Indirect Taxes & Customs duties

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Scope

The Audit Data Collection ISO 21378:2019 (ADCS) defines the functional requirements for exchanging audit data in flat file format. This document concerns the proposed extension of the standard for the exchange of additional data relevant to indirect taxes and customs duties that are not yet covered by the international standard Audit Data Collection ISO 21378:2019.

Reading guide and introduction to discussion points

In this overarching document we will start with describing why an extension on the ISO21378:2019 for indirect tax and customs duties is needed. For ease of reading, in this section we refer to this as “taxation”. In the following section, we describe the steps taken to examine both the legislative perspective and transaction processing for taxation in ERP systems. Since it has been recognised that indirect taxation covers a broad spectrum and that ERP systems deal with it in different ways, the model of "tidy data" is introduced as a potential viable solution. Based on a pilot project and some case studies, we believe that this is the right direction to take and we have further developed the concept for taxation based on this method. It is therefore essential that you agree with this approach. If not, there is less point in discussing the other parts.

Decision item 1: Do you basically support the concept of tidy data as a viable solution for the extension of the current ADCS standard?

We encourage you to identify flaws in the “tidy data” concept to be used for taxation purposes. We should distinguish between defects that can be overcome and those that cannot. In the latter case we have to assess the importance, frequency etc of the identified flaw. We kindly invite you to present alternative solutions, especially when you don’t support the suggested approach.

As mentioned, the concept is being further explored for taxation, but only after a straightforward example from another discipline has been worked out. The aim is to explain the concept thoroughly so that you can understand it well. It was one of our own experiences that although the concept feels good at first glance, it is still a challenge to fully understand it and appreciate its potency.

For sound use we have extended the concept of tidy data with a few additional attributes which are needed in our view. The next discussion item is whether you support the proposed table structure, that some attributes should be excluded or others included.

Decision item 2: Do you support the proposed table which consists of the suggested attributes: Table, Key, Row, TaxJurisdiction, Tax Type, Characteristic Type, Characteristic UOM, Value, System value

We would like to invite you to test the model using your own practical examples applicable in your country. In this way, we can explore the model together in order to optimise it further.

As you work out the details, you will realise that it is of the utmost importance to agree on the naming conventions, possible domain values etc. for the attributes *TaxJurisdiction, Tax Type, Characteristic Type* and *Characteristic UOM* and future governance. There is a lot of work to be done in this respect and we would like to invite you to contribute to it. Reference is made to section “Application for indirect taxes and customs duties” in this document.

Other decision items might pop up as do we want a single “Characteristic” table for all taxes or multiple tables (e.g. per module or other dimensions)?.

Finally, it is also proposed to include an optional, dedicated transaction table for VAT ledger and/or stock movements relevant for customs duties / excise. The added value of this for the auditor is briefly discussed. The coherence with the characteristic table is also briefly discussed.

Decision item 3: Do you support adding optional dedicated tables to exchange transaction data for VAT and customs duties?

Please note that the design of these dedicated table(s) has to be developed further.

We refer to the other documents:

- draft ISO Audit Data Collection Standard - Customs Extension V0.1.docs which provides more details on customs duties
- draft ISO Audit Data Collection Standard - VAT extension V0.1.docx which can be viewed as a supporting document containing more details on VAT;

Finally, we thank you for your patience so far. It has been a difficult decision to decide when the documents were mature enough to share with you so that your time could be used sensibly. The initial study work has been done and it has not been easy to describe the concept properly. We appreciate your understanding that the documents are quite comprehensive in some respects and not yet in others.

Arnold Roza (NL)
27 July 2021

Why is an extension for Indirect Taxes & Customs duties appropriate?

Relevance of Indirect Taxes

Almost all countries levy general consumption taxes, i.e. taxes on the sale of most goods and services to consumers. In the vast majority of those countries, this tax is a VAT[1], i.e. a tax collected at all stages of the processes of production and distribution of goods and services, accumulation of the tax being prevented by allowing businesses to deduct the tax they incur on their inputs from the tax they collect on their outputs.[2]

As of 1 January 2014, 164 countries in the world have implemented a VAT, i.e. 46 in Africa, 1 in North America, 18 in Central America and Caribbean, 12 in South America, 28 in Asia, 51 in Europe and 8 in Oceania[3]. VAT raises, on average, about 25 percent of their tax revenue.

Given the growing significance of indirect taxes, it is understandable that the authorities have an interest in monitoring compliance with the laws and regulations in this area and are increasingly doing so. To this end, auditing is an important tool. Recently, there has also been a tendency to audit taxes more extensively as part of the audit of financial statements because of their importance and because of society's demand for transparency.

Relevance of Customs duties

Trade in goods between countries is controlled by the customs authorities, and import duties may be levied. The import and export of goods is still increasing due to the growth in world trade.

Another global trend is shifting customs work from physical and direct supervision to administrative post-clearance checks and audits, which are more indirect in nature.

