Implementing E-Invoicing on a broad scale

Consultancy Services on behalf of Australian Taxation Office

Bruno Koch
Billentis
July 16, 2015

Contents

0. Executive Summary 4

1. Introduction 6
1.1 Terms and definitions 6
1.2 Purpose 6
1.3 Methodology 6
1.4 About the author 7

2. Overseas markets, models and lessons learned 8
2.1 Overview 8
2.2 Clearance model with B2B obligations 10
2.3 Mandatory models for the B2G invoices 11
2.4 Voluntary models with unstructured bottom-up development 13
2.5 Voluntary models with guidance and structured development 13
2.6 Model with closed electronic loop of electronic order and invoice 14
2.7 Zero-touch E-Invoicing and PDF invoices 15
2.8 Market transparency – marketing communication 16
2.9 Role, status and development of the public sector in Europe 16

3. Implementing E-Invoicing in Australia 21
3.1 Australian market characteristics 21
3.1.1 Overview 21
3.1.2 What does the Australian market have in common with other countries? 21
3.1.3 Differences and anomalies to other countries 22
3.2 Criteria considered for the recommendations 23
3.3 Recommended model 23
3.3.1 Overview and building blocks 24
3.3.2 Australian public sector as E-Invoice receiver (1) 25
3.3.3 Standard B2G access model (2) 27
3.3.4 Selected solution providers supporting the B2G standard (3) 28
3.3.5 Other solution providers (4) 28
3.3.6 B2G suppliers (5) 29
3.3.7 B2B mass-market, B2B standard (6) 29
3.3.8 Proprietary B2B industry standards (7) 30
3.3.9 Australian Multi-Stakeholder Forum (8) 30
3.4 Implementation roadmap 32
3.5 How to achieve broad scale adoption 35
3.6 Expected benefits of the recommended model 36
3.6.1 Saving potential for entire public sector – some examples from overseas 36
3.6.2 Saving potential for entire public sector in Australia 36
3.6.3 Non-quantifiable benefit for the Australian market 37
3.7 Risks & Mitigation Strategies 38
3.8 Development scenario without implementing the recommended model 39

4. The role of the Federal Administration 40

5. Appendix A: Barriers and how to overcome 41

6. Appendix B: Consultation of Stakeholders 43

7. Appendix C: Glossary, Sources 45
7.1 Glossary 45
7.2 Sources 46

Table of Figures

Figure 1: Market maturity for electronic invoices 8
Figure 2: Optimisation focus of geographical regions 9
Figure 3: Real-time audit or clearance model 10
Figure 4: Adoption rate of Finnish government 14
Figure 5: European Market Development 17
Figure 6: European Interoperability Framework 18
Figure 7: Typical adoption rates for public administrations using different approaches 20
Figure 8: Main reasons for payment delays by domestic B2B customers 22
Figure 9: Excluded models and reason 23
Figure 10: Building blocks of the recommended model 25
Figure 11: Roadmap (public sector view) 32
Figure 12: Estimated savings of some local sources overseas 36
Figure 13: Allocation of the estimated savings for inbound invoices in the public sector 37
Figure 14: Risks and Mitigation 38
Figure 15: Main barriers in many European countries 41
Figure 16: Main barriers for mid-sized and larger US companies 42
Figure 17: Organisations that attended the workshops in March and/or May 43
Figure 18: Specific stakeholder feedback and how it is considered in the recommended model 43
Figure 19: Glossary 45
Figure 20: Key sources used in this report 46

0. Executive Summary

Electronic invoicing is the sending, receipt and storage of invoices in electronic format without the use of paper-based invoices as tax originals. The term is used for the Business-to-Business (B2B) and Business-to-Government (B2G/G2B) segment. Most legislators consider a definition that also corresponds with the broad recognition by users. Besides fully structured E-Invoices, the legislation also includes image-based digital invoices (mainly PDFs). The final objective of trading partners is "zero-touch E-Invoicing" with automated exchange and processing between the computers of suppliers and buyers.

Electronic and automated invoice processes can result in savings of 60-80% compared to traditional paper-based processing. Projects typically result in a payback period of 0.5-1.5 years. There are of course several reasons to start an E-Invoicing project, but one is the strongest driver: Even during a period of robust economic growth, organizations state that the major driver for process automation was the improvement of finances. This is especially valid in today's challenging economy. Digitization is also a significant engine for economic growth. This perception is therefore reflected in "digital agendas" in most countries.

The public and private sector are currently in the progress of catapulting E-Invoicing to the next level around the world. It is expected that the volume for E-Invoices/E-Bills in 2015 will reach around 42+ billion worldwide, with annual growth rates of 10-20%. The highest market adoption rates are achieved in Brazil (>90%), Mexico (around 75%) and some northern European countries (six countries with >40%). Overall, the European average adoption rate might be around 28% in 2015. The author's estimate for Australia is 10-15% (including image based PDF invoices).

The public sector is responsible for 15-18% of all purchases in a country. It represents typically 9-15% of a country's inbound & outbound invoices. Together with the retail and healthcare industries, it is among the Top 3 invoice processing sectors. Just measuring the volume could result in an underestimation of the public sector, as it has a disproportionate number of suppliers. 65% of Danish and 45% of Swiss businesses are suppliers to the public sector. This high ratio is also confirmed from other European countries. If the public sector decides to exchange invoices just in electronic format, this has a tremendous multiplier effect on broad scale market adoption. Measured by invoice volume, this approach typically results in an additional 15-20% market adoption rate and in a better and more homogenous environment.

In early 2015, the Australian Government, through the Australian Taxation Office, was seeking a consultant to provide recommendations in relation to an implementation model for E-Invoicing in Australia. One question to answer was: How do we achieve broad scale adoption of E-Invoicing in Australia and what is the role of Government in achieving this?

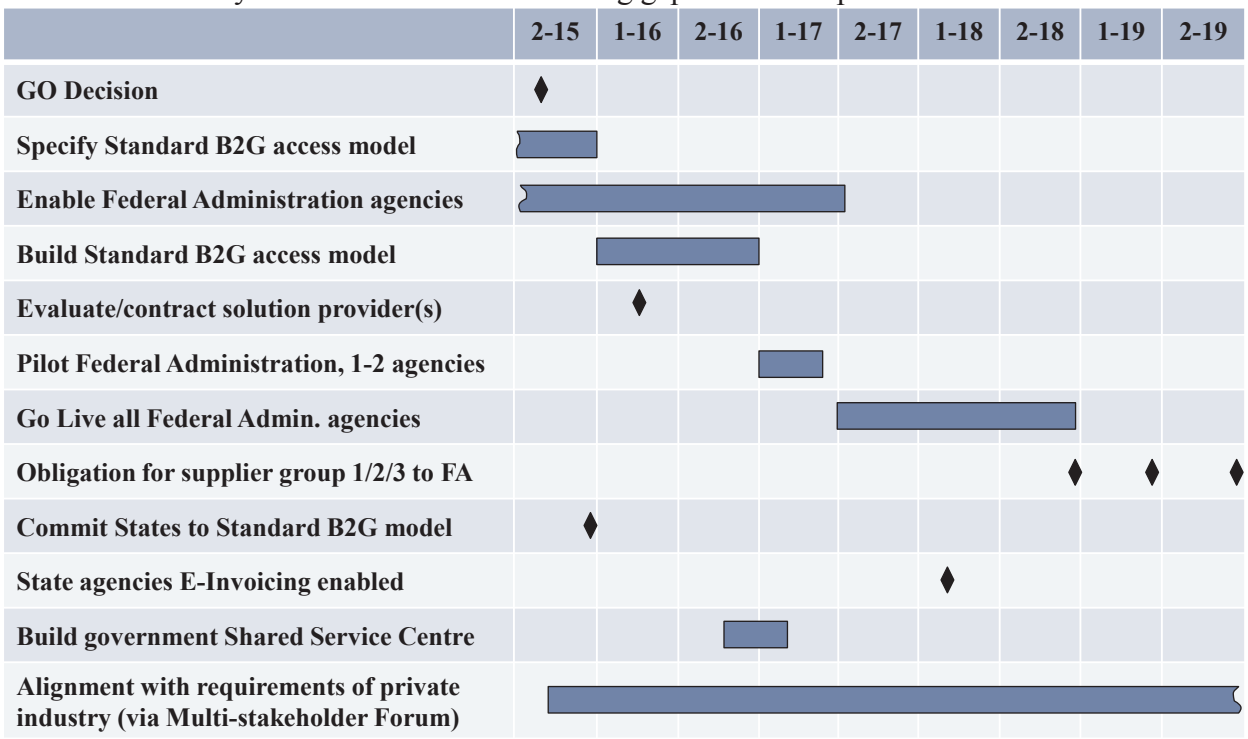
The major components of the recommended model for Australia are based on a holistic interoperability approach from Europe. It considers the lessons learned overseas to avoid the problems they encountered. It is also designed to address the mass market and pave the way for 500,000+ businesses as suppliers to the Australian public sector.

Implementing E-Invoicing by simultaneously aiming for a broad scale market effect is a multi-layered challenge. Just a single action will not lead to success. It is much more the holistic combination of several tasks, performed in a coordinated manner. The Federal Administration is the key enabler for this. It plays a key role as large buyer and promotor for a broad scale market adoption. It has the capacity to address the major five pillars of the recommended model. It should

1. enable all its agencies to receive, process and archive the inbound invoices fully electronically; prepare systems and processes
2. encourage States to follow this step; States shall give a commitment for point 1 and for supporting the standard B2G access model (as specified in point 3)
3. specify a standard for the entire B2G E-Invoice exchange
4. require its suppliers to send them the invoices only electronically via the specified standard interface
5. ensure interoperability with the B2B market and other related business processes (procurement, payment etc.); B2G project as trigger to also exploit the potential in the B2B market

The combination of points 1-4 above paves the way for success in the B2G segment and for addressing the supplier market on a broad scale. Point 5 ensures alignment with the B2B market and maximises the benefits for the entire Australian economy.

An ambitious, but achievable timeframe allows the saving potential in Australia to be exploited, and simultaneously to close the B2G E-Invoicing gap to the European Union:



An extrapolation of published European figures suggests potential annual savings of AUD 2,400-3,000 million just for Australia's public sector. The holistic go-to-market approach of the recommended model will in addition have a positive impact on the quality and efficiency of the market development. The collaboration of all stakeholders will be promoted and encouraged based on a standardized approach. As a result, SMEs in particular will get the chance to select one of many easy-to-use and efficient solutions.

The implementation risks of the recommended model are limited. The building blocks are based on best practice from Europe. In addition, known shortcomings can be avoided. To ensure that Australian particulars and barriers are sufficiently considered, the project team met with several stakeholder groups in Canberra, Melbourne and Sydney in March and May 2015. The audience was enthusiastic. A broad support for the model and its implementation is expected.

The author recommends that the government decides in the short-term to start all required actions for implementing the entire model as recommended in this report.

1. Introduction

1.1 Terms and definitions

The term "**E-Invoicing**" is used for the **Business-to-Business (B2B) and Business-to-Government (B2G/G2B)** segment. It includes exclusively the electronic invoice exchange between suppliers and buyers, but does not consider the data exchange between suppliers or buyers and tax authorities for reporting and control purposes. The European Union legislation considers a relatively broad definition: The issue and receipt of VAT compliant invoices in an electronic format. This definition in Europe corresponds with the broad recognition by users and **also includes image-based digital invoices (mainly PDFs)**.

Most legislations also consider payment slips/receipts and tickets as "tax invoices" if a minimum of information is considered, even if the customer identification is missing. The recommended model in this report considers just tax invoices with all information on it as required by GST legislation, **including the receiver identification & address**.

1.2 Purpose

Electronic and automated invoice processes can result in savings of 60-80% compared to traditional paper-based processing. Projects typically result in a payback period of 0.5-1.5 years. It has primarily been private sector businesses and numerous solution providers that have developed the market in recent years. They were partially supported by public sector initiatives in Latin America and in a handful of countries in Europe and Asia.

The public and private sector are currently in the progress of catapulting E-Invoicing to the next level around the world.

In early 2015, the Australian Government, through the Australian Taxation Office, was seeking a consultant to provide recommendations in relation to an implementation model for E-Invoicing in Australia, including opportunities and potential issues.

Main subject of this report is to answer the following questions:

- What is the recommended E-Invoicing model for Australia?
- How do we implement the recommended Australian E-Invoicing model, utilising lessons learned overseas to avoid the problems they encountered?
- How do we achieve broad scale adoption of E-Invoicing in Australia and what is the role of Government in achieving this?
- Suggested stages of implementation - how do we change the behaviour of simple paper users, and manage different sized market segments?
- Expected benefits of the recommended model, and characterisation of the benefits of E-Invoicing for Australia and Australian business conditions?

1.3 Methodology

Thanks to his 18-year professional career in E-Invoicing, the author knows most market models around the world. Best of breed components from overseas models build the basis of the recommended model for Australia.

To ensure that Australian particulars and barriers are sufficiently considered, the project team met with several stakeholder groups in Canberra, Melbourne and Sydney in March 2015. The aim was to investigate the current environment, problems, success models, concerns and user preferences.

In May, the author presented the interim results of the recommended model to several dozens of stakeholders include

- Federal administration
- State representatives
- Shared service representatives
- Large corporates
- Small Business Association
- Solution and Service Providers
- Banks
- Association of Bookkeepers
- Australian Business Software Industry
- Standardisation experts & organisations

The objective of the workshops in Canberra, Melbourne and Sydney was to introduce the model, but also to get critical feedback from key stakeholders.

The list of stakeholders that attended in the meetings in March and May can be found in Appendix B.

Remark: The audience was enthusiastic. A broad support for the model and its implementation is expected.

1.4 About the author

After 8 years as a consultant at PricewaterhouseCoopers, Bruno Koch worked for 4 years in a management position for Credit Suisse. The author has worked in the E-Invoicing business since 1997. During the first two years in Switzerland, he established on behalf of Swiss banks one of the first E-Billing/E-Invoicing services in Europe. Since 1999, he has acted as an independent consultant and has made business plans, requests for proposals, system evaluations and many technical and marketing concepts for large invoice issuers and recipients, banks, integrators, solution and service providers. Since then, the author has worked for more than 160 customers in 50+ countries. Among the customers are several larger E-Invoicing end-users, solution providers and governments. During this time, he has constantly collected important data about the relevant markets. He repeatedly publishes results in newsletters and market reports in his role as international industry market analyst. Bruno was also member of the former European Commission Expert Group on E-Invoicing.

