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Design of Domestic Common Reporting Standard (CRS) at the Directorate General of Taxes (DGT)

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Abstract**—** *Since 2018, financial institutions have used the Common Reporting Standard (CRS) to submit financial information about international customers to tax authorities, specifically the Directorate General of Taxes (DGT). The problem is that the DGT received a CRS template with a high number of validation failures. Because there are 143 data components that must be prepared, using the CRS template for domestic reporting is difficult. The purpose of this research is to determine how financial institutions can quickly develop and identify data items that adhere to established standards, as well as to develop an Exchange of Information (EOI) system that can be validated at DGT. To create a simpler CRS design with a total of 44 data items, the qualitative analysis approaches of observation, interview, and document study were used. This research is expected to contribute to similar research and serve as a reference for future CRS and information system design research.*

Keywords**—** *Common Reporting Standard, Design, Directorate General of Tax, Exchange of Information.*

I. INTRODUCTION

Automatic Exchange of Information (AEOI) is the exchange of information carried out at a certain time, periodically, systematically, and continuously between the tax authorities of partner countries incorporated in The Organisation for Economic Co-operation and Development (OECD) and the Global Forum on Transparency and Exchange of Information for Tax Purposes (Global Forum). This information exchange uses the Common Reporting Standard (CRS) as the standard for sending reports between countries that exchange financial information. Indonesia's commitment in AEOI began when Indonesia became a member of the Global Forum on Transparency and Exchange of Information for Tax Purposes (Global Forum) in September 2009, culminating in the issuance of Law of the Republic of Indonesia Number 9 of 2017 concerning the Establishment of Regulation Number 1 of 2017 concerning Access to Financial Information for Taxation Purposes into Law.

The flow of CRS delivery begins when the Financial Institution makes a report containing financial information of foreign customers according to the structure of CRS in XML format submitted through a country's tax institution in this case Directorate General of Taxes (DGT). DGT validates filling in accordance with the error codes that are already standard from the OECD in the form of validation of the CRS structure, file format and the contents of existing data elements. After the validation is declared correct, the DGT carries out an integration process for all reports of financial institutions that have been entered in a certain period per country of jurisdiction. Such country-by-country financial information reports are formed in CRS format to be submitted to partner jurisdictions through the OECD.

The most frequent problem that arises is that during the validation process in the DGT, the data elements in CRS total 143 both mandatory, optional and validation (OECD, 2017) and must be poured in XML format by LK. The very diverse ability of officers in LK is one of the factors that result in the frequent rejection of their CRS reports in the DGT system, this is strengthened by the many schema errors recorded in the DGT system so this is an indication that many LK have difficulty in making CRS reports. This research was conducted by the Exchange of Information (EOI) business process, the design of the information system created includes the creation of a new report schema in the form of XML Schema Definition (XSD).

Some of the previous studies to support the research that is being carried out are as follows:

1. Research conducted by Ma, Zhao, You, & Ge (2018) regarding the analysis and design of using UML to build a model of hospital management information systems. Detailed specifications regarding the method and requirements of analysis are not explained but the engineering requirements are carried out up to the implementation stage of the model.
2. The research conducted by Yoga, Aris, Bandi, Dana, Misbah, & Ruci (2019) aims to build a prototype design related to the proposal to increase the integration of e-Services-based applications at the Directorate General of Taxes.
3. The research conducted by Teixeira, Xambre, Figueiredo, & Alvelos (2016) is to build a project management system in a consulting company. Research methods through the approach of analysis documents, observations, interviews, and forum group discussions, and modelled using UML.

In the first study, it was not detailed how the data collection process was to be used as an analysis to the modelling carried out by designing the hospital information system. In research number two modelling is carried out only on the interoperability process of each pre-existing e-Service system. In the third research, design and design only focused on general functions in consulting companies. The current research is that in addition to designing input data from the existing CRS format, there is also modelling of the information system design of the CRS reporting business process and interfacing with the surrounding system.

The objectives to be achieved from this study are to provide a future reference from the CRS format which contains 143 data elements to a simpler report format with fewer data elements to accommodate the needs of CRS, and the design of the needs of

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the Exchange of Information system to accommodate the needs of Financial Institutions for the fulfillment of financial information reporting obligations to the Directorate General of Taxes

II. Research Method

The object of the study explains what and or who is the object of the study, where and when the research is carried out, and other things are also considered necessary As for the object of this study is the CRS schema and the Exchange of Information (EOI) system at the Directorate General of Taxes where the data to be processed are data from observations, interviews, and document studies An easy way to comply with the conference paper formatting requirements is to use this document as a template and simply type your text into it.

