



Nordic Smart Government

Report on

**Interfaces and standards for exchange of
data between business actors**

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Introduction

Getting to a point where businesses automatically integrate invoices, payment order, receipts and other transactions with their business and accounting software, and then act 100 % electronic could be right around the corner. Many countries already work on specific parts of electronic business interactions. For example, from 2019 electronic invoicing for B2B will be mandatory in Italy.

The vision of Nordic SmartGovernment is to exchange data effectively between digital systems in an ecosystem. A work package in the ongoing project will describe and document existing referential architecture, including standards. This task will contribute to this aim and is building on a previous deliverable from the supplier of December 2017.

As far as possible and feasible Nordic SmartGovernment intend to work on existing standards, and if necessary to realise interoperability and propose supplements to existing standards. To achieve this objective, there is a need for a systematic overview of relevant standards on exchange of data in this business area, which this report shall contribute to.

Scope and deliverables

Overview of Nordic interfaces and standards for exchange of data between business actors in procurement, payment, inventory management and product catalogue management.

The internal processing in the Enterprise Resource Planning (ERP) systems are not required, but typical components should be described.

Deliverable is a document of where each interface and relevant formats are described and what standard(s) are/is in use. Needs to be delivered at the end of week 6, 2018.

Deliverable includes a first draft on a description of electronic relations between the e-procurement work and Nordic Smart Government.

Process

To get a better understanding on how data are exchanged within B2B in the five countries, focus is mainly on the generic and accepted standards used today or already under development in the four areas, Procurement, Payment, Inventory management and Product catalogue management.

Relations to similar work within B2G and overall legislation are mentioned where and when it is

relevant.

Each of the four areas will be described individually and then compared as components in Enterprise Resource Planning (ERP).

Finally, a first draft on a possible comparison between known work and relations within e-procurement and the needed work in Nordic SmartGovernment is done primarily to focus on possible lacks in electronic relations or needs for developing new relations.

Relevant background material for summaries and recommendations are divided into five tables and 1 annex as follows:

Table 1: Procurement (Description on each participating country)

Table 2: Payment (Description on each participating country)

Table 3: Inventory management (Description on each participating country)

Table 4: Product Catalogue management (Description on each participating country)

Table 5: Comparison between e-procurement and Nordic Smart Government.

Annex 1: Standards from standardisation organisations mentioned in this document are described with title in annex 1

General summary and recommendations

This project is intended to increase knowledge for the five Nordic countries within the four areas; procurement, payment, inventory management and product catalogue management.

The overview of standards applied at Iceland and in Sweden is not complete.

The results from each country are mentioned in Table 1-4. Relevant standards are mentioned in Annex 1.

Summary and recommendations for each area is mentioned below. The same is a comparison between the e-procurement work and the work within NSG.

Typical ERP components are also mentioned in Figure 1.

The general picture of this report shows close relations and several overlaps between e-procurement work being done within B2G and this project on electronic transactions (B2B) when it comes to the use of standards.

Re-using and building on existing legislation and standards is therefore a possible way forward for Procurement and Payment. Inventory management and Product Catalogue management lacks standards and new standards might have to be developed, unless an agreement can be reached on any open standard in the area in terms of free and open competition.

Even though there appears to be great differences between data solutions nationally, it looks like the basic formats are aligned, despite of possible different versions in use.

Depending on the focus area, one country might be ahead of the others, but almost all are working to improve different parts of e-reporting. This could mean better possibilities for a common improvement. Yet, focus must be on aligning with whomever is ahead in the specific area.

Figure 1 shows the relations between the ERP components and with the comparison in Table 5 this indicates that there might still be areas not taken into consideration for an overall solution for e-reporting.

A way of finding gaps in all 4 areas could be building a flowchart showing all important stakeholders and combining that with the used formats and standards. This could become a beneficial guide to a possible process for success, as well as needs for improvement.

New areas such as, Real-time Economy appears, especially in Iceland, and with that also new and interesting initiatives for this project. Several other countries already work in that area and new experiences may inspire this work.

In the following, summary and recommendations for each area can be found.

Procurement - introduction

European standards for Public Procurement (end-to-end procurement)¹ are being developed right now within the European standardisation organisation (CEN). This work is closely linked to the Public Procurement work in the EU-commission.

The standardisation work will most likely be finished in 2020. In some areas, as for example basic architecture based on the architecture used by the EU-Commission, EIRA, catalogues and invoice, the work is clearly defined. In others, like for example fulfilment, the standardisation work has started, but standards still need to be developed.

Though, much of the work right now focuses on B2G in the pre-award phase, the development being done in the post-award phase defines the standards in B2B as well as B2G, and these standards are supposed to be widely used in B2B, simply because this work is primarily being developed by private businesses.

The origin of this work is more than ten years old and based on the so-called CENBII² work. Most of that work is now being produced as different kind of standards within TC440. Other parts of this work, as for example open-PEPPOL is also a consequence of CENBII and now has the goal for all private companies to be able to arrange their purchases electronically with all EU institutions.

The post-award phase includes standards for catalogues, ordering, fulfilment and invoice. Payment, which is also a part of the post-award procedure is handled primarily through ISO 22002. It's important to notice that these areas are all especially important for B2B.

Highly important for this work has been to ensure the fulfilment of the architectural demands from the European commission. Interoperability is a key-word in that context. Therefore, a completely new area within EIRA on Public Procurement is being developed.

With the decision that the Nordic SmartGovernment project should be built within the same ecosystem this ensures interoperability B2B as well as B2G.

The Nordic countries all participates in this standardisation work and numerous Nordic companies participates specifically in the standardisation work and most are SME's.

Known and recognised standards within the procurement area are shown in Table 1 and procurement work and relations to this work in the Nordic SmartGovernment project on B2B interactions are shown in Table 5.

Summary and recommendations

At first glance it looks like there are huge differences in the solutions for electronic procurement in the Nordic countries within the procurement area. While Norway and Iceland have very structured

¹ All processes in pre-award and post- award. Pre-award being the tendering procedure and post-award being the purchasing procedures from start to end of contract.

² CENBII. CEN Business Interoperable Interfaces: <http://cenbii.eu/deliverables/cen-wsbii-3/>

approaches to procurement based on a few dominant standards in use, it appears that most other Nordic countries in general are performing on a lower level when it comes to B2B and structured use of dominant standards.

Looking at the formats and standards used the picture is slightly different. It basically seems like systems are based on the same basic formats, therefore interoperability solutions should be possible.

An important issue within the procurement is if specific national standards has been built to ease B2B transactions. Conflicting standards could be national proprietary standards. It seems like None of the Nordic Countries have built any conflicting national standards, which makes it easier to implement solutions based on common ground.

Collaborating work needs to be done to describe this common structural Nordic approach build upon existing standards, cf. Annex 1, and maybe develop new Nordic standards.

Right now, national implementation of the E-Invoicing Directive 2014/55/EU and the new CEN standards for Invoice is ongoing.

While for example Norway has already implemented the area, Denmark and Sweden are at the moment building legislation on how to ensure Invoicing B2G and B2B. – Denmark is doing it by using NemHandel based on OIOUBL, which is a Danish adaptation of the International Standard UBL, for B2G and using PEPPOL and CEN standards for B2B as an opportunity.

In Sweden the implementation B2B is supplementing Svefaktura, also based on UBL.

Right now, it might be a great time to ensure a common ground on B2B invoice in the Nordic countries to avoid problems with national as well as cross-border invoices. This also to ensure that implementing the EU-directive will not cause problems nationally.

Looking outside the Nordic countries, it should be mentioned that Italy makes electronic B2B invoicing mandatory from 2019.

Payment – introduction

Several payment systems are available in the Nordic countries, but no actual common structure is agreed. Yet, individual national systems are gradually being replaced by SEPA-based implementations of ISO 20022. Especially for Euro-payments, but also for local currencies.

A strengthened Nordic Tax Collaboration as well as a new Nordic Bank collaboration will most likely have a great influence on the Payment area.

The legal framework is built by the EU through the Payment Services Directive and supplemented by ISO 22002, SWIFT and proprietary systems.

Known and recognised standards within payment are shown in Table 2 and payment work and relations to this work in the Nordic SmartGovernment project on B2B interactions are shown in table 5.

