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# A Comparative Study of Business-to-Government Information Sharing Arrangements for Tax Reporting

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**Abstract.** Having tax transparency is getting more important and enforced by more and more countries around the world. To deal with tax evasion, OECD has developed an Automatic Exchange of Information (AEOI) standard. The implementation of this standard differs among countries. In this study, we explore factors explaining the differences between two information sharing arrangements in implementing the AEOI standard. In both cases, the information sharing architecture and the accompanying governance arrangement are investigated. The findings of the exploratory study show that the differences are influenced by available IT capabilities, interoperability, trust among information sharing partners, power difference, inter-organizational relationship, and perceived benefits of implementing such arrangements. Ten propositions are derived explaining the differences which can be tested in further research.

**Keywords:** Information sharing · Inter-organizational information sharing · Standardization · AEOI · Tax report · Business-to-government · E-government

## 1 Introduction

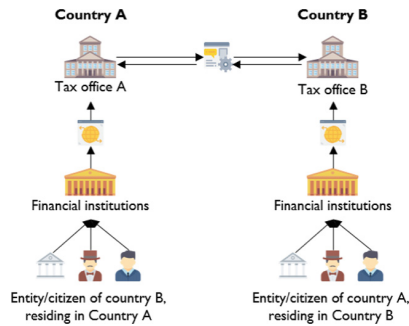
Access to private sector data for public interest purposes can provide benefits to companies, governments, as well as to society<sup>1</sup>. Most governments have legislation requiring businesses to report their data to government agencies. These data can be used as evidence of regulatory compliance or inputs for policymaking. Governments can use information originating from businesses to fight against tax evasion, drug trafficking, or terrorisms [1].

In the tax domain, recent initiatives have been established by the Organization for Economic Co-operation and Development or OECD<sup>2</sup> to promote international tax transparency and fighting tax evasion. The Automatic Exchange of Information (AEOI)

<sup>1</sup> <https://ec.europa.eu/digital-single-market/en/guidance-private-sector-data-sharing>, accessed on 06/02/2019.

<sup>2</sup> <http://www.oecd.org/tax/transparency/automaticexchangeofinformation.htm>, accessed on 06/02/2019.

is a standard for facilitating the exchange of tax data among countries [2]. The main driver of this standard is a tax revenue loss of around USD\$500 billion from tax evasion [3]. Figure 1 provides an overview of the information sharing process for foreign account holder data residing in one country to exchange information with the accounts' in the home country. To implement the standard, a country should meet the following four core requirements: (1) translate the reporting and due diligence procedure into domestic law; (2) select a legal basis for the automatic information exchange; (3) putting in place IT infrastructure and administrative resource; (4) protect confidentiality and data safeguard [4].



**Fig. 1.** AEOI sharing process

Developing such an information sharing infrastructure enabling AEOI can be challenging especially for the developing countries [5]. First, all countries involved in the exchange must ensure high quality of information. This requires readiness in the IT systems, for financial institutions and especially, the tax office. Within internal jurisdiction, the different organizations may have their own information systems which are unique to their specific needs. Integration of those various systems can bring technological challenges [6, 7]. Second, the complexity of inter-organizational information sharing can become an obstacle to the implementation of such systems [8] and often it might require changes in the business processes of the organizations [9]. In addition, the governance structure would affect the effectiveness of the collaboration within the inter-organizational context [10].

Based on the previous explanation, the aim of this explorative study is to identify factors that result in differences in the AEOI implementation. For this, types of architecture and governance that enable the AEOI are compared. Thereafter factors influencing the selection of the information sharing infrastructure and governance to enable AEOI are identified. Two different information sharing infrastructure and governance structure are used in enabling AEOI. These factors are formulated as propositions which can be tested in further research. The scope is limited to the exchange of information between financial institutions and tax administration (business-to-government).

The rest of the paper is structured as follows: Sect. 2 provides the literature background. Section 3 explains the research approach taken. Section 4 describes the results of the case studies. Section 5 contains the cross-case comparison and resulting propositions, and finally, Sect. 6 provides the research conclusion.

## 2 Theoretical Foundation

### 2.1 AEOI Standard

The AEOI standard is intended to be a “tool” in eradicating international tax evasion. The standard itself has four components: (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” [4]. These components are then translated into four main requirements to be implemented by a participating country. The first requirement stated that the participating country needs to translate the standard, including reporting and due diligence rules, into their domestic law [11]. This requirement addresses two aspects: first, enforcing the financial institutions implementing the reporting procedures; and second, ensuring consistencies of the scope and quality of information among participating countries. The OECD suggests implementing this translation using three different levels: in the primary legislation, secondary legislation, and official guidance or a set of the domestic FAQ (Frequency Asked Questions)<sup>3</sup>.