The importance of reliable and transparent data is vital for Customs to carry out its fiscal and non-fiscal tasks in a safe, flexible and efficient manner with as little burden as

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[1] Please read Value-Added Taxes which includes GST (Good & Services Tax) as well as VAT.
[2] https://read.oecd-ilibrary.org/taxation/consumption-tax-trends-2014_ctt-2014-en#page11

[3] https://read.oecd-ilibrary.org/taxation/consumption-tax-trends-2014_ctt-2014-en#page170

possible for "trusted" citizens and companies. This saves time, which can be used for helping 'ignorant companies' and to fight malicious parties.

Need for data standard for Indirect taxes & Customs

To a large extent, companies manage their business with the help of ERP systems, and the supply of goods and services is an integrated part of business processes. As indirect taxes and customs duties may be involved at some steps in the business process, many ERP systems have functionality to support the management of indirect taxes and custom affairs. Two clear examples to illustrate where ERP systems are involved are the charging of VAT when issuing sales invoices and the recording of the customs status of goods.

Increasing complexity in laws and regulations in this area results in the need to record more and more specific data for the calculation and management of indirect taxes and customs duties. As indirect tax and custom audits are more targeted audits, the specific data recorded for indirect tax and customs management, should be used in addition to the more standardised business data in this regard.

The current ISO-standard defines the standardised business data for financial audits. In order to apply the standard also for indirect taxes and customs audits, it is appropriate to define an extension for the specific data elements.

Survey on additional data characteristics for indirect taxes and customs duties

Reconnaissance of indirect taxes and customs duties

The OECD report "Consumption Tax Trends 2020- VAT/GST and Excise Rates, Trends and Policy Issues", which lists the general features identified by them, was used as a sound reference to start the survey. This report is compiled by a group of experts, is updated annually and provides an overview of the main characteristics. In addition to this report, team members / ISO experts have contributed additional attributes and have categorised the identified attributes.

Supply of goods and services

Based on the survey it can be recognised that for a tax jurisdiction, the applicable tax treatment (taxed or exempt) and tax rate might differ. At a jurisdictional level, the actual tax treatment may result from the tax rate applicable to the:

- **Product/item**: e.g. reduced rate for food, standard rate for telecommunications and super rate for luxury goods;
- **BusinessPartner**: e.g. standard rate for regular consumers, zero-rate for embassies/UN-organisations;
- **Place of supply**: zero-rate/exempt for supply abroad, reduced rates for specified regions, zero-rate for free trading zones, VAT warehouse;
- **Size of the business of the taxpayer**: e.g. regular versus small-scale taxpayers
- **Type of industry**: for certain types of industries specific rules might apply.

The actual result might also be based on a **combination** of the listed above.

Purchase of goods and services

Taxes like VAT and GST do allow taxpayers to deduct input tax[4] if these contribute to their taxed business. The right of deduction is subject to certain conditions that must be met. The deduction by the taxpayer may concern the whole amount of input tax paid or a part thereof.

In most countries, there are a variety of rules which block or partially block the deduction of input tax. Firstly, the deduction may depend on the availability of relevant

[4] An input tax is a levy paid by a business on acquired goods and services.

evidence that the input tax has actually been paid to another taxpayer, self-declared using the reverse charge mechanism and/or paid to customs or tax authorities. Secondly, input VAT may not be deductible at all or not be fully deductible due to the nature of the transaction. For example, it is common that the deductibility of input tax on more consumption-related expenses is blocked, e.g. input tax paid for meals taken in restaurants, expenses for motor vehicles that are also used privately, etc.

For audit purposes, therefore, the relevant data might include characteristics such as the amount of input tax paid, the party to whom it was paid, the nature of the transaction, the deductible amount, the reason for excluding it, among others.

Inbound of goods

For customs duties, the inbound of goods in bonded warehouses, do require specific characteristics as well like the country of origin, custom status of the goods, the HS-code[5] amongst other characteristics. This might be applicable for excise duty good movements as well.
For the sake of completeness, it should be noted that import duties paid are in principle not refundable, even when goods are exported.

What characteristics are used by ERP systems?

Next step taken was to identify how main ERP-systems[6] deal with indirect taxes and Customs duties, which characteristics are used by these systems, how the applicable data is structured/archived and which data elements are already covered by the current standard.

The typical data characteristics that are out there in ERP-systems are mainly related to product/items, business partners, the place of supply, the status of warehouses involved and the deductibility of input tax.
It has also been recognised that ERP systems have widely divergent ways or solutions for processing the relevant characteristics and storing the data in their tables. The characteristics might be processed as transactional data, as master data or as configuration data. One common feature is that most ERP systems will create a subledger for VAT.

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[5] The Harmonized System is an international nomenclature for the classification of products. It allows participating countries to classify traded goods on a common basis for customs purposes.

[6] The team has studied systems with a global focus like JD Edwards, Microsoft Dynamics, Oracle and SAP/R3 and some systems with a more regional focus like Unit 4 Agresso and Exact. It is understandable that not all less common ERP systems are known to the experts.

Introduction to the proposed extension

About “messy data” and “tidy data”

Both the variety of software solutions and the additional characteristics required for indirect taxes and customs duties make it virtually impossible to define one or a few standardised data tables containing all the characteristics that may be required. The VAT sub ledger may be the exception to the rule. Such a model would neither do justice to most ERP systems nor satisfy the auditor's needs at the same time. Such data tables would be a challenge not only for the software developer who has to populate them, but also for the auditor who has to interpret the complex data structures. This approach would result in so-called “messy data”.