A case study is an in-depth exploration of a system that is limited in the scope of the data collected. In this study, the case studies were the Directorate of International Taxation and the Directorate of Tax Data and Information as the authorities in the rules and processes of the international data exchange business, especially related to EOI, and the Directorate of Information and Communication Technology (ICT) as the directorate of information technology development of the Directorate General of Taxes (DGT). The results of this qualitative research are used as material for the design and development of the Exchange of Information (EOI) System of the Directorate General of Taxes.

The stages of research are as follows:

Identify the Problem. At the identification stage of the problem, an interview and observation process were carried out on documents in the form of regulations, standards for making CRS documents from the OECD, as well as previous system development documents, namely requirements and details of specification, and observations to external parties to obtain problems that arise especially during CRS reporting from financial institutions in January to April each year. After knowing the problem, the research question was asked: How to design new data elements with fewer elements but still meet the needs of CRS? How can a faster validation process be carried out?

Planning. At this stage, the search for theories related to research and previous research on the same subject or object needs to be carried out, because a research framework used in this research will be compiled to make it more structured. In addition, it can also be determined the method of collecting and managing data, including instruments for the next research question. Previous theories and research are based on books, research and other literacy from the internet, libraries and other sources obtained through magazines, newspapers, and social media.

Analysis. At this stage, data processing is carried out resulting from interviews, documents in the form of regulations / business processes related to CRS and EOI. For this reason, it is necessary to carry out thematic analysis using the coding method, namely grouping the results of discussions / interviews and data obtained from other sources and given codes in the data group. The expected results from this stage are in the form of an analysis of information system needs in the form of user requirements and a list of data elements in the CRS with mandatory, optional and validation criteria totalling 143 to be carried out to choose which data elements to use. The resulting system modelling is use case diagrams, activity diagrams, and class diagrams.

Design. At this stage, the design of the modelling results was carried out at the analysis stage, including designs related to the design of simpler CRS data elements totalling 44, data management design, and physical architecture design.

Making Conclusions and Suggestions. At this stage, a conclusion is drawn on the results of the analysis and design that has been carried out before, as well as suggestions for research afterwards.

III. Result and Discussion

A. Common Reporting Standard (CRS) XML Schema Diagrams future reference

Simplifies the CRS report template that financial institutions use to report foreign customer financial information to the Directorate General of Taxes with the aim of being easier to understand and fewer data elements to fill in from the previous 134 data elements to 44 data elements. The first process carried out is to identify the usefulness of data elements through the process of providing a checklist of whether the data is needed or not needed and is optional or mandatory. An example of a checklist form over individual data elements in CRS is as follows.

TABLE I. Checklist Process in Domestic CRS Needs.

Element Data CRS	Type	Domestic CRS Needs	Elemet Data CRS New
Rescountrycode	Mandatory		Tin
Tin	Mandatory	v	Name (FirstName + LastName)
Issuedby	Optional		AddressCountryCode
NameType	Optional		AddressFree
PrecedingTitle	Optional		Nationality
Title	Optional		BirthDate
FirstName	Mandatory	v	PlaceofBirth
FirstNameType	Optional		
MiddleName	Optional		
MiddleNameType	Optional		
NamePrefix	Optional		
NamePrefixType	Optional		
LastName	Mandatory	v	
LastNameType	Optional		
GenerationIdentifier	Optional		
Suffix	Optional		
GeneralSuffix	Optional		
LegalAddressType	Optional		
CountryCode	Mandatory	v	
AddressFree	Mandatory	v	
Street	Optional		
BuildingIdentifier	Optional		
SuitIdentifier	Optional		
FloorIdentifier	Optional		
DistricName	Optional		
Pob	Optional		
PostCode	Optional		
City	Mandatory		
CountrySubEntiry	Optional		
Nationality	Optional	v	
BirthDate	Optional	v	
City	Optional	v	
CitySubEntity	Optional		
CountryCode	Choice		
FormerCountryCode	Choice		

In table I resulting from the analysis of the results of the identification of elements that are not used when the financial institution fills in the CRS, for example to form the Name column, only mandatory elements are needed , namely FirstName and LastName, for other types of names are not needed because they have an optional type . The template change is not used for data exchange between countries but is

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only used for domestic purposes where financial institutions make reporting of foreign customer financial information to the DGT as a tax authorization.