For the second requirement, a participating country must select the international framework that enables the information exchange with other countries. The second requirement consists of several legal instruments that permit the automatic exchange under the standard and other separate agreements between the participating countries. This agreement defines the information sharing mechanism, including what information will be exchanged, how it is going to be exchanged, and when the exchange will take place [11]. Then, the participating country must allocate the required IT infrastructure and administrative resources. According to AEOI standard, this third requirement is divided into three parts: (1) from the financial institutions to the tax office, including collecting and reporting the required information; (2) internal tax office, including receiving, processing and sending the information to other jurisdictions; (3) inter-jurisdictions, including transmitting and receiving information between two jurisdictions [11]. In this research, we focus on the first part.

The fourth requirement is about protecting confidentiality and safeguarding data. For this purpose, the Global Forum, part of the OECD, carried out preliminary confidentiality and data exchange assessments<sup>4</sup>.

<sup>3</sup> <http://www.oecd.org/ctp/exchange-of-tax-information/automaticexchangeofinformationreport.htm>, accessed on 06/02/2018.

<sup>4</sup> <http://www.oecd.org/tax/transparency/global-forum-launches-a-plan-of-action-for-developing-countries-participation-in-automatic-exchanges-of-financial-account-information.htm>, accessed on 06/02/2018.

A literature review was conducted in several leading journal databases such as the SCOPUS, JSTOR, Springer, and Elsevier using keyword: (“Automatic Exchange of Information” OR “Common Reporting Standard”) AND (“implementation” OR “adoption”). Table 1 presents the summary of topics related to AEOI from prior research. Most of the researches have been focusing on reinforcing the argument on why it is necessary to exchange tax information inter-jurisdictions by implementing AEOI, as well as potential challenges faced in the adoption of AEOI. Some studies have provided empirical data from the AEOI implementation, see [12–16]. However, few studies discussing how to implement AEOI from the information sharing perspective.

**Table 1.** The topic addressed regarding AEOI standard in the literature

Topic addressed	Source
Prior assessment of the important needs for AEOI standard	[17–19]
Challenges and benefits of AEOI standard	[20–24]
Evaluation of the Common Reporting Standard (CRS)	[5, 25–30]
Evaluation of the AEOI standard and its implications	[31–34]
Implementation of AEOI standard within National Laws	[12–16]
AEOI standard and privacy issues	[5, 35, 36]

From the technological point of view, the CRS from AEOI standard can be seen as a standardization effort taking place on the data level, including the use of XML schema and the use of generic data definition [11, 26, 37]. Developing the information sharing infrastructure that enabling the CRS reporting is still challenging [5] due to, for example, different IT maturity, inexperience dealing with the standard, unawareness about required reporting processes as well as the ambiguity of risks, costs, and benefits. Since the focus of this research is on the reporting of financial institutions to the tax office, the AEOI implementation under study is in the field of business-to-government information sharing.

## 2.2 Inter-organizational Information Sharing System

Inter-organizational information sharing system (ISS) is a system that includes the sharing of resources between organizations [38]. ISS aims to facilitate inter-organizational information sharing and collaboration which could enable the flow of information between an organization beyond the organizational boundaries [39]. Klievink et al. [40] argued that governance mechanism and information technology infrastructure are interrelated, and they are considered as an information sharing arrangement in the form of a public-private platform. Governance structure and information sharing infrastructure interconnect two or more different actors from both the public and private sectors [40, 41]. Governance structure deals with decision making, control mechanism, and data ownership, while information sharing infrastructure including systems, interfaces, ontologies, and data standards.

Regarding the infrastructure that enables the information sharing, Yang et al. [42] 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) Decentralized type. Each of the infrastructures has their typical determinants that influence the decision making for their adoption [42]. Moreover, de Corbière and Rowe [43] proposed configurations for the ISSs from a structural linkage perspective. The structural linkage refers to the interconnection of the sending partner and the receiving partners in the inter-organizational information sharing context. There are three forms of ISSs along the continuum, which the two on the extreme continuum are previously proposed by Choudhury [44] namely the dyadic ISSs and the multilateral ISSs. The intermediary between the two forms is called the hybrid forms of ISSs. Furthermore, Bekkers [45] provided four types of back-office data integration model: the centralized database, the interface type, information broker type, and shared database type.

The success of inter-organizational information sharing also depends on the system governance [10] which provides the structure that allows the relationship of stakeholders to align their objective in the implementation and monitoring to control whether the objectives has achieved [46]. In this research, we use the definition from Cumming [47] in identifying the governance structure which complemented the already founded hierarchical (top-down or bottom-up) and network (peer-to-peer) approach with the heterarchical structure. The heterarchical structure 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 more fruitful and contextualized perspective regarding governance structure [47].

