E-Invoicing / E-Billing

Key stakeholders as game changers

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Billentis
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Foreword

Martin Hurley, Vice President and General Manager of Outsourcing Services, Ricoh Europe, considers how European businesses can remove barriers for the uptake of e-invoicing

When the European Parliament backed the Commission's proposal to set-up a European standard for e-invoicing in public procurement, it took a major step towards speeding up the digital transformation of Europe’s business critical operations. There are also significant economic benefits to this move, as the harmonisation of e-invoicing standards across the EU will create efficiencies and reduce costs, not only for the public sector but also for businesses. It will also help to support a goal of the European Union Digital Agenda to create a paperless public administration in Europe.

Throughout the last few months the initial proposal on e-invoicing, presented by the European Commission in June 2013, has been amended to address concerns from the Parliament. From these concerns, the impact on SMEs and local authorities has remained a top priority. Now in its final shape, the legislation which was supported by an overwhelming majority of parliamentarians in a plenary vote on 11 March 2014, will ultimately allow public and private organisations of all sizes to reap the benefits of e-invoicing in their everyday work.

So far, the standardisation of e-invoicing has taken place at a member state-level only, which means limited interoperability and increased costs for firms wanting to participate in cross-border procurement. With that in mind, it is no wonder that the uptake of e-invoicing has been limited across Europe, accounting for only 4 to 15 per cent of all invoices exchanged. This fragmented patchwork of standards is inefficient and a real barrier to expansion across markets for all businesses, particularly for SMEs.

More and more businesses are investigating how much they can save by adopting e-invoicing and it’s easy to see why. This report highlights that 40 billion paperless bills/invoices are set to be issued globally in 2014, with 14 billion consumer bills and 26 billion invoices in the business and government sector. The technology has already been adopted in public procurement procedures in countries such as Denmark, Austria, Sweden and Finland. The European Commission highlights that each year Danish taxpayers save €150 million and local businesses reduce costs by €50 million thanks to e-invoicing. Meanwhile in Italy, using e-procurement saves over €3 billion. The Commission also points out that, if implemented across the EU, the use of e-invoicing in public procurement could save up to €2.3 billion a year.

The proposed legislation also has very tangible implications for individual businesses. Ricoh-sponsored research shows that it can cost a company €17.60 to receive and process a paper invoice at any given time, versus just €6.70 for an electronic version. Issuing a paper invoice costs €11.10, versus €4.70 when the process is managed digitally.

These costs savings can be reinvested by European businesses to drive innovation, support business growth and contribute to a healthier economy. But a pan-European approach and support is needed in order for the Commission to realise its goal of making e-invoicing the predominant form of invoicing in Europe by 2020.

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3 Ricoh Europe http://thoughtleadership.ricoh-europe.com/eu/digitalagenda/e-invoicing-in-the-eu
Last month, the European Parliament approved a €1 billion investment package to support pan-European digital projects and high-speed broadband networks. This is part of the Connecting Europe Facility, a Commission proposal to support European transport, energy and digital infrastructure projects. A major part of this package will provide funding for digital services in the area of cross-border public services such as e-invoicing. Neelie Kroes, Vice-President of the European Commission for the Digital Agenda, stated that e-invoicing is one of several “building-block” services which will allow Europe to build a true digital single market without barriers.

Ms. Kroes also noted that “When we have seamless networks and services that everyone can use, that’s when we’ll know that Europe is ready to compete for decades to come in the global economy.” Removing cross-border barriers for the uptake of e-invoicing is a crucial milestone in the move towards a smart, strong and competitive European digital economy.

The recent vote is undoubtedly a move in the right direction and underscores Europe’s commitment to a more streamlined and digitally-centric economy. Yet challenges remain. Recent research commissioned by Ricoh Europe revealed that 63 per cent of European business leaders believe they are far from ready for digital transformation. More concerning – and with even greater technology-led change on the way – organisations across Europe remain largely unaware of the multiple benefits that switching to e-invoicing can bring. As such, some are unnecessarily cautious and slow to change. The new pan-European standard on e-invoicing provides a great opportunity to facilitate technological revolution. Across the continent, small and large organisations that want to thrive in the digital age and maintain their competitive advantage can no longer afford to ignore the business potential of e-invoicing.

Of course, the challenge of moving from paper to electronic invoicing cannot be met overnight and European organisations are rightly seeking expert help. Ricoh’s intelligent invoicing service (i-Invoicing) allows businesses to easily manage both paper and digital invoices at the same time through a single platform, benefiting from the cost and environmental savings connected to using less paper, and then migrate on a gradual basis to a true multi-channel invoicing process that is both compliant and secure.

The next step for European businesses is to accelerate their journey towards full digitisation. This begins with reviewing existing processes, technology systems and ways of working. Once these requirements have been optimised leaders will soon realise the financial, operational and reputational benefits of business in the digital age. Changing business-critical document processes requires the right expertise and change management programmes. It is important to remove complications and manage the process without impacting on day-to-day core business activities. Organisations should gain advice from, and entrust the task to, a document process expert who can manage the transition from paper to electronic invoices on their behalf, leaving them to focus on what they do best.

We hope you enjoy reading the report.

For more information about Ricoh visit www.ricoh-europe.com/i-Invoicing

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Foreword

| About Ricoh |

Ricoh is a global technology company specialising in office imaging equipment, production print solutions, document management systems and IT services. Headquartered in Tokyo, Ricoh Group operates in about 200 countries and regions. In the financial year ending March 2013, Ricoh Group had worldwide sales of 1,924 billion yen (approx. 20 billion USD).

The majority of the company's revenue comes from products, solutions and services that improve the interaction between people and information. Ricoh also produces award-winning digital cameras and specialised industrial products. It is known for the quality of its technology, the exceptional standard of its customer service and sustainability initiatives.

Under its corporate tagline, imagine. change., Ricoh helps companies transform the way they work and harness the collective imagination of their employees.

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0. Executive Summary

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. This report will give the reader useful information for achieving these results.

It has primarily been private sector businesses and numerous solution providers which 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 growth rates for electronic exchange and archiving of bills/invoices are impressive, but the potential is still tremendous.

<table>
<thead>
<tr>
<th>Recipient segment</th>
<th>Annual bill &amp; invoice volume estimated to be at least</th>
<th>Estimated electronic proportion of total volume in 2014</th>
<th>Estimated annual volume increase in electronic bills/invoices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>World</td>
<td>Europe</td>
<td>World</td>
</tr>
<tr>
<td>Consumer</td>
<td>330 billion</td>
<td>18 billion</td>
<td>exceeding 8%</td>
</tr>
<tr>
<td>Business &amp; Government</td>
<td>170 billion</td>
<td>17 billion</td>
<td>24%</td>
</tr>
</tbody>
</table>

Of the 500 billion bills/invoices globally, 40 billion are estimated to be exchanged in 2014 paperless (14 billion consumer bills and 26 billion invoices in the business and government segment). Latin America contributes around 25 billion to this electronic volume, Northern America 7, and Europe 6 billion.

With at least 10% of the total market invoice volume (paper and electronic), the public sector belongs to the “top 3 industries”. Measured by the number of trading parties, it is the clear leader: 45-65% of all companies in a country are suppliers to the public sector and send invoices to it. 100% of enterprises and households receive invoices/bills from the public sector. That is why E-Invoicing initiatives by the public sector are key for the development of the whole country. Unfortunately, this sector often belongs to the laggards, despite the huge saving potential. This is due to change completely in the coming years: The public sector in most European and some Asian countries is expected to become one of the key drivers for the E-Invoicing market. Not only will it become a key driver, but it is also expected to be game changer number one.

Mainly due to the projects of large customers and the public sector, millions of SMEs have to replace paper invoices with electronic ones. On one side, they have to follow the requirements of their customers, but, in addition, demand completely new and easy to use solutions. SMEs are demanding very smart solutions, but do not want to pay (much) for it. Due to the high number and the very specific requirements, they can be seen as game changer number two.

Solution providers were the market-makers for the last decade and many of them are expected to be game changer number three in the coming years. A huge innovative step regarding the enrolment process and added values is ahead of them.
1. Introduction

1.1 The purpose of the Report

E-Invoicing / E-Billing is a rapidly expanding technology. Whereas Latin American and many European countries are already considerably advanced in this field, a vast majority of organisations have not yet decided upon one system or service.

A high number of providers offer solutions and services for this matter. In this phase, it is important to have up-to-date information and guidance on selecting the right solution and provider.

An independent international E-Invoicing consultant and market analyst has written this report. Its purpose is to support invoice issuers and recipients wishing to replace expensive paper-based invoice management. It gives all the relevant information for succeeding with an E-Invoicing project. The report not only provides facts, but also qualitative views, evaluation and details about the products offered by many providers.