Iceland informed that they have been working with Real-time payment since 2001. “In February last year the Central Bank of Iceland signed an agreement with the Italian company SIA for a new system which will, according to one of the directors of the bank, „enable us to cooperate closer with our Nordic neighbours in this field³“.”.

This is a relatively new and interesting approach that can make it easier to achieve the goals of this project, especially on cross-border trade.

Other countries, such as Croatia, Hungary, Portugal, Columbia etc., experiment with or uses Real-Time Economy including Real-Time Payment. This indicates that a rising acknowledgment B2B of this approach might be a way forward that can also be added to this project. Maybe by looking at them new approaches for Real-time Payment could be an idea?

Summary and recommendations

It looks as if the basic structure in the Nordic countries is the same though the maturity in use of known standards are not at the same level.

Norway has consequently implemented ISO 22022 and is working on replacing EDIFACT and other formats. Finland refers only to ISO 22022 and SWIFT, and Denmark is right now focusing on multiple solutions as ISO2022, NemKonto, Swift and proprietary systems.

As with Procurement it must be discussed which common ground should be basis for the future collaboration on payment structure. Building flowcharts might be the way forward for visualising the best way forward cross-border.

Inventory management – introduction

Opposite to “Procurement” and “Payment” it looks as if the area “Inventory management” is a somewhat dry area when it comes to legislation and standards, except for customs and cross-border transit, where EU legislation and standards are commonly used.

Only a few pre-standards (CEN/BII documents) are supposed to have been developed.

This means that “Inventory Management” is an open area full of proprietary systems primarily based on XML, EDIFACT, SAP, flat file, EANCOM etc. The number of different Inventory management systems is therefore large, and any interactions are unknown.

Known, used and recognized formats and standards within Inventory management are shown in Table 3.

Summary and recommendations

Though this could be called an unstructured area with a pronounced shortcoming of standards, it still looks like a common ground can be found when comparing the answers from the different

³ Skúli Jónsson, Skrifstofa yfirstjórnar / Administrative Department, Ríkisskattstjóri Reykjavík.

countries.

Finland is already working on unified systems and hope to finish in a few years. Maybe this work could become a part of a common process?

The lack of standards combined with the lack of legislation indicates that this could be a potential area for standardisation in the Nordic countries.

Product Catalogue management – introduction

While a lot of standards are being developed within TC440 on product e-catalogues, the Product Catalogue Management area is not in focus within standardisation.

Public standards being developed are primarily based on UBL while the private sector primarily refer to EDIFACT.

Initiatives in Denmark and Sweden are planned for extended use of e-catalogues based on EU-standards (CEN/BII).

As in Inventory management this area is dominated by proprietary systems of which some has grown globally, e.g. GS1 standards.

It is important to mention that globally recognised and used code lists are commonly in use, e.g. UNSPSC.

Known, used and recognised formats and standards within Product Catalogue management are shown in Table 4.

Summary and recommendations

The summary and recommendations for this area are almost the same as for “Inventory management”.

Though this could be called an unstructured area with a pronounced shortcoming of standards, it also looks like a common ground can be found when comparing the answers from the different countries.

Sweden and Denmark are already working to extend the use of e-catalogues, and hopefully this process can become a common Nordic approach.

The lack of standards combined with the lack of legislation indicates that this could be a potential area for standardising in the Nordic countries.

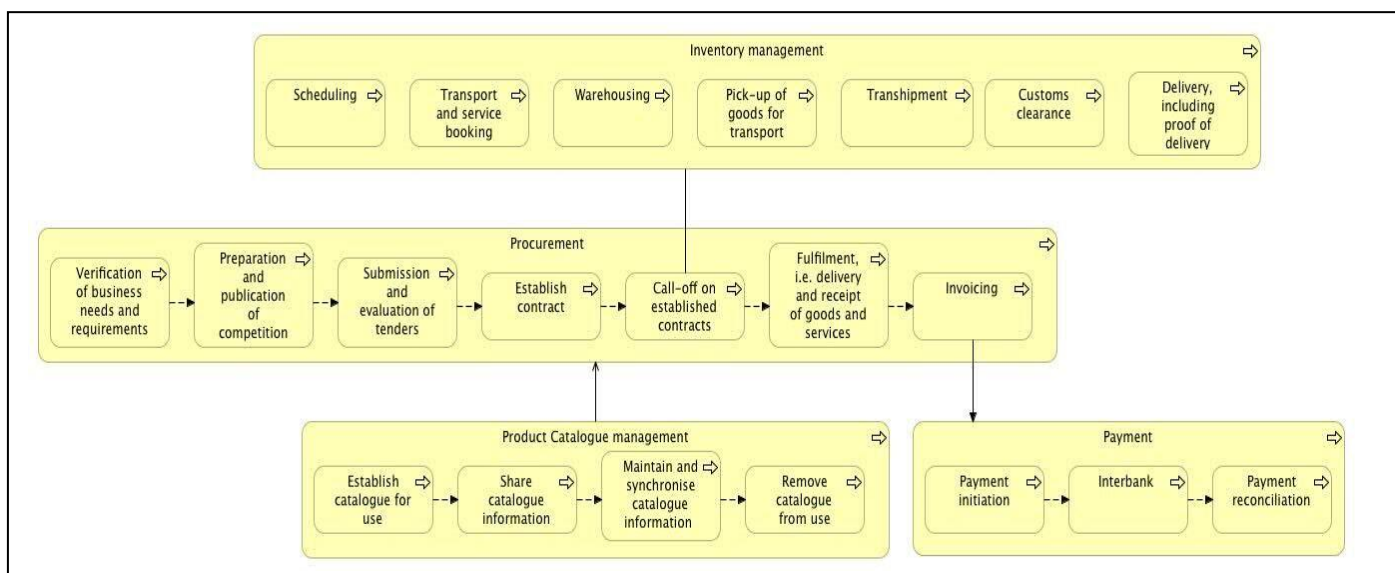
Typical components in Enterprise Resource Planning (ERP)

Looking at the flowsheet for ERP in Figure 1, it becomes clear what is relevant for B2B and B2G within the four analysed areas.

While Inventory Management and Product Catalogue Management are clearly processes supplementing specific needs in a B2G process, they are very specific and concrete in all planning and purchasing B2B. When thinking B2B every step in each of these areas it has a potential interaction with other businesses, which means that these interactions must be described or standardised.

The payment area is a bit different and it contains already useable interfaces to ensure correct payment.

Figure 1. Typical components in ERP for B2B (and B2G)



Summary and recommendations

Mapping the ERP's on the requested areas points out that it might be a good idea also to investigate if new possible areas within the Nordic SmartGovernment project needs to be focused.

An idea could be to focus on a micro society in a small community and examine if lacks in e-reporting needs pops up. If then it can be found out if relevant standards should be developed to ensure a Nordic e-reporting system or if data can be harvested in other systems.

Comparison between e-procurement and Nordic SmartGovernment B2B

Developing electronic highways for the public procurement within B2G will naturally have an influence as well B2B.

Therefore, it must be avoided that developing new standards creates conflicts between B2B and

B2G. That would decrease interoperability despite the intentions of increasing.

Knowing that businesses have participated in developing the new e-procurement standards and related standards in Europe and globally (CEN and ISO), the possibilities for good results is obvious if it is insured that further development is founded on existing work.

Finally, a lot of other recognized and used alternative standards have developed solely between businesses or as open and free available data formats, code lists etc. This allows data mining, data harvesting etc.

This means that most of the data needed for the Nordic SmartGovernment project probably already exists.

Therefore, the work that's needed to do is to find out if it's possible to achieve a coordinated and consistent ecosystem covering all components.

Table 5, below, is to be considered as a first draft on comparison of possible electronic relations for the two areas, showing possible connections as well as where there are no actual overlaps.

Summary and recommendations

As mentioned, this is a first draft on comparison and it should be discussed further.

Comparing the two initiatives in Table 5 gives several indications on what should be done next if this work continues. Some relevant initial recommendations would be:

First, it must be investigated if the EIRA Architecture already contains what is necessary or if a new part of e-reporting shall be developed to ensure that e-reporting can become an add-on to the EIRA architecture.

Within B2G and tendering procedures the ESPD already consists of a lot of basic business data. Maybe this kind of approach could become an information exchange between B2B as seen in B2G.

The European Interoperability Framework (EIF) focuses on public administration. EIF can play an important role in governmental operations as a support to B2B operations. Focusing EIF as a possible common platform should be considered as a possibility to increase interoperability.