### 2.3 Factors Influencing the Inter-organizational Information Sharing

Previous studies have found factors influencing inter-organizational information sharing. For example, information sharing in the public sector is influenced by three categories of factors, namely (1) Organizational and managerial perspective (2) Political and Policy Perspective, and (3) Technological perspective [7]. The factors in each category can either hinder or have positive impacts on inter-organizational information sharing. Gil-Garcia and Sayogo [48] proposed 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.

In addition, Praditya and Janssen [49] identified the influencing factors of information sharing arrangements classified into organizational, inter-organizational and technological factors. The organizational category includes factors such as resource, perceived benefits, perceived costs, perceived risks, organizational compatibilities, and experience. Organizational compatibilities are including firm size, firm structure, firm governance, and firm strategy [49]. Similarly, Singerling et al. [50] 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.

Moreover, in the inter-organizational category, the factors of the model by Praditya and Janssen [49] 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 and are determining information sharing infrastructure and infrastructure governance [8, 50, 51].

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 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 technical infrastructure [48, 50, 52].

Taken together, the previously described concepts will be used in our analytical framework to identify factors explaining different implementations. The next section explains the research approach and methods employed in this study.

### 3 Research Approach

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 [53, 64]. Case study 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 [53]. Furthermore, a case study is an appropriate approach for this research since the current implementation of AEOI is a contemporary phenomenon that applies to a particular country within a specific time [53]. Different contributing stakeholders in the implementation process and the strive for depth in the analysis in this research makes case study 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 [53]. In selecting the case we were considering two main criteria, the case should reveal different arrangements used in implementing AEOI and provide access to data, both primary and secondary.

This research began with a literature review which conducted to gain the theoretical framework for the research. Then, semi-structured interviews were conducted due to its flexible characteristic and thus allow the researcher to gain a deeper understanding of the interviewee's perspective [54]. In guiding the interview, we developed an interview protocol which is derived from the concepts in the previous section. As for the respondents, we interviewed respondents from different roles in the implementation of AEOI to different perspectives and thus yields to an extensive view of the implementation process. In addition, we also consider their experience in the AEOI implementation, For the Netherlands case, we interviewed the AEOI program manager and IT architect from *Belastingdienst*. For the Indonesian case, we interviewed four respondents from the business department and IT department of Indonesian FSA, and



one respondent from the Department of International Tax Exchange of Indonesian Tax Administration. Each interview lasted for about 90–120 min.

Interviews for the Netherlands case were conducted in English, while for Indonesia case were conducted in Bahasa. All interviews were transcribed in accordance with the chosen language during the interview. During the transcription, irrelevant information that does not contribute to answering questions such as off-topic information, personal details, or repetition were excluded. These transcripts were sent back to each respondent to ensure correct interpretations and validity of the findings. For data analysis, all interview transcripts were then translated to English and coded using *Atlas.ti* version 7. The 2 cases are presented in the next section.

## 4 Comparative Case Studies

### 4.1 Netherlands Case

The implementation of AEOI 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 Netherlands through its *Belastingdienst* (tax administration) prepares 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. The Netherlands successfully performed its first exchange of CRS reporting by October 1st, 2017.

There are eight stakeholders involved in the implementation of AEOI in the Netherlands and can be categorized into three levels, strategic, operational and technical. Firstly, in the strategic level, there are Ministry of Finance, OECD, and EU TAXUD which all of them is the secondary stakeholder that directly participate in the reporting process.

The interaction between *Belastingdienst* with the secondary stakeholders identified here are mostly related to the regulation or the technical interoperability matters for the inter-jurisdiction exchange. 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. With OECD, *Belastingdienst* is also involved in the development process of the (Common Transition System) CTS that is used to exchange the report between countries. As for the EU-TAXUD (European Taxation and Customs Union), the discussion is about the use of a network gateway to connect non-EU countries to the member states.

Secondly, at the operational level, there are the financial institutions and the auditors. The financial institutions have a role as a data provider for the reporting and the Auditors, which is considered as the secondary stakeholder, ensure that the financial institutions have the eligible capability to provide the correct required data.

Lastly, at the technical level, there are *Logius* and the service provider. *Logius* is the organization that is responsible for the *Digipoort* – the infrastructure used for the reporting purpose - and they provide helpdesk and technical support for the *Digipoort*

services to the *Belastingdienst* and the Financial Institutions. The service providers refer to the IT services companies which assist either financial institutions, *Logius* or *Belastingdienst* and not constrained to one specific organization.