1.2 Methodology

The author has worked in the E-Invoicing business since 1997. During the first two years in Switzerland, he established 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, RFPs, system evaluations and many technical and marketing concepts for large invoice issuers and recipients, banks, integrators, solution and service providers. During this time, he has constantly collected important data about the relevant markets. The results are repeatedly published in newsletters and market reports.

The report is based on
- Publicly available information; the author gathered information from thousands of sources over the years and adjusted them
- Market research carried out by third parties (representing 15,000+ enterprises and 10,000+ consumers)
- Verification of important figures by customer/provider visits and/or calls
- Own in-depth experience from more than 160 customer consulting projects in 50+ countries
- Consolidation of the above information

1.3 Terms and definitions

The term “E-Invoicing” is used for the Business-to-Business (B2B) and Business-to-Government (B2G/G2B) segment. The EU legislation considers a relatively broad definition: The issuing and receipt of VAT compliant invoices in an electronic format. Most national legislation mandates users to archive the E-Invoices in its original (electronic) format, even if it were printed after receipt. This definition in Europe corresponds with the broad recognition by users and also includes image-based digital invoices (mainly PDFs).

Definitions in other regions of the world differ greatly. Although it is not valid in any case, it seems that E-Invoicing in the US means much more just “automated E-Invoicing”. Other increasingly popular terms in this narrower sense are “Touchless E-Invoicing” or “Zero touch E-Invoicing”.

In this report, “E-Billing” covers the electronic bills from Business-to-Consumers (B2C). Note: Some market participants use this term alternatively for the process on the issuer side in general, regardless of whether the customer is an enterprise or household.
All statistics and forecasts are based on a very strict definition of E-Invoicing: Transported and archived fully electronically from end to end and in a tax compliant manner. Not considered are invoices which are transferred electronically, but violate legislation for some reason and all “semi-electronic” invoices (printed E-Invoices, scanned paper invoices, etc.). Also not considered are the reporting and validation invoice data sent from businesses to the tax authorities (popular in Latin America, Asia and some European countries).
2. The market

2.1 Market volume

2.1.1 An estimate for the global volume

2.1.1.1 Bills/Invoices

Whereas the volume (paper + electronic) in Europe is relatively well known, figures for other continents may just be guessed. There are clear indications that the number of bills/invoices per entity (enterprise or household) in Asia and America (North and South) is higher than in Europe. This seems to be especially the case for recurring bills (telco, utility and other bills).

Figure 1: Guess for global bill/invoice volume

<table>
<thead>
<tr>
<th>Segment</th>
<th>Estimated volume to be at least</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2C/G2C</td>
<td>330 billion</td>
</tr>
<tr>
<td>B2B/B2G/G2B</td>
<td>170 billion</td>
</tr>
<tr>
<td>Total</td>
<td>500 billion</td>
</tr>
</tbody>
</table>

Source: Billentis

In most industrialised countries, invoices/bills represent 16-30% of the total (addressed) letter volume and up to 50% in less industrialised countries. Local organisations in an increasing number of countries meanwhile have their own mechanisms to make qualified guesses about their invoice volume. Several service providers processing invoices (paper and electronic) confirmed to the author that economic cycles do not have a noticeable impact on the invoice volume.

There are several indications that the bill/invoice volume increases 2-3% every year. This is for several reasons:

- Increase of the population, the number of households and enterprises
- Suppliers improve their working capital and are no longer willing to give credit to their clients due to low billing/invoicing frequency; by sending bills/invoices every two months instead, they do it after each delivery
- Legal reasons; some countries (especially within the European Union) are mandating suppliers to send bills/invoices within 15-30 days of their performance or goods delivered
- Electronic invoices are cheaper and allow suppliers to send invoices more frequently

2.1.1.2 Invoice-like documents and messages

Additional volume of “invoice-like documents and messages” can also be tremendous (depending on country likely 5 to 15 times over the invoice volume). Invoices are different from receipts (payslips). Both invoices and receipts are ways of tracking purchases of goods and services. In general, the content of the invoices can be similar to that of receipts including tracking the amount of the sale, calculating sales tax owed and calculating any discounts applied to the purchase. Invoices differ from receipts in that invoices serve to notify customers of payments owed, whereas receipts serve as proof of completed payment. The message content can be quite similar to bills/invoices and, for that reason, some press releases translated from any language to English also use the term “Bills/Invoices” for this kind of document/message. The author keeps that number outside of its statistics. Classical examples of these “invoice-like documents and messages” are

- Invoice data sent to the tax authorities just for validation or audit reasons
• Digital replacements of “fiscal printers producing payment receipts”. Electronic (payment) receipts, generated by tills at the Points of Sale (shops, restaurants, ticket counters) and sent to the tax authorities just for validation or audit reasons (e.g. in Taiwan and some Latin American countries); more accurate translations to English use the terms “electronic tax receipts” or “uniform invoices” for these messages.

2.1.2 The European bill/invoice volume

Due to the annual increase, the European volume may have meanwhile passed the 34 billion and could increase to **35 billions in 2015**. Approximately half of the volume is send to consumers (B2C), the other half to enterprises and the public sector (B2B/B2G/G2B).

Figure 2: Invoice/Bill volume breakdown by industry (issuer view)

Legend: 1% of all invoices in a country are sent by Telecoms to corporations and 9% to consumers. Telecom invoices represent typically 10% of the total market volume.

There are just few segments receiving a very high invoice volume. The industries with the highest inbound volumes are:

Figure 3: Invoice volume breakdown by industry (recipient view)

<table>
<thead>
<tr>
<th>Industries with high inbound volume</th>
<th>% of all B2B invoices, indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>5-13%, depending on the country</td>
</tr>
<tr>
<td>Retail</td>
<td>10%</td>
</tr>
<tr>
<td>Public sector: National Government, regions &amp; municipalities</td>
<td>9-15%</td>
</tr>
<tr>
<td>Buyer Clubs, Trade</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: Billentis
All the industries above, except the public sector, were early adopters of EDIFACT or other electronic invoicing channels. The remaining volume of 60%+ is spread out across the other industries.

2.1.3 Relevance of cross-border traffic

Only a relatively small fraction (1-5%) of all invoices is sent and paid abroad. The larger countries in particular are much more focused on the domestic markets. In Germany, there are 7 billion domestic payment fund transfers compared with just 16 million cross-border transactions to EU countries (<0.3%). In small countries like Luxembourg, the share of cross-border invoices is above 30%.

From a statistical point of view, it appears that E-Invoicing projects could focus on the domestic traffic. In reality, this isolated focus can be a risk for the project, especially if the foreign trading partners are anticipating electronic invoices. Large organisations and even SMEs should consider their international situation from the beginning in order to avoid selecting the wrong solution provider.

Globalisation is in progress and sharply increases cross-border transactions. The author’s experience in customer projects: E-Invoicing is typically an international project immediately after project start.

2.2 Motives for replacing paper bills/invoices

Organisations start projects for various reasons:
- External pressure (Suppliers, Customers)
- Internal cost pressure
- Process innovation and automation
- Quality improvement
- Public sector initiatives (with the aim to reduce fraud and increase tax income and to optimise their own invoice processes)

Promoters can be found in various divisions
- Management
- Financial Department
- IT
- Sales
- Procurement
- Workflow
- Archive

2.3 Evolving market models

2.3.1 Overview

Many large organisations intend to exchange electronic business messages directly with their counterparts. This is still a good approach in the case of stable partnerships with very large trading parties and if the legal requirements for these messages are not very high.

The invoice can be seen as the “queen of documents/messages”. In most countries, it is THE document regarding VAT reclaim, for tax reasons and auditing. If paper based invoices are re-
placed by electronic invoices, it is essential to stay VAT compliant. Even if very large organisations prefer to exchange electronic invoices directly with their counterparts, the vast majority of companies are advised to use a professional third party service operated by professionals.

We distinguish between several E-Invoicing models:
- Supplier Direct Model (in-house)
- Buyer Direct Model (in-house)
- Outsourced Direct Model: Software as a Service (SaaS)
- Network Model, 3rd party operator Service
- Hybrid Model
- Total Invoice Management (in-house or outsourced)

Figure 4: Overview about main market models

2.3.2 Supplier Direct Model

A supplier implements an E-Billing/E-Invoicing solution within his environment for distributing the electronic invoices via different channels:
- Sends them to the customers via email, SMS etc.
- Provides the E-Invoices on his customer portal; Customers can login, view and download them

The supplier direct model is quite popular in telecom, utility and card companies issuing a high volume of bills to consumers and businesses. Small businesses do not only accept PDF invoices attached to e-mails from larger issuers, but also increasingly exchange E-Invoices directly with their trading partners. Due to their size, they do not have the capability to provide E-Invoices on their own portals, but instead exchange them as PDF invoices attached to e-mails.
Figure 5: Supplier Direct Model

The classic market launch is done with a B2C Customer Portal. Customers can login, view, analyse and download the electronic invoices. Due to the login process on each suppliers’ site, this route is not always popular. Therefore, customers should at least receive an email notification regarding a new invoice, including a hyperlink to the portal. Much more popular is to push the bills/invoices to the clients as email attachments.