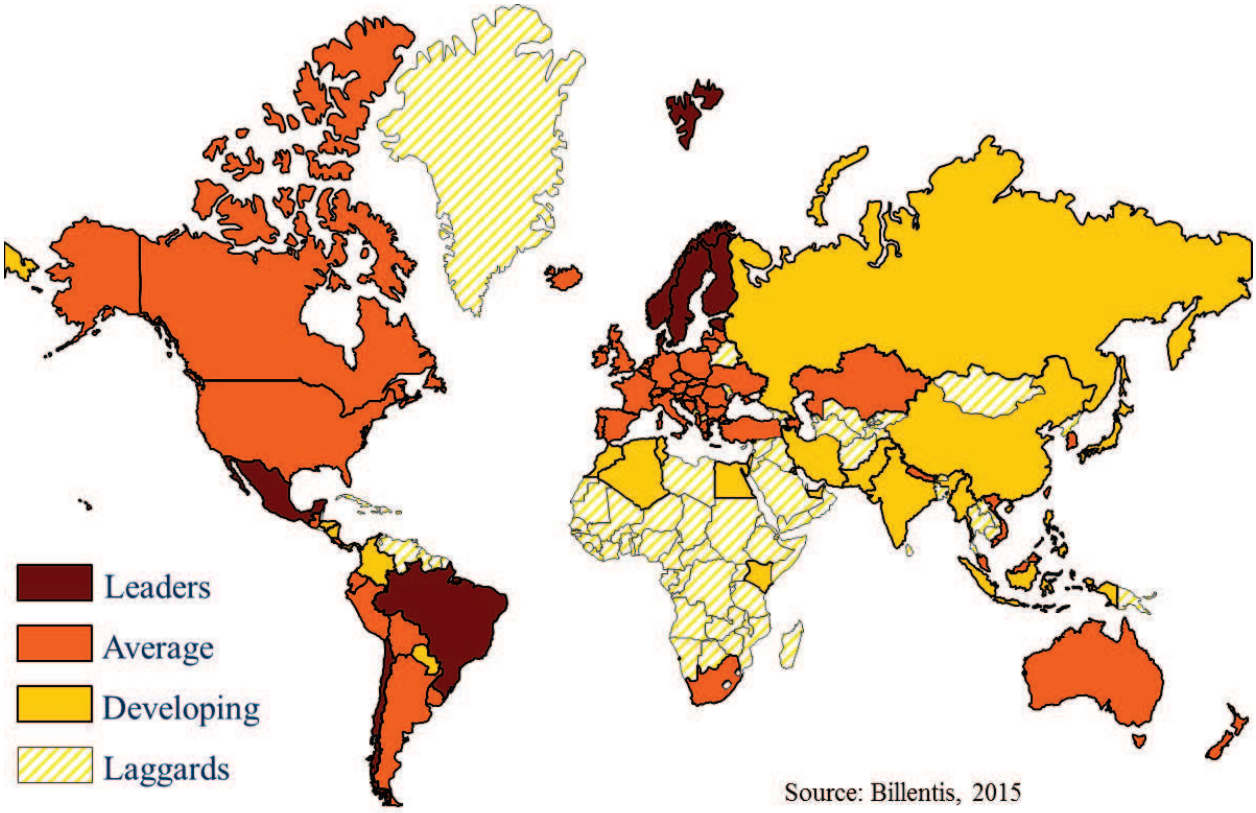
Author contact:
Bruno Koch
Billentis
9500 Wil
Switzerland
Phone: +41 71 911 60 32
www.billentis.com

2. Overseas markets, models and lessons learned

2.1 Overview

E-Invoicing started in the nineties. Before the millennium, very few countries already had legislation in place permitting E-Invoicing. Now it is legally permitted and on the agenda almost everywhere around the world. The maturity of the market varies between continents and the countries on each continent.

Figure 1: Market maturity for electronic invoices



The term "Laggards" in the chart above does not mean that there was no E-Invoicing activity in these countries. It just expresses that they are typically in an early stage, often starting with just electronic bills to consumers. "Developing" means that countries are typically in the next evolution phase. Either they are preparing their legislation for B2B E-Invoicing as well or, if already in place, the E-Invoicing volume is still very low.

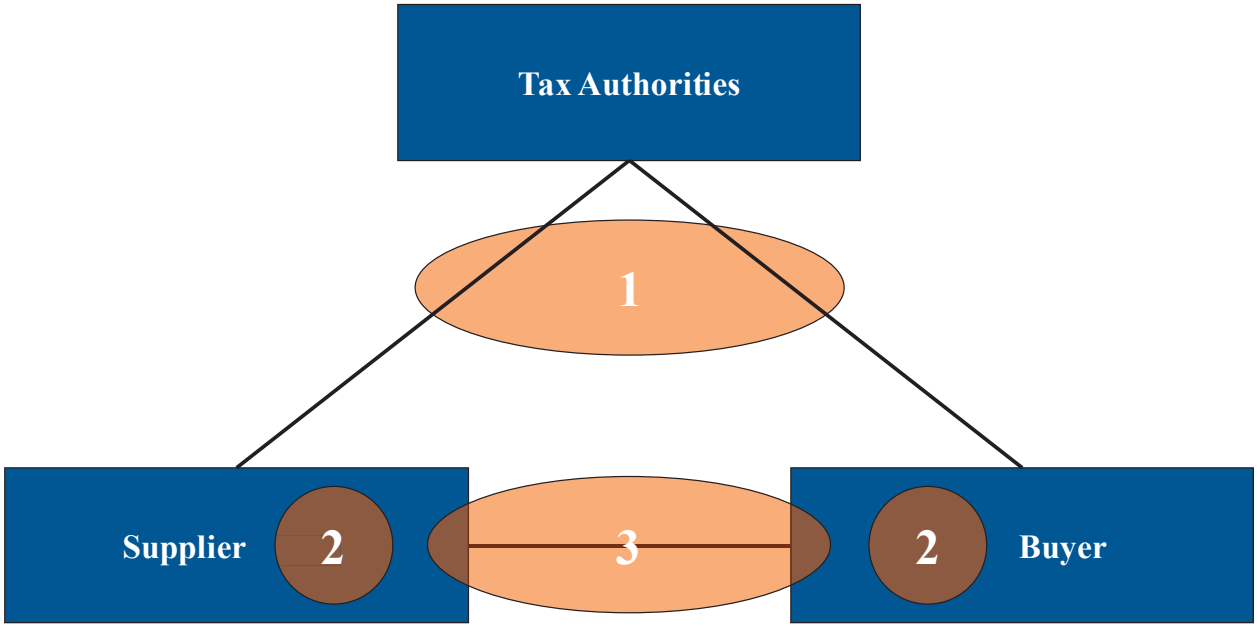
It is expected that the volume for E-Bills/E-Invoices in 2015 will reach around 42+ billion worldwide, with annual growth rates of 10-20%.

The highest market adoption rates are achieved in Brazil (>90%), Mexico (around 75%) and some northern European countries (six countries with >40%). Overall, the European average adoption rate might be around 28% in 2015. The author's estimate for Australia is 10-15%.

There are many similarities as to how invoices are used in our world. The challenge to implement E-Invoicing and to convince trading parties is also comparable. However, there are also

major differences due to heterogeneous legislation, languages, cultures and the current optimisation focus. Although not applicable for all countries and organisations, the author concluded that the optimisation focus seems to be as follows:

Figure 2: Optimisation focus of geographical regions



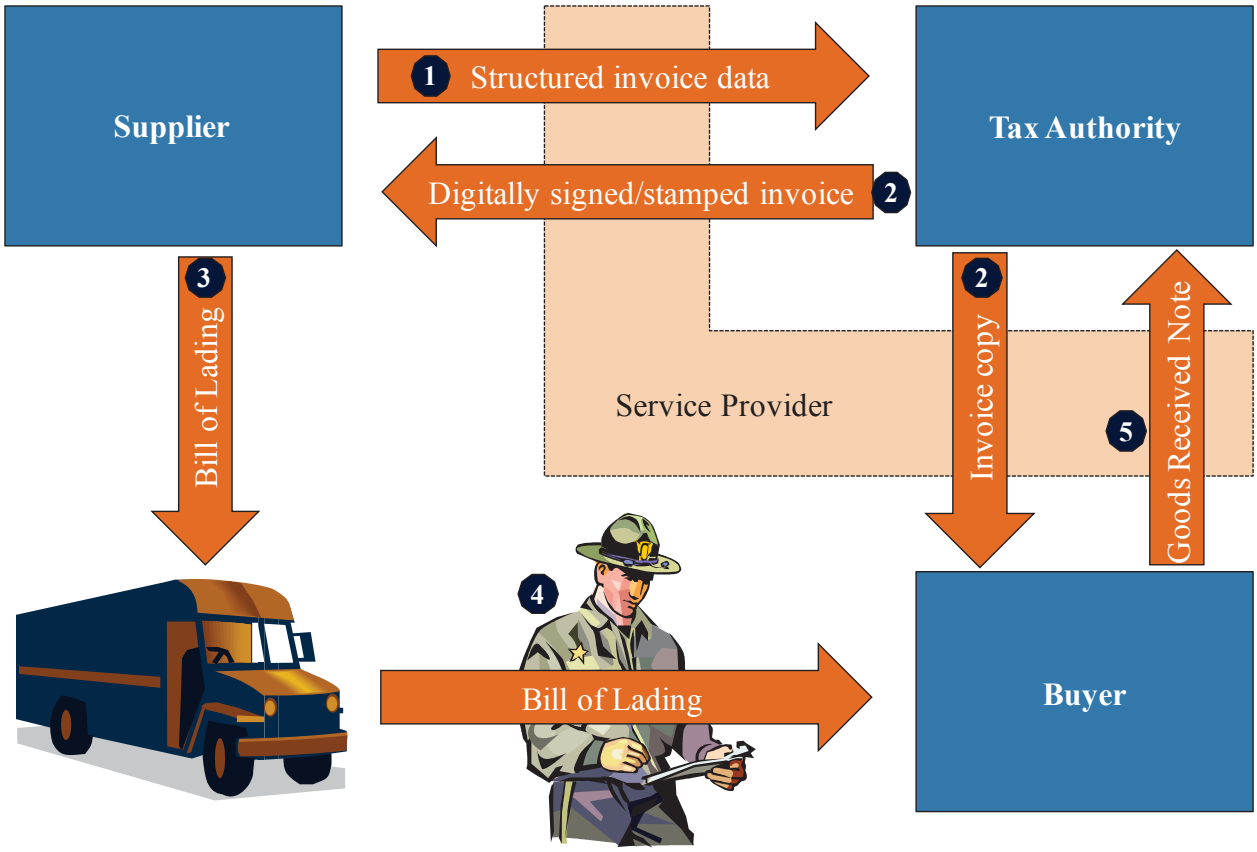
Focus	Description
1	**Asia & Latin America** (and increasingly some Southern and Eastern European countries): Countrywide projects are launched by the tax authorities with the aim of reducing tax evasion. Suppliers and buyers have to send either invoice data or at least reports in electronic format to the tax authorities for real-time validation & auditing. The "clearance system" for the trading parties is quite complex. As a benefit, suppliers and buyers have electronic invoices, but just because the government is demanding or mandating it. The company's internal process efficiency and electronic collaboration between supplier and buyer are not yet necessarily optimised. This approach is preferably used in countries with a shadow economy of more than 15% and a public debt rate of above 60%.
2	**North America:** Larger and mid-sized companies optimise mainly their internal processes. AR and AP automation as well as Trade Finance and Working Capital Management are a focus. Electronic collaboration with trading partners is (not yet) in the foreground and is far from reaching the broad scale market.
3	**Major parts of Europe:** Suppliers and buyers can be located in various countries with different legislation. Much effort was made in EU member states to remove legal barriers. For Europeans, it is also important to build a framework, which is suitable for millions of companies of any size and from different countries. Hundreds of E-Invoicing network operators offer their services, many of them interconnected with other providers. Suppliers and buyers may in most countries still use E-Invoicing on a voluntary base. Although the market is still quite fragmented, the approach in Europe can be described as relatively holistic, with a strong intention to collaborate among all stakeholders.

Whereas the clearance model as practiced in Latin America and other countries in Asia is launched by the government, market development in North America happens bottom-up.

2.2 Clearance model with B2B obligations

Within just a few years, Latin American countries like Brazil established a very successful model regarding E-Invoicing market penetration and fraud reduction. Applying this model, almost all invoices in a country can be audited real-time or near real-time. The implementation in many Latin American countries has already been carried out, or is in an advanced state. Several Asian countries are adopting at least major parts of this model. Due to the benefits for the government (fraud reduction) and businesses (process optimisation and cost reduction), the author expects to see the adoption of this model in African and some European countries in the long term as well.

Figure 3: Real-time audit or clearance model



Step	Description
1	After receiving a purchase order from the buyer, the supplier generates the invoice data and sends it (typically in a country-specific XML format) to the tax authority for validation.
2	Tax Authority puts a digital signature or "stamp" on it. This can be hidden or in the form of a visible alphanumeric code or barcode. They send this approved version back to the supplier, and a copy to the buyer.
3	On receipt of this approved version, the supplier is now (not before) entitled to ship the ordered goods. The supplier provides the approved invoice for the "Bill of Lading" to the transport organisation. It can be an electronic download to any mobile device (best case) or a printed version (more common today) with a visible code.

4	Customs or police can check the Bill of Lading with appropriate equipment and can see immediately if the transported goods are registered correctly.
5	The buyer controls if the delivery is correct. If so, he has to send an electronic confirmation (goods received note) to the tax authorities. A copy is provided for the supplier and the electronic loop is closed for all parties involved. As the buyer is fully considered in this cycle, fraud by over- and under-invoicing can be eliminated.