Despite the lack of an unambiguous definition of messy data, it is felt that complex data structures should be avoided because they tend to be too technical, time-consuming and error-prone.

The solution proposed is a variant of what is suggested in the literature as "tidy data" or “molten data”[7]. A data set shall be considered as "tidy data" when it complies with all of the following conditions:

1. Each variable forms a column.
2. Each observation forms a row.
3. Each type of observational unit forms a table

In its most basic form[8], "tidy data" has only three attributes: the observation identifier, the reported characteristic of the observation and it’s value.

[7] https://vita.had.co.nz/papers/tidy-data.pdf *Tidy Data - Hadley Wickham*

[8] *This is Codd’s 3rd normal form (Codd 1990), but with the constraints framed in statistical language, and the focus put on a single dataset rather than the many connected datasets common in relational databases.*

Figure 1 - remodelling a data set to a “tidy data” set

data set “I”

row	a	b	c
A	1	4	7
B	2	5	
C	3	6	9

data set “II”

row	column	value
A	a	1
B	a	2
C	a	3
A	b	4
B	b	5
C	b	6
A	c	7
C	c	9

Data set “I” contains 8 collected values for 3 entities. Please note that for entity “B” no value was captured for attribute “c”. The same data could be represented as data set “II”. Each of the attributes in data set “I” is represented in the attribute “*column”* in data set “II” followed by the related value.

This approach proves to be quite flexible and easily expandable, while also avoiding redundancy. Applying this approach to data exchange for indirect taxes and customs duties would overcome most of the observed challenges. The structure of data set II is more easy to populate for software providers and fully prepared for (statistical) data analysis performed by auditors.

Some modifications to the basic concept are required

As the concept of tidy data for indirect taxes and customs duties will be introduced as an extension of the current ISO standard, it cannot be copied 1:1. It cannot be implemented as a free-floating concept, but requires links with existing tables to make it meaningful data and at the same time avoid redundancy. We will deal with this in the next section.

The VAT and customs duties ledger

In theory, the tables of the current ISO-standard already contain the transaction data for VAT and customs duties as they are based on business events. The tables with the source data for sales, purchases, general ledger movements, stock movements etc. also contain the details of the transactions in scope for VAT and customs duties. The impression may arise that there is therefore no need to define additional tables, apart from the characteristics extension.

However, we believe there is much added value for the auditor to include optional tables for the VAT ledger and/or customs ledger if applicable. Some ERP systems maintain a specific sub ledger for VAT control and reporting purposes. Some dedicated inventory systems might also record a customs duties ledger. In these cases, the transactions are classified according to the treatment for VAT and customs purposes. The reporting level then might differ from the source tables. The availability of these data facilitates the auditors by various means as:

- the link with the VAT or customs duties reported is more direct (as some ERP-systems and their users base their VAT/customs duties directly on these dedicated ledgers);
- they could opt, for efficiency reasons, for requesting only the VAT or customs ledger subsets instead of the source data sets;
- be able to apply data analyses directly to the relevant transactions without first isolating the data from the total data set

We would like to underline that in our view these tables should be technically optional with the understanding that it is mandatory if the ERP-system creates such a sub ledger but can leave it empty if these ledgers are missing. It is not the intention to prescribe the recording of VAT in this way.

Characteristics for indirect taxes and customs duties

Link the observation to entries in other tables

The additional characteristics regarding a transaction should be linked to relevant tables which hold data regarding that same transaction. In its core concept a sole identifier could be sufficient. An observation of a specific characteristic for a single transaction can be linked as “row” by using the transaction identifier.

> For example, if for sales invoice 202100002 the observation is that the item sold, is taxed for VAT at zero rate (Z), then it is sufficient to fill the three columns as follows:
>
> ```
> Row    : 202100001,
> Column : indirect tax status
> Value  : Z
> ```
>
> If multiple items are sold and some of these are taxed against standard rate and others against zero rate then further details are needed to link the characteristic to the relevant line. This could be done by concatenating the sales invoice number with the applicable line id (e.g. `202100001-0001`).

However reality is more complex. Depending on the type of the characteristic, the link might not be as straightforward as the example above. Various tables might be involved. This not only depends on the characteristic type itself, but is also dependent on the method applied by the ERP-system, how the auditee makes use of the system and not in the last place the nature of the business transactions. We will take a brief detour to explain this further.

It may seem obvious that tax characteristics applicable to sales transactions should relate to a different table than tax characteristics applicable to purchase transactions. Sales transactions are likely to be linked to a “SAL table” as SAL_Invoices_Generated and purchase transactions to a “PUR table” as PUR_Invoices_Received. However, some of these transactions may also or exclusively relate to a table such as GL_Details. Whether this is the case depends on the functionality of the ERP system used and its operation by the auditee.

In the example above, for auditing a trading company which buys and sells goods at zero rate, the auditor must have a means of distinguishing the characteristics according

to the type of business transaction. The transaction number could be ambiguous as it could refer to both sales and purchase transactions.

There are two concepts to deal with this issue. One option is to design an extension for indirect taxes and customs duties for each applicable table. The number of required tables will quickly grow as the characteristics can relate to different modules, their tables and also on document or line item level. This quickly leads to proliferation, which is detrimental to standardisation.