To improve market acceptance, issuers to B2B customers should provide
- The most common structured invoice data for download (attachment or integrated to PDF invoice)
- Long-term and VAT compliant online archive for the customers’ invoices (as smaller customers quite often do not have the required environment for doing this)
- In case of signatures: Verification tool for customers, reporting the result in a log file (must also be archived)

Figure 6: Advantages & disadvantages of Supplier Direct Model via customer portal

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Direct contact with customers, chance for cross-selling and interaction</td>
<td>– First part of solution development and maintenance seems not to be too expensive, but this changes dramatically over the years (upgrades; accumulation of maintenance costs)</td>
</tr>
<tr>
<td>+ E-Invoicing functionality directly influenced by supplier; e.g. a telecoms operator offers analysis tools with CDRs (Call Detail Records)</td>
<td>– Customers dislike logging on to various websites of different suppliers or making multiple integration projects</td>
</tr>
<tr>
<td>+ Chance for very close integration with back office environment and automation of processes</td>
<td>– Customers only get a limited number of formats to download and have to convert them for import into their back office systems</td>
</tr>
<tr>
<td></td>
<td>– SME customers don’t get a centralised, efficient and VAT compliant E-Archive for E-Invoices of all their suppliers</td>
</tr>
<tr>
<td></td>
<td>– Overall, customer acceptance will be limited</td>
</tr>
</tbody>
</table>

Source: Billentis
Many disadvantages can be reduced/eliminated if this model is operated by a third party (SaaS, Software as a Service) or if it is practised as a complement to a network model → see Hybrid Model.

In most market sectors, the customer adoption by using customer portals is lower than expected, except where the rollout strategy “Opt-Out” including the email channel can be practised. Explanation of the term “Opt-Out” see figure 49.

An alternative builds the push method based on intelligent PDF invoices including XML data.

Figure 7: Advantages & disadvantages of Supplier Direct Model via push method

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Direct contact with customers, chance for cross-selling and interaction</td>
<td>− Customers only get a limited number of formats to download and have to convert</td>
</tr>
<tr>
<td>+ Efficient solutions for senders and recipients available; low upfront investment</td>
<td>them for import into their back office systems</td>
</tr>
<tr>
<td>+ Chance for integration with back office environment and automation of processes on issuer and recipient side</td>
<td>− SME customers do not get a centralised, efficient and VAT compliant E-Archive</td>
</tr>
<tr>
<td>+ Acceptance by customers of any size</td>
<td>for E-Invoices of all their suppliers</td>
</tr>
</tbody>
</table>

2.3.3 Buyer Direct Model

A buyer implements an E-Invoicing and/or Invoice Management solution within his environment for receiving the electronic invoices via different channels:

- Gets invoices directly as a data stream for importing them into his AP solution (preferred mainly for invoices of large suppliers)
- Smaller suppliers key-in the invoice data in a web-template on the corporate invoice portal of the buyer (webEDI); data can be automatically processed and imported into the AP system

Figure 8: Buyer Direct Model

This model is preferred by larger organisations, especially if their suppliers are in strong competition with others (e.g. retail, automotive, trade).
Some providers offer E-Invoicing and Invoice Management solutions just for buyers, whereas others cover both sides: software for suppliers, already preparing and sending a compatible invoice format perfectly matching the requirements of buyers.

If suppliers are located in countries requiring digital signatures, they have to sign the E-Invoices in a VAT compliant manner. To succeed with smaller suppliers, it is of key importance to offer them good tools for this process and most probably a long-term supplier archive too.

The model can also be quite successful with smaller suppliers if orders are sent to them in electronic form alone (e.g. via Extranet Portal). Many solution providers offer a functionality to convert these purchase order data easily into an invoice for sending back to the buyer.

Figure 9: Advantages and disadvantages of Buyer Direct Model

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Direct contact with suppliers, chance for interaction</td>
<td>− First part of solution implementation and maintenance seems not to be too expensive, but this changes if mid-sized and smaller suppliers must also send electronic invoices; much legal clarification is necessary, especially in cases of cross-border exchange</td>
</tr>
<tr>
<td>+ E-Invoicing functionality directly influenced by recipient</td>
<td>− Suppliers dislike converting their electronic invoices into the various formats requested by the buyers; they also dislike making multiple integration projects (with each buyer)</td>
</tr>
<tr>
<td>+ Chance for a very close integration into back office environment and automation of processes</td>
<td>− SME suppliers don’t get a centralised, efficient and VAT compliant E-Archive for E-Invoices for all invoices sent to various customers</td>
</tr>
<tr>
<td></td>
<td>− Overall, supplier acceptance will be limited but some pressure on suppliers is helping</td>
</tr>
</tbody>
</table>

2.3.4 Direct Model as a Service

Over the years, large organisations using biller or buyer direct models concluded that the marketing rollout is harder than expected and that the maintenance of their applications is ultimately too expensive. That is why some service providers in the UK, the Netherlands, Finland, France, Germany and other countries started to offer white-label services for them (SaaS, Software as a Service). They run a direct model on behalf of large issuers and recipients of invoices. The software is typically developed, maintained and operated by these providers. Customers pay just a fixed integration fee and a volume/time based fee.

Figure 10: Advantages and disadvantages of Direct Model as a Service

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Direct contact with counterparts, chance for interaction</td>
<td>− Counterparts dislike logging on to various websites or making multiple integration projects</td>
</tr>
</tbody>
</table>

© B. Koch, Billentis
### Advantages

+ E-Invoicing functionality directly influenced
+ Chance for very close integration into back office environment and automation of processes
+ Lower costs, as application development and maintenance is shared with others
+ No negative surprise with the costs, as provider offers a fixed integration fee and a price per transaction or user
+ Complexity regarding VAT compliant processing (and optional archiving) can be outsourced

### Disadvantages

− Counterparties only send/receive a limited number of formats
− Overall, acceptance by counterparts will be limited

## 2.3.5 Network Model

Issuer and recipient have just one interface to their service provider, the network operator\(^1\). This E-Invoicing network operator manages the VAT compliant invoice transfer to clients. Issuers can deliver invoice data (e.g. ERP output format like idocs, any XML data or a flat file) to the operator who translates it into the target format of the recipient. The operator guarantees the main legal requirements, authenticity and the end-to-end data integrity. An increasing number of operators offer additional services such as tax compliant long-term archiving.

Figure 11: Network Model

Large issuers and recipients intend to make a full integration into their AR and AP applications. SMEs often prefer easier and quicker solutions, either by using WebEDI or Printer Drivers. For both channels, suppliers’ AR systems do not need any modification or upgrade. Use of E-Invoicing is possible for them within hours after making their decision.

---

\(^1\) In some countries, the terms “consolidator”, “service provider” or “supplier network” are more common
Figure 12: Advantages and disadvantages of Network Model

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Easy and efficient integration to a single point of contact</td>
<td>– Indirect contact with counterparts, chance for interaction possible, but limited compared to direct or SaaS model</td>
</tr>
<tr>
<td>+ Lower costs as application development and maintenance is shared with thousands of other participants</td>
<td>– E-Invoicing functionality is fixed and can’t be influenced</td>
</tr>
<tr>
<td>+ No negative surprise with the costs, as provider offers a fixed integration fee and a price per transaction or per user</td>
<td></td>
</tr>
<tr>
<td>+ Complexity regarding VAT compliant processing (and optional archiving) can be outsourced</td>
<td></td>
</tr>
<tr>
<td>+ Easy to use: Technical and legal requirements can be outsourced to network operators</td>
<td></td>
</tr>
<tr>
<td>+ Counterparts like logging on to just one website, making one integration project with just one invoice format</td>
<td></td>
</tr>
</tbody>
</table>

2.3.6 Hybrid Model

Message transfer with a few high-volume and strategic important counterparts is based on a direct model, whereas mid-sized and small counterparts are addressed via network operators.

Organisations using this model have combined the advantages and disadvantages of direct & network models.

Advantage: Good solution for all organisations already practising a direct model with chance for an efficient route to all smaller suppliers and customers.

