be more efficient and focused because the team will not be distracted with another task such as the main responsibility for the organization.

Lastly, we identified different concerns within both countries regarding their perspective on AEOI implementation. For the Netherlands, in which already in their second year of information exchange and has already an established IOSs to accommodate the reporting, has a concern to find out a more efficient way in processing the information. In other words, they are more concerned about how they could timely send, received, and analyzed the information. Also, there are concerns related to the multi-interpretation regarding the CRS data schema, that could lead to interoperability problems.

We also found from one of the interviewees, that they still have the difficulties in realizing a positive business case for the implementation of AEOI, in the sense that they already spent so much in their IT systems, but still they still have not met the break-even point yet. In other words, they still perceived that the AEOI has not created a significant value yet, still not enough to cover up the investment that they already spent.

Indonesia on the other hand, their most important concern currently is to fulfill the obligation to perform the first reporting in the year 2108 and regarding how to put awareness of the AEOI reporting for the financial institutions. Thus, financial institutions would know what to do to comply and make the reporting that has never been there previously. Thus, the approach of IOSs that they choose is the web-based system, and they also provide two different types of report upload mechanism (XML and Excel) to make the reporting easier for the financial institutions. For the following section, a comparison regarding benefits and challenges of the chosen implementation approach by the Netherlands and Indonesia.

As a concluding note, based on the two cases result, we found that technology assessment and business case creation to be a crucial process to be done. This is due to the two process could yield to the target and goals to be achieved and thus influence the selection of the information sharing arrangement, specifically the kind of IOSs to be used and the infrastructure.

6.3. City Approach vs. Greenfield Approach: Implications

Having discussed the approach of each country in accommodating the AEOI reporting, at this point, we could see that there are quite significant differences in their chosen approach given their contextual factors. The Netherlands, as we can see they choose the “city approach” in which they already have an established IT capability, a standardized infrastructure, and a legacy system within the Belastingdienst, and thus they utilized their existing capabilities in accommodating the AEOI reporting. In contrast, Indonesia which currently not having a system that could facilitate the reporting choose the “greenfield approach” and thus decided to develop a new system for the AEOI reporting purpose.

Additionally, to add depth into the analysis, we reflect these two approaches based on the classification of IT architecture stages proposed by (Ross, 2003), in which there are four different stages of IT architecture developments:

1. **Application silos architecture** – the architecture consists of stand-alone applications rather than the integrated one.
2. **Standardized technology architecture** – the IT architecture is becoming more of enterprise-wide and provide efficiency by technology standardization and centralization.
3. **Rationalized data architecture** – the enterprise-wide architecture expands, including also standardized data and process.
4. **Modular architecture** – the architecture is leaning towards a global standard, incorporating a loosely coupled application, data, and technology components.

It will be interesting to know the benefits and challenges from these two approaches, and thus obtaining the insight on what should be kept or improve.

Netherlands: City approach

The Netherlands IT environment can be identified in the third phase heading to the fourth phase, which is the rationalized data architecture to the modular architecture. This is particularly relevant because currently they already used a shared infrastructure (Digipoort) and within the Belastingdienst internal legacy system, they already have general tooling for a specific process. As we already expect, by employing this approach, the benefits that the Netherlands obtains comprises the IT efficiency, IT reliability, security, and minimize administrative burden. IT efficiency is meaning that when they already have the general tooling for a process, it could be reused for other similar task and therefore it could lead to cost savings and easier task for future changes. As for the IT reliability and security, it can be ensured because the current infrastructure has employed a system-to-system sharing mechanism. Moreover, it leads also to reducing the administrative burden because everything is already standardized and automated.

However, risk and challenges might still be occurred, especially in terms of complexity, technological lock-ins, and measuring positive business case. First regarding the complexity, having a lot of standardized general tooling at one hand can also lead to a more complex system resource because it means you specified a single application/tools for a specific task. This could require an extra effort especially during the monitoring and periodically upgrading the versions of the application. One risk that could also arise is that when there is a need to implement changes, however during the course an error occurred. It would be a very difficult task to debug and find the origin or which components that causing the error in a very complex system resource, which this happens to the Netherlands during their implementation of AEOI in the first year (2016).

Second, regarding the technological lock-ins, meaning that when we use a specific legacy system, our options can be constrained with the standardized technology or programming language that required by the legacy system. Not only that, but some legacy system also used a quite difficult programming language such as Java and mainframe. So, it does not only create a

dependency on the types of technology that compatible with those standard but also regarding the human resource that has the skill to develop and maintain the system.

Lastly, regarding estimating a positive business case. With the shared infrastructure, it is perceived to be difficult to assess the positive business case, whether the cost of implementing using the current infrastructure would outweigh the benefits of received revenue tax income from the data exchange. Especially with the uncertainty of the new standard such as the AEOI reporting. This is agreed by the programme manager of the AEOI implementation in the Netherlands. As he said:

> "...Predictions that we have right now will not be bringing the refund for the investment. But all the countries don't have a choice; you'll have to do it. It's complex it will cost a lot of money.
>
> If you would check our business case again, I did at the beginning when I started; it already showed that it would be very hard to make a positive business case. But it's law, and we have to do it, we have no other choice, there are some benefits of course.
>
> Maybe in the coming years, because we have some experience to go, for example, if we get more CRS data, it will help us to get more tax income, and of course the CbC reporting just beginning right now, thus we don't know anything about the forecast of profits income, maybe I don't know. But they're a skeptic. The business for we are doing this; they are a skeptic"

Thus, we could summarize the benefits and challenges of adopting the big city approach as follows:

Table 15 Benefits and challenges for the "big city approach."

Benefits	Challenges
IT efficiency	System complexity
IT reliability and security	Technological lock-ins
Reduce the administrative burden	Predicting positive business case

Indonesia: Greenfield approach

If we now turn to Indonesia, we can identify that they are currently in the first heading to the second stage, which is the application silos architecture to the standardized technology. This is relevant as we can see that to accommodate the AEOI reporting, both institutions (the FSA and Direktorat Jenderal Pajak) have developed their web-based application. By having this approach, it could give several benefits for Indonesia such as the faster time to market, ease of use, measurable outcomes. Regarding the faster time to market, by choosing to develop a new web-based system, required functionality can be easily satisfied because there is no need to consider whether the solution has an issue with other applications or organizations. Moreover, there is plenty of human resource skill to develop a web-based system, and it is relatively easier to be developed compared to another programming language-based system. Thus, Indonesia could achieve a faster time-to-market for the application since they have the time-constraint for the AEOI deadline (this year for the first exchange).

As for the ease of use, the chosen web-based system is indeed giving the ease for the users in Indonesia, for it provides the upload-download mechanism for the financial institutions and Direktorat Jenderal Pajak. Moreover, it is also facilitating the Financial institutions with little knowledge regarding XML data format, to submit their data using the hybrid reporting (excel upload mechanism). Lastly, the outcomes for the system benefits are easier to be measured because once the application is delivered, it can be measured whether the benefits, such as the functionality of the system, has outweighed the development cost.