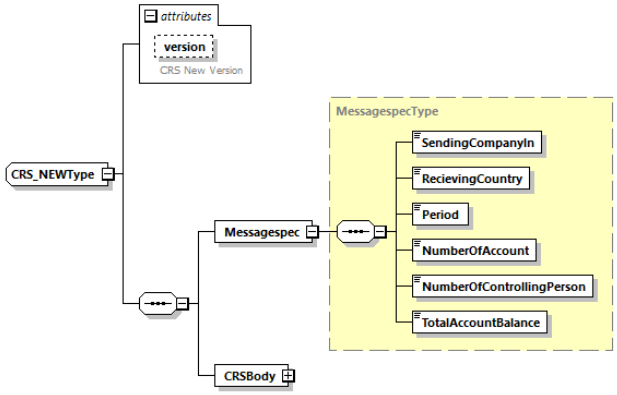

Fig. 1. Message Header Structure Results.

In figure 1, the result of simplifying the message header structure consists of 6 elements, all of which are mandatory, and one element, namely Receiving Country, the filling status must refer to ISO-3166 Alpha 2 country codes (international standard two-letter codes of countries in the world).

TABLE II. Messagespec Element Description Results

Element	Description	Size	Input Type	Requirements
SendingCompanyIn	NPWP LK	Unlimited	xs:string	Mandatory
ReceivingCountry	Destination Country Code	2-Char	Iso-3166 *Alpha 2*	Validation
Period	Reporting Period (yyy-mm-dd)		xs:date	Mandatory
NumberOfAccount	Number of Accounts		xs:integer	Mandatory
NumberOfControll...	Number of ControllingPersons		xs:integer	Mandatory
TotalAmountBalance	Total Balance		xs:integer	Mandatory

Explanation of table II: contains the main info in each report made by a financial institution, so the elements there tell an overview of each CRS report file created, because it contains the NPWP of the LK who made the report, the country code of the purpose of the report, and the period of the report.

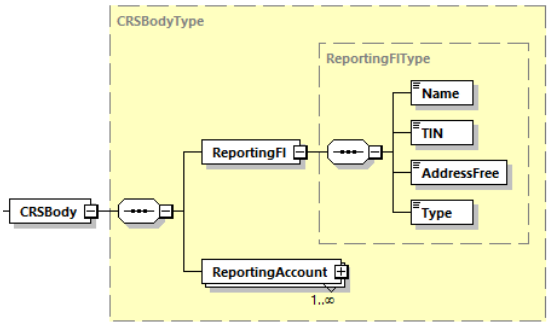

Fig. 2. ReportingFI Structure Results.

ReportingFI in figure 2 has four elements with a status of Mandatory. The use of AddressFree is because in Indonesia the writing of addresses is always combined in one column.

The explanation in table III is that the data elements describe the profile of the financial institution that makes reports such as the name of the financial institution, the tin of the financial institution, the address and type of the financial institution. The latter is an element that was deliberately newly created because it was needed by the DGT.

TABLE III. ReportingFI element description results

Element	Description	Size	Input Type	Requirements
Name	LK Name	Unlimited	xs:string	Mandatory
Tin	NPWP LK	15-Char	xs:string	Mandatory
AddressFree	Address LK	Unlimited	xs:string	Mandatory
Type	Type LK:CI = CustodianDI = Depository IE = Investment IN = Insurance	2-Char	FI_Type	Validation