2.3.7 Total Invoice Management

Even at best, there will always be a remaining percentage of paper invoices in tandem with the increasing electronic volume. At worst, this can result in two different workflow and archiving processes. This can be avoided in most cases with innovative solutions for supporting and handling various invoice formats, including paper. If practised as a direct model, such invoice management solutions can be purchased on the market and implemented into the company’s own environment. Organisations not yet using scanning solutions quite often prefer using the complete service of a third party. Ultimately, this means that issuer and recipient can exchange invoices 100% electronically.
Figure 13: Total Invoice Management

Supplier 5  →  Paper
Supplier 1  →  EDI, XML, CSV
Supplier 2  →  WebEDI
Supplier 3  →  XML enriched PDF
Supplier 4  →  Printer Driver

Network operator

Paper/el. Image  →  Data
Data  →  Paper/PDF

Processing
Data Formatting

Build VAT compliant
Data Set

Archive

Paper
PDF (Image)

EDI, XML,
CSV

Buyer 5

Buyer 1

Buyer 2

Buyer 3

Buyer 4

Source: Billentis

Figure 14: Advantages and disadvantages of Total Invoice Management

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ 100% solution</td>
<td>– Pressure to move very quickly from paper to electronic channel is limited; as a result, paper can survive longer than desired</td>
</tr>
<tr>
<td>+ Harmonised processes, independent of invoice medium used</td>
<td></td>
</tr>
</tbody>
</table>
2.4 The global landscape

2.4.1 Market evolution and maturity

Figure 15: Classical evolution pattern in most countries

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Large organisations (telcos, utility sector, card issuers, etc.) have tremendous expenditures for printing and mailing bills. Due to their competitive industry, they are pushed to reduce their costs significantly. They offer the bills electronically to their clients, often on their portals for download after log-in. The rate of acceptance by clients is limited, except if clients receive incentives for changing to E-Bills, if they are punished with penalties for paper bills or if they are pushed to accept the bills via email. This phase is the first experience with E-Billing for most countries.</td>
</tr>
<tr>
<td>2</td>
<td>Relatively soon, users of Supplier Direct services will realise that their clients will not wish to log-in to each supplier’s website. They prefer a single point of contact (aggregating website, online banking) for bills of all their suppliers. The acceptance of a B2C network service can be higher than with the Biller Direct model (Web-based) and the on-boarding costs per user are shared with other billers. Many billers recognize in this second phase that Bill Presentment on their own portal is not sufficient. They enhance their scope by using in addition a network service or switch to a push-model (send bills as PDF email attachments).</td>
</tr>
</tbody>
</table>
| 3     | Enterprises can benefit most with electronic and automated processes in their role as issuer as well as recipient. As soon as legislation permits paperless invoicing (in most countries, except some in Africa and Asia), large organisations are typically the innovators for E-Invoicing. They push their large trading partners, followed by mid-
sized and small ones. Due to the high benefits for issuers and recipients, E-Invoicing in the B2B and B2G segment is typically more successful than in the B2C. However, it is still a challenge for large organisations to push a high number of mid-sized and small trading partners to exchange invoices electronically.

4 The public sector is in an excellent position to initiate the breakthrough in the mass market. In many countries, 45 to 65 percent of local enterprises are suppliers to the public sector. The government has the power to push these suppliers to send invoices electronically. They are also in the position to modify the legislation in a user-friendly way if necessary. Even in countries where the public sector is inactive regarding E-Invoicing, the market does move forward rapidly. An increasing number of providers meanwhile offer a broad range of solutions for all types of users and for fair conditions.

The maturity of the market varies between continents and the countries on each continent.

Figure 16: Market maturity for electronic invoices/bills

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 evolution step 1 or 2. “Developing” means that countries are typically in evolution phase 3. 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 2014 volume for E-Bills/E-Invoices will achieve around 40 billion worldwide with annual growth rates of at least 20%.
Not considered above:
- Invoice data which are just copies in parallel to the paper-based original (e.g. EDI messages complemented with collective paper invoices or invoice data as result of paper scanning and OCR process)
- Invoice-like electronic messages as defined in chapter 2.1.1.2

2.4.2 Current optimisation focus of geographical regions

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 17: Optimisation focus of geographical regions

<table>
<thead>
<tr>
<th>Focus</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Asia &amp; Latin America</strong> (and increasingly some Southern and Eastern European countries): Country-wide 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 &amp; auditing. The 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 is not yet necessarily optimised.</td>
</tr>
<tr>
<td>2</td>
<td><strong>North America:</strong> 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.</td>
</tr>
<tr>
<td>3</td>
<td><strong>Major parts of Europe:</strong> Suppliers and buyers can be located in various countries with different legislation. Much effort was done in EU member states to remove legal barriers. For Europeans, it is also important to build a framework, which is suitable</td>
</tr>
</tbody>
</table>
Focus | Description
--- | ---
 | 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 use E-Invoicing still 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.

In the long-run, all suppliers, buyers and the tax authorities want benefits with E-Invoicing. This increases the chance that each continent learns from each other and adopts best-of-breed components from others.

2.4.3 The Service Provider landscape

Organisations offering exchange & transaction services are founded either as start-ups or often originate as
- Print shops (invoice printing as third party service)
- AR and collection service
- Post
- EDI Clearing centres
- Archiving service
- Scanning service
- Electronic marketplace, procurement platform
- Banks or financial clearing services
- Payment service providers
- ERP integrators
- E-Business operators
- Software houses
- Consultants
- Digital signature service provider

Some very large operators have their roots and headquarters in Latin America (especially in Chile). The early market evolution, combined with the quite demanding legal requirements have obviously built an ideal environment to succeed with the service approach. Soon, the pioneers expanded into neighbouring countries. The language was the same and the practice model was quite similar, or at least inspired by the Chilean approach.

In North America, network operators have mainly been established in the B2C segment and often in form of payment networks with support for bill presentment. Compared to the size of the market, there are still few players covering the B2B segment. However, this is expected to significantly change during the coming years.

2.4.3.1 Service providers in Europe

In early 2014, about 600 network operators were active in the European market. No single player has reached a dominant position in the E-Billing/E-Invoicing market. Most of them have an extensive and balanced product range for issuers and recipients of any size. Others are more specialised for either issuers or recipients and for the B2B or B2C sectors. Around 80 of them have an international range (often supporting tax compliance in 40+ countries). An increasing number improve the international scope by linking partner platforms abroad and roaming E-Invoices. Still, many operators are well established as pure players (focussed on E-Invoicing), whereas a
majority has already enhanced the support for further messages and process automation along the supply chain.

### 2.4.3.2 Inter-operability among different E-Invoicing network operators

In the area of mobile phones, we have many operators in a domestic market, which are connected to each other in the local market and with most others abroad.

For electronic invoicing, we can see a similar market development, but slower, and with much higher heterogeneity regarding legal constraints, invoice contents etc. Although there is not yet a single standard for exchanging E-Invoices across the various networks, more and more operator platforms are linked together for building inter-operable networks with a broad range.

Interoperability among operators is also pushed by initiatives from the European Commission and some associations in the private industry. Some leading operators have already established numerous interconnections on a bilateral and proprietary basis. There are also operator associations with the aim of pushing the interoperability with a standardized approach, e.g. EESPA/European E-Invoicing Service Providers Association [1], German E-Invoicing Alliance [1], OpenPEPPOL [2], the SimplerInvoicing [1] initiative etc. The first two already have 50+ members and OpenPEPPOL 100.

### 2.4.4 Asia & Pacific region

**Remark:** The author allocates Belarus, Turkey, Russia and Ukraine to Asia and not Europe.

Most Asian countries are in evolution phases 1 and 2 (Figure 15): Large bill issuers start with “Bill Presentment” via their company portals or internet banking.

E-Invoicing in B2B is often not yet legally permitted, or only under strict legal conditions that sometimes include explicit approval from tax authorities. This does not rule out that some companies already exchange (in parallel to the tax relevant paper invoice) electronic invoice files (“commercial invoices”) to improve process efficiency.

However, there are some countries in phase 3: The leaders are Singapore, Hong Kong, Taiwan and South Korea. Despite their major importance in the world economy, Japan and India are lagging in both legal framework and adoption. The government, shipping and retail industries play a key role in the B2B/B2G segment. Even though countries such as Singapore and Hong Kong have had rather lenient regulatory conditions for electronic invoicing and record keeping for many years now, adoption levels remain low to modest across most of Asia.

The government of Kazakhstan announced that the country would migrate on a stage-by-stage switch to E-Invoicing. The national companies had to start the process from July 1st 2012, while all others taxpayers had to support E-Invoicing from January 1st 2013.

**Australia and NZ** are at a similar stage to Asia. Today, we have seen phases 1 & 2 through direct and independent development by Australian companies. Australians are embracing the electronic commerce phenomenon and are becoming increasingly more confident in electronic B2B transactions. At this stage, the majority of invoicing is direct via email or presented online for the user to either download or print. Some providers are also convinced that E-Invoicing via digital mailboxes will play an important role in the near future. Australia’s state government launched an E-Invoicing pilot in 2012. Many other administrations also started electronic procurement (and E-Invoicing) projects. As this is affecting many suppliers, the maturity of the market is increasing sharply.
The legislation is very moderate. Australian taxation law supports the issuing of electronic invoices and the requirements regarding storage timeframes for possible audits are much the same as paper. Australia places more responsibility on businesses themselves to confirm the identity and tax status of the entity using free government look-up services, such as the Australian Business Register [4]. Under Australian law, businesses are required to check this information before finalising the transaction and are required to withhold tax should the other entity not be suitably registered. Penalties can be applied to both parties should these laws be infringed.