Brazil achieved the highest market penetration (>90%) globally for electronic invoices in the B2B/B2G segment. Meanwhile, almost 1 billion electronic invoices are exchanged every month in the country. This result was possible due to the strict implementation of its E-Invoicing obligation several years ago. The government is now in the process of closing the next electronic loop between retailers, customers at the point of sales and the tax authorities. The aim of the NFC-e Project is to be an alternative to current fiscal printers used in the retail segment by a fully electronic solution, based on an XML file, with a digital signature which is authorized online before the payment at the point of sales. In addition, customers (persons or businesses) with purchases above $ 5,000 are obligated to provide identification. NFC-e is the last frontier of electronic tax documents in Brazil. In a short time, all tax documents will be in the database of the Tax Administration, prior to operation.

Lessons learned & critical evaluation

- A broad scale project is feasible even if a federal country has to convince states to follow the demanding approach.
- Combatting B2B tax evasion and supervising B2B invoices is in the foreground. As B2G E-Invoicing (government in the role as buyer) is not in the foreground, the government intends to define quite complicated rules and regulation for the B2B. The rules would probably be much easier if the government also gained experience in the role as user instead of just tax authority.
- Require the mass market to use complex systems and digital signatures works in case of a tough government dictate. In Mexico, responsible business persons can be fined or even be sent to prison if they do not migrate or violate the specified rules. Portuguese taxpayers failing to comply with the regulation may face penalties up to tens of thousands of euro.
- The model is effective regarding combatting tax evasion (the Portuguese tax administration invested EUR 2.5 million into an indirectly comparable system and achieved additional revenues of EUR 800 million in the first year).
- Digital invoice and audit data exchange between businesses and the tax authorities was in the foreground up today.
- Although the invoice data were electronically available, they are not yet sufficiently used for the collaboration between suppliers and buyers. The automation effect is still very limited as it was not the major focus when the models were developed and rolled out.

2.3 Mandatory models for the B2G invoices

The public sector is responsible for 15-18% of all purchases in a country. It represents typically 9-15% of a country's inbound & outbound invoices. Together with the retail and healthcare industries, it is among the Top 3 invoice processing sectors. Just measuring the volume could result in an underestimation of the public sector, as it has a disproportionate number of suppliers. 65% of Danish and 45% of Swiss businesses (Sources: Danish and Swiss government) are suppliers to the public sector. This high ratio is also confirmed from other European countries.

If the public sector decides to exchange invoices just in electronic format, this has a tremendous multiplier effect on broad scale market adoption. Measured by invoice volume, this approach

typically results in an additional 15-20% market adoption rate and in a better and more homogenous environment.

There are some governments already receiving most or all invoices in electronic format (Austria, Brazil, Denmark, Finland, Italy, Norway, Slovenia, USA etc.), but generally the public sector is lagging behind the private sector. This is just now in the process of changing completely.

Due to its relevance as invoice processor and cost cutting pressure, public administrations increasingly substitute paper for electronic invoices. Many others also do it because E-Invoicing builds a cornerstone within their digital agenda.

We can currently distinguish various levels of obligations:
1. Obligate just the public sector agencies to become "E-Invoicing ready"; they have to enable their IT systems and their internal processes for E-Invoice processing.
2. Require suppliers to send them invoices just in electronic format
3. Obligations just affecting the environment of the Federal Administration
4. Obligations affecting the entire public sector, including the Federal Administration, the States, Cities and Municipalities

In most cases, with a B2G E-Invoicing obligation the government specifies the format standard and some other rules regarding how they shall receive E-Invoices. This can be a subset of the standard OASIS UBL (like in Denmark and Norway), a subset of GS1 like in Slovenia or any country-specific standard (Austria, Finland, Italy, Spain, Switzerland etc.).

The government acts on one side as a buyer and invoice receiver, but on the other side almost always also as facilitator for supporting activities, like invoice standardisation and collaboration with private industry.

In most cases, implementation was successful and in record time of 1-2 years (Austria, Denmark, Italy, Slovenia) but can also be more time-consuming in other cases. Most governments decided for a rollout in 3 steps, following the size of suppliers. However, the big-bang approach (one hard deadline for all suppliers) also worked successfully in the case of Austria.

The Danish government specified the B2G access and evaluated in the beginning five VAN operators as aggregators for inbound invoices. The Norwegian government intended first to choose just one single point of entry, but finally accepted several service providers as input channels (based on the approach of PEPPOL). In Spain and Italy, several service providers can be chosen as inbound channels. The Swiss Federal Administration in the first four years used just one single point of entry. The contracted service provider was not able to fulfil the expectations regarding encouragement and onboarding of a high number of suppliers. When the contract terminated after 4 years, the Federal Administration widened the scope. Since then they have contracted three access points (each of them having strength in certain market segments and/or certain invoice formats; the number of service providers is not limited in the future). The Austrian Federal Administration permits invoice delivery via service providers or directly via upload on the government's finance portal or keying-in on the website.

Although some governments require its suppliers to send the invoices just in electronic format, they ensure that an easy-to-use and efficient channel also exists for the numerous small businesses with low invoice volume. Government agencies either provide a website where the low volume suppliers can key-in their invoices without any fees, or agencies just contract service providers ensuring something comparable. In the latter case governments can avoid establishing an expensive supplier help-desk.

Lessons learned & critical evaluation

- Government activities in general, and a B2G obligation in particular, are the strongest catalyst for a country-wide increase of market adoption.
- Government activities significantly help to improve the homogeneity in markets and to remove barriers for the SMEs.
- If smart rules are defined, the interoperability of service providers can be pushed.
- Obligations are required for really pushing forward the market
- Excellence in marketing communication is at least as important as building the prerequisites (standardisation, preparing own systems for electronic invoice processing).
- The acceptance by the mass market is best if
    - The step for users is not too big; e.g. PDF invoices as evolution step for small users
    - The government activities start in an early stage (before the B2B market is too advanced)

2.4 Voluntary models with unstructured bottom-up development

New technologies like E-Invoicing are developed by private industry. In stage one it is the solution provider community, which convinces market participants to substitute expensive paper processes with digital ones. In most countries of comparable size with Australia, about 50 competitors offer different solutions and are able to generate a market **adoption rate** for E-Invoices of only **3-10% after several years** of going-to-market.

Lessons learned & critical evaluation

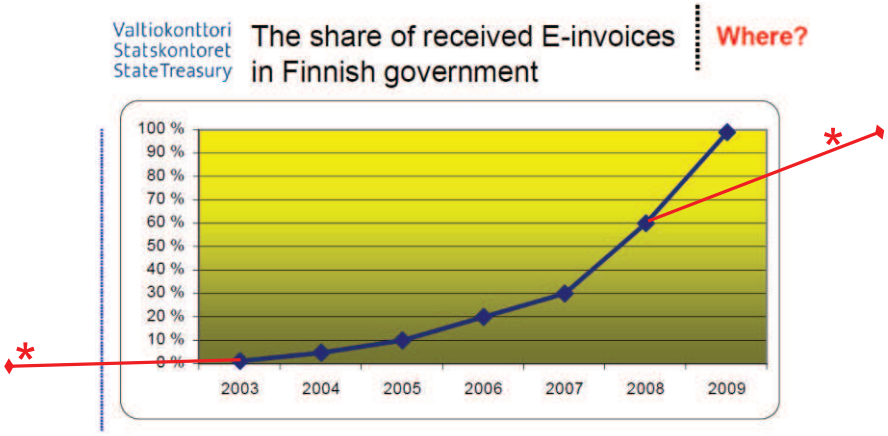
- The landscape is highly heterogeneous.
- Normally, nobody is able to become a clear market leader.
- Most businesses wait until a clear market leader appears or the government gives some guidance to the market.

2.5 Voluntary models with guidance and structured development

The vast majority of industrialized European countries passed through the unstructured bottom-up development in phase one, followed by a more structured process in phase two. The semi-structured process is often initiated by open-minded E-Invoicing service providers. They define on a voluntary basis some rules for an improved interoperability between their platforms. They also build online information platforms and push the visibility of the topic E-Invoicing with the aim of pushing market development. Although big progress has already been made, is it almost always necessary to have the public sector on board for a fully structured and strong uptake of the market. However, the usage of E-Invoicing remains voluntary for all stakeholders. With this structured approach, the market **adoption rate after a decade is typically 20-30%**.

For a single entity, the result is typically better if they actively push it.

Figure 4: Adoption rate of Finnish government



Source of original chart: Jere Reinikainen State Treasury, Finland, 2008

* Two red lines added by Bruno Koch due to inside information he got after the presentation of this chart in 2008

Finland traditionally has a culture of innovation. The government already supported inbound E-Invoicing around the millennium. The electronic proportion rose just slightly for several years, but gained momentum after 5-6 years. It was however voluntary for the suppliers to send the invoices electronically. The pressure was increased in later years and became mandatory in the final phase. In all it took over 10 years to reach the state where all invoices are in electronic format.

Lessons learned & critical evaluation

- This voluntary approach is market friendly with no or limited intervention from the government.
- It corresponds with the evolution in most European countries.
- The market evolves towards a limited interoperability between service providers, but many barriers still stay in place.
- Overall, it is not however a big success. For more than a decade, paper and electronic invoices have to be processed in parallel with this approach. Best-in-class countries like Austria and Denmark proved that this transition phase towards a full electronic environment can be shortened by factors with a different approach as described in chapter 2.3.

2.6 Model with closed electronic loop of electronic order and invoice

The author knows “perfect examples” on the company level. The large buyer decides to issue future orders just in electronic format. For each supplier, an online account is prepared. Suppliers are informed via email and/or fax that they have to activate the prepared account on a certain extranet website. After activation they are able to view the order online or download the structured data to their ERP system. Via the same channel, they are able to send back an E-Invoice. Online users can just click the button “Purchase Order Flip” to generate an invoice based on the order data. As suppliers are keen to get orders, they accept the new electronic channel. A win-win situation appears simultaneously for buyers and suppliers with the two-way interaction E-Order & E-Invoice.

Lessons learned & critical evaluation

- It is quite a perfect model for single entities with a stable supplier basis, a high proportion of purchase order based invoices and higher order/invoice volumes. It is less appropriate for lower invoice volumes and if many suppliers get just one-time orders.

- No examples are known for a broader or even countrywide usage. Barriers for broad scale usage could be the steady churn of suppliers and the limited proportion of purchase order based invoices.

2.7 Zero-touch E-Invoicing and PDF invoices

The vision and objective of larger businesses and opinion leaders is the fully automated exchange and processing of invoices between ERP systems. This is of course a strongly desirable objective. In large-scale, this will only be achievable in the long run. It requires that even small businesses use accounting software including AR and AP modules being able to export and import structured invoice data.

The reality is, of course, different. Probably 10,000 different ERP/accounting systems are used in Europe (→ estimated 500-800 in Australia). In addition, many businesses create invoices with simple tools like Word or Excel. 40-50% of all businesses have outsourced at least parts of its accounting processes to third party bookkeepers. This is hindering the direct ERP-to-ERP invoice exchange between supplier and buyer, as the invoice exchange has to happen in a triangular collaboration.

PDF invoices are legally also considered as "E-Invoices" in almost all legislation for good reasons. They are a fact in practise.

Recent surveys in countries like Austria, Estonia, Germany and Spain indicate that in 2014, the proportion of PDF invoices was around ¾ of all electronic invoices (indirectly also confirmed for Australia by many stakeholders). Taking into consideration a brand new survey in Germany [1], just 9%[1] of the businesses already issuing E-Invoices do it as EDI invoice data.

In recent years, a combination of PDF+XML invoices gained ground. Either this happens with two separate files, or a XML data set is embedded in the PDF. This seems to be an appropriate way to fulfil the requirements of large, mid-sized and small enterprises. It could be a way to reduce the current dominance of just image-based PDFs.

The German multi-stakeholder forum is strongly pushing the approach with invoice XML data embedded in PDF invoices. It fulfils the requirements of large as well as of mid-sized and small businesses.

The German ZUGFeRD standard [2] is based on two international standards: It embeds a subset of CEN CII (Cross Industry Invoice) and MUG (Message User Guides) as XML into the PDF/A-3 file. PDF/A-3 is an ISO-standardized version (ISO 19005-3) of the Portable Document Format (PDF) specialized for the digital preservation of electronic documents. It can be seen as a data container, where any other file (XML, Word, etc.) can be embedded. The German public sector and numerous private industry associations support this hybrid file. Open-source solutions are also available for solution developers. There are indications that the technique could also be supported by the new EU-wide standard (in parallel to a pure XML model). We should receive the formal decision in summer 2015.

Remark B. Koch: This hybrid format is also considered in the recommended model for Australia.

[1] 2% small, 10% mid-sized and 28% large businesses

2.8 Market transparency – marketing communication

European E-Invoicing initiatives and working groups are intended to be operated by technocrats and experts mainly coming from the technical and standardisation fields. In most cases such groups specify excellent solutions, but they tend to do so in "black boxes"; only a closed user group knows what is going on. Marketing communication is often non-existent or poor.

The "European Multi Stakeholder Forum on Electronic Invoicing" has been working for several years already. However, the last update on its website (Link) is from 2013. The same is the case with the standardisation organisation CEN developing the new standard, as it shall be used by all public sector agencies in the European Union. The website does not provide much information at the moment of writing this report, although probably more than 100,000 EU agencies will be affected by it soon.

In market surveys, most businesses confirm their general interest in using E-Invoicing. In the new ibi study [1] 35% of invoice issuers and 40% of receivers prefer E-Invoices to paper invoices. However, there are many barriers to starting and implementing. One major hindrance is the lack of information and market transparency. Most businesses do not know:

- how to practice E-Invoicing (except PDF invoices via email)
- which trading partners would already support it (no transparency of user network)
- how to identify the solution offering appropriate for them
- if there are legal constraints for using and preserving it

Most countries still have a tremendous potential to exploit up-to-date information and increasing market transparency. There are fortunately already some good examples, such as

- Austrian Chamber of Commerce (Link) and Federal Administration (Link)
- Belgium multi-stakeholder forum (Link)
- German multi-stakeholder forum (Link), service provider association (Link) and private invoicing portal listing solution providers supporting new standard (Link)
- Italian Ministry of Finance (Link) and especially FatturaPA (E-Invoicing in public sector, Link)
- OASIS UBL (Link)
- PEPPOL (Link)
- Public directory of E-Invoicing users in Finland (Link) and Switzerland (Link) with reference to the service provider they are using
- Swiss multi-stakeholder forum (Link) and Federal Administration (Link)
- UK National e-Invoicing Forum (Link)

Lessons learned & critical evaluation

- Probably 50% of the success depends on marketing communication excellence.
- Communication experts have to be on board internal and external E-Invoicing projects from the outset.
- Communicate at least twice as much as you believe is necessary – you can never over-communicate!