Nevertheless, given the benefits as discussed above, there are still challenges that are faced by Indonesia with the chosen approach, which are related to the potential data error, flexibility and scalability, and interoperability. Firstly, it should be noted that the current web-based system still employed a human-to-system sharing mechanism, which could potentially increase the risk of data error or data integrity. Moreover, the current system(s) is intended to fulfill the current need for AEOI reporting, but it should be kept in mind that for the future, more countries could be participating in the AEOI and that implies to more data could be received for the future exchange. Also, there is a possibility of changes in terms of data format and other reporting requirements, which makes the flexibility and scalability of the current systems need to be evaluated and improved. Lastly, the interoperability of the current system can be perceived as pretty low, resulting in a quite heavy administrative burden for both financial institutions and Direktorat Jenderal Pajak. Thus, it would be better if for the future there is an improvement in the interoperability between the SiPINA application to the system of Direktorat Jenderal Pajak so that it could reduce administrative burdens, increase data integrity, and enhance system security by minimizing the human-to-system sharing mechanism.

Table 16 Benefits and challenges for the "greenfield approach."

Benefits	Challenges
Faster time to market	Potential data error
Ease of use	Flexibility and scalability
Measurable outcomes	Interoperability

6.4. Summary of Chapter 6

In summary, this chapter has discussed the cross-case analysis of two different approaches to implementing the AEOI reporting in the Netherlands and Indonesia. Some interesting insight is found, as follows:

- The conceptual model that we proposed is found to be relevant in helping to assess and understand the types of IT infrastructure and its governance as well as identifying the determinants behind the approach.
- There are two different approaches in the inter-organizational information sharing system that yields in the infrastructure, and the governance structure. The choice of each infrastructure and governance structure, are influenced by the contextual factors found in each case. The Netherlands, for example, has the centralized – multilateral IOS due to the established IT capability that already in place, and influenced also by the perceived benefits that by using the current established building block they could gain future flexibility. Indonesia in the other hand, has the semi-centralized – hybrid form

IOSs which mainly influenced by the pressure, diversity of participating organizations, and the institutional structure.

- Several findings that we found based on our observation is that both countries assessed their current environments before deciding what kind of IT solution that they need. Another thing that also found in both cases are that cost was not found to be an obstacle in both countries because there is an order from the higher government to implement the AEOI standard, and thus there is already a commitment to support the implementation. There are different concerns within both countries regarding their perspective on AEOI implementation in which it depends on the influencing factors that they have.

- Each approach, the "city approach" and "greenfield approach" have their benefits and challenges. **Table 17** shows the summarized implementation approach in the two countries.

Table 17 Summarized AEOI implementation approach in the IT infrastructure

Concept	Source	Indonesia	The Netherlands
IOS type	(T.-M. Yang et al., 2014)	Semi-centralized - electronic gateway	Centralized - Government service platform
Interconnection of IOS	(De Corbiere et al., 2010)	Hybrid IOSs	Multilateral IOSs
Data management	(Bekkers, 2007)	Type A (Centralized)	Type C (Information broker)
Learning stages of IT architecture	(Ross, 2003)	Stage 1 – 2	Stage 3 – 4
Governance structure	(Cumming, 2016; Medaglia et al., 2017; Stephenson, 2009)	Hierarchical	Heterarchical
Influencing factors	(Gil-Garcia & Sayogo, 2016; Praditya & Janssen, 2017; T.-M. Yang & Maxwell, 2011)	Institutional structure Pressure The diversity of participating organization	IT capability Perceived benefits Experiences

Having that in place, by now we could already have the answer for sub-question 4.

7 Conclusion

This is the wrap-up chapter for the research. First, it starts with revisiting the research sub-questions so that a conclusion and the main research question can be answered. Second, a contribution of the research is explained, followed by the recommendations. Lastly, the limitation of the study and the potential future research is provided.

7.1. Revisiting the Research Questions

The research initiated with the concerns of little study is found regarding the implementation of the third requirements of AEOI that relates to IT infrastructure. Based on those concerns, thus the main research question focusing on figuring out what type of IT infrastructure that could enable the implementation of AEOI was formulated. This main research question is further disassembled into five sub-research questions.

SQ1: What are the concepts related to inter-organizational information sharing theory that could support the analysis of AEOI implementation in IT infrastructure and its governance?
The first step needed is identifying the relevant theoretical lens to discuss the case study. Following this, a literature study has been done in order to answer the first sub-question. The relevant concepts that are employed in this research are as follows:

1. Requirements for implementing AEOI. In order to implement AEOI, there are four core requirements that have to be in place, namely: (1) Translate the reporting and due diligence rules into domestic law; (2) Selecting a legal basis for the automatic exchange; (3) Putting in place the necessary administrative and IT infrastructure; (4) Protecting confidentiality and safeguarding data.

2. Information sharing arrangements. The notion of information sharing arrangement which consists of infrastructure and infrastructure governance that could enable the sharing of information between organizations is perceived to be relevant to be used in assessing the implementation of AEOI within the context of IT infrastructure.
   - **IT Infrastructure**; this aspect of the information sharing arrangement describe the infrastructure type used in facilitating information sharing. The components of IT infrastructure that become the focus of our research is related to the applications (inter-organizational information system) and data (data management).
   - **Infrastructure governance**; this aspect of the information sharing arrangement identify the interaction of the involved stakeholder and the governance structure of the infrastructure.
   - **IT Architecture growth stage**; IT architecture growth stage is employed in this research to add a deeper analysis for the cross-case analysis. So that it could also provide the basis for the judgment regarding the advantages and disadvantages of the approach taken by each country.

SQ2: What are the factors from the literature on inter-organizational information sharing that are relevant for IT infrastructure and its governance?

After we have the theoretical lens that can be used to analyze the implementation of AEOI in the domain of IT infrastructure, we would like to know what factors could motivate the choice of information arrangement of the IT infrastructure and infrastructure governance. Thus, we found in the body of inter-organizational information sharing, the influencing factors comprising:

1. **Organizational perspective** including resource, financial resource, perceived benefits, perceived costs, perceived risks, leadership, and experience.
2. **Inter-organizational perspective** including pressure, trust, investment methods, inter-organizational relationship, diversity of users, and shared goals, and knowledge interdependency.
3. **Technological perspective** such as types of shared data, IT capability, and IT compatibility and interoperability, information security, heterogeneous information systems, and IT outsourcing.
4. **Legislation and policy perspective,** including laws and regulations and institutional structures.

SQ3a: How does the Netherlands fulfill the third requirements of AEOI standard in their IT infrastructure?

Netherlands is one of the early adopters of the AEOI standard which implemented it in 2016 and having the first exchange of information in 2017. Previously, they already have some experiences in exchanging financial data within the EU member states, and within the internal country. Thus, it can be said that the Netherlands has pretty much familiarity with the automatic exchange, specifically regarding the IT infrastructure that they have in place.

As for the implementation of AEOI, the four core requirements should be fulfilled firstly, which means that there should be the legislative rules in place, the chosen international legal basis, the IT Infrastructure, and administrative capability and also the sufficient degree of confidentiality and data safeguarding in the information system.