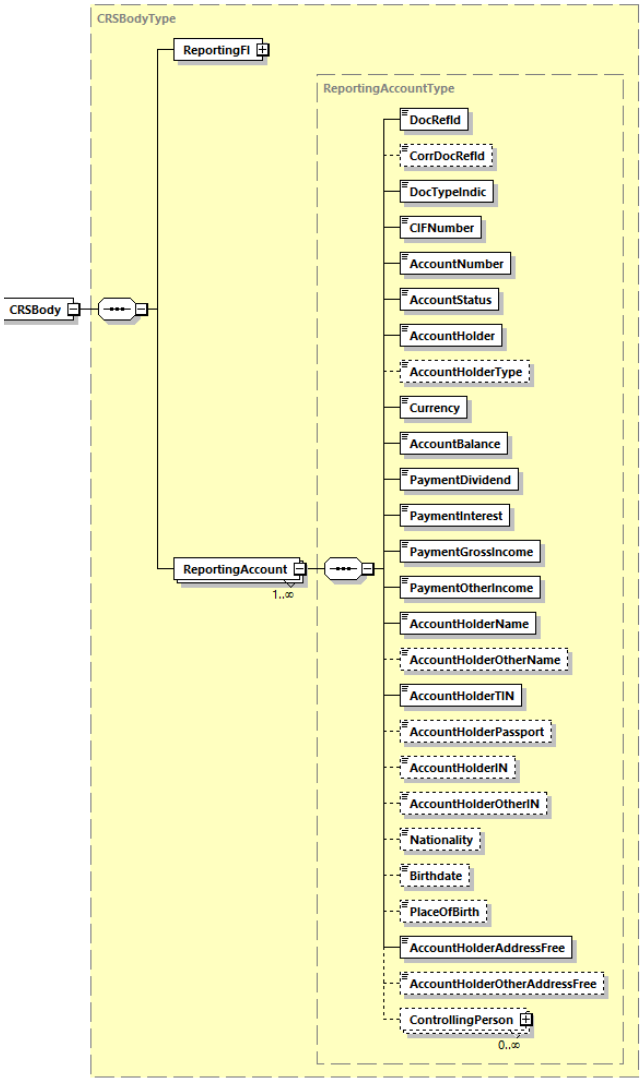

Fig. 3. ReportingAccount Structure Results

Figure 3 is an example of the result of simplifying the structure of the ReportingAccount which contains details of the reported account data including the data of the account owner, and The ControllingPerson, which is the person responsible if the account owner is an organization/entity.

The explanation in table IV is a breakdown of the financial account data elements submitted by financial institutions to the DGT. The primary key of this data is DocRefId, which is a unique code deliberately created by a financial institution whose format is made standard by the DGT. The default format

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is: ID+YearPeriode+NPWP15LK+Sequence 6 digits. For the AccountHolderPassport, Nationality, Birthdate, PlaceOfBirth elements are data that can be filled in if AccountHolderType = Individual. The AccountHolderIN, and AccountHolderOtherIN elements can be populated if AccountHolderType = Organization.

TABLE IV. Element ReportingAccount Description Results

Element	Description	Size	Input Type	Requirements
DocRefId	Data Unique Code	Unlimited	xs:string	Mandatory
CorrDocRefId	Corrected/deleted Data Unique Code	Unlimited	xs:string	Optional
DoctypeIndic	Data Type OECD0 = Resend OECD1 = New OECD2 = Corrected OECD3 = Deletion	5-char	DocTypeIndic_Type	Validation
CIFNumber	Account CIF Number	Unlimited	xs:string	Mandatory
AccountNumber	Account Number	Unlimited	xs:string	Mandatory
AccountStatus	Account Status 01 = Active 02 = Dormant 03 = Closed	2-char	AccountNumberType	Validation
AccountHolder	Types of Rec Owners Individual or Organization		AccountHolder_enumType	Validation
AccountHolderType		6-char	AccountHolderType_Type	
Currency	Currency	3-char	ISO 4217	Validation
AccountBalance	Balance		Xs:integer	Mandatory
PaymentDividend	Earnings (Ph) from Dividends		Xs:integer	Mandatory
PaymentInterest	Ph of The Flower		Xs:integer	Mandatory
PaymentGrossIncome	Gross Ph		Xs:integer	Mandatory
PaymentOtherIncome	Other Ph		Xs:integer	Mandatory
AccountHolderName	Name of The Owner of the Rec	Unlimited	Xs:string	Mandatory
AccountHolderOtherName	Other Names of Rec Owners	Unlimited	Xs:string	Optional
AccountHolderTIN	Rec Owner TIN	Unlimited	Xs:string	Mandatory
AccountHolderPassport	Rec Owner's Passport	Unlimited	Xs:string	Optional
AccountHolderIN	Identity of Rec Owner (Agency)	Unlimited	Xs:string	Optional
AccountHolderOtherIN	Other Identities of Account Owners (Entities)	Unlimited	Xs:string	Optional
Nationality	Citizenship of Rec Owner	2-Char	Iso-3166 *Alpha 2*	Optional-Validation
Birthdate	Date of Birth		Xs:date	Optional
PlaceofBirth	Place of Birth	Unlimited	Xs:string	Optional
AccountHolderAddressFree	Address of the Rec Owner	Unlimited	Xs:string	Mandatory
AccountHolderOtherAddressFree	Other Addresses of Rec Owners	Unlimited	Xs:string	Optional

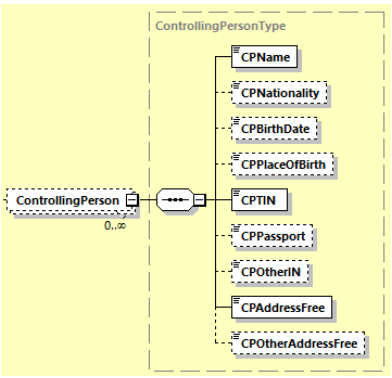

Fig. 4. ControllingPerson Structure Results

In figure 4 the structure of the ControllingPerson who the person in charge of an organization-type account.