A basic and more flexible solution is to include an identifier to the applicable table and the relevant column to facilitate a join. In that approach a single table as the extension is sufficient. We will demonstrate this by extending the example above.

If we add a reference to the applicable table we can differentiate between the different business transaction types. The extended table structure for the extensions will be populated as follows for a sales transaction:

```
Table  : SAL_Invoices_Generated_Details
Key    : Invoice_ID - Invoice_Line_ID
Row    : 202100001-0001
Column : indirect tax status
Value  : Z
```

For a purchase transaction a row or the table might look as follows:

```
Table  : PUR_Invoices_Received_Details
Key    : Invoice_ID - Invoice_Line_ID
Row    : 3800432-0001
Column : indirect tax status
Value  : Z
```

With this approach, the entries can be interpreted unambiguously. It also gives the ERP system the flexibility to use their own methodology for processing and storing the characteristics without the need for complex transformations in order to populate the extension table for indirect taxes & customs duties.

Split each variable in multiple columns and define applicable common entries for the variables

Introduction

It is important to note that in the proposed extension, several diverse data entities are combined in one table. We can do so as the structure is always consistent: row, column, value, and by adding semantics for each row. Distinction between the various data elements can be achieved by defining very precisely in the column what kind of data is exchanged.

Generic example to illustrate

We illustrate the concept with a trivial example in which we combine the temperature and the amount of rain for a few days into a single table. Usually these data are listed in two individual tables or separate columns. In this figure, our starting point are the two tables below:

Location: Netherlands - De Bilt

Date	Average temperature
2020-06-17	24.0
2020-06-18	22.4
2020-06-19	18.1
2020-06-20	19.0

Date	Precipitation rate
2020-06-17	0.0
2020-06-18	18.4
2020-06-19	10.2
2020-06-20	9.7

When applying the proposed concept, both tables will merge into a single table as pictured below.

Row	Location	Characteristic Type	Unit of Measure	Value
2020-06-17	NL, De Bilt	Average temperature	Degrees Celsius	24.0
2020-06-17	NL, De Bilt	Precipitation rate	mm/day	0.0
2020-06-18	NL, De Bilt	Average temperature	Degrees Celsius	22.4
2020-06-18	NL, De Bilt	Precipitation rate	mm/day	18.4
2020-06-19	NL, De Bilt	Average temperature	Degrees Celsius	18.1
2020-06-19	NL, De Bilt	Precipitation rate	mm/day	10.2
2020-06-20	NL, De Bilt	Average temperature	Degrees Celsius	19.0
2020-06-20	NL, De Bilt	Precipitation rate	mm/day	9.7

We explain the rows and columns in detail below:

Observation
The observation consists of the date and the location of the weather station. Both attributes are needed to make sense. The measured values are only valid for a certain day at a certain time. In this case we have opted to use the ISO-code and the municipality to express the value for the location; another option is to use the coordinates according to the system Universal Transverse Mercator Projection (UTM) . For the date the format YYYY-MM-DD is being used in the example.

We can easily add rows for other locations around the globe such as CN-Guangzhou, FR-Paris, JP-Osaka and US-Portland.

Variable
The tidy data concept instructs us to include just one variable per row. As in the weather example two different variables are recorded, we should explain for each row what type of the variable was measured. We will call this Characteristic Type. It is essential to define unambiguously what each Characteristic Type represents.

We can easily add rows for other variables such as sunshine duration, daily mean wind speed, maximum wind guts, Medium cloud cover and others. The types of variables that can be added to the table are in principle not limited. Having said that, it does seem appropriate to limit the types of data on the basis of the context of the measured data. The experts must provide guidance here and, in consultation, determine which series of data can be meaningfully included and preferably also agree on the measurement method.

Value
Numerical values, symbols, etc. have no meaning unless the unit of measurement is stated. For example, it must be clear that the temperature is recorded in Celsius or Fahrenheit. Only then can the measured values be interpreted meaningfully and possibly converted from one value to the other.
In the example of the weather, all values are numerical. It is also possible to include categorical values by referring to the appropriate domain values in the unit of measurement. We will describe this later when we will work out the concept in more detail for Indirect Taxes and Customs Duties in the next section.

Application for indirect taxes and customs duties

In this section, we apply the above insights to the realm of indirect taxes and customs duties.

Observation
Earlier in the document it was described how observations can be linked to other data via the defined tables. To complete an observation, it is also required to specify the relevant tax jurisdiction in addition to the linked transaction. An observation of a variable concerns, for example, Dutch VAT, or Chinese GST, or European customs duties, to name but a few. Suggestion is made to use the following attributes:

- Tax jurisdiction
- Tax types

Tax jurisdiction

Indirect taxes might be levied on a national basis, e.g. VAT in the EU, but also on a lower level as sales tax in the USA. Some countries have a hybrid tax system like in Canada and India who are charging indirect tax at a national level and at a state/provincial level[9]. To deal with this in a meaningful way, it is recommended to introduce the concept of tax jurisdiction. The Working Group should also agree upon the classification by tax jurisdiction. For taxes which are levied on a national level, we suggest using the ISO-country-codes. For levies on lower levels, the applicable local codes can be used. Some levies are at supranational level and for these the applicable codes should also be added; e.g. Customs duties are levied at an EU-level instead of a Member State level. Example of table:

TaxJurisdiction	ISOCountry	Description
AT	AT	Austria
BE	BE	Belgium
CA	CA	Canada
CA-BC	CA	Canada: British Columbia
CA-ON	CA	Canada: Ontario
ES	ES	Spain: mainland
ES-CN	ES	Spain: Canary Islands
ES-CE	ES	Spain: Ceuta
EU	EU	European Union Taxation and Customs Union

[9] There are a lot of other cases, for example Spain which has a different VAT regime for Canary Island, Ceuta and Mellila from the mainland.