2.9 Role, status and development of the public sector in Europe

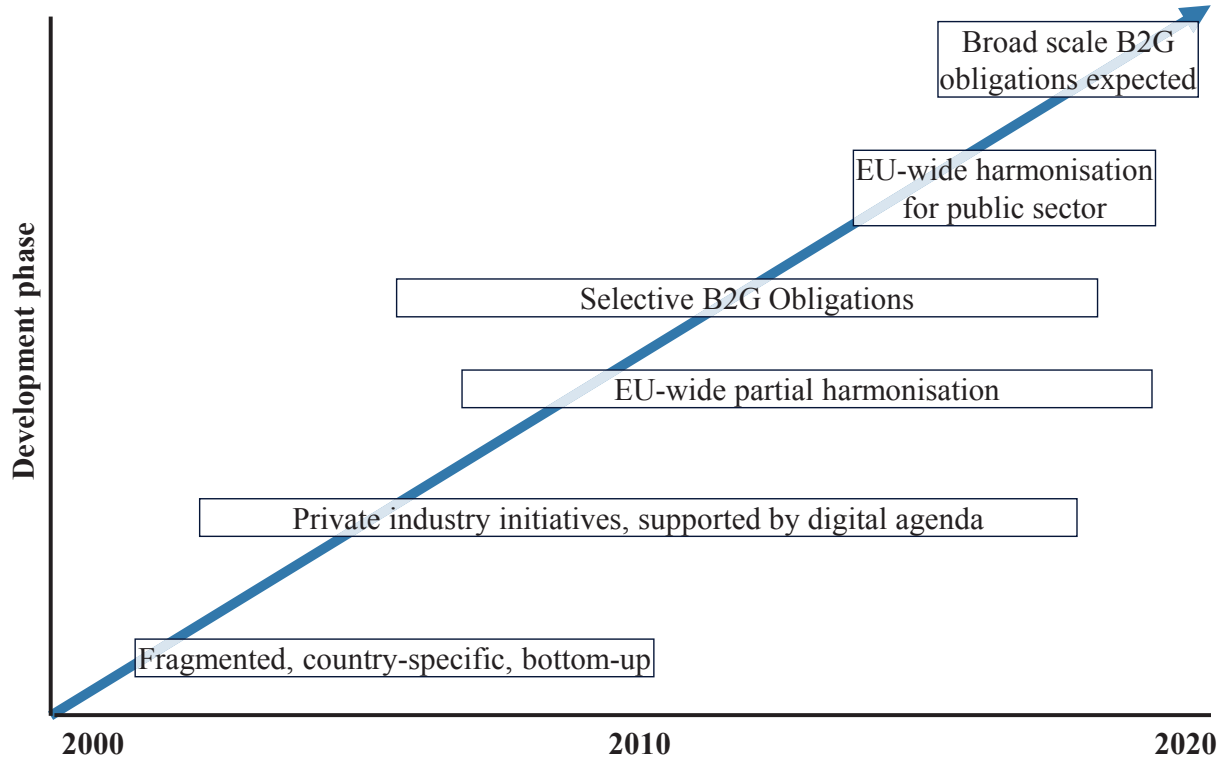
In consideration of investigations by Strategy& [3], digitization is a significant engine for economic growth:

- Digitization can play an important role in assisting policymakers to spur economic growth and employment.

- An increase of 10 percent in a country's digitization score fuels 0.75 percent growth of its GDP per capita.
- An increase of 10 percent in a country's digitization score leading to a 1.02 percent drop in the unemployment rate.
- Digitization is fundamentally reshaping business models. It is lowering barriers to entry and expanding market reach.

This perception is reflected in "digital agendas" in most countries. Implementation is step-by-step.

Figure 5: European Market Development



The steps in the chart above are explained and commented upon below.

Private industry initiatives
In the first decade of this century was it mainly private industry which was pushing the European market. It was however supported by the digital agenda of the European commission and/or those of each country.

EU-wide partial harmonisation
The European Commission (EC) made the development of E-Invoicing an objective in both the 2002 and the 2005 eEurope Action Plans. From 2004, all EU member states had to permit E-Invoicing by law, based on the EDI and signature method. All E-Invoicing related activities aim to pave the way for a broad scale market adoption, considering the objectives of all stakeholders (with a special focus on SMEs).

The scope and objectives of a "European Electronic Invoicing Framework" was to provide the basis for achieving inter-operability of E-Invoicing solutions in the public and private sectors. It was planned that it would derive a basis for inter-operability by means of common business rules

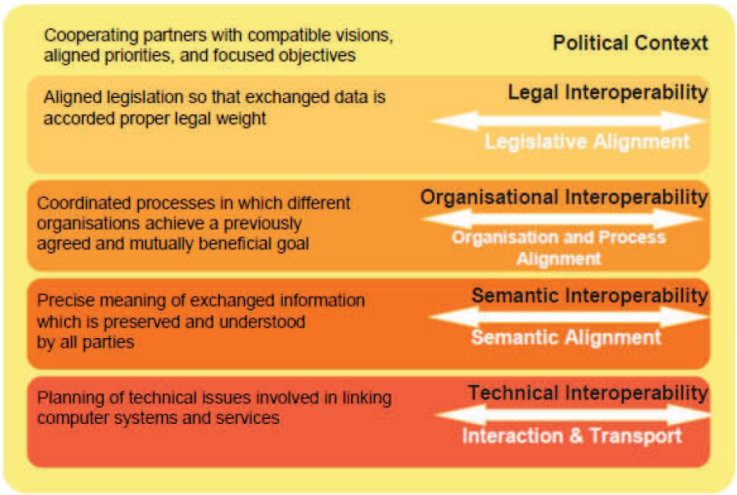
and standards. Such rules and standards were specified, mainly within CEN (e.g. Code of Practice, semantic standard, business rules, etc.). CEN, the European Committee for Standardization, is an association that brings together the National Standardization Bodies of 33 European countries. Other initiatives were, for example, PEPPOL (Pan-European Public eProcurement On-Line) and STORK (interoperability for eID).

The results after the first five years of activities were not very convincing. In 2008 the EC founded an Expert Group with the aim of localising shortcomings and recommending activities to remove market barriers. One of the localised barriers was the former requirement to digitally sign the electronic invoices. The majority within the expert group saw it as a major hindrance for end-users on one side, and for simplifying the interoperability between service providers. From 2014, EU member states now also allow business controls besides the EDI and signature method. E-Invoices (often not signed[2]) are audited by comparing the content with other related documents (two- or three-way matching). This process is directly comparable with the paper world. Businesses compare the invoice with the order and/or delivery note and the payment. Although almost 50% of opinion leaders had some years ago concerns if this method would be practicable and if it would really push the market forward, it is today possible to draw a positive conclusion. Immediately after the legal change, the market demand significantly increased (100-300% more requests for proposals compared to the old legal regime). Digital signatures may still be used for E-Invoicing, but businesses in EU countries are no longer required to do so. 89% of the surveyed businesses in Germany [1] stated that the removal of the signature obligation clearly simplifies E-Invoicing.

Some barriers were removed, but the journey towards full electronic business processes is far from being achieved.

Many components of the European Interoperability Framework are defined, but still not yet implemented in practice.

Figure 6: European Interoperability Framework



In order to implement this framework into all EU member states in a harmonized manner, the EC established a multi-stakeholder forum on EU level and pushed its member states to establish such fora also on national level. Meanwhile, all EU member states have established fora. They build an important vehicle to accelerate the market development in a more harmonized manner.

[2] 84% of respondents in survey [1] do not digitally sign issued E-Invoices

A multi-stakeholder forum is an excellent platform to push the market considering the interests of the public and private sector in common.

Remark B. Koch: Therefore, a multi-stakeholder forum also considered one of the key components in the recommended model for Australia.

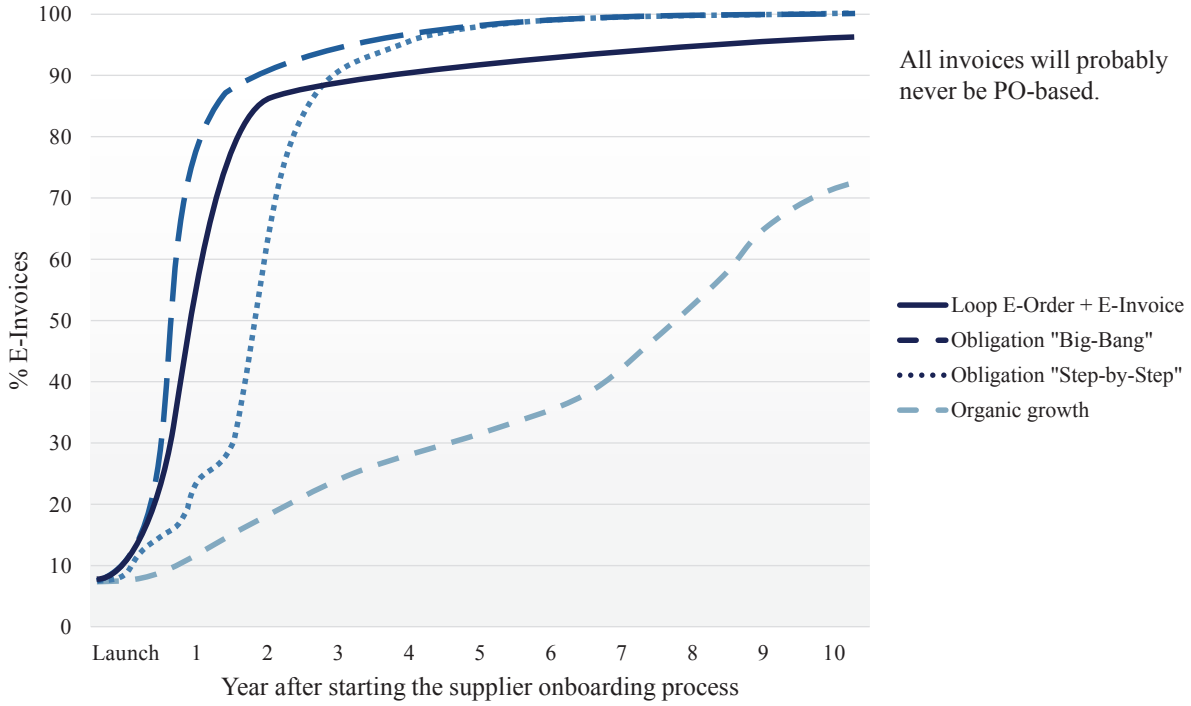
Selective B2G Obligations
From 2005, Danish suppliers have been required to send invoices to the public sector just in electronic format. This is meanwhile also the case in several other countries like Austria, Finland, Italy, Norway, Slovenia and Spain. Several EU countries do not wait until the new EU Directive is specified and implemented. Further details see chapter 2.3.

EU-wide harmonisation for the public sector
In 2014, Directive 2014/55/EU was released. It will affect probably more than 100,000 public administrations / agencies in EU member states. The agencies will be obliged from the end of 2018 to support a certain E-Invoicing standard (CEN/PC 434, see Glossary in Appendix) and to be able to process electronic invoices automatically. Purely image-based PDF invoices will not fulfil the requirements. Although the obligation is valid just for the public sector, it is obvious that it will have a major impact to the private sector as well as all suppliers to the public sector.

Remark B. Koch: Therefore, the approach of the EU Directive 2014/55/EU (obligate agencies to prepare systems and processes for E-Invoicing; support a standardised interface) is considered a cornerstone in the recommended model for Australia.

Outlook / broad scale B2G obligations
The implementation of the Directive 2014/55/EU might have a significant impact on the public and the private sector in Europe. It also paves the way for the next step: Require the suppliers of the public sector to send them the invoices only electronically in the specified format. Some countries already announced or indicated intentions to do so, even before the end of 2018 (including Belgium, France). Broad scale B2G obligations are expected in Europe. The background for this expectation: Only specifying standards and only being enabled to receive invoices electronically nowhere resulted in a significant uptake of the E-Invoice.

Figure 7: Typical adoption rates for public administrations using different approaches



In addition, B2B obligations might also come in place mainly in some Southern and Eastern European countries. Portugal is the leader and follows a clearance model comparable to the ones as practiced in Latin America.

Lessons learned & critical evaluation

- Digital agendas and a facilitator role of the government is desired almost universally.
- The step from paper to electronic invoices must be as small as possible. A natural evolution step is “equal treatment”, the step of paper invoices to unsigned PDF invoices, although not desired by most larger trading partners.
- Digital signatures are difficult to explain and are therefore a major barrier, especially for the numerous SMEs.
- Working groups specified several good components for the European Electronic Invoicing Framework, but the marketing communication was either non-existent or very poor. Therefore, most conceptual deliverables are not yet implemented by key stakeholders.
- If agencies on one side, and solution providers and suppliers on the other side, are not required to implement the specified components, they do not use them on a broad scale.
- **The EU-wide harmonisation for the public sector comes 5-7 years too late!** When the new EU directive will become live in practice, the B2B sector will probably already have achieved a market adoption rate of more than 50%. EU member states (Austria, Finland, Italy, Norway, Slovenia, Spain, probably also Belgium, France, Ireland and Sweden) practising a B2G obligation have already built solutions which are not based on the future EU-wide standard.
- Just defining any standard or preparing IT systems and processes for E-Invoicing does not result in a significant increase of the market adoption.
- Requiring suppliers to send invoices just in electronic format is a promising approach. Many examples showed that it can be implemented within 1.5-2 years if the field is well prepared.