**Azerbaijan** has in recent years worked to modernize its legislative and audit framework, and now also allows electronic invoicing.

Reducing tax evasion is also a serious challenge in Asia. **China** is no exception in that regard. To address this challenge, China launched a major fiscal reform project called the “Golden Tax Project” (GTP) which mandates the use of specific sophisticated information technologies to improve compliance with China’s VAT laws. In 2013, China introduced further regulations for its online invoice management system in a bid to standardize the industry and curb tax evasion. For using the online electronic invoicing system, taxpayers register at the tax authorities and open an account. To issue an invoice, they fill out the required information and issue the electronic “fapiao” online. The issued fapiao is verified by matching the information against that in the online system. Compared to pure paper invoices, the taxpayer has the benefit that he has no longer to physically travel back and forth to the tax bureau to obtain and verify invoices. The author would still not describe the Chinese system as E-Invoicing in the sense as practised in Europe, the US or Latin America. Electronic bills to consumers seems to be a step closer to the methods of the western world: The **Hong Kong** Monetary Authority and banks launched an Electronic Bill Presentment & Payment system. 23 banks, which operate 99% of internet banking accounts, have agreed to take part in the new service, with 18 of them ready to start the service in December 2013. It permits citizens from Hong Kong to receive and pay bills electronically.

**India** has made announcements about allowing E-Invoicing more broadly; however, electronic invoicing remains rare because Central Sales Tax explicitly requires paper invoices, while only about half of the states allow E-Invoicing under their VAT law.

**Indonesia** is testing a first step towards Electronic Bill Presentment and Payment for tax payments [3].

The current stage of E-Invoicing in **Russia** may be described as dynamically developing, but still on a low level measured by E-Invoicing volume. The general interest is quite high, but there is a lack of practical knowledge and real positive cases to boost the shift from interest to real action. According to a Federal Tax Information official, by early October 2013, 250,000 Russian businesses expressed in a letter of intent their desire to exchange tax compliant electronic documents (compared to 105,000 in May of the same year).

The size of the **Turkish** market is 2 billion annual invoices/bills (source: Turkish Ministry of Finance). The country made a huge step forward in 2013. Third party service providers (certified and linked to the state-owned service provider) are meanwhile permitted to address the divergent market requirements. They leverage the market reach. In addition, the government declared E-Invoicing to be mandatory for certain industries and their trading parties if they generate a minimum turnover with them:
- Tobacco and Tobacco Products (Suppliers and Buyers)
- Petroleum Oils and Lubricants (Suppliers and Buyers)
- Alcoholic Beverages (Suppliers and Buyers)
Several tens of thousands of Turkish companies were affected by this obligation.

In coming years, Vietnam intends to establish a system with strong similarities to the Latin American model. This includes sending the electronic invoices to the tax authorities, where they are approved and get a barcode for delivery issues of the goods.

2.4.5 Africa

Most countries are in evolution phase 1: Large bill issuers start with “Bill Presentment” via their company portals. Electronic Bill Presentment and Payment is already up and running in Egypt and Tunisia.

South Africa is the only country with a robust, albeit still nascent, market for E-Invoicing on the African continent. A regulatory framework for E-Invoicing has existed for many years, and was modernized in 2012.

With that exception, countries such as Morocco in the Maghreb region are slightly more advanced than the rest of Africa, however the mentality in both government and business appear to remain geared towards the use of paper in administrative processes. PDFs transmitted by email could lead the way for several years. Consumer bills are also highly accepted via mobile devices.

2.4.6 North America

In the B2B/B2G segment, the perceptions and objectives differ broadly from the European or Latin American approach. The optimisation of internal operations “order-to-cash, AR automation” and “purchase-to-pay, AP automation” is currently a main objective for US enterprises. Various surveys imply that the US is clearly past the early adoption phase of electronic invoicing and that the interest in this topic sharply rises.

PayStream Advisors, Inc. a research and consulting firm focused on back office financial applications: “The US AP Automation Market revenue is forecast to reach $1.7 billion in 2013, a 11.9 percent increase from 2012 revenue of $1.55 billion. AP Automation Market-based delivery will experience healthy growth through 2016, when worldwide revenue is projected to reach $2.4 billion. The market for E-Invoicing is opening up. Currently at $280 million, PayStream predicts demand is growing at a compound average annual growth rate of 13 percent. But if you look at where we are in the big picture, we are still in about the third inning.”

Over 80 percent of companies surveyed either have adopted or are evaluating E-Invoicing technology.
In small and medium-sized enterprises, 22% or respectively 43% of companies [5] are using an E-Invoicing solution.

In relation to the huge size of this market, it may come as a surprise that there are in early 2014 still just around 150 E-Invoicing network operators in place. Because the US does not have VAT, but a sales tax system, invoices are not considered any different from other business documents. It has therefore taken some time for the value of E-Invoicing network operators to become recognized on the US market, but now the number of such operators is expected to increase sharply in the coming years. Another fact might also prove to be an accelerator for third party service providers: A high number of enterprises are interested in E-Invoicing solutions, but are faced with a limited budget/funding. External services on demand instead of in-house solutions help to overcome this barrier as well.

2.4.7 Latin America

Chile may be identified as the root of the Latin American market model and its development. Other markets like Argentina, Brazil, Costa Rica, Guatemala and Mexico belong to the early adopters and some of them overtook Chile due to strict obligations for the usage of E-Invoicing in that country [6]. Chile meanwhile also plans to make E-Invoicing obligatory. Meanwhile, almost all other countries in Latin America are rapidly evolving.

In Argentina, almost 350,000 companies are affected in 2014 by an extension of an E-Invoicing obligation to new sectors [7].

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 [8]. This result was possible due to the strict implementation of its E-Invoicing obligation several years ago. It is a pleasure to now see Brazil as one of the innovators.
for users in the retail segment. Recently the project “Nota Fiscal Eletrônica para Consumidor Fí-
nal - NFC-e” was launched. 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, that is authorized online before the sale. NFC-e follows the same technical and
operational model of the NF-e (B2B/B2B) used for all industry and wholesale companies in Bra-
zil. The expectation of the promoters is that the NFC-e will become widespread in many states of
Brazil in the second half of 2014.

The [Chilean](#) tax authority announced an obligation for electronic invoicing. Large businesses
have until October 2014 to switch. Small companies shall implement the obligation by the end of
2017. Meanwhile, more than 50% of Chilean invoices are exchanged electronically.

**Colombia** is also accelerating the E-Invoicing landscape. Constraints are much more flexible
and market-focussed. The legislation permits “technology neutrality” and format flexibility
(XML, PDF, TXT, etc.). In December 2013, CONPES [9] published a new concept with the aim
to push the mass market in Colombia. A new resolution (planned to be published in the first tri-
mester of 2014) shall include an E-Invoicing obligation, affecting 25,000 businesses.

**Costa Rica** has stipulated the use of electronic invoicing for certain market segments (100 to 150
thousand independent professionals like doctors, dentists, lawyers, etc.). The law for this step
one obligation will probably pass during this year.

In 2012 the tax authority of **Ecuador** ran a pilot programme with 20 companies with the idea of
eventually introducing mandatory issuance of electronic invoices. After successful completion of
this programme the Resolution regulating the mandates was published on 17 May 2013. The
Resolution establishes a schedule for the gradual introduction of mandatory electronic invoicing
in Ecuador. The Resolution affects invoices, transport documentation, debit and credit notes.
Taxpayers who are covered by the provisions of this law will be obliged to issue such documents
electronically in the near future. A schedule with a step by step implementation plan for different
market segments is published and will affect the first taxpayers from June 2014.

**Guatemala** also has an obligation in place to issue the invoices electronically. The enrolment
process was following the invoice volume top down. Since March 2013, all business are affected
by this obligation [10].

Measured by absolute and relative volume of electronic invoices, **Mexico** belongs to the Top2
countries worldwide (together with Brazil). The last market enrolment step for an obligation
shall take place in early 2014, affecting an estimated 500,000 companies. As a result, probably
more than 5 billion annual electronic invoices will be issued in Mexico in 2014 [21]. In the first
quarter of 2014, 1.5 billion E-Invoices were exchanged in Mexico [22].