Tax Type

The aim of the Working Group is to propose a method which is applicable to multiple indirect tax types and customs duties. Some examples of indirect types are: VAT, GST, insurance tax, carbon right, and so on.

It should be a task of the Working Group to compile an exhaustive list of tax types for indirect taxation for which data can be included. Examples of values:

Tax Types	Description
GST	Goods & Sales Tax
VAT	Value Added Tax
Customs duties	Levy on goods when they cross a designated border in a specific direction
Excise duties	Duty on manufactured goods that is levied at the moment of manufacture rather than at sale
Carbon Tax	Tax levied on the carbon emissions
INTRASTAT	Intrastat reporting within EU
PST	Provincial Sales Tax
HST	Harmonized Sales Tax

It is a matter of preference whether to include the additional attributes for indirect taxes and customs duties in one column - using the technique of concatenation - or to list them in two columns. When using concatenation, an entry may look like “BE;VAT”, “CA;GST”, “CA-BC;PST”.

Variables

It is also required that the working group compiles an exhaustive list of the features that can be exchanged via the extension. Which characteristics should be defined depends on the countries and taxes in scope. Future maintenance by the TC might be applicable.

Example of values:

Characteristic Type	Description
GoodsServiceIndicator	Attribute to differentiate between goods and services
Tax Status Item	Attribute for tax status/value that is applicable for a specific product or service (e.g. to differentiate between standard rate, reduced rate, superrate, exempt, ...)
Tax Status Business Partner	Attribute for tax status/value that is applicable for business partner (e.g. to differentiate between business, private individuals , exempt, ...)
Tax Status Place of Supply	Attribute to differentiate between various regimes (e.g. zero-rate/exempt for supply abroad, reduced rates for specified regions, zero-rate for free trading zones, bonded warehouse)
Alcohol by volume	Attribute for how much alcohol (ethanol) is contained in a given volume of an alcoholic beverage
Statistical Value	Attribute for the statistical value, the value at the border of the. reporting country, including all costs for. transportation.
Harmonized Commodity Description and Coding System	Attribute for to classify traded products

Other examples for characteristics to add to the table are Tax Rate, Tax Amount, Tax Point Date, Amount Deductible, Amount Nondeductible, Net Weight, Gross Weight, Freight Cost, Insurance Cost, Netto Quantity to name a few.

Values

As in the weather example, for Indirect Taxes and Customs duties the Unit of Measurement of the involved Characteristic Type should be added as well. It seems natural to use commonly used codes to express the UOM. Like KG for mass, or EUR and RMB for currencies etc. But on second thought, this can cause ambiguity if the definition used is not clear or missing. Furthermore, this system is not directly applicable or works restrictively for categorical values. This is precisely where reference tables are needed. To resolve this, we propose adding the definition used to the UOM, so that almost any confusion can be ruled out by using a concept like “namespaces”. This makes the system very flexible. We will briefly elaborate on that.

Examples of numerical values

For currencies, ISO 4217 might be used. A typical notation would be: {ISO 4217}EUR, which means that the value is expressed in the currency of the euro.

For mass the unit of measure according to the World Customs Organization might be used. A typical notation would be: {http://www.wcoomd.org}KG which means that the value is expressed in kilograms according to the definition of the WCO.

Examples of categorical values

For the Harmonized Commodity Description and Coding System the World Customs Organization can be used: {wcoomd.org:2017}[10].

To express shared values for standard rate, reduced rate etc. We might adopt the coding system as used by PEPPOL / UBL[11]. The suggested Characteristic UOM would be {https://edi3.org/vocabulary/uncl5305/}[12], which means that the value is expressed in the code UNCL5305

Please note that the system has the flexibility to use the coding system of {https://edi3.org/vocabulary/uncl5305/} for the EU market and can serve other standardized sets in other regions or countries. It goes without saying that the number of supported coding systems per characteristic should be kept to a minimum.

The main task of the working group is to agree on standard datasets for each characteristic type, preferably one per type or, alternatively, a few per type. Sound governance is essential to maintain a compact yet flexible dataset.

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[10] If the value for the classification of the product is 2501.00 the the full description will be: Salt (including table salt and denatured salt) and pure sodium chloride, whether or not in aqueous solution or containing added anti-caking or free-flowing agents; sea water

[11] PEPPOL adopts the work products of CEN/TC434 and CEN/TC440 that include UBL customizations and syntax serializations of different document types for European business processes. The goal of PEPPOL is to enable public procurement across borders within the EU.