3. Implementing E-Invoicing in Australia

3.1 Australian market characteristics

3.1.1 Overview

Over the last 18 years, the author has developed various key-metrics with the aim of evaluating invoices volume in each country. The key-metrics are based on the number of companies, company structure (size), working population, number of households (for B2C only), letter volume, payment statistics and benchmarks with countries where the exact volume is known (practising the clearance model where each invoice has to be sent to tax authorities).

Based on these key-metrics, the author estimates the following annual invoice volumes for Australia: **B2B & B2G volume = 1 – 1.2 billion**. In addition to this, a similar volume will be received by private customers.

No up-to-date statistics or results of surveys are available regarding the adoption rates of E-Invoicing in Australia. Nevertheless, E-Invoicing is up and running in the Top3 industries of Retail, Healthcare, and to a minor extend also in the public sector and most multinational companies. SMEs mainly exchange invoices as image-based PDFs via email.

More than 35 service providers operate E-Invoicing networks for Australian customers. Some international E-Invoicing service providers reduced the resources and efforts in Australia as it was not growing as much as markets abroad. Many network operators are not interconnected. Except within the retail and healthcare industry, market development could be described as "classical unstructured bottom-up growth".

3.1.2 What does the Australian market have in common with other countries?

The Australian Public Sector is a huge purchasing industry, and therefore has to process a high number of inbound invoices. It intends to optimise its operational processes; the saving potential is tremendous.

The Australian Digital Economy Strategy [8][9] does not yet explicitly give too much weight to actions digitising and automating the processes along the financial supply chain management. Nevertheless, many items of the Digital Economy Strategy support a digitization of business processes.

Compared internationally, Australia has moderate legal requirements regarding E-Invoicing (comparable to Europe). The legislation supports electronic invoice processing in a similar way to paper invoices (low barrier).

Any E-Invoicing model has to consider the business structure of very many small and micro businesses. In June 2014, 61% of actively trading businesses in Australia had no employees, 27% had 1-4, 10% had 5-19, 2% had 20-199, and less than 1% had 200 or more [15]. The challenges for a broad scale market adoption are comparable to Europe.

E-Invoicing network operators do not make fast progress with regards to the interoperability of their platforms.

Stakeholders recognize E-Technologies as being highly promising for business processes. However, as long as it is not a necessity to use it, most just wait and observe the market development. A voluntary approach does not result in satisfying market adoption.

Many **other classical barriers** experienced overseas are also a hindrance for E-Invoicing in Australia. The barriers from overseas are described in **Appendix A**.

3.1.3 Differences and anomalies to other countries

Although public business directories exist abroad, the Australian Business Register (ABR) is probably much more advanced than most from overseas. It could therefore have a pivotal role in the future Australian E-Invoicing Framework. This is especially the case for improving a specific Australian shortcoming: invoice data accuracy.

The Atradius Payment Practices Barometer [4] confirms the Australian challenge regarding invoice data accuracy.

Figure 8: Main reasons for payment delays by domestic B2B customers

Reason for payment delay	Australia	Europe
Incorrect information on invoice	21.4%	15.1%
Invoice was sent to wrong person	21.9%	11.6%

Problems regarding the invoice data quality is also confirmed by Federal Administration AP employees and ICAC, New South Wales report, Table 8 and 9 in [14]

Accuracy problems result in a higher proportion of exception handling during invoice processing, payment delays, additional dunning letters due to long processing cycles, and in higher costs. The savings are therefore potentially higher than in Europe.

The reasons for these data accuracy problems in Australia are not known. There are however some indications. The hypothesis of author are:

- Insufficient updates of any master data in the ABR and the users' ERP master data; Atradius [4] confirms that indirectly.
- Lack of ERP solutions not sufficiently supporting the input of certain data like purchase order reference, person and cost centre information (confirmed by Federal Administration AP employees)
- Attitude and working style of invoice issuers; e.g. missing ABN [14] on invoice

An E-Invoicing model considering data validation rules and data synchronisation with the ABR significantly helps to overcome this shortcoming.

This key finding is valid if data accuracy in the ABR were improved. Considering the ABR survey [5], conducted in May and June 2014, the accuracy in the ABR is not yet fully satisfactory:

- 77% of all respondents indicated that the legal/main name entry was correct
- 66% of all respondents indicated that the postal address entry was correct
- 58% of all respondents indicated that the business address entry was correct

Although this prerequisite is not yet satisfied, the recommended E-Invoicing model includes a feature to significantly improve the data accuracy in the ABR.

To some extend, a similar model is already used in Australia's healthcare segment: The NEHTA/Locatenet directory is used to synchronise master data [6].

3.2 Criteria considered for the recommendations

Europe was a pioneer. The first E-Invoicing solutions appeared on the market around 20 years ago. Hundreds of millions of dollars have been invested, and many lessons learned. Australia can benefit from this expertise.

The suggested model and the recommendations for Australia consider these criteria:

- Model supporting the Australian Public Sector (APS) in the role as buyer and invoice receiver with the aim of optimising internal processes and saving taxpayers money. Strive to achieve a broad scale effect in public and private sector.
- Generating a Win-Win situation for the private sector as supplier and the APS as buyer.
- Aligned with international mega-trends and standards
- Probability of high acceptance by local key stakeholders in public and private sector on a broad scale
- Utilising lessons learned overseas to avoid the problems they encountered
    - Successful in comparable markets
    - Avoid failed or clearly underperforming approaches from overseas
    - Capability to overcome general barriers as known from overseas
- Capability to remove the shortcomings and barriers known from Australian
- Aligned with Australian digital economy strategy; extracts from sources [7][8][9]:
    - Strengthen external collaboration networks
    - Build collaboration capability across government
    - Build the channels needed for government to collaborate
    - Decisions to acquire or upgrade ICT systems should consider the broader implications for services to people, business and the APS.
    - Encouraging innovation—harnessing the full potential of the digital economy and new technologies to promote innovative ideas and take-up of technology-enabled improvements.
    - Engage openly—more active involvement of all stakeholders builds knowledge, sparks ideas and growth, and better informs decisions and solutions that meet local needs.
    - One of the Coalition's core principles is a preference for markets, because markets typically produce better outcomes than governments. But government can play a valuable leadership role in the economy, particularly in periods of structural change.
    - "By 2020, Australia will rank as one of the top five OECD countries in the proportion of businesses and not-for-profits…using online opportunities to drive productivity improvements."

3.3 Recommended model

As a result of the divergent optimisation focus around the globe, there exist three completely different E-Invoicing models (compare figure 2). Two of them are not in focus for Australia:

Figure 9: Excluded models and reason

Excluded model	Reason
Latin American clearance model	The main objective of this model is to combat tax evasion by mandating all businesses to send data for all invoices to the tax authorities.

Excluded model	Reason
	The shadow economy in Australia is roughly ¼th below OECD 21 countries and 1/3rd below world average. [10] Australia's public debt is roughly half of the world average. Australia has a collaboration culture rather than a surveillance state. The clearance model would very likely not find the required political support in Australia.
US model	The US has a relatively high number of very large businesses. They currently mainly focus on the optimisation of internal operations. This model does not or at least does not sufficiently consider digital collaboration with a high number of trading partners. Only around 0.3% (6400) of all Australian businesses had more than 200 employees in 2014. They shall and can also benefit from the new Australian E-Invoicing Framework, but it has mainly been designed to address the needs of the vast majority of SMEs.

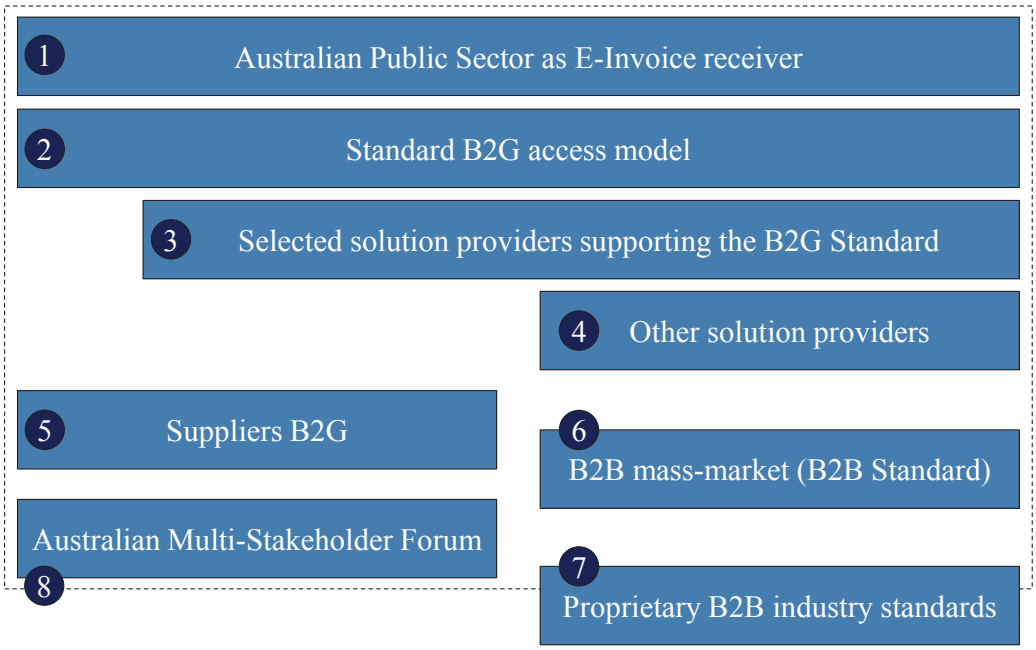
Best of class components and a holistic interoperability approach from Europe seem to be more appropriate for Australia than other models from the Americas.

3.3.1 Overview and building blocks

The **major components of the recommended model for Australia** are based on the above conclusion. The Federal Administration (FA) plays a key role as large buyer and promotor for a broad scale market adoption. It

1. enables all its agencies to receive, process and archive the inbound invoices fully electronically
2. encourages States to follow this step
3. specifies a standard for the entire B2G E-Invoice exchange
4. requires its suppliers to send them the invoices only electronically via the specified standard interface
5. ensures interoperability with the B2B market and other related business processes (procurement, payment etc.)

Figure 10: Building blocks of the recommended model



Each building block is described in the following chapters. The number of the building block is referenced in the title (#).

3.3.2 Australian public sector as E-Invoice receiver (1)

The author assumes that the key-metrics from Europe are also valid for Australia: "The public sector is responsible for 15-18% of all purchases in a country. It represents typically 9-15% of a country's inbound & outbound invoices. Together with the retail and healthcare industries, it belongs to the Top3 invoice processing sectors."

Estimated annual invoice **inbound volume of the public sector** and number of invoice issuers (suppliers)

- Federal administration (FA): 1 – 1.5 million of 50,000+ suppliers
- States: 32+ million of 500,000+ suppliers; remark: New South Wales (NSW) might process as many as 6—8 million invoices per year [13].
- Cities/municipalities: 12 million of 500,000+ suppliers (overlap with suppliers of States and Federal Administration)

Estimated annual invoice/bill **outbound volume of the public sector**

- To businesses: 50+ million
- To private households: 170 – 180 million

The public sector is the strongest multiplier to influence the broad scale market; In case of an active and positive influence, this results in

- Reduced heterogeneity of the solution/service provider market
- Improved quality of countries' invoices and interoperability landscape
- Being a catalyst to launch many SME friendly and economic solutions

Recommendations
In order to implement the recommended model, the field has to first be prepared. Many components are in the direct sphere of influence of the Federal Administration. All agencies of the Federal Administration and the States shall be required to prepare their systems and processes for paperless invoice processing and archiving. They shall become "E-Invoicing ready"; this means that they prepare their IT, workflow and archiving systems but also the operational processes to handle the inbound invoices fully digitally; employees have to been informed and trained for the changed processes.

The FA is privileged to initiate/support the building of public sector shared services for smaller agencies and others preferring an outsourced solution to digitize paper invoices, and to receive, process and archive electronic invoices.

The first version of the "standard B2G access model" (building block 2; see details in next chapter) shall be specified by the FA. The FA (and states) shall in the future receive electronic invoices only following the rules and regulations as defined in the standard B2G access model. As soon as the internal environment is prepared, the suppliers to the FA shall be required to send the invoices just in electronic format (step-by-step rollout considering the capabilities of SMEs). Considering the Digital Economy Strategy, solutions providers shall play a key role.

This activity of the FA in the role as buyer and invoice receiver will already have a direct positive impact on 50,000+ Australian businesses. However, in order to achieve a broad scale market adoption, the active involvement of **States** is indispensable. Therefore, the FA shall convince states to make at least all their agencies "E-Invoicing ready" as well. The aim is that the state agencies also receive their invoices via the standard B2G access model as specified by the FA (if required, a second version has to be defined considering potential additional requirements by the states). Smaller state agencies shall have the option to use public sector shared service centre(s) as initiated by the FA.

Today, states have the challenge of receiving and processing a tremendous invoice volume; E-Invoicing is attractive for them. However, the talks with some representatives showed that they receive just a minor proportion of invoices electronically, and that they do so in various different formats. Image based PDFs are dominating today.

Due to this starting point, states are keen on a more standardised approach for exploiting the potential. The FA can pave the way for achieving this. However, **states shall give a minimum commitment**:

- to make all their agencies "E-Invoicing ready"
- to require its suppliers to send E-Invoices just via the standard B2G access model

With these two steps, they prepare the field for taking a next step. Whereas suppliers to the FA shall be required to send the invoices solely in electronic format, it is only a strong recommendation to states to follow this approach on a voluntary basis as well. Like the development in Europe, the author assumes that some states will first require its suppliers to do so relatively soon and that others will follow later on. Pushing 500,000+ Australian businesses towards E-Invoicing would definitely pave the way towards broad scale market adoption.

Remarks: In the European Union, agencies of the Federal Administration and the states have to become "E-Invoicing ready" (Directive 2014/55/EU). This is even valid for cities and municipalities in cases where tenders exceed a certain amount. The decision to require the suppliers to send invoices only in electronic format is subject to each member state. **Currently, twelve European countries already practice or have announced a B2G E-Invoicing obligation.** The

number of countries with B2G obligations is expected to rise sharply as soon as agencies have prepared their internal environment.