Table V explains the details of the ControllingPerson element, for mandatory there are only 3 elements, namely CPName, CPTIN, and CPAddressFree because those 3 elements are the basic elements when foreign customers open an account at the Bank.

TABLE V. ControllingPerson Element Description Results

Element	Description	Size	Input Type	Requirements
CPName	CP Name	Unlimited	xs:string	Mandatory
Nationality	Cp Citizenship	2-Char	Iso-3166 *Alpha 2*	Optional-Validation
CPBirthDate	CP Date of Birth		xs:daye	Optional
CPPlaceOfBirth	Cp's Place of Birth	Unlimited	xs:string	Optional
CPTIN	Tax Identification Number CP	Unlimited	xs:string	Mandatory
CPPassport	CP passport	Unlimited	xs:string	Optional
CPOtherIN	Other Identities of CP	Unlimited	xs:string	Optional
CPAddressFree	CP address	Unlimited	xs:string	Mandatory
CPOtherAddressFree	Other Addresses CP	Unlimited	xs:string	Optional

B. Matching Results of Common Reporting Standard Data Contents

The result of the reduction of CRS data elements from 143 data elements to 44 data elements can be essentially proven by the following steps:

- Choosing sample data from financial institution reports at random as many as 3 reports.
- Forming a report with such data using a 143-element CRS.
- Do the same with step 2 using CRS 44 elements.
- Compare the results obtained from step number 2 with the results obtained from step number 3.

An example of the results of report comparison activities on ReportingFI can be seen in the following figure.

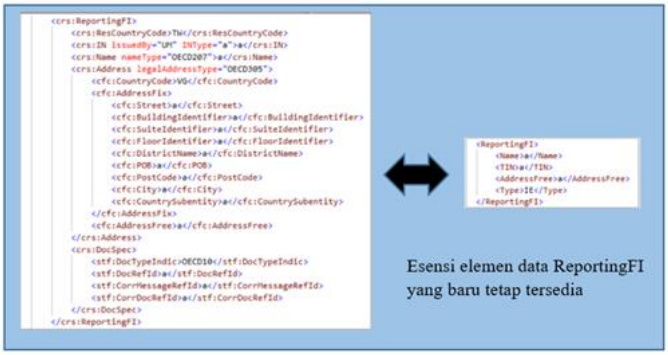

Fig. 5. Benchmarking results of the contents of the Reporting FI data element

The explanation in figure 5 is that the elements in ReportingFI CRS143, totaling 22 elements, were successfully reduced to 4 elements in CRS44 by not changing the essence of the contents of ReportingFI, with the explanation:

RestCountryCode. Not used because domestic reports in Indonesia have been confirmed that this element is of ID (Indonesia) value.

Issuedby. Attribute is of type optional, and can be ascertained to be the same as receivingcountry in MessageSpec.

INType. The type of Identity for the Financial Institution (FI) requested is the TIN, so the IN element is changed to a TIN.

NameType. Attribute is of type optional, for FI in the default it becomes legalAddress.

CountryCode. Not used because it is the same as RestCountryCode.

AddressFix group. Not used, because the writing of FI addresses in Indonesia is combined in one column, there is no need to separate them.

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DocSpec Group. Is not used, because on domestic reporting the change in fi main data must be preceded by a change in the Taxpayer MasterFile.

C. Report Validation Speed Comparison Results

CRS reports created using CRS with 143 data elements compared to CRS with 44 data elements have a difference in speed for their XSD validation because in addition to the smaller number of data elements, the level of depth of xml tree on CRS with 44 elements is not much. Here's a comparison of validation speeds using Altova XML Spy software.

TABLE VI. Report Validation Speed Comparison Results

XML File Name	XSD CRS version	Vadation Speed (milli second)
DataExampleCRS_143.XML	CRS 143 data elements	46 milliseconds
DataExampleCRS_44.XML	CRS 44 data elements	27 milliseconds

In table VI , you can see a comparison of the validation speed of an XML file with 44 data elements 46% faster than the validation speed of an XML file with 143 data elements.

IV. CONCLUSION AND SUGGESTION

From the analysis stage carried out, a design of Common Reporting Standard (CRS) report data elements was obtained, which had fewer data elements than before amounting to 143 elements to 44 elements by not changing the essence of the contents of the CRS report data and providing a 46% faster CRS report file validation speed, and the design of the EOI system to receive reporting, process and integrate CRS files.

Based on the conclusions above, the suggestion that can be used as input to the Directorate General of Taxes is the need to validate the results of the CRS design to external parties (financial institutions) so that they can be equipped with shortcomings if there are unidentified data elements used, and can be a reference for further research that simplification of this element can still be used in exchanges between countries according to OECD CRS standards.

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