[12] If an item has the value S, the meaning can be interpreted unambiguously:

@id: uncl5305:Standard_rate
@type: uncefact:UNCL5305Code
Comment: Code specifying the standard rate.
rdfs:comment: Code specifying the standard rate.
rdf:value: **S**

Apply UOM to prior examples

The updated example when applying the concepts of this section:

If we add a reference to the applicable table we can differentiate between the different business transaction types. The extended table structure for the extensions will be populated as follows for a sales transaction:

```
    Table                : SAL_Invoices_Generated_Details
    Key                  : Invoice_ID - Invoice_Line_ID
    Row                  : 202100001-0001
    TaxJurisdiction      : NL
    Tax Type             : VAT
    Characteristic Type  : Tax Status Item
    Characteristic UOM   :
{https://edi3.org/vocabulary/uncl5305/}
    Value                : E

    Table                : SAL_Invoices_Generated_Details
    Key                  : Invoice_ID - Invoice_Line_ID
    Row                  : 202100001-0001
    TaxJurisdiction      : NL
    Tax Type             : VAT
    Characteristic Type  : GoodsServiceIndicator
    Characteristic UOM   : ISO 21378:2019[13]
    Value                : G
```

[13] As the expected domain will have only a few values: G and S, we suggest the absence of an external reference table which will mean that these values are defined within ISO 21378:2019.

System value

It was described in the previous section that expressing the value in UOM has advantages for the (tax) auditor as it can be interpreted unambiguously. This offers the possibility to apply standard data analyses, independent of the system from which the data originates. This is a great advantage in terms of the effectiveness and efficiency of controls. It is likely that for some of the features the ERP system has a different value than the one for UOM.

Conversion to UOM is therefore necessary. Nevertheless, it also has added value to include the system value of the feature. This has several advantages for auditors as:

- they can check the consistency of the mapping over time;
- they can check the value in the system (preservation of the audit trail)
- easier communication with the auditee that recognises their "own" values

Our recommendation is to include an additional column that can report the system value if applicable.

In the prior example, the reported value for Characteristic Type Tax Status Item is “E” with Characteristic UOM {https://edi3.org/vocabulary/uncl5305/}. In the ERP system the value for “exempt” of the tax item status might be recorded with another value, e.g. 0.

The updated first row for example when adding the system value might be:

Adding System Value

```
    Table                : SAL_Invoices_Generated_Details
    Key                  : Invoice_ID - Invoice_Line_ID
    Row                  : 202100001-0001
    TaxJurisdiction      : NL
    Tax Type             : VAT
    Characteristic Type  : Tax Status Item
    Characteristic UOM   :
{https://edi3.org/vocabulary/uncl5305/}
    Value                : E
    System value         : 0
```

No direct system value might be available

We note that not always a system value might be available as an ERP system might calculate the characteristic based on multiple values instead of recording a single value. We illustrate this with an example where goods are exported to another country.

Suppose ERP system A explicitly states in the header data of the sales invoice that the supply in question is an export. The example could then look as follows:

With system value

```
    Table                : SAL_Invoices_Generated_Details
    Key                  : Invoice_ID
    Row                  : 202100099
    TaxJurisdiction      : NL
    Tax Type             : VAT
    Characteristic Type  : Tax Status Item
    Characteristic UOM   :
{https://edi3.org/vocabulary/uncl5305/}
    Value                : G[14]
    System value         : EXP
```

Suppose ERP-system B does not explicitly state that the delivery in question is an export, but determines by means of the data ship-from and ship-to that it is an export. For example, from China to France. We suggest leaving the system value **empty** in this case because there is no direct 1:1 relation to avoid too much complexity. The example could then look as follows:

Without system value

```
    Table                : SAL_Invoices_Generated_Details
    Key                  : Invoice_ID
    Row                  : 202100099
    TaxJurisdiction      : NL
```

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Free_export_item_tax_not_charged
@id: uncl5305:Free_export_item_tax_not_charged
@type: uncefact:UNCL5305Code
Comment: Code specifying that the item is free export and taxes are not charged.
rdfs:comment: Code specifying that the item is free export and taxes are not charged.
rdf:value: G

```
    Tax Type             : VAT
    Characteristic Type : Tax Status Item
    Characteristic UOM  :
{https://edi3.org/vocabulary/uncl5305/}
    Value                : G[15]
    System value         : null
```

Summary

The proposed design of the Characteristic Table

If we summarise this section, then we need to discuss whether the Cto be agreed upon:

- Table
- Key
- Row
- TaxJurisdiction
- Tax Type
- Characteristic Type
- Characteristic UOM
- Value
- System value

[15] Free_export_item_tax_not_charged
@id: uncl5305:Free_export_item_tax_not_charged
@type: uncefact:UNCL5305Code
Comment: Code specifying that the item is free export and taxes are not charged.
rdfs:comment: Code specifying that the item is free export and taxes are not charged.
rdf:value: G

The VAT and customs duties ledger

Relevant tax attributes

In the introduction to the proposed extension we briefly discussed the advantages of including tables for sub ledgers. In this section we will elaborate further on the VAT ledger.