3.3.3 Standard B2G access model (2)

This standard B2G access model builds a key component with the aim to harmonize at least the B2G market and to also pave the way for reducing heterogeneity in the B2B segment. Due to its components it is also a catalyst for increasing the interoperability with all stakeholders and for improving the accuracy of invoice data and the ABR in Australia.

The access model includes an E-Invoicing standard model and some contractual components with rules for the cooperation of the public sector and the solution/service providers.

Standard components
The FA shall specify an invoice content (semantic) standard that is a subset of an international standard like OASIS UBL, any UN, ISO or GS1 standard. It shall also specify the format (syntax). The exact selection of the international content standard is up to the technical project team working in parallel with the mandate of the author of this report.

Although not yet finally decided, it is likely that the European Union will specify two options regarding format: One is the pure XML file and the other is a PDF/A-3 (ISO 19005-3) file with the embedded XML data (content standard). The latter one is currently conquering the German market. Other countries also decided to follow this approach (for example just recently in Belgium). The author recommends Australia to support the formats with a pure XML file, plus the one with the XML data embedded into a PDF/A-3 file. Larger receivers directly read and import the XML data, whereas smaller agencies and SMEs with fewer advanced accounting systems see and use the invoice image of the PDF/A-3 alone.

The standard model is an important prerequisite, but does not however necessarily result in a strong market growth. The solution provider community has in addition to be pushed. They are required to actively support the standard and further components improving interoperability and market adoption. This can be done on a contractual level between the agencies and the solution providers sending them electronic invoices.

Contractual components
Agencies of the FA and the states shall be required to contract only solution/service providers who:

- Fully support the standard model as defined above
- Commit to interconnect with any other service provider
- Provide interconnectivity without charging interchange and roaming fees, ensure unbureaucratic set-up of new users utilizing roaming; no tests shall be required in case new trading partners are addressed via interoperability partners.
- Actively push interoperability in order to address the mass market
- Offer at least one easy-to-use and efficient channel for SMEs
- Offer features/services to improve the invoice data quality. This includes the validation of general invoice data and master data. The latter shall be done by comparing the invoice data with the entry in the Australian Business Register (look-up) during the E-Invoicing registration process[3]. Users shall in addition get the option to update the entry in the ABR in case that data were not accurate. Idea: Pop-Up window, separate log-In process.

[3] A more improved version could also make a comparison for example each year during the normal user login process

The recommended points above help to improve the interoperability among service providers, to reduce or remove barriers for SMEs as known from Europe, and to pave the way for a broad scale market adoption.

Although B2G E-Invoicing in Australia can be described as "not very advanced", it cannot be ruled out that some agencies already built and use proprietary standards and interfaces. Past investments shall be protected and existing interfaces can be operated in parallel in the short and mid-term. For them, the new standard access model shall be an additional channel fully aligned with the future B2G standard. Agencies with parallel interfaces shall require new E-Invoice suppliers to only use the new interface. Finally, all users shall be migrated in long term to the new interface.

3.3.4 Selected solution providers supporting the B2G standard (3)

Two categories of solution providers may be affected by the new B2G standard:

- Application providers (ERP systems, accounting software and other invoice generating software)
- Service providers (E-Invoicing networks / B2G access points / hubs)

Application providers
Some agencies may prefer to receive electronic invoices directly from a suppliers' software. This could be in the foreground in the case of high volume suppliers and a high degree of two-way interaction. It is practised by some agencies today. This shall also be possible in the future, but the application shall be migrated and has to support the standard B2G access model until a certain deadline. The public sector shall ensure that a list of compatible applications is published. This might accelerate the support of applications for the new standard model. One example for solutions supporting the German ZUGFeRD standard can be found using this link.

Service providers
Most agencies might contract service providers. Service providers are able to convert any supplier invoice format into the target format as required by the public sector. With appropriate models they are also able to engage and onboard a high number of suppliers within a short time. Operating a user help-desk is another role service providers are privileged for.

Agencies of the FA and the states shall be required to only contract service providers accepting the contractual disclaimers as described in the chapter above.

Remark: From experience in other countries, the author expects that many service providers are keen to become a selected provider for the public sector.

3.3.5 Other solution providers (4)

Some E-Invoicing service providers would not be interested in accepting the contractual components as required by the standard B2G access model. Others are mainly addressing markets outside the B2G segment, but could however process a limited number of B2G invoices. This group of service providers is free to interconnect with service providers supporting the standard B2G access model and to transfer B2G invoices indirectly.

3.3.6 B2G suppliers (5)

In Europe 45-65% of all businesses are suppliers to the public sector. Extrapolated to Australia, this would result in 945,000 – 1,365,000 suppliers to the public sector. Due to a strict procurement policy, the ATO project team (supporting this report) assumes that fewer businesses are suppliers to the public sector in Australia. Nevertheless, it is likely that 500,000+ businesses in Australia are B2G suppliers. Just a small proportion of them are really large ones.

Due to its high invoice volume, large suppliers are aware of the interesting business case with electronic invoicing and the long-term trend toward paperless processes. They also have the required skills to prepare their systems and to change processes for E-Invoicing. The numerous SMEs do not normally calculate/know the full costs for an invoice processing cycle and therefore do not necessarily react to published business cases and saving potentials for E-Invoicing. In addition, they have limited IT skills and are therefore demanding very easy-to-use and efficient solutions.

If suppliers are required to send invoices electronically to the public sector – will they do it?
Large suppliers are keen to exploit the saving potential. They are also more than happy if the government pushes a standardized approach. It will not be a big deal to bring them on board.

Many SMEs are innovative and see the necessity to replace paper with electronic invoices. They take this step if important customers are asking for it, and if very easy-to-use and efficient solutions are provided. The contractual components as required in the standard B2G access model are creating the foundations that the providers will offer SME-friendly, easy-to-use and efficient solutions. Nevertheless, this will build just one part of the prerequisites. Another important part forms excellent guidance during the process: Generate awareness, inform about potential solutions, help suppliers in the solution decision process, and support them during the onboarding.

However, it is human nature that old habits die hard. The requirement from the public sector for B2G E-Invoicing will be the trigger for change.

A step-by-step rollout shall help to address the larger supplier first. The last group of suppliers is planned for rollout in late 2019. Until then, market maturity is expected to improve significantly.

3.3.7 B2B mass-market, B2B standard (6)

A survey in Germany showed that at least 38 different E-Invoicing standards are used in the country. This is the classical result of an unguided bottom-up market development. Meanwhile, the German multi-stakeholder specified a standard model, which should have the capacity to conquer the entire country and to substitute most other used standards (ZUGFeRD, see chapter 2.7). The structured invoice data can achieve three levels regarding content:

- **Basic**: By fields mandatory for tax fields only ~10 fields
- **Comfort**: “Cross Industry Core Invoice” ~30 fields, appropriate for 80+ percent of invoices in the market
- **Extended**: Any other data fields if not covered by Cross Industry Core Invoice, but used in several industries

Background for these tree levels regarding content:

Solution providers have different technical capacities. Some of them support just the basic level, but others are already able to support the comfort and/or extended level. It is assumed that it increases market transparency and the interoperability if any solution provider can clearly express which level he already supports.

The Australian market development might not be completely different to the German market. Except in retail and to some extend in the healthcare industry, the Australian market is relatively heterogeneous. More than 35 service providers connect suppliers, which send them the electronic invoice data in any format as generated by the likely 500-800 different accounting systems. They convert the data into the various target formats. Almost each supplier and buyer onboarding is an individual project. This is highly inefficient for the entire economy. It also builds a major barrier for an efficient collaboration between the service providers.

Recommendations

- The B2G project shall become the trigger to exploit also the potential in the entire B2B market.
- An Australian B2B invoice standard and interoperability model shall be developed.
- Alignments of the B2G and B2B standard shall ensure that the two segments achieve a high degree of interoperability. If it would help the B2B standard, it cannot be ruled out that the B2G standard needs an upgrade to a higher version.
- General guideline: Australia shall consider the German standard model as described above.

3.3.8 Proprietary B2B industry standards (7)

It cannot be ignored that there are indeed a limited number of industries with very specific requirements. They cannot be fully satisfied by a country-wide standard “Basic” and “Comfort” as described in the chapter above. Instead, they hopefully fit into the group “Extended” or they instead build a closed user group with proprietary standards.

Recommendations

- Industries believing that they have very specific invoicing requirements shall be invited to the standardisation activities.
- They shall check if their industry-specific data fields fit into the group “Extended”, which by default are also needed in several other industries. All other data fields not fulfilling this requirement shall stay a proprietary and industry-specific standard component (do not inflate cross-industry standards if only a single industry needs it).

3.3.9 Australian Multi-Stakeholder Forum (8)

This newly established forum is of pivotal importance in many respects.

The objectives of the forum are to

- Push market development in the B2G and B2B segment
- Align the requirements of the public and private sector in specifying an appropriate standard model
- Define the components and rules for an Australian E-Invoicing interoperability framework (for the B2G and B2B segment, considering related processes and topics)
- Push interoperability between E-Invoicing network operators and related services

A broad-based support by 30+ associations and/or key stakeholders shall be aimed for. Members shall, for example, be

- Industry associations
- Public sector representatives (central government, federal states and local authorities)
- Standardisation organisations like GS1, Standards Australia
- ICT and ERP associations
- SME associations
- Accounting associations
- Associations of invoice related processes (Procurement, Payment, ..) for ensuring the interoperability with related financial supply chain processes

Due to the range of forum tasks, working packages have to have been built. The exact structure is not the subject of these recommendations. Nevertheless, the list of typical tasks/working groups in Europe could also inspire the structure of an Australian forum:

- Processes and best practices, paving the way for broad scale market adoption, market/SME requirements and capabilities
- Shortcomings, barriers
- Interoperability Framework, technique, master agreements, …
- Standards
- Implementation
- Marketing
- Legal (clarify cross-border regulation and other issues)
- Alignment with related topics (related processes, …)

Legal form, management and funding

Any model exists in Europe. What they have in common is that initiation is often by the Federal Administration. The forum can have the legal form of just a project, an association, or something else. Members sign a document like a charter/protocol/memorandum of understanding, including description of some high-level rights (utilise the membership for marketing purposes etc.), obligations and rules with the Federal Administration or the legal representative. Members are at least required to actively and positively communicate about the forum and its outcomes. Until a certain deadline, they should also be required to implement the outcomes of the forum in practice to ensure that the specifications come alive.

The forum is typically chaired by a representative from private industry. The Federal Administration is actively supporting, but not leading the forum. Working group leaders are recruited from private industry and the public sector.

The European Commission, respectively the CEN (standardisation body), is typically calling for some experts that receive a symbolic financial daily compensation for their performance and/or re-imbursement of travel expenses. A minority of countries' multi-stakeholder fora get a permanent funding from the government. The majority of fora and its members work on a voluntary basis. The author of this report could not notice that financial compensation of members in European fora would have a significant positive impact on progress.

Nevertheless, a limited amount shall be budgeted to establish the forum (seed funding) and for selective ongoing costs (invitations for annual meeting of the big audience, catering, issuing press releases, establish online information platform/website etc.).

Recommendations

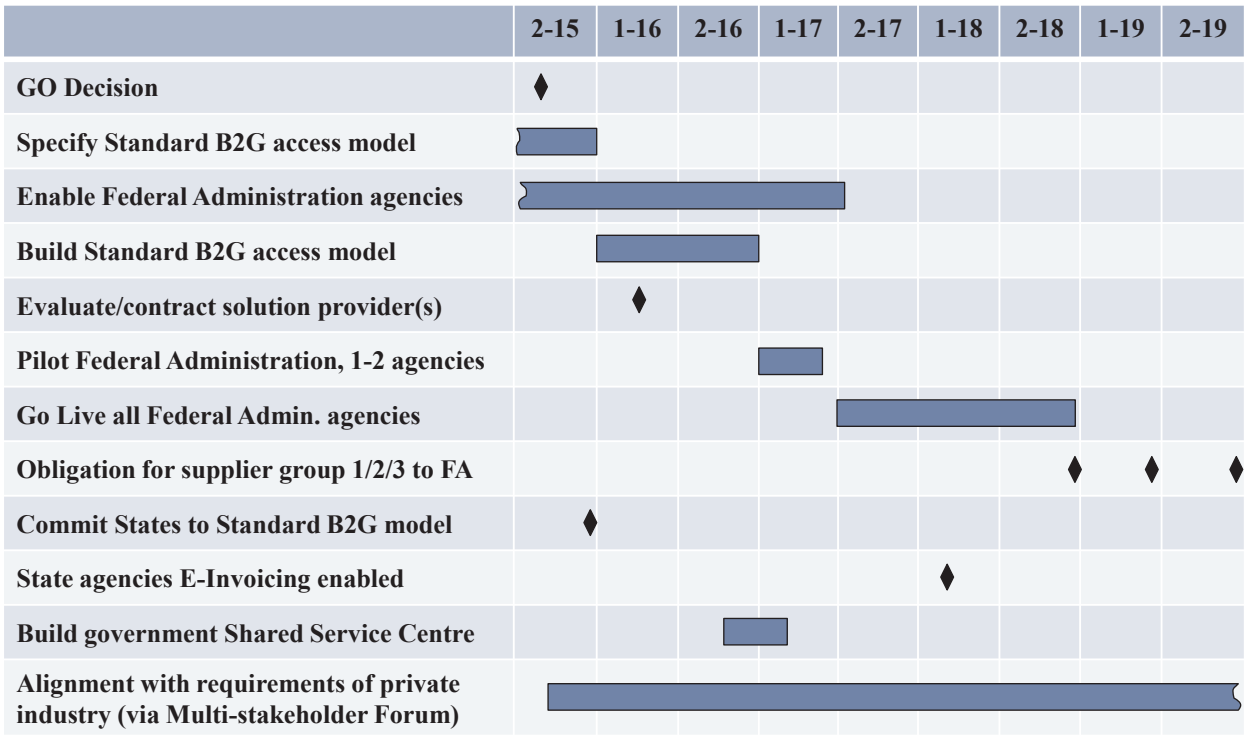
- The forum shall be founded as soon as possible, regardless of the progress and timeline of the B2G project.
- A steering committee shall be established with the aim of

- Ensuring that the forum stays in line with Australia's Digital Economy Strategy
- Enhancing Australia's Digital Economy Strategy with some reasonable points considering B2B requirements
- Ensuring that the Chairman and the working group leaders perform in a role which is as neutral as possible (leaders are probably simultaneously employees of a provider or another interest group)

3.4 Implementation roadmap

Implementing E-Invoicing by simultaneously aiming for a broad scale market effect is a multi-layered challenge. Nevertheless, many countries overseas have proved that it can be successfully done within record time. The results of projects with short implementation times tend to be generally better than the ones with too generous timelines. The prerequisites for a rapid implementation in Australia are good. The author therefore recommends an ambitious roadmap.