## 4.2 Indonesian Case

Indonesia is one of the late adopters of the AEOI standard. The implementation in the Information sharing infrastructure is executed in 2017, and the first exchange took place in 2018. The main stakeholders in the implementation in Indonesia are the Indonesian tax administration and the Indonesian Financial Service Authority (FSA). There is a significant difference with the Netherlands case in terms of the institutional structure because in Indonesia several types of financial institutions are supervised directly under the FSA. Therefore, the report from the financial institutions need to be sent first the FSA, and then to the tax administration.

In total there are six stakeholders involved, which can be categorized into the strategic, operational, and technical level. 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 Indonesian tax administration and FSA to implement the AEOI and CRS reporting. Regarding OECD, the interaction between OECD and Indonesian tax administration is related to the reporting mechanism, that is the assistance and assessment of confidentiality and safeguarding data. As for the primary stakeholder, the tax administration and FSA, the interaction occurs during the development of *SiPINA* application and through the workshop regarding CRS and *SiPINA* application for the financial institutions.

At the operational level, the financial institutions under the FSA, need to submit their report to the system developed by the FSA, the *SIPINA* web application. And other financial institutions outside the supervision of FSA can directly submit their report to the system by the tax administration, called the EOI portal. The division of the financial institutions' supervision is regulated under the Ministry of Finance decree.

Lastly, the technical level is related to the development of *SiPINA* application. The tax administration instructs the FSA to develop the web-based system and provide the requirements to be fulfilled and the type of data format to be in place. 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 tax administration, 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 assess whether to develop it in-house or to use a service provider for the implementation. The chosen decision then to use the service provider. Regarding changes, should there be any changes required for the data formats or other functionality, the higher instruction comes from the tax administration 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.

### 4.3 Comparing the Information Sharing Infrastructure and Governance

To identify the type of arrangements used in these two cases, we are using a framework provided by [42] for the type of information sharing infrastructure and [47] for inter-organizational governance. The Netherlands is implementing a centralized – multilateral ISSs type. To accommodate the reporting from the financial institutions to the *Belastingdienst*, the Netherlands has been using a Government Service Platform (*Digipoort*) which is designed as the intermediary that enables the inter-organizational information sharing. GSP 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 [42]. Moreover, the *Digipoort* infrastructure is a multilateral ISSs that 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*. In this case, the multilateral ISSs enable the interconnection with all the partners, and that the sending partners do not need to build a direct connection to each receiving partner [44]. However, in terms of data management, *Digipoort* does not store the report being sent from the financial institutions, rather it only acted as the hub that routes the report to the *Belastingdienst* internal system. Thus, according to [45], *Digipoort* can be categorized as the information broker type of data management.

Regarding the governance structure, the identified structure is heterarchical that according to [47] is a combination of hierarchical and network structure. As previously mentioned, despite many stakeholders are involved in the implementation of AEOI in the Netherlands, there is a strong link between two players here that is the *Belastingdienst* and *Logius*.

In the Indonesian case, the identified infrastructure is the semi-centralized – hybrid ISSs. Semi-decentralized type which is illustrated through an electronic gateway is designed to realize a real-time information search and verification [42] while hybrid ISSs defined as the ISSs 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 [43]. 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 Indonesian tax administration. Both systems resemble a hybrid ISS type of interconnection because, though the financial institutions need to report to the FSA through *SiPINA* application, financial institutions still need to report directly also to the tax administration through the portal EOI application for some reports. In this sense, there is no single window that becomes the central ISS facilitating the many-to-many connection between the information provider and receiver. Thus, it cannot be said as a multilateral ISS. In terms of data management, both *SiPINA* and portal EOI application did store the report and thus it can be seen that the centralized database type according to the categorization proposed by [45].

For the governance structure, Indonesia implements a hierarchical governance structure, in which the Indonesian tax administration dictate the whole arrangements (Table 2).

**Table 2.** Comparing the AEOI requirements fulfillment

	The Netherlands	Indonesia
	<ul style="list-style-type: none"> <li>• <i>Digipoort</i> (Government service platform)</li> <li>• CRS XML schema</li> <li>• Encryption and validation mechanism</li> <li>• Sharing mechanism: System-to-System</li> </ul>	<ul style="list-style-type: none"> <li>• <i>SiPINA</i> web-based application and EOI portal web-based application</li> <li>• CRS XML schema</li> <li>• Encryption and validation mechanism</li> <li>• Sharing mechanism: Human-to-System</li> </ul>
ISSs	Centralized and multilateral	Semi-centralized and hybrid
Data management	Type C: information broker	Type A: centralized database
Governance	Heterarchical	Hierarchical

## 5 Propositions of Factors

In this section, we identified the factors that influence the choice of information sharing infrastructure and governance structure in the two countries. Our findings suggested that some contextual factors are found in one case and not the other, and some factors are found in both cases but in different degree. We present the influencing factors in the following propositions.