If it is required to develop new standards (for example formats, code lists, syntax bindings etc.), it would be easier to build upon the existing work within TC440. This means that needs within Catalogues, Ordering, Fulfilment and Invoice can be developed faster.

Where overall decisions have already been made, as in "Invoice" and "Payment", it's essential to soon to discuss a common Nordic structure should in this project, hence national legislation work is already ongoing.

New areas as "Inventory management" and "Product Catalogue Management", both based on proprietary systems, and where no common standards or legislation exists could be new work items for Nordic standardisation.

Looking at “other areas/topics” in Table 5 it needs to be discussed what is necessary to do and what is not. A mapping of all needs could be a major step forward to finding solutions.

Terms and definitions

Instead of describing strict terms and definitions most of them have been added with a supplementary explanation for a better understanding.

API: A Web API is an Application Programming Interface (API) for either a web server or a web browser.

B2B: Business to Business

B2F: Business to Finance

B2G: Business to Government

BII: Business Interoperability Interfaces, see CENBII

CEF e-delivery: The e-Delivery AS4 profile is an open specification for the secure and payload-agnostic exchange of data using web services. It's based on the ebMS 3.0 standard of OASIS. CEF e-Delivery's implementation of ebMS 3.0 is defined through the EC funded e-Sense project.

CEN: Committee European de Normalisation. The European Standardisation Organisation⁴. Now there are 34 CEN members in the European standardisation organisation. Each member is defined as a national standardisation organisation.

CENBII: With funding from the EU CEN has conducted 3 phases of developing Business Interoperability Interfaces⁵. More than 200 pre-standards were developed. PEPPOL, and after that OpenPEPPOL is one of the major results from this work. CENBII was closed in 2016 and taken over by TC440 for e-procurement for European standardization.

CEN/TC440: The European CEN Technical Committee for e-Procurement builds e-standards for end-to-end procurement based primarily on the work from CENBII. The secretariat for the committee is based in Denmark at Danish Standards⁶.

CSV: Comma separated values. The CSV file format is not standardized.

EBA: The European Banking Authority.

EANCOM: GS1 EANCOM[®] is a GS1 subset of the UN/EDIFACT standard. It contains only the message elements required by business applications and mandated by the syntax. Omitted are optional elements not relevant for GS1 users. EANCOM is one of the leading international standard for the computerized interchange of data. EDIFACT is the basis for the EANCOM standard. Today the EANCOM standard is specialized for the implementation within supply chains.

⁴ <https://www.cen.eu/Pages/default.aspx>

⁵ <http://cenbii.eu/deliverables/cen-bii/>

⁶ www.ds.dk

E-delivery: e-Delivery is a network of nodes for digital communications. It is based on a distributed model where every participant becomes a node using standard transport protocols and security policies⁷. The e-Delivery nodes can be implemented at any administrative level: national, regional, local or by single organisations. The deployment model must be defined upfront by the Pan-European project, PEPPOL⁸. See PEPPOL

EESPA: (European e-invoicing Service Providers Association) can be compared to somewhat as a parallel to OpenPEPPOL. Although partly working within the same areas, they are two quite different organisations both in their objectives and membership.

EDI: (Electronic Data Interchange). Category of data communication for electronic exchange of commercial documents such as for example invoices and delivery notes. Using VANS is one of the possible delivery mechanisms for EDI

EDIFACT: (Electronic Data Interchange for Administration, Commerce and Transport). See (UN/EDIFACT)

EHF: Companies must send sales invoices and credit memos to the Norwegian public sector electronically in the Elektronisk Handelsformat (EHF) based on Universal Business Language (UBL). If a company does not send these documents electronically, the authorities⁹.

EIRA[®]: The European Interoperability Reference Architecture¹⁰ is an architecture content metamodel defining the most salient architectural building blocks (ABBs) needed to build interoperable e-Government systems. The EIRA[®] provides a *common terminology* that can be used by people working for public administrations in various architecture and system development tasks. The EIRA uses (and extends) the ArchiMate language as a modelling notation and uses service orientation as an architectural style.

EIF: The new European Interoperability Framework (EIF) is part of the Communication (COM(2017)134) from the European Commission adopted on 23 March 2017. The framework gives specific guidance on how to set up interoperable digital public services. It offers public administrations 47 concrete recommendations on how to improve governance of their interoperability activities, establish cross-organisational relationships, streamline processes supporting end-to-end digital services, and ensure that both existing and new legislation do not compromise interoperability efforts¹¹.

EIOPA: The European Insurance and Occupational Pensions Authority

ERP: (Enterprise Resource Planning) is a collection of administration systems in a company. It may be the company's features, such as sales, purchase or order processing. Typical ERP's are Inventory management systems.

⁷ <https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/What+is+eDelivery+-+Overview>

⁸ <https://peppol.eu/what-is-peppol/peppol-transport-infrastructure/>

⁹ <https://vefa.difi.no/ehf/>

¹⁰ <https://joinup.ec.europa.eu/solution/eira>

¹¹ https://ec.europa.eu/isa2/eif_en

e-SENS: The European e-SENS project ended in March 2017¹². During its four years of operation, e-SENS succeeded in creating a pan-European set of IT building blocks for digital public services that embrace both national and sectorial diversity and facilitate interoperability. The deliverables were; e-delivery, e-documents, e-identity, e-Signature, Semantics and conformance and Interoperability testing.

ESPD: European Single Procurement Document (ESPD)¹³ is a self-declaration of the businesses' financial status, abilities and suitability for a public procurement procedure.

Flat file database: A flat file database is a database stored as an ordinary unstructured file called “Flat file”. To access the structure of the data and manipulate it on a computer system, the file must be read in its entirety into the computer’s memory. The term has generally implied a small and simple database.

Formats: Data format in information technology may refer to a file format as a format for encoding data for storage in a computer file or to a data type, constraint placed upon the interpretation of data in a type system.

GDSN¹⁴: Global Data Synchronisation Network is a network of interoperable data pools enabling collaborating users to securely synchronise master data based on GS1 standards. The Global Data Synchronisation Network (GDSN) enables trading partners to globally share trusted product data.

Interfaces: A device or program enabling a user to communicate with a computer.

NemHandel¹⁵: is an open e-business framework solution based on UBL and used domestically within Denmark. It allows Danish businesses to send standardised electronic invoices directly from their PC via the internet in a secure and reliable fashion. NemHandel is very similar to PEPPOL (Pan-European Public Procurement Online), which has succeeded in establishing an open infrastructure to cover the European Union. The purpose of NemHandel is to replace less cost-effective solutions, such as the scanning-based digitisation of paper invoices, as well as to pave the way for more comprehensive digitisation of a range of business processes to reduce the administrative burdens and exploit the powers of ICT in businesses, particularly SMEs.

OIOUBL: (Offentlig Information Online Universal Business Language) All businesses, including small businesses and small public institutions, are expected to support the basic procurement process (see also the Profiles section). This involves the following business documents: Catalogue Request, Catalogue, Catalogue Deletion, Catalogue Item, Specification Update, Catalogue Pricing Update, Order, Order Response Simple, Order Cancellation, Invoice, Credit Note, Reminder, Application Response. The OIOUBL package also specifies a series of additional business document types that support more advanced ordering processes: Order Change, Order Response, Statement of Account¹⁶. OIOUBL is a Danish adaptation of the International Standard UBL 2.0 from the Organization for the Advancement of Structured Information Standards (OASIS) for Danish Business Requirements. See also UBL.

¹² <https://www.esens.eu/>

¹³ <https://ec.europa.eu/tools/espd>

¹⁴ <https://www.gs1.org/services/gdsn>

¹⁵ <https://www.digst.dk/ServiceMenu/English/Digitisation/NemHandel>

¹⁶ <http://www.oioubl.info/classes/en/index.html>

P2P: (Peer-to-peer) computing or networking is a distributed application architecture that partitions tasks or workloads between peers¹⁷. A peer-to-peer (P2P) network in which interconnected nodes ("peers") share resources amongst each other without the use of a centralized administrative system.