Figure 11: Roadmap (public sector view)



Each activity of the roadmap above is described in the following paragraphs.

GO Decision
Ideally, the FA and/or ministers decide **in the short-term** to start all actions required to implement the entire model as recommended in this report.

The motivation to implement the model is multi-layered:

- The FA (and States) acts in the role of major buyer in the country. It adds some more requirements to the general contract terms for their suppliers.
- The public sector optimises the internal processes and saves taxpayers money; it is simultaneously progress fully in line with Australia's Digital Economic Strategy.
- Besides optimisation within the public administration, the recommended model paves the way to exploit the potential in private industry; it is finally also in favour of suppliers. A win-win situation appears.

- The recommended model is corresponding with global megatrends
  - Digitisation of business processes
  - Require suppliers to send invoices just in electronic format to the government
    - Australia is just a follower of what other countries overseas are already doing
    - 12 European national governments already practise or have announced comparable requirements to their suppliers; in Latin America it is state of the art; even the FA of the US requires its suppliers to do so.

Requiring suppliers to send invoices to the public sector only in electronic format is a cornerstone for success. How far this requirement can be met with the public sector solely in the role as buyer, or if a more political decision process is required, cannot be answered by the author. The Swiss government found a pragmatic way to decide within the FA and a ministerial meeting in the role as buyer. For the time being, just suppliers with a purchase contract value exceeding CHF 5000 (about AUD 6850) are affected by the Swiss obligation. This paves the way for a second and third rollout step considering lower contract amounts.

If, however, a decision on the political level should be required in Australia, the recommended model shall be split into two layers for the decision:

- Building blocks outside the political scope; decided within the FA and a ministerial meeting
- Components which necessarily require a political decision process

Specify Standard B2G access model
The first components (content and format standard) are already in the progress of being specified in a parallel project. The other part with the contractual components shall be specified by the end of 2015.

Enable Federal Administration agencies
The Federal Administration is in a relatively good starting position. Some agencies are already enabled to receive and process E-Invoices, but do not yet support the new standard B2G access model. Governments from overseas demonstrated that an entire FA with 60-100 agencies can become E-Invoicing ready within 12-18 months. Agencies with a preference for outsourcing and small ones will likely use the offer of the shared service centre.

The entire Australian Federal Administration shall be “E-Invoicing ready” at latest mid-2017. This objective is ambitious, requires an immediate start and a high prioritization during the coming two years. This task is currently on the time critical path.

Build Standard B2G access model
The technical part of the access model has to be built. It includes a gateway, interfacing the suppliers and service providers on one side, and the public sector on the other side. In addition, it has to become part of the help-desk and support organisation.

Evaluate/contract solution provider(s)
The FA shall define a Request for Proposal, evaluate and contract one or several E-Invoicing solution providers.

Pilot Federal Administration, 1-2 agencies
The internal environment, the gateway and interaction with solution providers and some selected suppliers shall be tested for 4 to 5 months.

Go Live, all Federal Administration agencies
After the successful pilot, all agencies will be onboarded to the new environment and receive E-Invoices considering the new model.

Obligation for supplier group 1/2/3 to FA
The "big-bang rollout" in Austria worked well. All suppliers of the FA (regardless of their size) were required to send invoices only in a specific electronic format from January 1st 2014. The unequivocal header in the press releases was: "No E-Invoice – no payment". However, a step-by-step rollout is more common.

In some cases, the field for obligations was prepared on a voluntary basis by providing financial incentives. Chile for example offered an extension of the payment due date for tax invoices. The Swedish Tax Authority ESV just announced a similar intention [11]. The measurable effect[4] of financial incentives may not be over-valuated. Nevertheless, it is worth considering incentives e.g. for the implementation of the first 3-10 suppliers (pilot and/or first ones up and running). In some cases in Europe (Spain, Switzerland), large suppliers with a complex system integration received a five-digit amount each. If financial incentives were considered, the author recommends to favour one-time implementation compensations, rather than invoice amount related compensations. The latter were more demanding during the invoice processing cycle due to a mismatch of the amount invoiced and amount paid.

Detailed recommended timeline:
- Incentives for suppliers, 2017
- Require supplier group 1 with contract values exceeding AUD 10,000 to send invoices just in the specified electronic format, December 31 2018
- Require supplier group 2 with contract values exceeding AUD 5,000 to send invoices just in the specified electronic format, June 30 2019
- Require all others suppliers (group 3) to send invoices just in the specified electronic format, December 31 2019

Commit States to Standard B2G model
The FA going ahead with a good example is important. One key pillar of the recommended model is, however, that the states help to leverage the effort of the FA. They shall be convinced by the FA to support the model and timeline, and confirm this by formal commitment by the end of 2015.

State agencies E-Invoicing enabled
State agencies follow the FA with a time lag of 8 months and enable all their agencies to receive and process E-Invoices by the end of February 2018.

Agencies with a preference for outsourcing and small ones will likely use the offer of the shared service centre.

Build government Shared Service Centre
As all agencies of the FA and states will become E-Invoicing ready, it is key that all get an appropriate service offering. The shared service shall be available end of March 2017 at latest.

Alignment with requirements of private industry (via Multi-stakeholder Forum)
The multi-stakeholder forum shall be founded as soon as possible, regardless of the time required to go through the government internal decision process for all other activities.

[4] Increase of electronic invoice proportion

Although multiple electronic invoice standards will still exist in private industry in the future, the government initiative will have a positive impact on progress regarding market harmonization. It shall also ensure that the privileged B2B standard will be interoperable with the B2G standard and that standards are aligned as much as reasonable.

In **phase 1** (from now until end of 2016), the multi-stakeholder forum will pave the way for the next innovation step. A standard (content and format) will be specified to ensure that all B2G E-Invoices can also include structured data (pure XML files or with XML data embedded into a PDF/A-3 invoice).

The multi-stakeholder forum focus will change in **phase 2**. Whereas it ensures the interoperability between the public and private sector in the short-term (phase 1), it will push all activities required to digitize the entire financial supply chain. This includes the pre-processes (procurement, orders etc.) and post-processes (payment remittance etc.) of invoicing in the mid- and long-term.

3.5 How to achieve broad scale adoption

The recommended model is designed in a manner that has the capability to initiate a broad scale market adoption in the public and private sector.

The public sector, as largest buyer in the country, will push suppliers to send invoices in only a certain electronic format. This generates a strong momentum in the market, as at least 500,000 businesses in Australia are supplier to the FA and the States.

As suppliers will be required to change to E-Invoices, the solution providers will, from experience from overseas, react quite soon with easy-to-use and efficient offerings for any kind and size of business. This is also valid for the many **smaller businesses** today exchanging just image-based PDF invoices. In the future they will have to replace their former PDF creator with a more advanced tool, also embedding structured invoice data.

It is very likely that most providers of accounting & ERP software will support the new invoice format shortly after the standard format is specified and published. This enables the **mid-sized and larger companies** to exchange E-Invoices in fully structured format. It will pave the way for an automated machine to machine transaction of Accounts Receivable and Accounts Payable processes.

However it cannot be ignored that many **simple paper users** would prefer to continue with their old habits. They will get the public information about the planned obligation and the step-by-step implementation early enough to be aware that the deadline will also come for them. They will also be informed that appropriate solutions will become available in the market. The lowest barrier will be websites where suppliers can key-in their invoices or any tools creating the E-Invoice in the required format. Overseas there are various tools available on the market. Some are developed as Office PlugIns. Others can be installed as virtual printers or any client software, generating the required invoice format. Such entry-level solutions will be offered for “economic” conditions. Although the author did not recommend in other chapters such low volume solutions explicitly for “no costs”, it is more than likely that Australian solution providers will follow the European trends and offer them for free. It is also within the control of the FA and the States to select and contract just service providers with such free or low-cost offerings.

3.6 Expected benefits of the recommended model

3.6.1 Saving potential for entire public sector – some examples from overseas

B2G E-Invoicing is very popular in Europe. Most governments already know the savings from practice or have estimated and published the potential.

Figure 12: Estimated savings of some local sources overseas

Country	Country population (million)	Public sector saving potential per year (million AUD)	Source
Denmark	5.4	132[5]	Government
Germany	82.4	6,000-12,460	Government C. Rogall-Grothe
Great Britain	60.6	4,000-6,000	UK Multistakeholder Forum (Govt. as member)
Greece	10.7	4,210	Government
Italy	58.1	1,400[6]	Local Expert (Umberto Zanini)
Spain	40.4	15,000	Spanish Ministry of Interior

The details of the calculation basis are not known and might differ greatly in all cases. At least all sources might consider the savings as a direct result of the process optimisation (Denmark), and most of them also the exploitation of early payment discounts. Others like Greece and Spain probably also consider a substantial saving potential in the field of corrupt practises related to B2G E-Invoice processing and payment (read more about this problem even in Australia in source [14]).

3.6.2 Saving potential for entire public sector in Australia

The saving potential per invoice in Australia might be significantly higher than in Europe for two reasons:

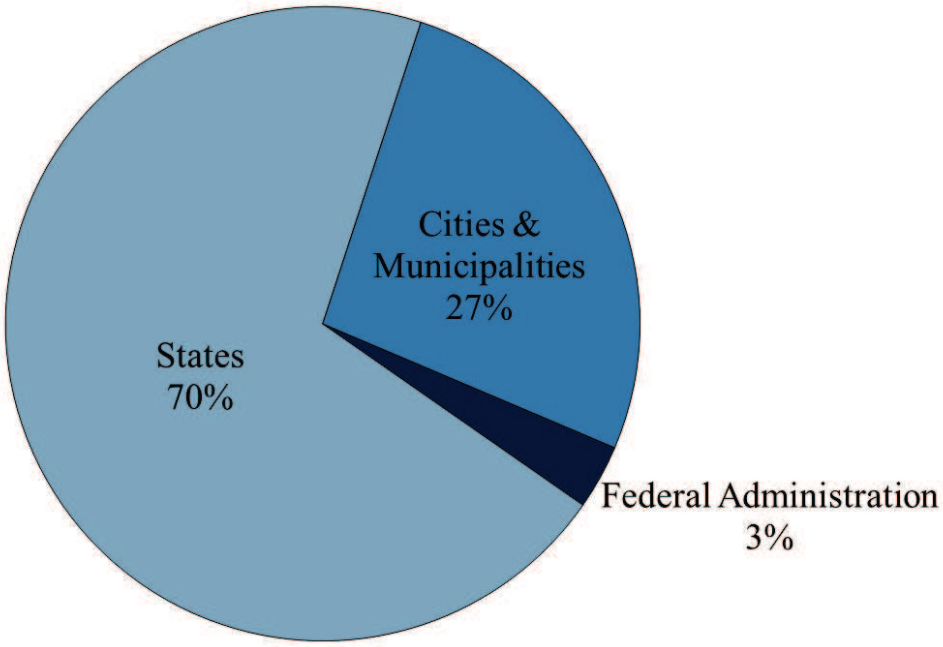
- The labour/manufacturing costs in Australia are comparable to the Euro zone, but higher than the average in all European countries [12].
- In addition, the invoice data accuracy is worse than in Europe [4]. This results in a higher proportion of expensive exception handlings during the invoice processing.

A pure extrapolation of the European figures as shown above would result in potential annual savings just for Australia's public sector of AUD 2,400-3,000 million. This estimate includes process optimisation + exploitation of early payment discounts + reducing fraudulent invoices.

[5] 18 million annual inbound invoices to public sector

[6] AUD 280-340 million just for the Federal Administration

Figure 13: Allocation of the estimated savings for inbound invoices in the public sector



3.6.3 Non-quantifiable benefit for the Australian market

Invoices are utilized by 100% of public sector agencies and all businesses in private industry. Due to this broad coverage, the electronic invoice is also called “queen of all messages”. It is the ideal message to address digitization within the whole administration and the mass market. It will generate a Win-Win situation for the private sector as supplier and the Australian Public Sector as buyer.

The automation of business processes already builds a cornerstone in the Digital Agenda of the European Union. A comparable step in Australia helps to reduce or even to close the digital gap between Australia and Europe. It leverages many topics of Australia’s Digital Economy Strategy.

The holistic go-to-market approach of the recommended model will have a positive impact on the quality and efficiency of the market development. The collaboration of all stakeholders will be promoted and encouraged based on a standardized approach. As a result, SMEs in particular will get the chance to select one of many user-friendly and efficient solutions.

3.7 Risks & Mitigation Strategies

The designed model already considers lessons learned from overseas and a mitigation strategy. Nevertheless, the major risks are listed and explained in the table below:

Figure 14: Risks and Mitigation

Risk	Probability of occurrence	Mitigation
Public sector internal migration process delayed or failed	30-40%	Main reasons why E-Invoicing projects have not always succeeded immediately in the past are • Underestimating the significance of the project for the many related processes and departments involved • Poor project management • Too technical focus (the more important challenges are process automation, communication, motivating and taking on board a high number of employees) Success factors in E-Invoicing projects • Management Support, as many divisions within an administration are involved • One very active project owner • Communication to key persons affected • Being a rollout champion with an excellent strategy for taking on board a high number of employees • Do not re-invent and develop solutions which are already available for a fixed price and which have been well tested in other organisations.
Model generally not accepted by stakeholders	10%	Numerous stakeholders from the public and private sector were already involved during the design phase of the model. They were enthusiastic about it. The project team and the author are optimistic that the model will be strongly supported by stakeholders. The FA will keep stakeholders regularly informed about the progress of the project and ensure an ongoing dialog with them. As soon as the multi-stakeholder forum is founded, members of that forum will jointly specify details of the recommended model, in the sense that a broad support in the public and private sector is ensured.
Model not accepted by SMEs on a broad scale	10%	Low barrier strategy supporting the “next generation of PDF invoices” with embedded structured invoice data. For many SMEs, this means that they replace their former PDF creating tool with a new one, generating advanced PDF invoices with embedded structured invoice data. Another key factor is excellence in marketing communications and the recommended guidance through the whole encouragement and onboarding process.
Project dissipates and fails	10%	The model is structured in manageable and modular building blocks. Each of them corresponds with best practice and consider lessons learned from overseas.