Regarding the IOSs, the Netherlands uses Digipoort infrastructure which facilitates the reporting from the financial institutions to the Belastingdienst. The infrastructure of Digipoort found to be portraying an infrastructure of centralized IOSs with government service platform type in which it provides multilateral interconnection (Digipoort could facilitate the reporting from private sectors to the government bodies in the Netherlands).

On the other hand, the governance structure observed regarding the IOSs and the involved internal system of Belastingdienst is heterarchical in which there are many stakeholders involved, but still, the strongest link exists is between the Belastingdienst and OECD.

The chosen infrastructure and governance in the Netherlands are influenced by several factors including the IT capability, perceived benefits, and experiences.

SQ3b: How does Indonesia fulfill the third requirements of AEOI standard in their IT infrastructure?

Indonesia belongs to the second batch group of countries to implement the AEOI standard and are required to do the first exchange in 2018. Again, similar to what has been found in the Netherlands, the four core requirements of AEOI has been fulfilled in Indonesia. However, differences arose in the choice of the IT infrastructure. As AEOI reporting is a new kind of reporting requirements, there is no previous system that could facilitate the reporting. Interestingly, what is found to be unique in the Indonesia case is that there is a slight difference in the institutional structure of the supervision for the financial sectors. In which, resulting in the involvement of the Indonesian FSA in the reporting chain for the AEOI.

Therefore, the main stakeholder in Indonesia's implementation namely, Direktorat Jenderal Pajak and the Indonesian FSA are developing a new web-based application called the SiPINA and Portal EOI application. And due to the existing institutional structure, financial institutions under the supervision of FSA should submit the required report through the SIPINA application and from there, the data can be accessed by the personnel from Direktorat Jenderal Pajak. And as for the financial institutions outside the prior category, they could submit the report to the Direktorat Jenderal Pajak through the Portal EOI application. As has been previously explained in chapter 5, the identified infrastructure found in Indonesia case is the semi-centralized with gateway type of IOSs providing the hybrid interconnection between the data provider and data requester.

Regarding the governance structure, Indonesia is employing the hierarchical governance structure, in which the decisions regarding the changes for the system or the development of the system is executed in a top-down manner.

The choice of the previously mentioned infrastructure and system governance is influenced mainly due to the institutional structure, pressure, and diversity of the user.

SQ4: Why does a particular IT infrastructure and governance is adopted and what are the determinants that influence the selected approach?

Based on our findings, there are indeed differences in the selected approach of implementing the AEOI standard in the two countries, The Netherlands and Indonesia. However, there are some things also that we found similar from our case study results. Let us start with the differences that we found between the two cases.

The findings from the examined cases revealed that there are differences in terms of the IOSs and data management used in the two countries. The Netherlands, with their established reporting system, has the centralized infrastructure with a Government Service platform type of IOS and in accordance to this, the chosen approach for the data management is the type C which is the intermediary – hub type – data management. As explained in the previous chapter, the decision to choose the infrastructure is influenced mainly by the factors such as IT maturity, perceived benefits, and experience.

Contrary to that, Indonesia has implemented the semi-centralized infrastructure using the electronic gateway type of IOSs. As for the data management, it is observed to be the type A which is centralized, because the data is pooled in the IOSs used (the SiPINA application and portal EOI application). The main drivers for the chosen infrastructure are the institutional structure, pressure, and diversity of the user.

The differences occur mainly due to the existence of different contextual factors that exist in the two countries. These factors become the main consideration that affects the chosen approach of IT infrastructure and governance structure.

Finally, to answer the main research question:

Main RQ: What are the types of IT Infrastructure and its governance enabling the reporting of tax data for AEOI purpose in a country?
Based on the findings and discussion from the previous research questions, we observed that to implement AEOI, the country first needs to fulfill the four requirements of AEOI standard which is: 1) the translation of due diligence procedure to the domestic law; 2) selecting an international legal basis for the exchange; 3) putting in place the IT infrastructure and administrative capacity; and 4) protecting confidentiality and data safeguarding.

As for the third requirements, which is also the focus of this research, the participating country's tax administration should first assess their environment, in terms of IT capability, experiences, and resource that are already in place. This preliminary assessment will affect the decision regarding what kind of system is needed, and whether they should build a new system to accommodate the AEOI reporting or just using the existing established systems.

And regarding the system used in sharing the AEOI report from financial institutions to the tax administration (the IOSs) there are different approaches and information sharing arrangement (infrastructure and system governance) that we have identified from the case, in which each approach has their benefits and challenges.

The first type is the centralized – multilateral IOSs with the heterarchical governance structure. The centralized infrastructure using the Government service platform (GSP) type of IOSs and having the multilateral interconnection. The GSP in this case act as the intermediary system (hub) that routes the messages/information from the providers to the requesting parties. And in the case of AEOI reporting, it routes the report from the financial institutions to the Belastingdienst.

The advantages of this infrastructure can be listed as follows: first, it simplifies the windows of interaction, in the sense that there is only one window for all the financial institutions. Second, it helps in reducing the administrative burden, and third, it increases the quality of shared information. However, there are still challenges to overcome, in which financial institutions should have the capability to connect their legacy system to the Digipoort. And as for the future challenges, perhaps it relates to whether Digipoort still has the adequate capacity to handle the volume of shared data as it is not only being used for the AEOI purpose but also other various reporting to the government bodies in the Netherlands.

The second type, the semi-centralized hybrid IOSs with the hierarchical governance structure. The semi-centralized infrastructure using the electronic gateways such as a web-service based application that is used to submit the report and perform the necessary validation mechanism and stored the data afterward. In other words, the system could accommodate the reporting of many financial institutions, to the tax administration and thus it has the hybrid type of IOSs interconnection because each financial institution does not need to build a direct connection to tax administration, rather there is already a system to facilitate the reporting. In the AEOI reporting, this system is used by the financial institutions to submit the required report and then accessed by the tax administration to obtain the required data.

The advantages of this kind of infrastructure are as follows: it provides ease of use for the FIs, and also provide real-time information search and verification and therefore it provides timeliness for the data. On the other side, the challenge of the gateway approach would be to increase the scalability and interoperability. The scalability will relate to the amount of data that should be handled for the upcoming years, and the interoperability regarding the automated connection with the other stakeholders.

7.2. Policy Recommendations

One of the favors from the case study research is that it focuses on contemporary events going on in society and therefore has great relevance for its societal contributions. In this thesis, the results of the case study in **chapter 4** and **chapter 5,** as well as the cross-case analysis presented in **chapter 6,** could provide valuable insight for the government of Indonesia which are Direktorat Jenderal Pajak and Indonesian FSA as well as the OECD and the program manager of AEOI implementation in general. With that being said, the recommendation is outlined as follows:

1. Heading to a more integrated system for the current IOSs (SiPINA and Portal EOI application) would lead to reducing the administrative burden especially for Direktorat Jenderal Pajak. To achieve this, a reserve for the human resource to execute the developments and the socialization to the user would be necessary.