PEPPOL: (Pan-European Public Procurement On-line). The pilot project PEPPOL has been working to make public bodies in the EU better to handle purchases electronically, as well as to ensure technological development in line with the private sector. The goal is for all private companies to be able to arrange their purchases electronically with all EU institutions. OpenPEPPOL is established as an international non-profit organisation under Belgian law and began its official work on September 1, 2012. OpenPEPPOL is a member-based organisation. Among the 8 PEPPOL authorities are Norway, Sweden and Denmark represented in the Nordic countries¹⁸

PSD: (Payment Services Directive) 2015/2366. PSD1 is from 2007 and PSD2 is from 2015

SAP: Or SAP Business One is an administrative IT system developed by SAP AG for small and medium-sized enterprises. SAP includes 13 modules. These are Administration, Finances, Sales opportunities, Sales, Purchase, Business partners, Bank settlement, Warehouse management, Resources, Production, Material Requirements Planning, Service and Personal.

SEPA: (Single Euro Payments Area) The single euro payments area (SEPA) harmonises the way cashless euro payments are made across Europe. It allows European consumers, businesses and public administrations to make and receive the following types of transactions under the same basic conditions; credit transfers direct debit payments, card payments.¹⁹

TC440: See CEN/TC440

UBL 2.1: UBL²⁰ is an open library of standard electronic XML business documents for procurement and transportation such as purchase orders, invoices, transport logistics and waybills.

UN/EDIFACT²¹ (United Nations Electronic Data Interchange for Administration, Commerce and Transport) is the international EDI standard developed under the United Nations. The EDIFACT standard provides a set of syntax rules to structure data, an interactive exchange protocol (I-EDI) and a standard message which allow multi-country and multi-industry exchange.

UNSPSC (United Nations Standard Product and Services Code) is an international classification system for goods and services and has been widely used by public authorities as well as many large private companies for many years. UNSPSC codes has been imbedded in the OUOUBL work from the beginning.

VANS: (Value added Network Services). One of the oldest terms in EDI and one of the solutions for transport for EDI is VANS. VANS providers are for example TrueCommerce, KMD, IBM, Pagero, Basware, Evry, InExchange etc. It's presumed that there are about 500 providers of VANS in the

¹⁷ <https://en.wikipedia.org/wiki/Peer-to-peer>

¹⁸ <https://peppol.eu/what-is-peppol/peppol-country-profiles/>

¹⁹ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/consumer-finance-and-payments/payment-services/single-euro-payments-area-sepa_en

²⁰ ISO/IEC 19845:2015 Information technology – Universal Business Language Version 2.1 (UBL v 2.1)

²¹ ISO 9735:1988 etc.

EU.

The difference between VANS service and protocol services as NemHandel and PEPPOL is that VANS service is a managed service. The European VANS providers are organised in EESPA²².

XBRL: (eXtensible Business Reporting Language) is a freely available and global standard for exchanging business information. XBRL allows the expression of semantic meaning commonly required in business reporting. The language is XML-based and uses the XML syntax and related XML technologies.

Related activities in the Nordic countries and in Europe right now

The examples below are included here for information, primarily for showing that a lot of work in one way or another relates to the work within Nordic SmartGovernment:

Denmark's largest retailer selects Coupa to streamline P2P.

Friday 19th January 2018.²³

Coupa had announced that the largest retailer in Denmark has chosen Coupa's Source-to-Pay (S2P) solution to streamline strategic sourcing, procurement and accounts payable across its diverse international supermarket business. Dansk Supermarked Group (DSG) will implement Coupa across its corporate head office and its international retail chains.

B2B e-invoicing in Italy to become mandatory in 2019

Thursday 25th January 2018²⁴

The Italian Government is aiming to implement the use of mandatory electronic invoicing between business partners from 1st January 2019.

Digital possibilities and barriers²⁵

Danish FSR (accountants) published in January 2018 a survey on the digital possibilities and barriers for SME's when using new technology and digital conversion.

Financial technologies. VocaLink and Mastercard (UK. Payment)

The industry's highest value transactions include: Global Payments' announced the USD 788 million acquisition of Heartland Payment Systems, a provider of payment processing services to merchants, **PayPal** acquired Xoom Corporation, a digital money transfer provider, Optimal Payments bought Skrill with USD 1,2 billion, Alibaba.com acquired Paytm for USD 680 million, BBVA acquired Simple for USD 118 million. One of the most interesting moves, however, might be **MasterCard's acquisition of VocaLink**. 13 banks serve as shareholders for VocaLink, which have reportedly approved the deal with MasterCard to enter into the negotiation stage, several media outlets reported. This deal is projected to be worth GBP 1 billion (roughly USD 1.4 billion) and

²² www.eespa.eu

²³ <https://www.coupa.com/newsworthy/press-releases/largest-retailer-in-denmark-selects-coupa/>
(www.Dansksupermarked.com)

²⁴ <http://www.p2pnetwork.org/>

²⁵ http://www.fsr.dk/Nyheder%20og%20presse/Pressemeddelelser/2018-pressemeddelelser/Ny%20digitaliseringsstrategi?utm_campaign=Ny%20digitaliseringsstrategi%3A%20SMV%20ernes%20digitale%20potentiale%20dru%20kner%20%7C%20Fjerde%20alvorlige%20sanktion%3A%20Revisor%20frakendt%20godkendelsen%20i%20to%20år%20og%20ikendt%20bøde%20på%20200.000%20kroner&utm_medium=email&utm_source=Nyhedsbrev

would involve the UK's largest banks — Barclays, HSBC, Lloyds Banking Group and Royal Bank of Scotland, which collectively own 80% of VocaLink. VocaLink processed 1 billion transactions in 2015, which amounts to half of all UK payments and processed 90% of salaries and at least 70% of all household's bills and state benefits. If you look at the **fintech** landscape, one will discover an increasing number of service providers that focus on improving specific parts of this traditional broad portfolio by using innovative technology. In other words, fintech's build and execute specific parts of the banking value chain better, cheaper and faster than what is currently on offer at banks.²⁶

Blockchain

Blockchain is the technology underpinning Bitcoin, and one of its biggest advantages is that it allows two parties to transact without making use of a central authority or third party intermediaries. Oversimplifying a bit, it removes huge costs and adds transparency, speed, and security. Ripple, Ethereum, Monero, Lightning Network, Amiko Pay, Bitfury and others act as agents of disruption in the B2B payments world by using blockchain rails.²⁷

The international ISO standardisation work on Blockchain started in 2017.

The Emerging Internet of Payments

"In the USD 700 trillion of B2B payments globally, connecting the many buyers, sellers, and providers of payments, financing and software solutions might seem an impossible task. And yet, we have the example of the Internet". "and alignment with standards frameworks, notably around ISO 20022, offers the potential for faster and wider scaling of such solutions, with lower investment".²⁸ "Those who move early to test, learn, and shape the emerging Internet of Payments ecosystem and framework will be best positioned to win." Roger Bass, CEO at Traxiant.

²⁶ <https://www.thepayers.com/reports/PublicationsDownloadPage.aspx?id=3d17174b-4d5a-4ba4-8150-7e8b2a4f8745>

²⁷ <https://www.thepayers.com/reports/PublicationsDownloadPage.aspx?id=3d17174b-4d5a-4ba4-8150-7e8b2a4f8745>

²⁸ <https://www.thepayers.com/reports/PublicationsDownloadPage.aspx?id=3d17174b-4d5a-4ba4-8150-7e8b2a4f8745>

Tables

Table 1: EU Procurement

Europe and International

Relevant EU-legislation or announcements of relevance

Some of the basic announcements from the EU that should be taken in consideration and that will influence B2G plus can or will influence B2B are²⁹:

On 19 September 2017, the Multi-Stakeholder Expert Group on e-procurement (EXEP) endorsed 3 reports, prepared by EXEP subgroups: "Contract Registers", "Electronic Catalogues" and "Certification of e-Tendering Platforms".

On 17 May 2017, the Commission adopted a Report on the review of the practical application of the European Single Procurement Document (ESPD³⁰).

On 23 March 2017, the Commission adopted the new European Interoperability Framework (EIF) as part of the Communication (COM(2017)134)

On 24 October 2016, the Multi-Stakeholder Expert Group on e-procurement (EXEP) endorsed 3 reports, prepared by EXEP subgroups: "Solutions and Interoperability", "Governance and capacity building" and "Regulatory Aspects and Interpretation".

On 16 April 2014, the E-Invoicing Directive 2014/55/EU was adopted by the European Parliament and the Council of the European Union.