VAT Ledger

The VAT ledger typically records per system tax code, which with a propriate setup should indicate the VAT treatment, the attributes that are relevant for tax reporting. The most common attributes are:

- Tax identification number reporting company
- Tax jurisdiction
- Tax document ID
- Tax line ID
- Tax type
- Tax code
- Tax point date
- Tax base in document currency
- Tax base in reporting currency
- Tax amount in document currency
- Tax amount in reporting currency
- Tax amount payable/deductible in reporting currency
- Tax amount non-payable/non-deductible in reporting currency
- Tax percentage
- Tax identification number business partner
- Document type
- Document reference

We would like to stress that the list above is for the moment a provisional list of attributes that may be limited or extended based on future discussions and study.

We also mention for the clarity that when the ERP-system does not create a separate tax ledger, the relevant attributes should be reported through the characteristics if applicable.

We will briefly comment on each attribute as a starting point. Further work is needed on this.

Tax identification number reporting company
The identification number for the company that will report the tax lines to the tax authority.

Tax jurisdiction
A company/legal entity can have multiple tax registrations in various countries. The value should uniquely identify the country in which the tax transaction should be reported. Please note that a single business event can trigger multiple tax lines. An example is the “transfer of own goods”[16] within the EU from one Member state to another Member State which is deemed to be a supply of goods for VAT purposes. This single business event triggers VAT reporting in both the ship-from country as the ship-to country.

Tax document ID
Document ID that relates to the business event. This might be a sequential number that is only used for the tax table or a document number that is related to the business transaction (see also reference).

Tax line ID
A single business event might lead to multiple tax treatments for the same country. E.g. a sale where certain items are taxed at the standard rate while for other items the reduced rate applies. This might create two entries in the tax table. The tax line ID is needed to differentiate.

Tax type
Attribute to differentiate between the various tax types:

- Tax collected from customers
- Tax paid to suppliers
- Tax self declared / reverse charge mechanism
- Tax paid to customs upon import
- ……

Tax code
The systems tax code assigned when recording the transaction for tax control purposes.

Tax point date

[16] A business moves their stock from country A to country B and remains the owner. From a business perspective this is just a stock transfer, but for tax this might classify as an import, export or an EU intra community supply.

The tax point date for a transaction is the date the transaction takes place for tax purposes. Due to specific rules this might differ from date of supply or the document date.

Tax base in document currency
The tax base in the documentation currency is the amount in the currency of the transaction for a taxable transaction on which the indirect tax is calculated (usually the price of the goods or services).

Tax base in reporting currency
The tax base in the reporting currency is the amount in the prescribed tax currency for a taxable transaction on which the indirect tax should be declared. The currency of the transaction might be different from the reporting currency[17]. Specific rules for which exchange rate is applicable might be applicable.

Tax amount in document currency
The tax amount in the documentation currency is the calculated indirect tax amount in the currency of the transaction itself.

Tax amount in reporting currency
The tax amount in the reporting currency is the calculated indirect tax amount in the currency of the transaction which should be reported to the tax authority.

Tax amount payable/deductible in reporting currency
The part of the tax amount that is deductible or should be reported to the tax authorities.

Tax percentage
The applicable tax rate for the tax line item. In theory, this can be calculated, but additional reporting is preferable to avoid discrepancies such as rounding differences.

Tax identification number business partner
The number of the business partner which might be needed to assess the tax treatment, e.g. for reverse charge.

Document type
The document type to link the tax line to the source document.

Document reference number
The source document number to link the tax line to the source transaction.

---

[17] For example a trade of oil in USD should be reported in Poland should be reported in Polish złoty (PLN). The document currency differentiates from VAT reporting currency. In Poland the taxpayer has to use a mandatory exchange rate which depends on the tax point date.

Customs ledger

{To be completed}

Topics to discuss and agreed upon

Below is a draft overview of the issues to be discussed and agreed upon to guide the further development of the extension for indirect taxes and customs duties.

1. Agree upon the use of the concept of tidy data
2. If the concept of tidy data will be accepted; agree upon the proposed attributes:
    a.

Appendix

Example tax item status for VAT exempt: sale of insurance policy

The supply of insurance services is in the majority of countries exempt for VAT; some specific indirect tax for insurance might be applicable.

Suggested population for insurance transaction:

```
Row 1:
    Table                : SAL_Invoices_Generated_Details
    Key                  : Invoice_ID - Invoice_Line_ID
    Row                  : 202100021-0001
    TaxJurisdiction      : NL
    Tax Type             : VAT
    Characteristic Type  : Tax Status Item
    Characteristic UOM   :
{https://edi3.org/vocabulary/uncl5305/}
    Value                : E
Row 2:
    Table                : SAL_Invoices_Generated_Details
    Key                  : Invoice_ID - Invoice_Line_ID
    Row                  : 202100021-0001
    TaxJurisdiction      : NL
    Tax Type             : VAT
    Characteristic Type  : VAT_GoodsServices_ID
    Value                : S
Row 3:
    Table                : SAL_Invoices_Generated_Details
    Key                  : Invoice_ID - Invoice_Line_ID
    Row                  : 202100021-0001
    Tax Type             : Insurance Tax
    Characteristic Type  : Tax Rate
    Characteristic UOM   : Percentage
    Value                : .21
```