		It is very important not to over-egg the cake. Therefore, it is recommended to focus strictly in phase 1 on just E-Invoicing with some consideration of related processes like electronic procurement and payment. The implementation shall happen step-by-step.
Service providers do not collaborate in the sense of the government **and** private industry	0-40%	The "selected" service providers shall only be contracted by the Federal Administration and the states if they also accept the requirement to interconnect with others. Therefore, the risk regarding the B2G service providers is theoretically 0%. The challenge in the B2B segment is much higher as the ideas if and how to interconnect will probably be very divergent. If the recommended multi-stakeholder forum works properly, the risk in B2B should be limited. However, examples from overseas show that it is relatively hard to push the collaboration among competitors. Progress will depend a lot on the setup and the management of the multi-stakeholder forum. In contrast to European multi-stakeholder, the Australian forum will have a steering committee putting this in the spotlight.
B2G and B2B E-Invoicing not interoperable and harmonized	10%	Key stakeholders from the public and private sector have been consulted in a very early stage with the aim of considering their ideas and to generate awareness for a harmonised approach. The FA specifies the standard B2G access model based on international standards with the objective to stay interoperable with the B2B environment. This alignment in Australia will happen years earlier than in Europe, massively reducing the risk.

3.8 Development scenario without implementing the recommended model

The market adoption rates might follow the curve "Organic growth" as shown in figure 4 and 7. Most agencies of the Australian Public Sector might become E-Invoicing users, but they will likely use proprietary interfaces. Purely image-based PDF invoices would probably build the highest proportion. Therefore, invoice processing cannot be fully automated, remains time consuming and expensive.

The B2B landscape remained very heterogeneous. Probably, no solution provider would be able to become a clear market leader. As a result, most businesses would wait until a clear market leader appeared, or the government gave some guidance to the market.

4. The role of the Federal Administration

The FA receives 1 – 1.5 million paper invoices from 50,000+ suppliers every year. This is costly and offers a significant saving potential to exploit by electronic and automated processes.

Besides this role as buyer and invoice receiver, the FA directly influences the Digital Economy Strategy with an impact on the entire economy and the mass market.

The FA is privileged with a guidance role within the Australian Public Sector and its collaboration with the private industry.

The recommended guidance role includes activities like

- Ensure the ministerial and/or political support for the model for the FA and the states
- Further specification and implementation of the standard B2G access model
- Ensure that shared services for smaller agencies will be provided
- Ensure that a multi-stakeholder forum will be established as soon as possible with the aim to build an Australian Interoperability Framework as defined in Figure 6

5. Appendix A: Barriers and how to overcome

The barriers differ greatly for enterprises in various countries and depending on the company size.

Figure 15: Main barriers in many European countries

Barriers (European mass market)	Possible actions to overcome them
Legal requirements are unknown or confusing	The multi-stakeholder I and/or federal administrations are privileged to actively provide appropriate information to the mass market. Some of them organize information events & road-shows or engage evangelists. Many others (e.g. Austria, Belgium, Switzerland) operate an information portal with the most important information.
Missing market transparency about the solutions offered and the collaboration among various service providers	The multi-stakeholder I and/or federal administrations are privileged to actively provide appropriate information to the mass market. Some of them already provide a broad overview on information portals. The best-in-class offers segment specific information (small company selects “I am a small biller” or “I am a small invoice recipient” etc. and guide the visitor through an interactive dialogue to provide exactly the appropriate information (lean).
Change/adoption of internal organisation processes (40% of larger organisations)	It is human nature that old habits die hard. This is especially valid if very numerous departments are affected by a project and have to change. Management attention and decisions are required.
Divergent requirements of trading partners regarding formats, methods and processes	As this is especially painful in case of bi-lateral (direct) exchange of structured electronic invoices, using standards can help. E-Invoicing network operators are also capable of significantly reducing the complexity for end-users.
Not recognizing the business case	Further market communication is required, especially by showing very concretely the individual saving for a certain outbound or inbound invoicing volume. See also list of calculation tools
Trading partner does not support the electronic invoice	Viewed statistically, there is a relatively high chance that your trading partner already supports E-Invoicing. It could more likely be a lack of information. Some federal administrations or multi-stakeholder I already maintain public user directories. By far the best running example is from Finland, http://www.tieke.fi Besides increasing transparency, often the trading partners just need inspiration to do it now and some guidance on how to do it.

Barriers (European mass market)	Possible actions to overcome them
	Italy established a directory of it's 22,400+ agencies supporting E-Invoicing: http://www.indicepa.gov.it/documentale/index.php
Task sharing for accounting and invoice processing with external parties (trustee, tax consultant, commercial auditor, etc.); is in some countries practised by up to 50% of (smaller) enterprises.	3rd party service providers have fears of or limited interest in substituting labour-intensive (paper based) work with efficient, electronic and automated processes. It could be a major task for multi-stakeholder to clarify and show the risk of resistance to the opportunities of new electronic methods.

Figure 16: Main barriers for mid-sized and larger US companies

Barriers (mid-sized and larger US companies)	Possible actions overcome them
Lack of budget	In-house developments cause high initial and follow-up costs. Field-tested applications and services from third parties are typically significantly cheaper. If services on demand or SaaS are preferred, the initial investments are moderate.
Belief that there will not be an ROI	Publicly available calculation tools / ROI calculators will probably show the reader within 5 minutes that there definitely will be a good ROI. See list of some calculation tools [9]
Lack of understanding of current available solutions	Some market analysts make the market more transparent with their publications and events. Solution providers are encouraged to make great market communications.
Lack of resources to manage automation	Shift E-Invoicing to the enterprise's number 1 priority.
Supplier resistance	Do not attempt to press all suppliers into the same scheme and require just one certain data format following your business process. The capabilities and requirements of suppliers differ greatly. If invoice recipients (or the E-Invoicing network operators involved) support various invoice formats, any-to-any data formatting and benefits (e.g. trade finance, early payments), acceptance by suppliers can significantly increase.
Current processes work	Complacency is a risk. It is likely that competitors are already implementing E-Invoicing, reducing the invoice processing costs and achieving a competitive advantage.

6. Appendix B: Consultation of Stakeholders

Figure 17: Organisations that attended the workshops in March and/or May

Public Sector	Industry Representatives and Businesses
ATO Australian Bureau of Statistics Australian Federal Police Debt of Foreign Affair and Trade Dept of Communications Dept of Finance Dept of Human Services Dept of Social Services Digital Transformation Office NSW Government Shared Services Centre (Dept of Education and Dept of Employment)	ABSIA - Australian Business Software Industry Association B2BE BASWARE Commonwealth Bank COSBOA - Council of Small Business of Australia Dataline Group Document Engineering Services Esker Australia GS1 GS1 Australia Institute of Certified Bookkeepers Invoice Smash IP Payments MessageXchange MXA NICTA Office Torque Open Text - GXS SAP Australia New Zealand Standards Australia Tungsten Network Wesfarmers Westpac

Figure 18: Specific stakeholder feedback and how it is considered in the recommended model

Specific stakeholder feedback …	…and how it is considered in the recommended model
Invoice data accuracy worse than the international average This feedback came from an internationally acting network operator that validates	The author investigated the quantity and quality of this feedback. It was confirmed by public available survey results like sources [4] and [14], by AP managers of the Federal Administration and benchmarks [16] and [17]. One root of the problem lies already in the inaccurate source for master data, in the ABR [5].

Specific stakeholder feedback …	…and how it is considered in the recommended model

E-Invoices of users around the world	The recommended model considers many components to solve this problem:
	• The public sector becomes a very active user for E-Invoicing. As it is affecting 500,000+ businesses as suppliers does it have a tremendous influence on the invoice accuracy.
	• It obliges the selected E-Invoicing service providers to
	  ○ Validate the invoice data: Are all required data part of the invoice and are the data inserted in a valid format.
	  ○ Use data synchronisation vehicles between E-Invoicing users and the ABR.

Cover not only the electronic invoices, but the entire entire financial supply chain The feedback came from a bank	In the recommendations for the multi-stakeholder forum is it already considered, that in long-term the entire digital financial supply chain shall be covered by considering stakeholders from related pre- and post-processes. We are talking about a model for a countrywide and broad-scale market adoption. E-Invoicing as step 1 is already extremely demanding. Some countries were more ambitious in the past and all failed completely. In Finland and Switzerland, the combination of electronic payment and E-Invoicing was the failed approach. In Sweden, the combination of electronic orders and invoices was the failed approach. The author could list many more examples, where the ambitions were higher, but the result was less than with a modular approach. Recommendation of the author: Do not over-egg the cake, go ahead step-by-step.
The proposed standards and use cases are limited The feedback came from a bank	Chapter 3.3.3: "The Federal Administration shall specify an invoice content (semantic) standard that is a subset of an international standard like OASIS UBL, any UN, ISO or GS1 standard. It shall also specify the format (syntax). The exact selection of the international content standard is up to the technical project team working in parallel with the mandate of the author of this report." Remark of the author: The mentioned standards have definitely not the problem of being limited. Rather is it the challenge of selecting an appropriate subset of these powerful standards.

7. Appendix C: Glossary, Sources

7.1 Glossary

In the course of this report, a number of key notions are frequently referred to. To avoid any ambiguity, the following definitions apply to these notions.

Figure 19: Glossary

ABR	Australian Business Register
AR	Accounts Receivable
AP	Accounts Payable
APS	Australian Public Sector
CEN	European Committee for Standardization
CEN/PC 434	The new Directive 2014/55/EU requires the development of a European standard for E-Invoicing in public procurement with the aim of removing cross-border barriers. The future standard should be based on existing initiatives, such as the CEN Workshop on Business Interoperability Interfaces for Public Procurement in Europe CEN WS/BII, the MUG (Message User Guide UN/CEFACT Cross Industry Invoice) and other international standards if required. The deliverables of the project group will include a European standard on the semantic data model for the core elements of an electronic invoice, a technical specification on a limited number of invoice syntaxes and other components. The standard will be transposed to Member State level and is intended to be supported by all EU public administrations by the end of 2018. The core invoice is also intended for B2B use. In May 2015, the draft shall be available and the specifications have to be finalised by 2016. Further details and up to date information should be published on this website.
E-Bill	Includes all categories of electronic bills sent to consumers (B2C/G2C)
E-Invoicing	Electronic invoicing is the sending, receipt and storage of invoices in electronic format without the use of paper-based invoices as tax originals. Scanning incoming paper invoices, or exchanging electronic invoice messages in parallel to paper-based originals is not electronic invoicing.
FA	Federal Administration
Invoice	Includes in this report all categories of invoices: B2B, B2G
Issuer	Invoice issuer, Supplier, Biller

Network operator	Service provider respectively operator with any-to-any model; an invoice issuer or recipient needs just one interface for achieving any other counter-party in the same network; In some countries, the terms "operator", "service provider", "consolidator" or "supplier network" are more common.
SME	Small and Medium sized Enterprise
Service Provider	Hub respectively network for exchange of E-Invoices and other electronic business messages
Recipient	Buyer, Customer; The individual or organization that will receive the invoice

7.2 Sources

Figure 20: Key sources used in this report

Ref	Document and/or hyperlink	Date or version
[1]	ibi research 2015: Elektronische Rechnungsabwicklung und Archivierung – Fakten aus der Unternehmenspraxis (www.elektronische-rechnungsabwicklung.de)	May 2015
[2]	Forum for electronic Invoicing in Germany („FeRD") ZUGFeRD – uniform format for e-Invoicing http://www.ferd-net.de/front_content.php?idart=940&changelang=4	June 2015
[3]	Digitization for Economic Growth and Job Creation, Strategy& (Formerly Booz & Company)	April 10, 2013
[4]	Atradius Payment Practises Barometer, International survey of B2B payment behavior	November 2014
[5]	Australian Government, Report of the Australian Business Registrar 2013-14	2014
[6]	GS1 Australia, GS1 Locatenet – Location Directory Service http://www.gs1au.org/services/locatenet/	June 2015
[7]	The Coalition's Policy for E-Government and the Digital Economy	August 2013
[8]	Australian Public Service – Information and Communications Technology Strategy, 2012 – 2015	2012
[9]	Advancing Australia as a Digital Economy: AN UPDATE TO THE NATIONAL DIGITAL ECONOMY STRATEGY	2013
[10]	The Shadow Economy and Work in the Shadow: What Do We	2014

Ref	Document and/or hyperlink	Date or version
	(Not) Know?, Friedrich Schneider, Johannes Kepler University of Linz and IZA	
[11]	ESV positive to legislation regarding compulsory e-invoices to the public sector, The Swedish National Financial Management Authority, Link	27 May 2015
[12]	The Boston Consulting Group, Link The Conference Board, Link	8 June 2015
[13]	Basware white paper "WHY ARE GOVERNMENTS NOT PAPERLESS?", referencing to source [14]	June 2015
[14]	Independent Commission Against Corruption ICAC, New South Wales report: 'Safeguarding Public Money: The Importance of Controlling Invoice Payments'	November 2014
[15]	Australian Bureau of Statistics, Link	June 2014
[16]	Ernst & Young, Australian Shared Services Benchmarking Association, Accounts Payable Benchmark Mini Study	June 2010
[17]	The Hackett Group, Final Report: Invoice Handling Assessment And Strategy Development	28 May 2014