Directive 2014/24/EU on public procurement³¹

On 26 February 2014, the Classical Sector Directive 2014/24/EU was adopted by the European Parliament and the Council of the European Union. The deadline for EU countries to transpose the directive is 18 April 2016. EU countries may postpone the application of the provisions on e-submission until 18 October 2018 however.

Plus

The Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax, where increased focus on reporting and validity of business transactions is mandated.

(DIRECTIVE (EU) 2015/849 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, (MLD4)³²)

²⁹ <http://ec.europa.eu/docsroom/documents/26423>

³⁰ <https://ec.europa.eu/tools/espd/filter>

³¹ http://ec.europa.eu/environment/gpp/eu_public_directives_en.htm

³² http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_2015_141_R_0003&from=ES

Table 1: DK Procurement
Denmark

Business area	Interfaces	Formats	Standards	Comments
Verification of business needs and requirements		Pdf's	none	Not general supported by structured information exchange
Preparation and publication of competition	Messaging	Pdf's	none	TED-database and platforms like EU-supply, Ethics, Merzell etc.
Submission and evaluation of tenders	Messaging	Pdf's	none	Unstructured evaluation. There is software in the marked ex. Marzell, eTender, iBinder
Establish contract	Messaging	Pdf's	none	Unstructured contract. But standards under development for services in TC447. Public sector uses standardised contracts
Call-off on established contracts (quotations, orders, etc)	Messaging	EDIFACT XML	EANCOM	EANCOM are the most used standard – primary used in B2B sector. (UBL is also used a bit in this area. Quotation, orders etc.)
Fulfilment, i.e. delivery and receipt of goods and services	Messaging	EDIFACT XML	EANCOM	EANCOM are the most used standard – primary used in B2B sector. (UBL is also used a bit in Fulfilment)
Invoicing	Messaging	EDIFACT XML	EANCOM OIOUBL PEPPOL-BIS	EANCOM are the most used standard – primary used in B2B sector. OIOUBL are used in the public sector and is heavy implemented in B2B sector too. (Legislation and announcements on the way within PEPPOL BIS v 3. og UBL 2.1). (UBL is also used a bit in Invoicing)

Important stakeholders:

GS1 Denmark.
KMD.

ERP-solution providers.
IBM

MySupply ApS. DS.
VANS-operators (TrueCommerce etc.)

Table 1: FI Procurement

NOTE: Finland – only Public e-Procurement (B2G) in this table!!

Business area	Interfaces	Formats	Standards	Comments
Verification of business needs and requirements	NA	NA	NA	NA
Preparation and publication of competition	eTendering platforms (web interface): Cloudia, (Tarjova, Hankintasampo, Mercell) National eNotification platform (web interface): Hilma	Structured and semi-structured (structured with some information in documents (e.g. PDF or Word))	NA	Nearly 100% of the local and central government use the same platform (Cloudia), which means there is no national standardisation or interoperability development underway regarding structured eTendering. CA encouraged to use structured tendering
Submission and evaluation of tenders	eTendering platforms (web interface): Cloudia, Tarjova, Hankintasampo, Mercell	Structured and semi-structured (structured with some information in documents (e.g. PDF or Word))	NA	As there is no interoperability between platforms, businesses are forced to use platforms' own submission tools. eEvaluation is mainly structured and automated with some exceptions.
Establish contract	Contract management software and services (web interface and, in the case of eSignature, also messaging)	Mainly unstructured. Development of structured contracts is in its early phases.	NA	No common software of service in the government sector.
Call-off on established contracts (quotations, orders, etc)	Purchase to pay –solutions, supplier portals	xml EDIFACT email(word/pdf)	UBL	B2G Implementation of new central government e-Ordering service ongoing.
Fulfilment, i.e. delivery and	Purchase to pay –solutions,	xml EDIFACT	UBL	

receipt of goods and services	supplier portals	email(word/pdf)		
Invoicing and eReceipt	Message, EDI or invoicing Web-services	XML EDIFACT	Finvoice TEAPPSXML PEPPOL	Finvoice is the main standard used

Important stakeholders:

Ministry of Finance

State Treasury

The Association of Finnish Local and Regional Authorities

Hansel Ltd.

Hilma (national eNotification platform) and its service provider Edita

eProcurement solution providers, Cloudia Ltd. in B2G

Purchase to pay and ERP solution providers such as SAP, Basware, Visma

Invoice and e-messaging operators and PEPPOL access points such as OpusCapita, Basware, Maventa, Liaison

Finance Finland FFI

TIEKE (The Finnish Information Society Development Centre)

SFS (Finnish Standards Association)

Table 1: IS Procurement
Iceland

Business area	Interfaces	Formats	Standards	Comments
Verification of business needs and requirements	N/A	N/A	N/A	This business area is generally not supported by structured information exchange.
Preparation and publication of competition	Messaging	PDF	No standards	Currently not generally supported by structured information exchange. Information on available competitions are generally made available as PDF documents.
Submission and evaluation of tenders	Messaging	Emails / XLS	No standard	Currently not generally supported by structured information exchange. Tenders are generally made available as unstructured PDF documents.
Establish contract	Messaging	DOC / PDF / XLS	No standard	Currently not generally supported by structured information exchange.
Call-off on established contracts (quotations, orders, etc)	Messaging	EDIFACT / XML	GS1 / EANCOM ICEPRO FUT (Fagráð upplýsingatækni hjá Staðlaráði Íslands)	EANCOM/ ICEPRO is currently the dominant standard in use in private sector (B2B) together with a variety of sector based proprietary specification. FUT in progress of being implemented for public though still very limited use.
Fulfilment, i.e. delivery and receipt of goods and services	Messaging	EDIFACT / XML Very limited use of XML	GS1 / EANCOM ICEPRO FUT (Fagráð upplýsingatækni hjá Staðlaráði Íslands)	EANCOM/ ICEPRO is currently the dominant standard in use in private sector (B2B) together with a variety of sector based proprietary specification. FUT in progress of being implemented for public though still very limited use.

Invoicing	Messaging	EDIFACT / XML	GS1 / EANCOM ICEPRO FUT (Fagráð upplýsingatækni hjá Staðlaráði Íslands)	FUT is probably the dominant standard in use both in private and public sector. EANCOM ICEPRO is widely used in private sector (B2B) together with a variety of sector based proprietary specification.
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Important stakeholders:

- FUT Staðlaráð
- ICEPRO, Fagráð um rafræn viðskipti
- Fjársýsla ríkisins
- Reykjavíkurborg

Table 1: NO Procurement
Norway

Business area	Interfaces	Formats	Standards	Comments
Verification of business needs and requirements				This business area is generally not supported by structured information exchange.
Preparation and publication of competition	Messaging	Unstructured PDF Looking for XML in the future	EHF and PEPPOL BIS	This business area is currently not generally supported by structured information exchange. Information on available competitions are generally made available as unstructured PDF documents. Activities underway to introduce structured information exchange based on the standards mentioned in public procurement.
Submission and evaluation of tenders	Messaging	Unstructured PDF Looking for XML in the future	EHF and PEPPOL BIS	This business area is currently not generally supported by structured information exchange. Tenders are generally made available as unstructured PDF documents. Activities underway to introduce structured information exchange based on the standards mentioned in public procurement.
Establish contract	Messaging	Unstructured PDF Looking for XML in the future	EHF and PEPPOL BIS	This business area is currently not generally supported by structured information exchange. Contract documents are generally made available as unstructured PDF documents. Activities underway to introduce structured information exchange based on the standards mentioned in public procurement.

Call-off on established contracts (quotations, orders, etc)	Messaging	EDIFACT XML	EANCOM/Dedip EHF and PEPPOL BIS Proprietary	EANCOM is currently the dominant standard in use in private sector (B2B) together with a variety of sector based proprietary specification. EHF in process of being implemented for public procurement, although still limited use.
Fulfilment, i.e. delivery and receipt of goods and services	Messaging	EDIFACT XML	EANCOM/Dedip EHF and PEPPOL BIS Proprietary	EANCOM is currently the dominant standard in use in private sector (B2B) together with a variety of sector based proprietary specification. EHF in process of being implemented for public procurement, although still limited use.
Invoicing	Messaging	XML EDIFACT	EHF and PEPPOL BIS EANCOM/Dedip Proprietary	EHF is probably the dominant standard in use both in private and public sector. EANCOM is widely used in private sector (B2B) together with a variety of sector based proprietary specification.