2. For Indonesia, one of the initiatives that can help in improving the awareness of the financial institutions is to establish a collaboration with the auditors, in a way that the tax administration provides training to the auditors regarding the important aspects of the due diligence procedures and how it should be conducted. And afterward, every reporting financial institution needs to have a statement from the auditor that have the capacity for performing the due diligence correctly and hence could provide the required data properly.

3. OECD needs to address several concerns regarding the developing countries and the developed countries. First regarding the developing countries, the findings in this case confirm the previous research that stated most of developing countries do not have an established IT infrastructure to accommodate the AEOI reporting. Therefore it would be better that OECD at least provides some kind of framework or even better an open standardized module/package that could be implemented and customized in the IT environments of the developing countries. As to address the concerns of the

developing country that we found in this research related to the perceived value of the AEOI standard, OECD needs to perform the evaluations from for all of the countries that have performed the first exchange to observe the degree of value created from the exchange. Thus, they could identify what is needed to be done, to keep the standard sustained, or if there is another alternative to do regarding improvements to be made.

7.3. Limitation of the study and Potential for Future Research

It is important to note that given the steps to ensure the validity and reliability as recommended by Yin for the case study, this research still has some limitations concerning the results and in through its execution. And below, we would like to elaborate more on this as follows:

- *The scope of the study*. The number of cases, which is only two could lead to a limited generalizability of the research thus employing more cases in the research would improve the generalizability of the results as well as identifying more type of information sharing arrangements Moreover, this study is focusing on the IT infrastructure area of the implementation since we are aiming for research that is aligned with the Management of Technology program. However, one thing that we found interesting from our results but not part of our scope is that there is a doubt regarding whether the AEOI could really bring benefits and creating value for the participating country and thus can be effective as a tool to eradicate the offshore tax evasion. Including the point above in the research would bring a fruitful discussion in the report.

- *Data collection*. First, regarding the respondents in this research, they are mainly from the main stakeholder of the implementation of AEOI, which is from the tax administrations and the financial service authority (in the Indonesian case). Involvement of other stakeholders such as the financial institutions or other secondary stakeholders will add more insights and depth to the analysis. Second, the interview questions used was derived solely based on literature. Its usability and degree of relevance could be enhanced by confirming it to the experts beforehand or conducting pilot interviews with the respondents.

- *Data analysis*. The main sources of data used in this research primarily from interview results and documents from the official websites more sources of data used, such as the observation notes, group discussion, and so on, could enhance the validity of the research as it is one of the triangulation strategies. Another limitation in the data analysis that relates to the number case also is that we are still not sure whether there is an established relationship between the influencing factors and the chosen information sharing arrangements. More cases perhaps could confirm the relationship.

Reflecting on what we have found during the research, we identify several potential points for future research as follows:

- Future research in the area of AEOI implementation with more cases employed would increase the generalizability as well as to identify more information sharing arrangements exist, more infrastructure and system governance.

- Includes more perspective from another stakeholder such as the financial institutions, and other secondary stakeholders would provide a rich source for the data analysis and thus could create a more interesting insight, despite more efforts, of course, will be needed in the data collection.

- Understanding the relationship between the factors influencing the information sharing arrangements would be worth to be explored as it will also add to the body knowledge of inter-organizational information sharing.

- Conduct empirical studies on the benefits of AEOI, to discover to what extent that the countries that have already exchange the data benefits and could create value from the data would have a crucial impact especially as it will give an early warning if the results prove that it would not bring benefits especially for the OECD, so that they could evaluate more on the AEOI practice and make improvement from that.

7.4. Outside the research boundary: Some reflections

7.5.1. The Scientific reflection

As previously mentioned in the introduction and literature review, little is found in the academic literature that discussed the implementation of AEOI in the IT infrastructure context from an empirical perspective. Therefore this study tried to fill in the gap.

In the inter-organizational information sharing, many extensive studies have been found regarding the challenges and benefits as well as the factors that determine the success of the inter-organizational information sharing initiatives. The different types of information sharing system, as well as the governance structure that might takes place, are also have been well established. However, little did we found that specifically addressed the determinants of choice for IT infrastructure and governance in the Inter-organizational context.

Therefore, drawing from various literature about the factors influencing the Inter-organizational information sharing, and the types of infrastructure and governance structure, we try to synthesize these concepts and come up with a model that could help to identify the type of IT infrastructure and its governance regarding AEOI implementation. In addition, we also conducted case studies in two different countries, and try to see the applicability of the model. Our findings showed that the model could help us in identifying the infrastructure and governance of the case, as well as to shed light on the factors that drive the decision of the selected approach.
Thus, our work contributes to the existing literature about AEOI implementation by providing an empirical based on the implementation in the context of IT infrastructure and governance, as well as the model that could be used to assist the analysis.

Since this study is a preliminary exploratory study in the field of AEOI implementation, further research is needed to assess the validity and reliability of the model that we proposed.

7.5.2. Practical and Managerial reflection

The findings of this research underscore the importance of performing the technology assessment of the current environment comprising the IT capability, experiences and resource, and business case creation which might become an important thing to note for the program manager of AEOI implementation in the countries that have not yet implement the standard.

The insights gained from this study and the model we proposed may be of assistance for the program manager of AEOI implementation in their decision making regarding: type of infrastructure and IOSs interconnection that has been employed in a developed and developing countries as has been set out in **section 4.3** and **section 5.3** and the influencing factors that needed to be considered when implementing the AEOI standard as already explained throughout **section 4.5**, **section 5.5**, as well as the advantages and disadvantages of each type of approach in **section 6.2 and section 6.3**.

Lastly, the lesson learned in **section 6.3.3** provide insights on what critical issues/concern faced by the participating countries perhaps can be a benchmarking criterion for the program managers of AEOI implementation as well as the policymakers in the OECD department as the input to improve the assistance for both developing and developed countries.

7.5.3. Personal Reflection

This section explains several things that we reflected upon regarding the execution of the research. Firstly, for the execution in the early phase of the thesis. Preparation of a firm proposal needs to at hand in the first place. Therefore there will be no need for a major change of direction for the research.

Secondly, define the respondents that are needed and reach out to them as early as possible. Make sure that there is already a connection to reach the respondents. We emphasize to reach out early for the respondents because sometimes the administrative process could take so much time especially if the research needs to deal with a government agency.

Third regarding the use of theory and concept. Perhaps there should be more theory that could be incorporated into the research, but due to the limitation in researcher judgments, several relevant theories could be missed.

Lastly, writer blocks happened. What the researcher learned the hard way is that just keep writing, and if there is a need to take a break, just go with the gut feeling. Therefore, the pace could be started again after the break, and there is no overwhelmed and frustration feeling so that it also minimizes the risk of avoiding or even abandoning the thesis. This could be due to the nature of the case study that is quite abstract especially if the research has no point of reference.

References

A. I., F.-S. (2016). Bulgarian Experience in Curbing Tax Evasion - Automatic Exchange of Financial Information, Status and Expectation (pp. 11–14). Retrieved from https://www.researchgate.net/publication/306344715

Akhtar, J. (2018). Exchange of Information: Indian Experience, Developing Country Implications. Retrieved from www.southcentre.int

Arbex, M., & Caetano, S. (2016). Welfare Implications of AEoI. Retrieved from http://ideas.repec.org/s/wis/wpaper.html.