Example specific tax point date

Some countries have their own rules to set the tax point date for a transaction. This date dictates e.g. the exchange rate, the reporting period and so on.

```
Table                : PUR_Invoices_Received_Details
Key                  : Invoice_ID - Invoice_Line_ID
Row                  : 3800432-0001
TaxJurisdiction      : CZ
Tax Type             : VAT
Characteristic Type  : Tax Point Date
Characteristic UOM   : ISO 21378:2019
Value                : 2021-06-05
```

Example business partner exempt

The auditor can read that for VAT the supply is exempt, but for insurance tax it is taxed at standard rate

Suggested population for supply to a VAT exempt buying party:

```
Row 4:
    Table  : SAL_Invoices_Generated
    Key    : Invoice_ID
    Row    : 202100003
    Column : VAT_BusinessPartner_Status
    Value  : E
```

In a considerable number of countries, deliveries to embassies or consulates are exempt from VAT. For auditing purposes it is needed to differentiate between the two types of exempt. This can be established by adding subtypes to the characteristics. An

example which deals with exempt for insurance (product/item level) and with exempt for the embassies (customer level) is as follows:

More semantics

Still it's not clear how to interpret the characters "Z" , "E" and "S" in the various rows. Reference to an explanatory table is required here. For numerical values like monetary units, percentages, mass, units etc. it should also be indicated how to interpret the data. We therefore split the attribute "column" in two separate attributes:

- Characteristic Type
- Characteristic UOM Code

The characteristic type makes it possible to distinguish between the different aspects that are important for the applicable indirect taxes and customs duties. For example, as described above, distinction by type of tax or levy, and also distinction by product or business partner tax status. Some characteristic types shall be generic types, for example:. Some characteristic types shall be specific for the Indirect Tax Type or Custom Duty. For example: VAT_BusinessPartner_Status, VAT_Item_Status, VAT_GoodsServices_ID, Customs_Netto_Quantity, Customs_Value_Quantity, or Customs_Package_Unit_Quantity

The Characteristic Code provides the code for the value of the characteristic type. Depending on the Characteristic Type this can be generic codes like EUR, RMB, USD, KG, CARAT or BA.

In the example above, the codes "E", "S" and "Z" relate to defined Duty or tax or fee category code (Subset of UNCL5305) which is used by UBL / BIS Billing Peppol[18]. We recommend using existing standards for reusability and in order to save time.

Add an additional attribute for assigning the applicable tax jurisdiction or treat this as an additional row with a defined characteristic type

Multinational companies do business in several countries and have to deal with multiple tax jurisdictions. In order to distinguish between the different tax jurisdictions, it is necessary to add to each observation an identifier for the relevant jurisdiction. Since the tax rules may differ between tax jurisdictions, this attribute is even more relevant. In some countries, certain items are taxed at the standard rate, while in other countries the

[18] https://docs.peppol.eu/poacc/billing/3.0/codelist/UNCL5305/

same product can be taxed at the zero or reduced rate, for example. To value the transaction correctly it should be clear for which jurisdiction the applicable characteristic type is relevant. This can be achieved by two methods.

Add an additional attribute
One option is to add an extra column which stores the relevant jurisdiction. The first example will then result in:

```
    Table        : SAL_Invoices_Generated_Details
    Key          : Invoice_ID - Invoice_Line_ID
    Row          : 202100001-0001
    Jurisdiction : GB/HMRC
    Char..Type   : VAT_item_status
    Char Code    : uncefact:UNCL5305Code
    Value        : Z
```

An alternative option is to store the relevant jurisdiction just as an additional row. The first example will then result in:

```
Row 1:
    Table        : SAL_Invoices_Generated_Details
    Key          : Invoice_ID - Invoice_Line_ID
    Row          : 202100001-0001
    Char..Type   : VAT_item_status
    Char Code    : uncefact:UNCL5305Code
    Value        : Z
Row 2:
    Table        : SAL_Invoices_Generated_Details
    Key          : Invoice_ID - Invoice_Line_ID
    Row          : 202100001-0001
    Char..Type   : Tax jurisdiction
```

```
Char Code     : ISO-21378:2019_itxcd_codes[19]
Value         : GB/HMRC
```

The second option remains closer to the concept of tidy data than the first, but this can lead to some challenges of its own. Reference is made to the consideration of footnote 10. The advantages and disadvantages of each option should be further studied and discussed by the experts.

Set up a list of values (as an example)
Link each variable value to system value

[19] This table with the defined domain and relevant descriptions, should be added as an addition to this extension. In the example the code is a concationatio of the country code as defined in ISO 3166-1 alpha-2 and the name of the Tax Authority.

Some countries levies taxes for multiple levels, e.g Canada with governmental sales tax and provincial sales tax. This must be properly addressed in the further design. It should be considered whether codes such as CA/GST, which can be read as Canada Governmental Sales Tax, is sufficiently distinct from CA-BA/PST, which can be read as Canada, British Columbia, Provincial Sales Tax. And whether it is sufficiently clear which combination of characteristic type/code/value applies to which tax jurisdiction if there are multiple jurisdictions. This issue does not occur if the jurisdiction is added as an extra column in the table.

For customs duties the code might look something like EU/custom_duties