Important stakeholders:

Difi, representing public sector and government policy

GS1 Norway

Virke, representing several sector organisations

NHO, representing several sector organisations

Statoil

ERP solution providers

Table 1: SE Procurement
Sweden

Business area	Interfaces	Formats	Standards	Comments
Verification of business needs and requirements	NA	NA	No specific national standards.	
Preparation and publication of competition	NA	NA	No specific national standards.	TED-database and platforms like Visma, Mercell etc.
Submission and evaluation of tenders	NA	NA	No specific national standards.	
Establish contract	NA	NA	NA	
Call-off on established contracts (quotations, orders, etc)	NA	XML, EDIFACT	UBL	SFTI in Public sector. Sender /Receiver identification. Most commonly UBL/PEPPOL but also EDIFACT. For private sector primarily, XML and EDIFACT. Retail industry refers GS1/EDIFACT.
Fulfilment, i.e. delivery and receipt of goods and services	NA	XML, EDIFACT	UBL	
Invoicing	VANS	Svefaktura EDIFACT	UBL	All qualified formats from 2014/55/EU on electronic invoicing are supported by the public authorities. Svefaktura is supported B2G and B2B. PEPPOL+UBL is growing.

Important stakeholders:

SIS

Upphandlingsmyndigheten

Wisma

Ecrû

GS1

Table 2: EU Payment

Europe and International

Relevant EU-legislation or announcements of relevance.

Some of the basic announcements from the EU that should be taken in consideration and that will influence B2G plus can or will influence B2B are³³:

2015/2366/EU Payment Services Directive. PSD2.

EU Directive (2015/2366/EU) which builds on the legislative framework established by PSD 1. Banks are obliged to provide these third-party providers with access to their customers' accounts through open APIs (application program interface)

2007. The payment services directive 2007/64/EC PSD1 lays out the legal foundation for SEPA.

Plus

(DIRECTIVE (EU) 2015/849 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, (MLD4)³⁴)

³³ <http://ec.europa.eu/docsroom/documents/26423>

³⁴ http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_2015_141_R_0003&from=ES

Table 2: DK Payment
Denmark

Business area	Interfaces	Formats	Standards	Comments
Payment initiation	Messaging	XML EDIFACT Flat file	ISO 22002 Swift Proprietary bank formats	ISO 22002 is a new common international standard. Most banks in Denmark support this standard. Banks also support NemKonto
Interbank	Messaging	XML EDIFACT Flat file	ISO 22002 Specific bank formats	Primary national proprietary standards, ISO 22002 is used a little.
Payment reconciliation	Messaging	XML EDIFACT Flat file NemKonto	ISO 22002 Swift NemKonto	ISO 22002 within the bank sector and NemKonto as national standard. It's possible to ensure interface between B2G and B2B and gain information through e-Delivery

Important stakeholders:

Nets

Finansrådet

Danish Business Authorities

Danish Agency for Digitisation – (NemKonto)

ERP solution providers

KMD

Table 2: FI Payment
Finland

Business area	Interfaces	Formats	Standards	Comments
Payment initiation	Banking solutions	XML	ISO20022 SWIFT	
Interbank	N/A	N/A	SWIFT	
Payment reconciliation	N/A	XML	ISO20022 SWIFT	

Important stakeholders:

Ministry of Finance

State Treasury

Banking solution providers

National and international banks

Finance Finland FFI

SFS (Finnish Standards Association)

Table 2: IS Payment**Iceland**

Business area	Interfaces	Formats	Standards	Comments
Payment initiation	N/A	N/A	N/A	N/A
Interbank	N/A	N/A	N/A	N/A
Payment reconciliation	N/A	N/A	N/A	N/A

Important stakeholders:

- Greiðslumiðlun SÍ
- Arion banki, Íslandsbanki, Landsbankinn
- Reiknistofa bankanna

Table 2: NO Payment
Norway

Business area	Interfaces	Formats	Standards	Comments
Payment initiation	Messaging	XML EDIFACT Flat file	ISO 20022 Proprietary Swift	Based on the requirements from SEPA, ISO 20022 (based on national implementation guidelines) is in the process of being implemented in the market replacing existing EDIFACT and flat file formats.
Interbank	Messaging	EDIFACT Flat file	Proprietary Swift	Information between banks are based on national proprietary standards. Implementation of ISO 20022 under discussion.
Payment reconciliation	Messaging	XML EDIFACT Flat file	ISO 20022 Proprietary Swift	Based on the requirements from SEPA, ISO 20022 (based on national implementation guidelines) is in the process of being implemented in the market replacing existing EDIFACT and flat file formats.

Important stakeholders:

Difi, representing public sector and government policy

DFØ and NAV, representing public sector as user of banking services

Bits, representing the banking community

DNB, Nordea, Sparebank1 as the dominant banks in the market

ERP solution providers

Table 2: SE Payment
Sweden

Business area	Interfaces	Formats	Standards	Comments
Payment initiation	NA	XML EDIFACT Flat file?	NA	
Interbank	NA	XML EDIFACT Flat file?	NA	
Payment reconciliation	NA	XML EDIFACT Flat file? Svefaktura	NA	

Important stakeholders:

ERP solution providers

SIS

Upphandlingsmyndigheten

Wisma

GS1

SKL?

Table 3: DK Inventory management

Denmark

Business area	Interfaces	Formats	Standards	Comments
Warehousing	Messaging API	XML SAP and Oracle standards	GS1 SAP/Oracle	Mainly bases on standards from ERP-systems
Scheduling	API	XML	Proprietary	Mostly standards from ERP-systems
Transport booking	Messaging API	EDIFACT XML Flat files	EANCOM Proprietary	There are more standards from transport companies
Pick-up	Messaging API	EDIFACT XML Flat files	EANCOM Proprietary	There are more standards from transport companies
Transshipment	Messaging API	EDIFACT XML Flat files	EANCOM Proprietary	There are more standards from transport companies
Customs clearance				
Delivery, including proof of delivery	Messaging API	EDIFACT XML Flat files	EANCOM Proprietary	There are more standards from transport companies

Important stakeholders:

Transport companies

GS1

KMD

Table 3: FI Inventory management

Finland

Business area	Interfaces	Formats	Standards	Comments
Warehousing	N/A	N/A	N/A	
Scheduling	N/A	N/A	N/A	
Transport booking	N/A	N/A	N/A	
Pick-up	N/A	N/A	N/A	
Transshipment	Message or Web Service (WS)	EDIFACT XML	WCO	ITU and NCTS have EDIFACT interface which is based on the UN/EDIFACT directory of version 96B and there is a link to the WCO DM. These systems will be replaced by one unified system in the coming few years.
Customs clearance	Message or Web Service (WS)	EDIFACT XML	WCO	ITU and NCTS have EDIFACT interface which is based on the UN/EDIFACT directory of version 96B and there is a link to the WCO DM. These systems will be replaced by one unified system in the coming few years.
Delivery, including proof of delivery	Message or Web Service (WS)	EDIFACT XML	WCO	ITU and NCTS have EDIFACT interface which is based on the UN/EDIFACT directory of version 96B and there is a link to the WCO DM. These systems will be replaced by one unified system in the coming few years.

Important stakeholders:

Finnish customs
 ICT solution vendors
 Messaging operators

Table 3: IS Inventory management

Iceland

Business area	Interfaces	Formats	Standards	Comments
Warehousing	Messaging	EDIFACT	GS1 EANCOM / ICEPRO	
Scheduling				
Transport booking				
Pick-up				
Transshipment				
Customs clearance		EDIFACT WEB	GS1 EANCOM / ICEPRO	
Delivery, including proof of delivery		EDIFACT and misc	GS1 EANCOM / ICEPRO	

Important stakeholders:

- Iceland customs
- Transport companies

Table 3: NO Inventory management
Norway

Business area	Interfaces	Formats	Standards	Comments
Warehousing	Messaging API	XML	GS1 XML TransportXML	Mostly covered by use of proprietary implementation in the individual transport companies based on the standards mentioned.
Scheduling	API		Proprietary	Mostly covered by use of proprietary solutions provided by the individual transport companies.
Transport booking	Messaging API	XML EDIFACT Flat file	Proprietary TransportXML	Mostly covered by use of proprietary implementation in the individual transport companies based on the standards mentioned.
Pick-up	Messaging API	XML EDIFACT Flat file	Proprietary	Mostly covered by use of proprietary solutions provided by the individual transport companies.
Transshipment	Messaging API	EDIFACT Flat file XML	Proprietary TransportXML	Mostly covered by use of proprietary solutions agreed between the individual transport companies.
Customs clearance	Messaging	EDIFACT XML	Tvinn TET	Proprietary (Tvinn) and European solutions (TED) defined by Norwegian Customs
Delivery, including proof of delivery	Messaging API	XML EDIFACT Flat file	Proprietary	Mostly covered by use of proprietary solutions provided by the individual transport companies.