Arendsen, R., Peters, O., Ter Hedde, M., & Van Dijk, J. (2014). Does e-government reduce the administrative burden of businesses? An assessment of business-to-government systems usage in the Netherlands. *Government Information Quarterly*. https://doi.org/10.1016/j.giq.2013.09.002

Aucejo, E. A. (2018). Towards an International Code for administrative cooperation in tax matter and international tax governance **. https://doi.org/10.18601/01229893.n40.03

Barki, H., & Pinsonneault, A. (2005). A Model of Organizational Integration, Implementation Effort, and Performance. *Organization Science*, *16*(2), 165–179. Retrieved from https://www.jstor.org/stable/pdf/25145958.pdf

Barrett, S., & Konsynski, B. (1982). Inter-Organization Information Sharing Systems. *Source: MIS Quarterly*, *6*, 93–105. Retrieved from http://www.jstor.org/stable/248993

Baškarada, S. (2014). *The Qualitative Report Qualitative Case Study Guidelines*. Retrieved from https://nsuworks.nova.edu/tqr/vol19/iss40/3

Bekkers, V. (2007). The governance of back-office integration. *Public Management Review*, *9*(3), 377–400. https://doi.org/10.1080/14719030701425761

Belastingdienst. (2016). Common Reporting Standard. Retrieved March 13, 2018, from https://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/zakelijk/internationaal/vermogen/common_reporting_standard/

Böhm, A., Glaser, B., & Strauss, A. (2004). Theoretical Coding: Text Analysis in Grounded Theory. Retrieved from http://www.sxf.uevora.pt/wp-content/uploads/2013/03/Böhm_2004.pdf

Broadbent, M., Weill, P., & Neo, B. S. (1999). Strategic context and patterns of IT infrastructure capability. *The Journal of Strategic Information Systems*, *8*(2), 157–187. https://doi.org/10.1016/S0963-8687(99)00022-0

Carnahan, M. (2015). Taxation Challenges in Developing Countries. *Asia & the Pacific Policy Studies*, *2*(1), 169–182. https://doi.org/10.1002/app5.70

Casi, E., Spengel, C., & Stage, B. (2018). *Cross-Border Tax Evasion After the Common Reporting Standard: Game Over?* Retrieved from http://ftp.zew.de/pub/zew-docs/dp/dp18036.pdf

Choudhury, V. (1997). Strategic Choices in the Development of Interorganizational Information Systems. *Information Systems Research*, *8*(1), 1. https://doi.org/10.1287/isre.8.1.1

Chung, S. H., Jr., R. R. K., & Lewis, B. R. (2003). The impact of information technology infrastructure flexibility on strategic alignment and application implementations. *Communications of the Association for Information Systems*. https://doi.org/10.1167/9.1.33

Cobham, A. ;, & Janský, P. (2017). Global distribution of revenue loss from tax avoidance: Re-estimation and country results. Retrieved from http://hdl.handle.net/10419/163026

Cockfield, A. J. (n.d.). *Protecting Taxpayer Privacy Rights Under Enhanced Cross-border Tax Information Exchange: Toward A Multilateral Taxpayer Bill of Rights*. Retrieved from http://ssrn.com/abstract=1356841

Cumming, G. S. (2016). Heterarchies: Reconciling Networks and Hierarchies. https://doi.org/10.1016/j.tree.2016.04.009
Darke, P., Shanks, G., & Broadbent, M. (1998). Successfully completing case study research: combining rigour, relevance and pragmatism. *Information Systems Journal*. https://doi.org/10.1046/j.1365-2575.1998.00040.x
Davenport, & Linder. (1994). Information management infrastructure: the new competitive weapon? In *1994 Proceedings of the Twenty-Seventh Hawaii International Conference on System Sciences* (Vol. 4, pp. 885–896). https://doi.org/10.1109/HICSS.1994.323420
Dawes, S. S. (1996). Interagency information sharing: Expected benefits, manageable risks. *Journal of Policy Analysis and Management*. https://doi.org/10.1002/(SICI)1520-6688(199622)15:3<377::AID-PAM3>3.0.CO;2-F
De Corbiere, F., Rowe, F., & Frantz, R. (2010). *Association for Information Systems Understanding the Diversity of Interconnections between IS: Towards a New Typology of IOS Recommended Citation*. Retrieved from http://aisel.aisnet.org/ecis2010http://aisel.aisnet.org/ecis2010/130
Diehl, R., Kuettner, T., & Schubert, P. (2013). Introduction of Enterprise Collaboration Systems: In-depth Studies Show That Laissez-faire Does Not Work (Vol. 8). Retrieved from http://aisel.aisnet.org/bled2013http://aisel.aisnet.org/bled2013/8
Duncan, N. B. (1995). Capturing flexibility of information technology infrastructure: A study of resource characteristics and their measure. *Journal of Management Information Systems*. https://doi.org/10.1080/07421222.1995.11518080
Fedorowicz, J., Gogan, J., & Culnan, M. (2010). *Barriers to Interorganizational Information Sharing in E-government: A Stakeholder Analysis*. *Inf. Soc.* (Vol. 26). https://doi.org/10.1080/01972243.2010.511556
Fedorowicz, J., Gogan, J. L., Ray, A. W., & College, B. (2004). The Ecology of Interorganizational Information Sharing. *Journal of International Information ManagementTHE ECOLOGY OF INTERORGANIZATIONAL INFORMATION SHARING Journal of International Information Management*, *13*(2). Retrieved from http://scholarworks.lib.csusb.edu/jiim
Filipova-Slancheva, A. (2017). Automatic Exchange of Tax Information: Initiation, Implementation and Guidelines in Bulgarian Context. https://doi.org/10.21511/ppm.15(si).2017.04
Fischer, M., & Rohner, T. F. (2016). Discretionary trusts—last exit before AEOI? The Swiss view. https://doi.org/10.1093/tandt/ttv193
Gadžo, S., & Klemenčić, I. (2017). Effective international information exchange as a key element of modern tax systems: promises and pitfalls of the OECD's common reporting standard. *Public Sector Economics*. https://doi.org/10.3326/pse.41.2.3
Gil-García, J. R., Pardo, T e Burke, G. B. (2010). Conceptualizing Information Integration in Government. In *E-Government, Information, Technology and Transformation*.
Gil-Garcia, J. R., Chengalur-Smith, I., & Duchessi, P. (2007). Collaborative e-Government: impediments and benefits of information-sharing projects in the public sector. *European Journal of Information Systems*, *16*, 121–133. https://doi.org/10.1057/palgrave.ejis.3000673
Gil-Garcia, J. R., & Sayogo, D. S. (2016). Government inter-organizational information sharing initiatives: Understanding the main determinants of success. https://doi.org/10.1016/j.giq.2016.01.006
Hakelberg, L. (2015). The power politics of international tax co-operation: Luxembourg, Austria and the automatic exchange of information. *Journal of European Public Policy*, *22*(3), 409–428. https://doi.org/10.1080/13501763.2014.941380
Highfield, R. (2017). Adopting the New International Tax Rules and Standards: How Developing Countries in Asia and the Pacific Stand to Benefit—If They Engage! Retrieved from https://www.imf.org/external/POS_Meetings/SeminarDetails.aspx?SeminarId=119