In January 2013, **Peru** started a pilot project with the aim of declaring E-Invoicing as mandatory
for suppliers to the public administration. The approach in Peru considers international standards
(UBL 2.0 as content standard). It shall permit an easier integration with trading partners in the
European Union and the APEC (Asia-Pacific Economic Cooperation) countries. Peru is going to
be one of the stars of 2014. In December 2013, a new mandatory regulation was issued for the
240 largest companies, expecting them to be in full production by October 2014. They shall issue
the invoices just electronically, but also the “boletas” (electronic receipts). In addition, some
market segments have to send the invoices to the federal administration just in electronic format.

The [Uruguayan](#) national tax department DGI launched a platform for electronic invoicing in
2011, with companies representing 8% of the country’s total invoice volume forming part of a
pilot project. From 2013 onwards, E-Invoicing is mandatory for larger enterprises. This plan also
leads to the first massive application of digital signatures in the country. The Uruguayan Dirección General Impositiva [23] expects that the estimated 24% E-Invoicing market penetration in 2014 will rise to 40% by 2015. This would catapult the country into the group of ten global leaders in E-Invoicing.

In contrast to the rest of the world, most Latin American countries do not focus too long on evolution phases 1 and 2. Instead, they go straight to phase 3 and phase 4 (e.g. Brazil and Mexico). The initiator for the market activities is in most cases the government. The driver for establishing country-wide E-Invoicing is often the reduction of tax evasion through real-time or near real-time invoice validation by tax authorities. This can be achieved by mandating an electronic invoice loop between supplier, the tax authorities and the supplier.

Although the legal requirements are among the strictest worldwide, some countries in Latin America have taken over the global leadership role. Not only do some of them already have good market penetration rates (Brazil with 90%), but their model is also inspiring larger countries in Asia and likely soon in Southern and Eastern Europe.

Typical characteristics of E-Invoicing in Latin American countries are

- Unique/sequential invoice numbers provided by the tax authorities
- Use of digital signatures based on suppliers’ certificates, issued by approved or state-run Certification Authorities.
- Imposed XML standards for tax authority clearance
- Steady reporting to the tax authorities: either in real-time prior to issuance or at least monthly.
- Increasing integration with the physical supply chain e.g. simultaneous print-out of ancillary transport documents based on a pre-approved invoice
- After review/approval of suppliers’ invoices, tax authorities put a visible “stamp” to the E-Invoices. It is either a country specific alphanumeric code (Mexico) or a barcode (following the standard CODE-128C in Brazil and PDF417 in Chile).
- Recipients often have to validate that the invoice was pre-approved by the tax administration
- Tax authorities validate either the invoice data real time or data-mine to check invoices later.
- General archiving period is 5 years.

Service providers play a key role. In some countries, service providers are accredited to perform clearance services on behalf of the tax administration; such service providers may also offer value-added services around these regulated functions. While many service providers are local, a good number of them are active in several Latin American countries and already process a very remarkable invoice volume. They belong to the largest operators worldwide and some of them are now entering into the American and European market.

Some low-hanging fruits have been picked and the government has achieved a significant reduction in tax evasion. Invoice issuers and recipients also have some benefits, as most invoices are no longer paper-based and operator fees generally remain affordable due to competition. However, they made this first step under a great deal of time pressure and many of them did not have the chance to first start a company internal process optimisation process. There is also still much to do to generate the maximum benefits for the enterprises and the economy. In many cases, it could also be advisable to look to Europe and the US to reduce the complexity of the model.
2.5 The European Market

2.5.1 The Business-to-Business & Business-to-Government market

2.5.1.1 Market penetration

VAT compliant B2B E-Invoicing has been legally permitted in Nordic countries since around the millennium and in Switzerland since 2001. EU member states have had to accept it since 2004. Potential EU users required some time to interpret the new laws. Mainly larger businesses started their projects fairly quickly.

Figure 19: European market penetration in the B2B/B2G/G2B segment

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic share</td>
<td>8%</td>
<td>10%</td>
<td>13%</td>
<td>15%</td>
<td>20%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Status and market development differ from country to country.

Figure 20: B2B/B2G/G2B: Estimated market penetration 2014 per country

2.5.1.2 Transition from large innovators to mass market

For almost a decade, solution providers, large billers and invoice recipients have shaped the market. Meanwhile, the vast majority of larger companies practice E-Billing/E-Invoicing. The market development follows the decreasing size of the invoice streams:

1. Due to high volume and low legal barriers in the B2C sector, organisations with high out-bound volume were first, offering electronic bills to consumers via their customer portals. This development started in most European countries before the millennium. Around 2001, this “Electronic Bill Presentment” channel was enhanced with email delivery of PDFs, causing a huge jump in the number of users.

In the B2B market, the E-Invoicing market was initiated by large purchasing organisations,
pushing their large suppliers to deliver electronic invoices.

2. Due to the fragmented invoice situation, even large organisations did not achieve satisfactory electronic volumes just with their large trading partners. That is why we are now in the middle of the next evolutionary step: Addressing the SMEs. However, there is a limited but sharply increasing number of SMEs issuing and receiving electronic invoices. In most cases, SME projects have been initiated by large trading partners having pushed them to do so.

3. The next evolutionary step will be E-Invoicing on the mass market. The various initiatives by the national public sectors and the European Commission could result in the break-through in this sector.

2.5.1.3 Adoption and differences in various market segments

Figure 21: Portion of European E-Invoicing users

E-Invoicing users (issue and/or receive)

<table>
<thead>
<tr>
<th>% of all enterprises</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>1-9</td>
</tr>
<tr>
<td>40%</td>
<td>10-49</td>
</tr>
<tr>
<td>80%</td>
<td>&gt;250</td>
</tr>
</tbody>
</table>

Source: Several country surveys & Billentis
2.5.1.4 Exchange formats

The usage of formats and channels differs a great deal depending on the country and the size of companies. It is extremely rare for companies to issue or receive invoices just in one electronic format.

Conclusions for the European market

- Multi-channel exchange strongly dominates the landscape
- There are already some suppliers offering invoices just in electronic format (e.g. online shops)
- Exchange via E-Mail is more popular than via EDI
- E-Mails are preferred by SMEs, but are also often accepted by larger companies

The long-term intention of most stakeholders is to exchange, process and archive most electronic invoices in a structured format. The high-volume industries (e.g. retail, automotive) were able to establish this in the first stage of market development. EDI, and in later years XML, dominated the E-Invoicing landscape. Trading parties were typically larger enterprises. The more the mid-sized and smaller companies entered into the E-Invoicing market, the more the PDF volume increased. The benefits of image-based PDFs are mainly limited to cheaper transport and archiving, but process automation does not really happen and cost savings stay limited.

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.

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The public sector would definitively be in the position to change the picture completely for the benefit of structured E-Invoices. This is at least in progress in some countries. Governments mandating its suppliers to send invoices just in electronic format typically ask for XML and do not permit PDFs (e.g. Austria).

2.5.1.5 Distribution channels

The supplier direct model is currently dominating in many countries like Austria, Germany and the UK. Smaller pioneer countries intend to have a clear preference for E-Invoicing network operators: Belgium, the Nordic countries, Slovenia and Switzerland.
The jump in the number of directly exchanged electronic invoices is mainly a statistical effect. Due to the new legislation in EU countries, a portion of the unsigned PDF invoices now belongs to the “tax compliant” invoices and are therefore considered in these statistics (before they were not be considered as tax compliant E-Invoices).

The exponential growth rates for service providers seem to become temporarily more linear. Some larger network operators are focussed on slower growing industries (retail, healthcare). Another reason is that some Nordic countries are already very advanced with a relatively high market penetration. Due to this basis effect, exponential growth is a challenge. Nevertheless, exponential growth rates are not out of reach. This could happen as soon as mid-sized or larger countries would start government initiatives for pushing electronic invoicing and procurement (high probability between 2014-2018 due to EU digital agenda).

**2.5.1.6 Market Maturity in the public sector**

The saving potential in this sector is tremendous, and so is the positive economic impact. Nevertheless, the public sector in most European countries is still among the laggards. Almost a decade ago, the regulators made the first step and paved the way for E-invoicing (Level 1 in the following chart). The evolution up to level 6 (Automate the full Supply Chain including e-Procurement) seems to need some more years yet.

They are currently going through the evolution cycle up to full users of E-Invoicing, and in rare cases to a fully automated supply chain.
In Denmark, E-Invoicing has been mandatory since 2005 for the supplies to the public sector. Meanwhile, the country completed this process by enhancing the electronic process for procurement as well. The Danish government has already achieved the most advanced level 6.

Finland and Norway are other Nordic countries which are ahead, but have not yet achieved level 6.

Government activities on levels 5 and 6 have a significant impact on the development of the mass market, as 45 to 65 percent of all enterprises in a country are affected.

For the federal administration, Austria, Belgium, the European Commission, France, the Netherlands and Switzerland are already on level 4. Austria declared E-Invoicing to be mandatory from January 2014 to the federal administration. Portugal declared E-Invoicing as mandatory for all businesses from January 2014. Italy pushes its public administrations and suppliers to level 4 and 5 (step-by-step enrolment process starting from June 2014).