Important stakeholders:

Norwegian customs

Transport companies

GS1

Providers of logistics/transport solutions

Table 3: SE Inventory management

Sweden

Business area	Interfaces	Formats	Standards	Comments
Warehousing	NA	NA	NA	
Scheduling	NA	NA	NA	
Transport booking	NA	NA	NA	
Pick-up	NA	NA	NA	
Transshipment	NA	NA	NA	
Customs clearance	NA	NA	NA	
Delivery, including proof of delivery	NA	NA	NA	

Important stakeholders:

Swedish customs

xx

Table 4: DK Product Catalogue management

Denmark

Business area	Interfaces	Formats	Standards	Comments
Establish catalogue for use				
Share catalogue information	Messaging API (Punch-Out)	EDIFACT XML Flat file	EANCOM OIOUBL SAP Punch-out Proprietary	EDIFACT is most used in B2B sector. OIOUBL is used Public sector. SAP Punch-out is used by more big companies. Proprietary standards are used by more catalogue providers
Maintain and synchronise catalogue information	Messaging API (Punch-out)	EDIFACT XML Flat file	EANCOM OIOUBL SAP Punch-out Proprietary	EDIFACT is most used in B2B sector. OIOUBL is used Public sector. SAP Punch-out is used by more big companies. Proprietary standards are used by more catalogue providers
Remove catalogue from use	Messaging API (Punch-out)	EDIFACT XML Flat file	EANCOM OIOUBL SAP Punch-out Proprietary	EDIFACT is most used in B2B sector. OIOUBL is used Public sector. SAP Punch-out is used by more big companies. Proprietary standards are used by more catalogue providers

Important stakeholders:

Danish Business Authority

MySupply ApS

Catalogue providers as TrueLink, Comcare, IBX (now Tradeshift)

KMD

Table 4: FI Product Catalogue management

Finland

Business area	Interfaces	Formats	Standards	Comments
Establish catalogue for use	Message or supplier portals or punch out - integrations	excel xml OCI (open catalogue interface)	xcbl 3.5 UBL edi OCI	
Share catalogue information	Message or supplier portals or punch out - integrations	N/A	N/A	
Maintain and synchronise catalogue information	Message or supplier portals or punch out - integrations	N/A	N/A	
Remove catalogue from use	Message or supplier portals or punch out - integrations	N/A	N/A	

Important stakeholders:

Purchase to pay –solution providers such as SAP, Basware, Visma

ERP solution providers

SFS (Finnish Standards Association)

Table 4: IS Product Catalogue management

Iceland

Business area	Interfaces	Formats	Standards	Comments
Establish catalogue for use	N/A	N/A	N/A	
Share catalogue information	N/A	N/A	N/A	
Maintain and synchronise catalogue information	N/A	N/A	N/A	
Remove catalogue from use	N/A	N/A	N/A	

Important stakeholders:

- X

Table 4: NO Product Catalogue management

Norway

Business area	Interfaces	Formats	Standards	Comments
Establish catalogue for use				Not generally supported
Share catalogue information	API Messaging	XML EDIFACT	GS1 EHF and PEPPOL BIS	The various GS1 messaging standards are probably the most widely used, especially in the grocery industry (B2). Otherwise various forms of punch-out based on proprietary standards are also in common use. EHF is under implementation in public procurement both for messaging and punch-out.
Maintain and synchronise catalogue information	Messaging	XML EDIFACT	GS1 EHF and PEPPOL BIS	The various GS1 messaging standards are probably the most widely used, especially in the grocery industry (B2). EHF is under implementation in public procurement both for messaging and punch-out.
Remove catalogue from use				Not generally supported

Important stakeholders:

Difi, representing public sector and government policies

GS1

ERP solution providers

Table 4: SE Product Catalogue management

Sweden

Business area	Interfaces	Formats	Standards	Comments
Establish catalogue for use	NA	NA	NA	
Share catalogue information	NA	NA	NA	
Maintain and synchronise catalogue information	NA	NA	NA	
Remove catalogue from use	NA	NA	NA	

Important stakeholders:

XXX

Table 5: Comparison

Comparison of e-procurement standardisation and Nordic SmartGovernment B2B.

Comparing the work being done within standardisation of the public e-procurement area and this new process for Nordic SmartGovernment is no easy task. Yet it is necessary to ensure that new tools developed are not conflicting standardisation wise with the ongoing standardisation work.

Relevant associated work.

Figure 1: Draft on comparison.

e-Procurement work within standardisation (TC440 and EU)		e-business reporting
In General.		In General.
Architecture (EU basic architecture)		Architecture
E-procurement architecture is based on EIRA		Plan is to base the architecture on EIRA. (Must be checked if new adds to architecture is needed)
ESPD (EU-directive)		ESPD
Basic core information about companies bidding on public tenders is achievable here. Also, regarding tax payment and public debts.		No similar information is requested in B2B. Possible customer register (database) based on the same concept. Strategic buying. (CPV Codes)
EIF (European Interoperability Framework)		EIF (European Interoperability Framework)
The benefit of EIF will ensure that services are accessible, not only within their national borders, but also across countries and policy areas. In other words, they will apply interoperability in practice. This way, public administrations can to save time, reduce costs, increase transparency, and improve the quality of services that they offer to citizens and businesses.		No similar work is known B2B.
Procurement		Procurement
Catalogues		Catalogues
46 e-catalogue standards are under development. They support B2B as well as B2G, but not including about e-reporting at present. Standards based on UBL 2.01 and UN/CEFACT. All based on BII work UNSPSC codes has been embedded in OIOUBL from the beginning.		Mainly GS1 catalogues in use. E-procurement standards already under development shall also cover needs for B2B more specifically. New standards regarding e-reporting could be a supplement to the existing e-procurement standardisation work. SME's as well as very large companies participates in this work.

e-Procurement work within standardisation (TC440 and EU)		e-business reporting
Ordering		Ordering
e-catalogue standards are under development. They support B2B. Based on same architecture as the commission (EIRA). SME's as well as very large companies participates in this work. All based on BII work. (UBL 2.01)		Mainly GS1, OpenPEPPOL, CEN in use. Standards already under development should cover needs for B2B. New standards regarding e-reporting could be a supplement to the existing e-procurement standardisation work.
Fulfilment		Fulfilment
e-fulfilment standards under development. They support B2B. Based on same architecture as the commission (EIRA). SME's as well as very large companies participates in this work. All based on BII work. (UBL 2.01)		Mainly OpenPEPPOL, CEN in use. Standards already under development should cover needs for B2B. New standards regarding e-reporting could be a supplement to the existing e-procurement standardisation work.
Invoice		Invoice
16 e-invoicing standards are published. (OIOUBL, UN/CEFACT, UN/EDIFACT) They support B2B. EN 16931 series. And CWA's. See annex 1. App. 80.000 codes on products and services. UNSPSC		Mainly OpenPEPPOL, CEN, EN 16931 in use. Standards already under development should cover needs for B2B. New standards regarding e-reporting could be a supplement to the existing e-procurement standardisation work. Primarily based on UNSPSC codes.
Invoice (Credit note)		Invoice (Credit note)
Credit note is a part of TC440. 1 standard is published earlier CEN/TS 16931-3-2:2017 Electronic invoicing.		No known generic work in this area.
e-quoting (Activities preparatory to issue an order)		e-quoting
No on-going work but scheduled to be developed		Relevance for Request, Quotation and Punch-out B2B?
Reminder		Reminder
No known work ongoing		No known work ongoing
Application response		Application response
No known work ongoing		No known work ongoing
Payment		Payment
Within SEPA and PSD under implementation in the EU		No similar work is known B2B.
ISO 20022 (Norway)		Increasingly focus on ISO 20022 in the Business sector. Possible common ground in modelling.
Realtime payment/economy, receipt etc. Possible, but not used. Discuss if		Real time taxes – Necessary in the modelling of the project.