Holloway, I., & Daymon, C. (2002). *Qualitative research methods in public relations and marketing communications*. *Qualitative Research*. https://doi.org/10.4324/9780203846544
Johnston, H. R., & Vitale, M. R. (1988). *Creating Competitive Advantage with Interorganizational Information Systems*. *Source: MIS Quarterly* (Vol. 12). Retrieved from https://www.jstor.org/stable/pdf/248839.pdf?refreqid=excelsior%3Aa0ed9148989ac2c6d9698aa6b01beb38
King of the Netherlands. (2015). Act Implementation Common Reporting Standard. Retrieved October 15, 2018, from https://wetten.overheid.nl/BWBR0037433/2016-01-01
King of The Netherlands. (2015). Implementation Decree on Identification and Reporting Regulations Common Reporting Standard on 23 Decebmber 2015. Retrieved September 17, 2018, from http://wetten.overheid.nl/BWBR0037469/2016-01-01/1
Klievink, B., Bharosa, N., & Tan, Y.-H. (2016). The collaborative realization of public values and business goals: Governance and infrastructure of public–private information platforms. *Government Information Quarterly*, *33*(1), 67–79. https://doi.org/10.1016/j.giq.2015.12.002
Knobel, A. (2017). Findings of the 2 nd TJN Survey on Automatic Exchange of Information (AEOI) Sanctions against financial centres, AEOI statistics and the use of information beyond tax purposes. Retrieved from https://financialtransparency.org/wp-content/uploads/2017/01/Knobel2017_AEOI-Survey-Report.pdf
Knobel, A., & Cobham, A. (2017). *Country-by-Country Reporting: How Restricted Access Exacerbates Global Inequalities in Taxing Rights*. *SSRN*. https://doi.org/10.2139/ssrn.2943978
Knobel, A., & Meinzer, M. (n.d.). *"The end of bank secrecy"? Bridging the gap to effective automatic information exchange An Evaluation of OECD's Common Reporting Standard (CRS) and its alternatives Executive Summary*. Retrieved from www.taxjustice.net
Knobel, A., & Meinzer, M. (2014). *Automatic Exchange of Information: An Opportunity for Developing Countries to Tackle Tax Evasion and Corruption*. Retrieved from http://www.trust.org/item/20140526065643-2fhq7/?source=quickview;
Luna-Reyes, L. F., Gil-Garcia, J. R., & Betiny Cruz, C. (2007). Collaborative digital government in Mexico: Some lessons from federal Web-based interorganizational information integration initiatives. https://doi.org/10.1016/j.giq.2007.04.003
McGill, R., Haye, C. A., & Lipo, S. (2017). A Practical Guide to Global Anti-Tax Evasion Frameworks. https://doi.org/https://doi.org/10.1007/978-3-319-61783-1
Medaglia, R., Hedman, J., & Eaton, B. (2017). *It Takes Two to Tango: Power Dependence in the Governance of Public-Private e-Government Infrastructures*. Retrieved from https://mail-attachment.googleusercontent.com/attachment/u/0/?ui=2&ik=536887062e&attid=0.3&permmsgid=msg-f:1614231716980728118&th=1666e731abce2136&view=att&disp=inline&realattid=f_jn7pk97y2&saddbat=ANGjdJ-HVZ8Fk-CRfl_ZtvM5clFh8VYCZ_a9mlY94XP4jHTMIYFq6wtwG
Meinzer, M. (2010). *Policy Paper on Automatic Tax Information Exchange between Northern and Southern Countries*. Retrieved from http://www.taxjustice.net/cms/upload/pdf/Meinzer
Meyer-Nandi, S. (2018). *Swiss Policy Coherence in International Taxation: Global Trends in AEOI and BEPS in Development Assistance and a Swiss Way Forward*. Retrieved from www.rwi.uzh.ch/matteotti/
Minister of Finance Republik Indonesia. (2017a). *Regulation of Minister Finance Number 70/PMK.03/2017 as Last Amended by Regulation of Minister of Finance Number 19/PMK.03/2017*. Retrieved from http://www.oecd.org/tax/automatic-exchange/crs-implementation-and-assistance/crs-by-jurisdiction/legislation/Indonesia-secondary-legislation.pdf
Minister of Finance Republik Indonesia. (2017b). Regulation of Minister of Finance Number 70/PMK.03/2017 as Amended by Regulation of Minister of Finance Number

73/PMK.03/2017. Retrieved from http://www.oecd.org/tax/automatic-exchange/crs-implementation-and-assistance/crs-by-jurisdiction/guidance/Indonesia-guidance.pdf
Moss, M. (2016). Panama papers highlight the urgency: From FATCA to the OECD CRS. *Journal of Securities Operations & Custody*.
Nicolescu, I. (2016). *The Relationship Between Offshore Evasion and "Aggressive" Tax Avoidance Arrangements: The HSBC Case*. Retrieved from http://ssrn.com/abstract=2757636
Noked, N. (2018a). *FATCA, CRS, AND THE WRONG CHOICE OF WHO TO REGULATE*. Retrieved from https://poseidon01.ssrn.com/delivery.php?ID=811029101084127107082108098016088027053076059068029030090096080099025081089117006075018124107061016122018112087097114010123090117071001040021125015122002078001080124055058043102123096112088072103001121005075127 0
Noked, N. (2018b). Tax Evasion and Incomplete Tax Transparency. *Laws*, *7*(3), 1–15. Retrieved from https://econpapers.repec.org/RePEc:gam:jlawss:v:7:y:2018:i:3:p:31-:d:165334
Noseda, F. (2017). CRS and beneficial ownership registers—what serious newspapers and tabloids have in common: The improbable story of a private client lawyer turned human rights activist. *Trusts & Trustees*, *23*(6), 601–609. Retrieved from http://dx.doi.org/10.1093/tandt/ttx080
OECD. (2012). *Automatic Exchange of Information - What it is, How it works, Benefits, What remains to be done*. Retrieved from http://www.oecd.org/ctp/exchange-of-tax-information/automatic-exchange-of-information-report.pdf
OECD. (2014). OECD releases full version of global standard for automatic exchange of information. Retrieved January 13, 2019, from http://www.oecd.org/newsroom/oecd-releases-full-version-of-global-standard-for-automatic-exchange-of-information.htm
OECD. (2015). *Standard for Automatic Exchange of Financial Information in Tax Matters - The CRS Implementation Handbook*. Retrieved from http://www.oecd.org/tax/exchange-of-tax-information/implementation-handbook-standard-for-automatic-exchange-of-financial-information-in-tax-matters.pdf
OECD. (2017a). CRS by jurisdiction - Organisation for Economic Co-operation and Development. Retrieved October 15, 2018, from http://www.oecd.org/tax/automatic-exchange/crs-implementation-and-assistance/crs-by-jurisdiction/
OECD. (2017b). *Global Forum on Transparency and Exchange of Information for Tax Purposes AEOI Implementation Report 2017*. Retrieved from https://www.oecd.org/tax/transparency/reporting-on-the-implementation-of-the-AEOI-standard.pdf
OECD. (2017c). *Global Forum on Transparency and Exchange of Information for Tax Purposes The Global Forum's Plan of Action for Developing Countries Participation in AEOI The Global Forum's Plan of Action for Developing Countries Participation in AEOI A New Global Standa*. Retrieved from https://www.oecd.org/tax/transparency/plan-of-action-AEOI-and-developing-countries.pdf
OECD. (2017d). Standard for Automatic Exchange of Financial Account Information in Tax Matters, Second Edition. Paris: OECD Publishing. https://doi.org/http://dx.doi.org/10.1787/9789264267992-en
OECD. (2018). *Standard for Automatic Exchange of Financial Information in Tax Matters IMPLEMENTATION HANDBOOK Second edition*. Retrieved from http://www.oecd.org/tax/exchange-of-tax-information/implementation-handbook-standard-for-automatic-exchange-of-financial-information-in-tax-matters.pdf
OJK. (2017). OJK Keluarkan Aturan Dukung Implementasi Automatic Exchange of Tax Information (AEOI). Retrieved March 12, 2018, from http://www.ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Pages/OJK-Keluarkan-Aturan-Dukung-Implementasi-Automatic-Exchange-of-Tax-Information-(AEOI).aspx