### 2.5.1.7 Market Maturity in the SME sector

According to Eurostat, 99.8% of European Businesses are SMEs. They represent 2/3 of all employees in the private sector. Although larger organisations are the primary promoters of E-Invoicing, SMEs play a key role as the trading partners of larger businesses.

Meanwhile, in the most advanced countries, the SME segment is also mature for E-Invoicing. Despite a high number of appropriate and efficient E-Invoicing solutions and services, there is still much work to be done to prepare the field in this segment.
2.5.2 The Business-to-Consumer market

2.5.2.1 Market penetration
In the intercontinental context, the European payment options are in most countries relatively convenient. Collective payments, Electronic Fund Transfers and Direct Debits are quite popular bill payment methods. Payment did not turn out to be a driver for E-Billing in Europe. There are also indications that European households receive (relatively) fewer bills than the consumers in most other continents do. Thus, E-Billing is not yet very advanced in most European countries and the market penetration lags behind the development in the B2B segment.

Figure 26: European market penetration in the B2C segment

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013 (E)</th>
<th>2014 (E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic share</td>
<td>5%</td>
<td>7%</td>
<td>9%</td>
<td>11%</td>
<td>13%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Status and market development differ from country to country.

Figure 27: B2C: Estimated market penetration 2014 per country

2.5.2.2 Transition from large innovators to mass market
Most large billers have meanwhile an acceptance of 25-90% for E-Bills with a majority of around 35-50% of their customer base. The few available surveys confirm that still mainly younger consumers use E-Billing. Obviously a paradigm shift, a new approach and some more years are needed to achieve the mass market.

2.5.2.3 Distribution channels
Most consumers prefer to receive electronic bills via email. Email is still gaining ground in many larger countries and could be the preferred delivery channel for 2/3 of European consumers in
the mid-term. Bill presentment on the supplier portals and via internet banking does not yet play a major role in most European countries. An exception build the Nordic countries, where the exchanged e-bill volume via online banking portals is almost as high as the one distributed by other channels.

Figure 28: Electronic bill volume B2C, direct and via Service Provider

A Dutch and a very large German Telco operator lose steam and the proportion of its E-Billing users increases just modestly. Due to its size (15+ million e-bill subscribers), it has an impact on the European figures. In 2012, a very large biller changed from Service Provider to the Biller Direct model.

2.6 Market Trends

2.6.1 Increasing financial pressure as a main accelerator for E-Invoicing

Due to strong competition in most industries, cost pressure is increasing. Investments will be made in a very selective manner, following criteria such as

- Promising business case with good ROI
- Reduce fixed costs and replace them by variable (volume based) costs
- Increase transparency of invoices in company-internal workflow and reduce circulation time
- Increase customer retention
- Future technology
- Buy instead of Make; external solutions or services

These are the exact ingredients for E-Invoicing and automation of the supply chain.
For the private industry, in almost all market surveys cost reduction is the top criteria for pushing E-Invoicing. The public sector pushes it not mainly due to inefficiencies within their own organisation, but to increase the tax revenues.

2.6.2 Large organisations demanding value added services

In the past, large businesses pushed the E-Invoicing market. They are also the promoters for the next market developing phase and are quite demanding:

- A focus just on E-Invoicing is not sufficient for them. The leaders among them intend to address and optimise the whole Order-to-Cash and Purchase-to-Pay processes.
- Electronic and automated invoice processes increase visibility, which allows the cash flow and working capital management to improve. Data analytics and reporting features build an excellent basis for effective financial decisions and to maximize discount savings potential.
- Large organisations have the skills and resources to exchange electronic business documents directly with larger counterparts, but not necessarily with the high number of mid-sized and smaller trading partners. To address them, they can use electronic B2B networks. In the case of individual requirements, they are increasingly asking for SaaS platforms.

2.6.3 Public sector becomes E-Invoicing user

Almost every quarter, we read in the press that another country declares E-Invoicing as compulsory. Often, these press releases are translated from the national language to English, and they do not always mean the same thing. This has to do with different usage of the terms “E-Invoicing” and “obligation”, and a big discrepancy between intentions and reality. Such projects in a public sector environment are quite complex. Objectives within a state’s administration may already vary broadly. In addition, we have many federal states with great autonomy of local authorities.

The common denominator is usually that an announcement making E-Invoicing obligatory includes preparing all departments of a central state’s government to upgrade their systems and processes with the aim of receiving and/or issuing E-Invoices. Municipalities are typically in an observer role and do not necessarily act, but they are encouraged to do so. The suppliers are still free to exchange invoices with the public sector in paper or electronic form. Examples in this category are France and Switzerland.

In a second step, suppliers (or at least larger ones) are mandated to send the invoices electronically. Denmark is a pioneer in this segment (obligation since 2005). Austria, Finland, Norway and Spain belong to the early adopters, as do the USA and Kazakhstan. In Italy, about 11,000 Public Administrations and 2 to 2.5 million companies will be affected by the B2G E-Invoicing obligation, coming in place step by step from June 2014 (Source: Politecnico di Milano).

Some countries in Latin America, Asia and Europe mandate businesses to send electronic invoice data to the tax authorities mainly for reasons of validation.

All EU countries soon have to pave the way for receiving E-Invoices for their public sector organisations. The European Parliament backed the Commission proposal to eliminate barriers to cross-border public procurement [11]. In practice, the Directive calls for the development of a new European standard for electronic invoicing. Provided that the E-Invoices sent by a company are compliant with the forthcoming European standard on E-Invoicing in public procurement, they will ultimately be accepted by all public authorities throughout Europe. Following the Parliament’s vote, the Directive will be formally adopted by the Council before publication in the Official Journal of the EU, entry into force and transposition by the Member States into national law. **Author’s remark:** This step probably happened already if this report is issued.
2.6.4 Mass market users demanding new features and models

In many countries we have reached the mass market. Appropriate solutions for SMEs are becoming increasingly important. The change to the new customer segment also has a major impact on the provider landscape and their solutions.

Key success factors for addressing small users with low invoice volumes are:

- No fee or discount prices up to a certain electronic invoice volume
- Provide an invoicing portal at least as an entry point before full integration into accounting software
- Due to limited IT expertise, SMEs demand very easy-to-use-solutions including self-care functionality. SMEs in particular do not want to change their processes and the way of doing business. It should be ensured that the solution/service can be used within minutes. Instruction video clips are a useful guide for new subscribers for the setup up to the point where the first electronic invoice is successfully exchanged.
- Intelligent PDF invoices respectively PDF/A-3 invoices (images plus embedded XML data) are often more suitable for SMEs than just pure XML data; appropriate solutions are able to generate such invoice formats on the invoice issuer side respectively to extract/import data on the invoice recipient side.
- SMEs might also demand at least a limited workflow functionality as part of an E-Invoicing service.
- Total invoice management, including hybrid (paper & electronic) and multi-format services.
- Trade finance products in combination with E-Invoicing help to increase the acceptance of E-Invoicing in this market segment.

Often hundreds of thousands of SMEs are already participating in some way in a related electronic business network. This can be an electronic payment network or one of their accounting software. If these services are connected to an E-Invoicing network, all of its users can become E-Invoicing enabled quickly and easily. By taking this route, several millions of enterprises were enabled for E-invoicing during the past two years.

2.6.5 More innovative rollout models

Traditionally, counterparts are invited and persuaded to send or receive electronic invoices instead of paper. This friendly (Opt-In) approach was common for a decade and is in line with the culture of most countries. The results are quite often below expectations.

Innovative (and more aggressive) issuers and service providers have changed their strategy in cases where they know the electronic addresses of their clients:

- In stable business networks where clients already use electronic channels, either by email or Extranet (online shops, ASP portals, payment networks, networks using electronic orders/order confirmations/payment advice etc.); the “Opt-Out” rollout is applied: Trading parties have to send/receive E-Invoices by default; only a few can resist and Opt-Out; Explanation of the term “Opt-Out” see figure 49.
- Online Banking and Payment Service Providers; if customers type in payment data, they receive a pop-up message inviting them to receive the invoices electronically (customers can activate this enhanced service with a simple mouse-click)

Innovative solution providers developed very advanced strategies, models, tools and services for recruiting and engaging a very high number of trading partners.
2.6.6 Service provider offerings and shift of focus

Large buying organisations (and to some extent also large billers) influenced the requirements for service providers for about a decade. The services were appropriate for the first million larger E-Invoicing users. Increasingly, mid-sized and smaller enterprises are affected by the E-Invoicing projects of their trading parties.

Flexible and open solution architecture

Several working groups specified international appropriate standards regarding invoice content. They also defined frameworks for the collaboration among the trading parties and for the E-Invoicing network operators. Interoperability is seen by most stakeholders as a keystone to address the mass market.