### 5.1 IT Capability

IT capability refers to the level of the organization's IT infrastructure, employees' IT skills and ability to leverage IT to serve the organization's goals [55, 56]. IT capability is a critical factor in participating in interorganizational information sharing [57]. An integrated ISS as a complex system requires a certain level of IT capability of actors.

From the cases, *Belastingdienst* and financial institutions in the Netherlands already sharing their financial information through a mature and integrated IT system. They prefer to utilize their existing reporting infrastructure in meeting the requirements of AEOI since all the requirements can be fulfilled using the existing capabilities. The ISS that connects the financial institutions to the tax administrations (*Digipoort*) and the processing modules in the internal system tax administration are already sufficient to enable AEOI in the Netherlands. In addition, *Belastingdienst* and most of the financial institutions are familiar with the use of a standardized reporting format of XML.

On the other hands, Indonesia had no existing system that could accommodate the requirements of AEOI reporting. They decided to develop two separate web-based applications to implement AEOI. The involved actors in Indonesia perceive this solution is easier and faster to develop, even though they are aware of further issues such as scalability or data aggregation issues could arise in the future. This is aligned with a finding in a study by [58] which claimed an organization that has less extensive IT infrastructure capabilities will tend to decide to fulfill the current needs. New technology adoption required employees with certain IT skills [59]. According to the interviewees, there is a lack of employees with XML skills (as requested in AEOI) as

well as experienced in orchestrating an integrated system-to-system reporting either in Tax administration and especially in financial institutions. Because of that, the Indonesian tax office decides to build web-based systems which accommodate xls and XML. So, the financial institutions can upload the reports in both formats. However, this situation creates a burden in the internal Tax office, since they have to translate the xls document into XML and then aggregate it before sending it to the requesting countries.

**Proposition 1:** *Higher IT capability results in the use of an integrated system*

**Proposition 2:** *Lower IT capability results in the use of a less integrated system*

## 5.2 Interoperability

Interoperability plays an important role in establishing interorganizational information sharing [7]. According to the European Interoperability Framework<sup>5</sup>, there are three levels of interoperability: technical, semantic and organizational level.

Based on the previous explanation, we can infer that the Netherlands has already acquired a higher degree of interoperability in the system used between the tax administration and the financial institutions. This is depicted by the fact that the systems they used has already employed a system-to-system sharing mechanism and has enabled the used of the standardized report which is in XML format.

Indonesia has a lower degree of interoperability in their existing systems. The reporting system is still using the human-to-system mechanism through the web application, and the input data used are still employing two types of data format: xls and XML format. There are still plenty of manual works to be done in the Indonesian case. Thus, we argue that the degree of interoperability has an influence on whether the integrated or more fragmented system will be used.

**Proposition 3:** *Higher interoperability requirement results in the use of an integrated system*

**Proposition 4:** *Lower interoperability requirement results in the use of a less integrated system*

## 5.3 Trust and Power Difference Among Actors

Regarding trust and power difference, both factors are considered as important factors in interorganizational information sharing [49, 60]. Our findings in the Netherlands suggest that a higher level of trust among the participants in the reporting chain leads to a chosen heterarchical governance structure. This could be due to that in the Netherlands, *Belastingdienst*, *Logius*, and the financial institutions have already had lots of collaborations especially in developing the existing reporting system. Financial institutions have been actively involved in the decision making, and their trust to the government is enforced also by the “goal binding strategy” in the Netherlands regulation that stated the data can only be used for the stated purpose.

<sup>5</sup> [https://ec.europa.eu/isa2/eif\\_en](https://ec.europa.eu/isa2/eif_en). Accessed on 20/03/2019.

**Proposition 5:** *A higher level of trust among participants results in the less hierarchical governance structure*

The first requirement of AEOI is to adopt AEOI into national laws. Regulation can be considered as a basic incentive for users to adopt the standard, however, it also gives tax office full authority to arrange the implementation. The latter results in power difference amongst involved stakeholders. In both cases, the decision making regarding the implementation relies on the tax office, with different degree. The case study findings also show both cases cannot implement network structure for the governance of the system. Therefore, we argue that power difference between institutions due to regulation, can yield to a less networked governance structure.