relevant B2G, while relevant B2B and B2C		
Automated control of payment is a part of payment B2G		Automated control of payment for SME's should be included in the modelling.
Inventory Management		Inventory Management
No relevance in Procurement standardisation process. This is only call-of on contract		Essential with Enterprise Resource Planning B2B to ensure due diligence in delivery. Standards within transports are developed, but new standards should be considered in the modelling.
Product Catalogue management		Product Catalogue management
Standardisation work within product catalogues, structure, content, formats etc in e-procurement is ongoing in CEN, but "Management" is not a part of that.		Several proprietary systems, but no standards found.
Other areas/topics		Other areas/topics
Payroll systems		Payroll systems
No relevance in Procurement standardisation		Payroll systems will most likely be a part of the e-reporting procedure. Could be added to modelling of the system. (Gathering data from multiple national systems)
B2F (Business to finances)		B2F
No relevance in Procurement standardisation.		New areas that's not described?
B2C services		B2C services
No relevance in Public Procurement standardisation.		Invoices, credit and documentation to reporting? Real-time invoicing?). Improvement possible.
Insurance		Insurance
No relevance in Procurement standardisation. But many standards are developed B2B.		Relations and needs in modelling? 5 CEN workshop agreements. (XBRL) Creating conceptual model for storing multidimensional data received by XBRL (Rules by EBA and EIOPA). See annex 1 DS/CWA 16744-5:2014.
Bank services		Bank services
No relevance in Procurement standardisation.		Relations and needs in modelling - reporting? ISO 20022 series. 8 international standards and 1 CEN Workshop agreement. (XBRL/XML) See appendix 1
Customs		Customs
No relevance in Procurement standardisation.		Relations and needs in modelling?
VAT: no relevance in procurement		VAT: Need for easier cross-border trade and harmonization for B2B?

National tax authorities		National tax authorities
Relevance to EuroSTAT		Relations and needs in modelling?
Accountants		Accountants
No relevance in Public Procurement standardisation. (Account statements.?)		(Account statements.?)
National statistics		National statistics
No relevance in procurement		Yearly reporting.
Big Data		Big Data
Maybe relevance in Procurement standardisation. (Big Data technological advances such as data mining, data harvesting, business intelligence and data analytics with elastic search capabilities)		Necessary thinking Big Data in B2B modelling.
Blockchain		Blockchain
No relevance in Public Procurement standardisation.		Highly relevant in B2B modelling to ensure correct data capture and exchange.
Cross-border e-reporting		Cross-border e-reporting
No relevance in Public Procurement standardisation.		Simple rules for taxation cross-border and same rules. (check Realtime tax). Plus, common templates.
e-reporting		e-reporting
No relevance in Public Procurement standardisation, but maybe data-relevant standards can be added.		Discussions on reporting to different authorities must be included in modelling. (VAT to tax Authorities. Annual reporting to Business authorities etc.). Maybe a new TC for necessary and relevant standards for “Nordic SmartGovernment”

Søren Jensen
Kalundborg, 09 February 2018.

Annex 1 – Standards

XBRL (Europe – e-reporting)

CWA 16744-1:2014 Improving transparency in financial and business reporting – Part 1 European data point methodology for supervisory reporting

CWA 16744-3:2014 Improving transparency in financial and business reporting – Part 3 European XBRL-Taxonomy Architecture

CWA 16744-4:2014 Improving transparency in financial and business reporting – Part 4 European filing rules

CWA 16744-5:2014 Improving transparency in financial and business reporting – Harmonisation topics – Part 5 Mapping between DPM and MDM

CWA 16745:2014 Improving transparency in financial and business reporting – Metadata container

CWA 16746-1:2014 Improving transparency in financial and business reporting. Standard regulatory roll-out package for better adoption – Part 1 XBRL Supervisory Roll-out guide

CWA 16746-2:2014 Improving transparency in financial and business reporting. Standard regulatory roll-out package for better adoption – Part 2 XBRL Handbook for Declarers

Toll (Europe)

EN/TS 16986:2016/AC2017. Electronic Fee Collection – Interoperable application profiles for information exchange between Service Provision and Toll Charging.

UBL (Global free)

ISO/IEC 19845:2015 Information technology – Universal Business Language Version 2.1 (UBL v 2.1)

UBL (Europe)

CEN/TS 16931-3-2:2017 Electronic invoicing – Part 3-2: Syntax binding for ISO/IEC 19845 (UBL 2.1) invoice and credit note (See also under “Invoice”)

EDIFACT (International)

ISO 9735:1988 plus ISO 9735-1-10 (10 standards)

Financial services (International)

ISO 20022-1:2013 Financial services – UNiversal Financial Industry message scheme – Part 1: Metamodel

ISO 20022-2:2013 Financial services – UNiversal Financial Industry message scheme – Part 2: UML profile

ISO 20022-3:2013 Financial services – UNiversal Financial Industry message scheme – Part 3: Modelling

ISO 20022-4:2013 Financial services – UNiversal Financial Industry message scheme – Part 4: XML Schema Generation

ISO 20022-5:2013 Financial services – UNiversal Financial Industry message scheme – Part 5: Reverse engineering

ISO 20022-6:2013 Financial services – UNiversal Financial Industry message scheme – Part 6: Message transport characteristics

ISO 20022-7:2013 Financial services – UNiversal Financial Industry message scheme – Part 7: Registration

ISO 20022-8:2013 Financial services – UNiversal Financial Industry message scheme – Part 8: ASN.1 Generation

CWA 16744-5:2014 Improving transparency in financial and business reporting – Harmonisation topics – Part 5: Mapping between DPM and MDM (*Same as Insurance*)

Invoice (European)

EN 16931-1:2017 Electronic invoicing – Part 1: Semantic data model of the core elements of an electronic invoice

CEN/TS 16931-2:2017 Electronic invoicing – Part 2: List of syntaxes that comply with EN 16931-1

CEN/TS 16931-3-1:2017 Electronic invoicing – Part 3-1: Methodology for syntax bindings of the core elements of an electronic invoice

CEN/TS 16931-3-2:2017 Electronic invoicing – Part 3-2: Syntax binding for ISO/IEC 19845 (UBL 2.1) invoice and credit note

CEN/TS 16931-3-3:2017 Electronic invoicing – Part 3-3 Syntax binding for UN/CEFACT XML industry invoice D16B

CEN/TS 16931-3-4:2017 Electronic invoicing – Part 3-4 Syntax binding for UN/EDIFACT INVOIC D16B

CEN/TR 16931-4:2017 Guidelines on interoperability of electronic invoices at the transmission level

CEN/TR 16931-5:2017 Guidelines on the use of sector or country extensions in conjunction with EN 16931-1, methodology to be applied in the real environment

CEN/TR 16931-6:2017 Electronic invoicing – Part 6: Result of the test of EN 16931-1 with respect to its practical application for an end user

CWA 16460:2012 Good practice: e-invoicing Compliance Guidelines – The Commentary

CWA 16461:2012 Electronic invoice processes in Europe and enablement of SMEs to use them efficiently

CWA 16462:2012 CEN e-invoice Gateway

CWA 16463:2012 Code of practice for electronic invoicing in the European Union

CWA 16464-1:2012 Electronic invoicing – Part 1 Addressing and Routing

CWA 16464-2:2012 Electronic invoicing – Part 2 Model Interoperability Agreement for transmission and processing of electronic invoices and other business documents

CWA 16464-3:2012 Electronic invoicing – Part 3 Conformance criteria for interoperability between electronic invoicing services

Insurance (Europe)

CWA 16744-1:2014 Improving transparency in financial and business reporting – Harmonisation topics – Part 1 European data point methodology for supervisory reporting

CWA 16744-2:2014 Improving transparency in financial and business reporting – Harmonisation topics – Part 2 Guidelines for datapoint modelling

CWA 16744-3:2014 Improving transparency in financial and business reporting – Harmonisation topics – Part 3 European XBRL Taxonomy Architecture

CWA 16744-4:2014 Improving transparency in financial and business reporting – Harmonisation topics – Part 4 European filing rules

CWA 16744-5:2014 Improving transparency in financial and business reporting – Harmonisation topics – Part 5: Mapping between DPM and MDM