Panayi, C. H. (2016). Current Trends on Automatic Exchange of Information Summary: Current Trends on Automatic Exchange of Information. *School of Accountancy Research Paper Series*, *4*(2). Retrieved from https://poseidon01.ssrn.com/delivery.php?ID=358086124121107113106113122113095066005053028051000082065087069119118118101071079106013057098023052127028119124088012087107078109016014016004002031120114009026096073066040001112022026009021126108089088122083124 1

Pardo, T. a, Cresswell, A. M., Dawes, S. S., & Burke, G. B. (2004). Modeling the Social & Technical Processes of Interorganizational Information Integration. *Proceedings of the 37th Hawaii International Conference on System Sciences - 2004*. https://doi.org/10.1109/HICSS.2004.1265307

Pessoa Tavares, D., & Pedro Santos, J. (2018). *Tax Transparency: Portugal - Report*. Retrieved from http://www.eatlp.org/uploads/public/2018/National Report_Portugal.pdf

Praditya, D., & Janssen, M. (2017). Assessment of Factors Influencing Information Sharing Arrangements Using the Best-Worst Method BT - Digital Nations – Smart Cities, Innovation, and Sustainability. In A. K. Kar, P. V. Ilavarasan, M. P. Gupta, Y. K. Dwivedi, M. Mäntymäki, M. Janssen, ... S. Al-Sharhan (Eds.) (pp. 94–106). Cham: Springer International Publishing.

President of the Republik Indonesia. (2017). *Government Regulation in Lieu of Law of the Republic of Indonesia Number 1 Year 2017*. Retrieved from https://www.oecd.org/tax/automatic-exchange/crs-implementation-and-assistance/crs-by-jurisdiction/legislation/Indonesia-primary-legislation.pdf

Ross, J. W. (2003). Creating a Strategic IT Architecture Competency: Learning in Stages. Retrieved from http://ssrn.com/abstract=416180

Sawyer, A., & Sadiq, K. (2016). *Developing Countries and the automatic exchange of information standard - a "one-size-fits-all" solution? Australian Tax Forum* (Vol. 31). https://doi.org/10.2139/ssrn.2770225

Scarfone, J., Kerr, M., & School, I. B. (2018). *Paved Paradise: Analysis of the Common Reporting Standard to Combat Tax Avoidance*. *Liberated Arts: a journal for undergraduate research* (Vol. 4). Retrieved from https://ir.lib.uwo.ca/lajurAvailableat:https://ir.lib.uwo.ca/lajur/vol4/iss1/4

Singerling, T., Klievink, B., de Reuver, M., & Janssen, M. (2015). *Exploring factors that influence information sharing choices of organizations in networks*.

Stephenson, K. (2009). *Neither Hierarchy nor Network: An Argument for Heterarchy*. Retrieved from https://mail-attachment.googleusercontent.com/attachment/u/0/?ui=2&ik=536887062e&attid=0.2&permmsgid=msg-f:1614231716980728118&th=1666e731abce2136&view=att&disp=inline&realattid=f_jn7pg60k1&saddbat=ANGjdJ808e-Dgu5ZPDYtXLL-EUEe7OxJzV7UHfsIiI3zX3bjJriEtxXqN

The Council of the European Union. (2014). Council Directive 2014/107/EU of 9 December 2014 amending Directive 2011/16/EU as regards mandatory automatic exchange of information in the field of taxation. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0107&from=EN

The State Secretary for Finance. (2016). Guideline FATCA / CRS with technical notes to the NL IGA and the CRS regulations. Retrieved September 17, 2018, from http://wetten.overheid.nl/BWBR0037567/2016-01-21

Urinov, V. (2015). Developing Country Perspectives on Automatic Exchange of Tax Information. *Law, Social Justice & Global Development*, (October), 1–28.

van den Broek, T., & van Veenstra, A. F. (2015). Modes of Governance in Inter-Organizational Data Collaborations. Retrieved from http://aisel.aisnet.org/ecis2015_cr

Verschuren, P., & Doorewaard, H. (2010). *Designing a Research Project*. *The Hague: Eleven*

International publishing house.
Webster, J., & Watson, R. T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *Source: MIS Quarterly*, *26*(2). Retrieved from http://www.jstor.org/stable/4132319
Winkleman, T. J. (2012). *Automatic Information Exchange As A Multilateral Solution To Tax Havens*. Retrieved from www.economist.com/node/5408129.
Yang, T.-M., & Maxwell, T. A. (2011). Information-sharing in public organizations: A literature review of interpersonal, intra-organizational and inter-organizational success factors. https://doi.org/10.1016/j.giq.2010.06.008
Yang, T.-M., Pardo, T., & Wu, Y.-J. (2014). How is information shared across the boundaries of government agencies? An e-Government case study. https://doi.org/10.1016/j.giq.2014.05.002
Yang, T. M., & Wu, Y. J. (2014). Exploring the determinants of cross-boundary information sharing in the public sector: An e-Government case study in Taiwan. *Journal of Information Science*, *40*(5), 649–668. https://doi.org/10.1177/0165551514538742
Yin, R. K. (2009). *Case Study Research: Design and Methods*. *Essential guide to qualitative methods in organizational research* (Vol. 5). https://doi.org/10.1097/FCH.0b013e31822dda9e

Appendix

Interview Protocol Form

Organization	: _____
Interviewee (Title and Name)	: _____
Interviewer	: _____
Date	: _____
Time	: _____
Location	: _____

Introduction

You have been selected to be interviewed with us today because you have been identified as someone who has a great deal to share about the implementation of Automatic Exchange of Information (AEOI) standard. Our research project aims to depict and perform a cross-case analysis of the implementation process of AEOI in the area of (1) End-to-End reporting process; (2) Infrastructure governance and (3) Organizational and Technical factors that might influence the implementation process. Hopefully, by gaining a comprehensive understanding of the implementation process in the Netherlands, we could explore insights from the cross-case analysis to be performed by comparing it with the implementation in a developing country such as Indonesia.