**Proposition 6:** *Power difference due to regulation results in less network governance structure*

#### 5.4 Perceived Benefits

Perceived benefits are considered as a critical factor in arranging information sharing, especially in private organizations' perspective [61]. Perceived benefits have an influence on the choice of Information sharing infrastructure in both cases. 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. In addition, 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. By doing so, the Netherlands perceived that by using the current integrated system they could gain efficiency, scalability and less administrative burden. An integrated ISS also can help involved actors in the Netherlands to streamline the sharing process and develop further capabilities to create societal values [62]. Indonesia on the other hand, choose the web-based system because they perceive that it is simpler, easier and faster to develop because they need to fulfill the reporting deadline as soon as possible. Therefore, based on our findings, we propose:

**Proposition 7:** *When the objective is to develop as simple as possible, faster to deliver, and easy to develop then the less integrated system is preferable*

**Proposition 8:** *If the objective is to reduce administrative burden, more efficient, and highly scalable then the integrated system is preferable*

#### 5.5 Inter-organizational Relationship

In terms of inter-organizational relationship [63], a good inter-organizational relationship between the tax administration and financial institutions have already formed in the Netherlands. In developing the Standard Business Reporting, active participation from governments and businesses is considered as a critical success factor [41]; built from this background, the similar governance structure is also applied in enacting AEOI.

In Indonesia, the relationship between governments and businesses still considered as “client and server”, which limit business participation in developing B2G ISS. Existing reporting system serves the government goals rather than the shared goals of the involved actors. This type of relationship is accommodated by the hierarchical structure.

**Proposition 9:** *Active participation of all actors in inter-organizational collaboration results in the use of less hierarchical governance structure.*

**Proposition 10:** *No or limited participation of some actors in inter-organizational collaboration results in the use of hierarchical governance structure.*

## 6 Conclusion

Although the standard is the same, countries implement the same standard using different information sharing arrangements. This paper identified factors explaining the differences. According to the case studies findings, the level of IT capability of actors, interoperability, and perceived benefits of certain arrangements are influencing the type of information sharing infrastructure used to enable AEOI. For the selection of governance structure, inter-organizational relationship, power difference among actors, and trust to sharing partners are found as influencing factors. The factors are formulated as propositions which can be tested in further research. 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 the type of information sharing infrastructure and governance structure of AEOI that has been employed in developed and developing countries. Furthermore, the propositions and the lessons learned can be used for benchmarking of AEOI implementation in other countries.

Future research in AEOI implementation with more cases employed would increase the generalizability of the findings. Further empirical research is also needed to identify more information sharing arrangements to implement AEOI, related to varied type of infrastructure and system governance. Moreover, perspectives from other stakeholders such as the financial institutions and secondary stakeholders would provide a rich source for the data analysis and thus could create more insights, although more efforts will be needed in the data collection. Finally, 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 interorganizational information sharing.

## References

1. Cate, F.H., Dempsey, J.X., Rubinstein, I.S.: *Systematic Government Access to Private-Sector Data*. Oxford University Press, Oxford (2012)
2. HJI Panayi, C.: Current trends on automatic exchange of information. *Singapore Manag. Univ. School Accountancy Res. Paper* **2016**, 43 (2016)
3. Cobham, A., Janský, P.: Global distribution of revenue loss from corporate tax avoidance: re-estimation and country results. *J. Int. Dev.* **30**(2), 206–232 (2018)
4. OECD: *Standard for Automatic Exchange of Financial Account Information in Tax Matters*, 2nd (edn.). OECD, Cedex (2017)
5. Knobel, A.: *Findings of the 2nd TJN Survey on Automatic Exchange of Information (AEOI)* (2017)
6. Fedorowicz, J., Gogan, J.L., Ray, A.W.: The ecology of interorganizational information sharing. *J. Int. Inf. Manag.* **13**(2), 1 (2004)
7. Yang, T.-M., Maxwell, T.A.: Information-sharing in public organizations: a literature review of interpersonal, intra-organizational and inter-organizational success factors. *Gov. Inf. Q.* **28**(2), 164–175 (2011)
8. Luna-Reyes, L.F., Gil-García, J.R., Cruz, C.B.: Collaborative digital government in Mexico: some lessons from federal web-based interorganizational information integration initiatives. *Gov. Inf. Q.* **24**(4), 808–826 (2007)
9. Gil-García, J.R., Chengalur-Smith, I.N., Duchessi, P.: Collaborative e-Government: impediments and benefits of information-sharing projects in the public sector. *Eur. J. Inf. Syst.* **16**(2), 121–133 (2007)
10. van den Broek, T., van Veenstra, A.F.: Modes of governance in inter-organizational data collaborations. In: *European Conference on Information Systems*. Munster, Germany (2015)
11. OECD: *Standard for Automatic Exchange of Financial Information in Tax Matters - Implementation Handbook*, 2nd (edn.). OECD, Paris (2018)
12. Filipova-Slancheva, A.: Bulgarian experience in curbing tax evasion - automatic exchange of financial information: status and expectations. In: *Problem of Development Modern Science: Theory and Practice*, pp. 11–14 (2016)
13. Filipova-Slancheva, A.: *Automatic exchange of tax information: Initiation, implementation and guidelines in Bulgarian context* (2017)
14. Tavares, D.P., Santos, J.P.: Tax transparency - Portugal: report. In: *European Association of Tax Law Professors*, Switzerland, Zurich (2018)
15. Akhtar, J.: *Exchange of Information: Indian Experience, Developing Country Implications*. Tax Cooperation Policy Brief, p. 4 (2018)
16. Meyer-Nandi, S.: *Swiss Policy Coherence in International Taxation: Global Trends in AEOI and BEPS in Development Assistance and a Swiss Way Forward*. The University of Zurich, Zurich, Switzerland (2018)
17. Meinzer, M.: Policy paper on automatic tax information exchange between northern and southern countries. In: *Tax Justice Briefing*. Tax Justice Network (2010)
18. Moss, M.: Panama papers highlight the urgency: from FATCA to the OECD CRS. *J. Secur. Oper. Custody* **8**(3), 248–258 (2016)
19. Winkleman, T.J.: Automatic information exchange as a multilateral solution to tax havens. *Indiana Int. Comp. Law Rev.* **22**, 193 (2012)
20. Hakelberg, L.: The power politics of international tax co-operation: Luxembourg, Austria and the automatic exchange of information. *J. Eur. Public Policy* **22**(3), 409–428 (2015)
21. Highfield, R.: *Adopting the New International Tax Rules and Standards*. Asian Development Bank (2017)



22. Knobel, A., Meinzer, M.: Automatic exchange of information: an opportunity for developing countries to tackle tax evasion and corruption. *Tax Justice Network* (2014)
23. Sadiq, K., Sawyer, A.: Developing countries and the automatic exchange of information standard—a one-size-fits-all solution. *Aust. Tax Forum* **31**, 99 (2016)
24. Urinov, V.: Developing country perspectives on automatic exchange of tax information. *Law, Soc. Justice Global Dev. J.* **1**(19), 1–28 (2015)
25. Andrés-Aucejo, E.: Towards an International Code for administrative cooperation in tax matter and international tax governance. *Revista Derecho del Estado* **40**, 45–85 (2018)
26. Casi, E., Spengel, C., Stage, B.: Cross-border tax evasion after the common reporting standard: game over? *ZEW-Centre for European Economic Research Discussion Paper No. 36* (2018)
27. Knobel, A., Cobham, A.: Country-by-Country reporting: How restricted access exacerbates global inequalities in taxing rights. *Tax Justice Network* (2016)
28. Knobel, A., Meinzer, M.: ‘The End of Bank Secrecy’? Bridging the Gap to Effective Automatic Information Exchange. *Tax Justice Network* (2014)
29. Noked, N.: FATCA, CRS, and the wrong choice of who to regulate. *Florida Tax Rev.* **22**(1), 77–119 (2019)
30. Scarfone, J., Kerr, M.: Paved paradise: analysis of the common reporting standard to combat tax avoidance. *Liberated Arts: A J. Undergraduate Res.* **4**(1), 4 (2018)
31. Noked, N.: Tax evasion and incomplete tax transparency. *Laws* **7**(3), 31 (2018)
32. Fischer, M., Rohner, T.F.: Discretionary trusts—last exit before AEOI? *Swiss View. Trusts Trustees* **22**(4), 393–400 (2015)
33. Gadžo, S., Klemenčić, I.: Effective international information exchange as a key element of modern tax systems: promises and pitfalls of the OECD’s common reporting standard. *Public Sector Econ.* **41**(2), 207–226 (2017)
34. Nicolescu, I.: The relationship between offshore evasion and ‘Aggressive’ Tax avoidance arrangements: the HSBC case. *Financ. Regul. Int. (Informa Law)* **19**(02), 1–22 (2016)
35. Cockfield, A.J.: Protecting taxpayer privacy rights under enhanced cross-border information exchange: toward a multilateral taxpayer bill of rights. *UBCL Rev.* **42**, 419 (2009)
36. Nosedá, F.: 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 (2017)
37. McGill, R.K., Haye, C.A., Lipo, S.: *GATCA: A Practical Guide to Global Anti-Tax Evasion Frameworks*. Springer, Heidelberg (2017)
38. Barrett, S., Konsynski, B.: Inter-organization information sharing systems. *MIS Q.* **06**, 93–105 (1982)
39. Johnston, H.R., Vitale, M.R.: Creating competitive advantage with interorganizational information systems. *MIS Q.* **12**(2), 153–165 (1988)
40. Klievink, B., Bharosa, N., Tan, Y.-H.: The collaborative realization of public values and business goals: governance and infrastructure of public–private information platforms. *Gov. Inf. Q.* **33**(1), 67–79 (2016)
41. Praditya, D., Janssen, M., Sulastri, R.: Determinants of business-to-government information sharing arrangements. *Electron. J. E-Gov.* **15**(1), 44–55 (2017)
42. Yang, T.-M., Pardo, T., Wu, Y.-J.: How is information shared across the boundaries of government agencies? An e-government case study. *Gov. Inf. Q.* **31**, 637–652 (2014)
43. de Corbière, F., Rowe, F.: Understanding the diversity of interconnections between IS: towards a new typology of IOS. In: *European Conference on Information Systems, Pretoria, South Africa* (2010)
44. Choudhury, V.: Strategic choices in the development of interorganizational information systems. *Inf. Syst. Res.* **8**(1), 1–24 (1997)