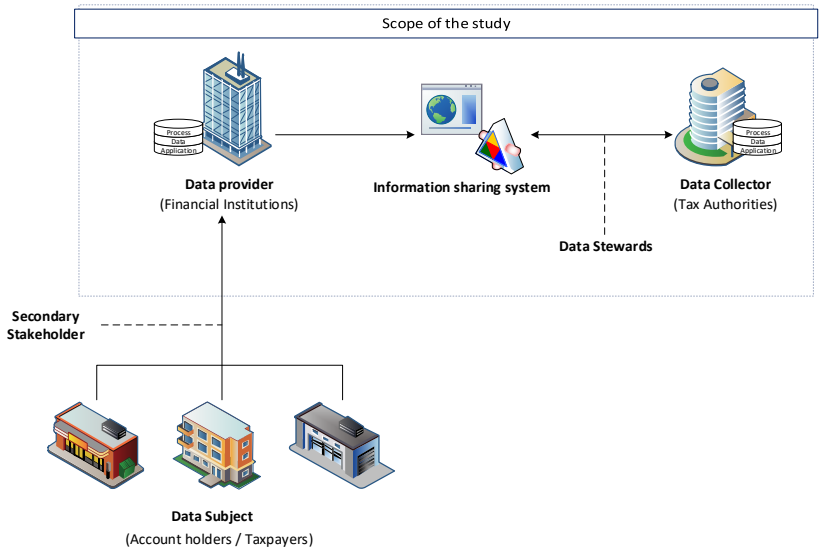

Figure 32 Overview of the AEOI network (in a jurisdiction)

To facilitate our note-taking, we would like to record our interview today. Please sign the release form. For your information, only researchers on the project will be privy to the recordings which will be eventually deleted after they are transcribed. In addition, you must sign a form devised to meet our human subject requirements. Essentially, this document states that: (1) all information will be held confidential, (2) your participation is voluntary, and you may stop at any time if you feel uncomfortable, and (3) we do not intend to inflict any harm. Thank you for your agreeing to participate.

We have planned this interview to last about one to two hours due to the wide range of the needed information. During this time, we have several questions that we would like to cover. If time begins to run short, it may be necessary to interrupt you in order to push ahead and complete this line of questioning.

Interviewee Data

Before we start to the implementation related question, would you please briefly tell us about yourself, especially related to your experience in the job as such

- In which department or division are you right now in the organization?

- Could you please briefly describe your role in the implementation of AEOI standard?

Strategical questions

For this part, we would like to explore the motivation to join the AEOI initiatives and the governance structure chosen in implementing the AEOI.

1. Would you please tell us about the main goals of joining the AEOI initiatives from the perspective of your organization and who are the stakeholders that involved in its implementation in the Netherlands?

2. What is the chosen legal basis for the information exchange between countries? (i.e., The Model Competent Authority Agreement)

End-to-end reporting process and system governance questions

For this part, we would like to know more about the detailed process and mechanism of the reporting process that includes the data collection, data validation and data analysis from financial institutions, until the data is ready to be exchanged.

On Appendix 1, we attach the initial reporting process modeling that we derived from the AEOI standard implementation book that is published by the OECD. We would like to confirm the visualization and thus the following questions would be based on the visualization.

3. In General, could you please explain to us the process of the reporting, from the data collection on the financial institution, until the data is ready to be exchanged with other jurisdictions?

4. Regarding the timeline of the end-to-end data exchange, what is the crucial cut-off date for the process? (Such as the cut off for the financial institutions to deliver the data to the tax authority, and the deadline for the tax authority to prepare the data to be exchanged with other jurisdictions)

5. As for the compliance action, what kind of sanctions and incentives are implemented for the complied and the non-complied taxpayers/account holders?

Technological-related questions

6. How is information shared and integrated among the participating organizations in the AEOI initiatives? (i.e., the system(s) used, the exchange media, and the chosen network infrastructure)

7. Is there a single data dictionary in place to define all the required data? If yes, who is responsible for maintaining the data dictionary? (The data steward)

8. Is there any relevant documentation available regarding the IT Architecture of the system used for the exchange of information? Is it possible if we could get those documentations as the additional resource for information?

Factors influencing the AEOI implementation

9. How to ensure that the adoption of AEOI could be successfully implemented so that all the involved stakeholder willing to participate in the initiatives? What factors do you think is important to be considered? (e.g., the organizational factors, across organizational, and technological)

10. From this list, which perceived benefits are relevant for your organization by joining the AEOI initiatives as a sending jurisdiction and the receiving jurisdiction?

- ☐ Simplify administrative procedure
- ☐ Accelerate processing of information
- ☐ Better information quality
- ☐ More comprehensive information
- ☐ High-quality service
- ☐ Reduced compliance costs
- ☐ Detect cases of non-compliance
- ☐ Improve accountability
- ☐ Improve decision making
- ☐ Improve transparency
- ☐ Improve compliance
- ☐ Timely information on non -compliance
- ☐ Allow for the pre-filling of the tax returns
- ☐ Educate taxpayers about their reporting responsibilities

Wrap-up questions

11. Related to the evaluation of the AEOI implementation initiatives in the Netherlands, what measurement of success that is used throughout the project? And what was defined as a failure and success for that measurement?

12. What lessons have you learned from your experience in the initiatives of this cross-boundary information sharing and integration (AEOI)?

13. Lastly, what would you recommend for better AEOI implementations or regarding the improvements to the AEOI itself so that more and more countries could join the initiatives?

Closing

We have reached the end of the interview. Thank you for your time and participation in this interview. As of now, I will make the transcript of this interview, and send it to you so that you can review and send me the feedback if necessary. After that, I will perform data analysis based on the (revised) transcript.
Is it possible if I could reach you again in the future for further confirmation and research related results?

Administrative Consent Form

Audio Recording Release Form

I voluntarily agree to be recorded during the interview being conducted by Rizky Amalia Kurnia, from the Delft University of Technology. I understand that the recording will be used to gather information about implementation process of the AEOI standard, and such information will be used to generate a master thesis work. The recording will be kept for approximately one year and will be securely stored at the Faculty of Technology, Policy, and Management, Delft University of Technology. After the data is collected and transcriptions are made, the recording will be deleted.

_____ _____
My Signature Date

_____ _____
Rizky Amalia Kurnia Date

Refusal to be Recorded

I do not agree to be recorded during the interview conducted by Rizky Amalia Kurnia, from the Delft University of Technology. I understand that I will not receive compensation. By refusing to be recorded, I understand that I may not continue to participate in the study.

_____ _____
My Signature Date

_____ _____
Rizky Amalia Kurnia Date