45. Bekkers, V.: The governance of back-office integration: organizing co-operation between information domains. *Public Manag. Rev.* **9**(3), 377–400 (2007)
46. Wimmer, M.A., Boneva, R., di Giacomo, D.: Interoperability governance: a definition and insights from case studies in Europe. In: Proceedings of the 19th Annual International Conference on Digital Government Research: Governance in the Data Age. ACM (2018)
47. Cumming, G.S.: Heterarchies: reconciling networks and hierarchies. *Trends Ecol. Evol.* **31** (8), 622–632 (2016)
48. Gil-Garcia, J.R., Sayogo, D.S.: Government inter-organizational information sharing initiatives: understanding the main determinants of success. *Gov. Inf. Q.* **33**, 572–582 (2016)
49. Praditya, D., Janssen, M.: Assessment of factors influencing information sharing arrangements using the best-worst method. In: Kar, A.K., et al. (eds.) I3E 2017. LNCS, vol. 10595, pp. 94–106. Springer, Cham (2017). [https://doi.org/10.1007/978-3-319-68557-1\\_10](https://doi.org/10.1007/978-3-319-68557-1_10)
50. Singerling, T., et al.: Exploring factors that influence information sharing choices of organizations in networks. In: AMCIS 2015: Americas Conference on Information Systems, Puerto Rico, 13–15 August 2015 (2015)
51. Arendsen, R., et al.: Does e-government reduce the administrative burden of businesses? An assessment of business-to-government systems usage in the Netherlands. *Gov. Inf. Q.* **31**(1), 160–169 (2014)
52. Yang, T.-M., Wu, Y.-J.: Exploring the determinants of cross-boundary information sharing in the public sector: an e-Government case study in Taiwan. *J. Inf. Sci.* **40**(5), 649–668 (2014)
53. Yin, R.K.: Case Study Research: Design and Methods. Applied Social Research Methods Series, vol. 5, 4th edn. SAGE, Newbury Park (2009)
54. Daymon, C., Holloway, I.: Qualitative Research Methods in Public Relations and Marketing Communications. Routledge, London (2010)
55. Bharadwaj, A.S.: A resource-based perspective on information technology capability and firm performance: an empirical investigation. *MIS Q.* **24**(1), 169–196 (2000)
56. Kamal, M., Themistocleous, M.: A conceptual model for EAI adoption in an e-government environment (2006)
57. Premkumar, G., Ramamurthy, K.: The role of interorganizational and organizational factors on the decision mode for adoption of interorganizational systems. *Decis. Sci.* **26**(3), 303–336 (1995)
58. Broadbent, M., Weill, P., Neo, B.-S.: Strategic context and patterns of IT infrastructure capability. *J. Strateg. Inf. Syst.* **8**(2), 157–187 (1999)
59. Mikalef, P., et al.: Big Data analytics capability: antecedents and business value. In: PACIS (2017)
60. Hart, P., Saunders, C.: Power and trust: critical factors in the adoption and use of electronic data interchange. *Organ. Sci.* **8**(1), 23–42 (1997)
61. Romochkina, I., Van Baalen, P.J., Zuidwijk, R.A.: A Tug-of-War: shaping the landscape of inter-organizational information systems. Available at SSRN 2754040 (2016)
62. Pappas, I.O., et al.: Big data and business analytics ecosystems: paving the way towards digital transformation and sustainable societies. *Inf. Syst. e-Bus. Manag.* **16**(3), 479–491 (2018)
63. Cheng, J.-H.: Inter-organizational relationships and information sharing in supply chains. *Int. J. Inf. Manag.* **31**(4), 374–384 (2011)
64. Choudrie, J., Dwivedi, Y.K.: Investigating the research approaches for examining technology adoption issues. *J. Res. Pract.* **1**(1), 1–9 (2005). Article D1