The first generation E-Invoicing service platforms were developed almost two decades ago. Often they are inflexible and proprietary, making interconnections with other network operators difficult and expensive. An increasing number is currently in the re-design/re-build phase. The others risk reaching the end of the life-cycle.

The youngest generation of platforms is developed with a green field approach. Its architecture supports international standards and provides open interfaces to plug in third party products and Apps. Cloud support is key, as is support for mobile devices.

Differentiation and enlargement of the solution portfolio

Until now, it was often sufficient to have a powerful sales force and to be one of the first providers contacting potential customers. Meanwhile, the number of competitors is high and the market is also more transparent. An interested organization will easily find 10 or more appropriate solution providers they can contact with their Request for Proposal. It therefore becomes key to differentiate at first glance one’s own portfolio from those of competitors. An increasing number of solution providers differentiate themselves by offering added values (e.g. trade finance options), by vertical enhancements along the electronic Financial Supply Chain or by becoming the best for a certain customer segment (industry, size of user company).

2.7 Supporting initiatives

2.7.1 Standards

In many cases, standardisation initiatives have failed to convince stakeholders to use them. A lack of information about existing standards combined with the pride of some introverted organisations has resulted in the re-invention of dozens of niche standards (domestic or industry focus) even during the last years. They can probably only survive if they build a subset of one of the most popular global standards (Oasis UBL, UN/CEFACT) or if they are based at least on the same standard model.

An estimated 10,000 ERP and accounting solutions are used in Europe. Integrating various E-Invoicing standards is outside the scope of the ERP providers. That is why many E-Invoicing network operators offer any-to-any-data-formatting services. Besides legal challenges and the networking idea, these formatting services are another main reasons that third party providers play a major role in E-Invoicing in most countries. As a result, issuers and recipients of invoices using such services are independent of any standards and they have no longer to wait for a market dominant standard.
Some global and industry independent standards for invoices and directly related pre- and post-processes are:

Figure 29: Global and industry independent standards for invoices

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ebXML</td>
<td>ebXML (Electronic Business using eXtensible Mark-up Language), is a modular suite of specifications that enables businesses of any size and in any geographical location to conduct business over the Internet. Using ebXML, companies have a standard method for exchanging business messages, conduct trading relationships, communicate data in common terms, define, and register business processes.</td>
</tr>
<tr>
<td>OASIS UBL 2.x</td>
<td>UBL, the Universal Business Language, is the product of an international effort to define a royalty-free library of standard electronic XML business documents such as purchase orders and invoices. Besides ebXML, this standard is the most important one for E-Invoicing in Europe. It is the base of several country specific standards and it is the intention to merge it into UN/CEFACT. UBL is the first standard implementation of the ebXML (see above) Core Components Technical Specification.</td>
</tr>
<tr>
<td>UBL Northern European Subset (NES)</td>
<td>The Northern European Subset (NES) defines the specific use of UBL electronic procurement documents domestically and between the member countries: Denmark, Sweden, Norway, Finland, Iceland, and the UK. NES documentation includes profiles describing business processes and scenarios, profiled UBL documents, and guidelines on the specific usage of UBL entities, as well as schema and schematron validation tools.</td>
</tr>
</tbody>
</table>
| UN/CEFACT                             | UN/CEFACT, a United Nations body, has a global remit. It encourages close collaboration between governments and private business to secure inter-operability for the exchange of information between the public and private sector. It has developed:  
  • The UN Layout Key for Trade Documents, which is the foundation for the EU’s Single Administrative Document (SAD)  
  • UN/EDIFACT, the international standard for electronic data interchange  
  • numerous trade facilitation recommendations  
  • The UN/CEFACT CII (Cross Industry Invoice) provides not only standard XML schemas, but also globally consistent invoicing processes and data that are common across a wide range of industries. |
| PDF/A-3 ISO 19005-3                    | PDF/A is an ISO-standardized version of the Portable Document Format (PDF) specialized for the digital preservation of electronic documents. PDF/A differs from PDF by omitting features ill-suited to long-term archiving. This is a key requirement for business documents which have legally be archived in long-term. PDF/A-3 adds a single and highly significant feature to its predecessor PDF/A-2 (ISO 19005-2) specification, to permit the embedding within a PDF/A file a file, or files, in any other format and of any type, e.g. XML files. As of November 2012, PDF/A-3 is a brand
new standard. It is too early to assess adoption of PDF/A-3 per se, although several vendors of tools supporting creation of or conversion to PDF/A have announced that they already offer support for embedded files.

The intensive collaboration between the Forum for Electronic Invoicing in Germany (Forum elektronische Rechnung Deutschland or FeRD) and the PDF Association has begun to bear fruit. Based on PDF/A-3 and designed to simplify E-Invoicing, the Central User Guidelines of the Forum for Electronic Billing in Germany (ZUGFeRD) – and the data format defined within them – was one of the highlights at the CEBIT fare 2013 and 2014. A number of providers presented prototypes of ZUGFeRD-compliant solutions. The Germans embed a subset of UN/CEFACT CII (Cross Industry Invoice) as XML into the PDF/A-3 files.

Industry specific standards are
- ETIS: Telecom invoices
- GS1: EANCOM standard mainly for Retail sector
- ISO 20022: Financial industry
- LITIG/LEDES: Law firms
- PIDX: Oil and Gas Industry
- Rosetta Net: vehicle manufacturers

Some country specific standards are
- Austria: ebInterface
- Belgium: BMF
- Czech Republic: ISDOC (based on UBL)
- Denmark: OIOXML (based on UBL)
- Finland: Finvoice
- Spain: facturama
- Sweden: Svefaktura, SFTI
- Switzerland: swissDIGIN
- Turkey: UBL-TR (based on UBL)

### 2.7.2 Electronic invoicing on the EU agenda

The Digital Agenda is Europe’s strategy for a flourishing digital economy by 2020. It outlines policies and actions to maximise the benefit of the Digital Revolution for all [12].

The European Commission is focusing its efforts on removing barriers to the broad-scale adoption of electronic invoicing in Europe, and the four key priorities on this topic are:
- Ensuring a consistent legal environment for E-Invoicing
- Achieving mass market adoption by getting SMEs on board
- Stimulating an environment that creates maximum reach between trading partners exchanging invoices
- Promoting a common E-Invoicing standard

For each of these priorities, the Commission Communication sets out a number of specific actions, for example:
• The Commission proposed a revision of the E-Signature Directive to provide cross-border recognition of secure e-authentication systems.
• The European Committee for Standardization (CEN) [13], a major provider of European Standards and technical specifications, defined useful E-Invoicing Guidelines.
• In 2011, the Commission set up the “European Multi Stakeholder Forum on Electronic Invoicing” [12]. The aim was to bring together key actors from the private and public sector of all Member States. It provided a unique platform to exchange experiences and best practices that can pave the way to the broad-scale adoption of E-Invoicing at both national and EU level.

To facilitate the monitoring and implementation of these actions, the Commission pushed Member States to act as well. National Multistakeholder Fora have been formally set up in almost all European countries.

A major boost during coming years is expected due to the implementation of the new directive for E-Invoicing in public procurement. It will oblige the public administrations in the member states to support E-Invoicing in public procurement not later than 2018.
3. **Key stakeholders as game changers**

3.1 **Public Sector**

With at least 10% of the total market invoice volume, the public sector belongs to the “Top 3 industries”. Measured by the number of trading parties, it is the clear leader: 45-65% of all companies in a country are suppliers to the public sector and send invoices to it. 100% of enterprises and households receive invoices/bills from the public sector. That is why E-Invoicing initiatives by the public sector are key for the development of the whole country.

In parts of Latin America, Europe, Asia and even in the US, companies are mandated to issue invoices just in electronic format. Millions of suppliers are affected by these obligations. The obligation paves the way to address the mass market.

Often, public authorities do not only declare E-Invoicing as mandatory, but define in addition the rules as to how it has to happen. Most federal administrations accept E-Invoices just in structured format. This requirement builds a substantial component to increase the degree of automation for invoice processing in a country.

The EU not only pushes the usage of E-Invoicing with public authorities, but in addition requires that it is based on an international standard. Also, the cross-border interoperability between E-Invoicing network operators shall be improved.

As most businesses and all service providers in a country are affected by the regulations and projects of the public sector, it is the game changer number one.

3.2 **SMEs**

Millions of SMEs are pushed by their customers (especially from the public sector) to send invoices just in electronic format. They will use the solutions which are most appropriate for them, very easy-to-use and efficient. Most SMEs expect out-of-the-box solutions which can be implemented within minutes.

SMEs are demanding very smart solutions, but do not want to pay (much) for it. Due to the high number and the very specific requirements, they can be seen as game changer number two.

3.3 **Solution providers**

Solution and service providers are driven by the user requirements above. The chance to be very profitable with pure E-Invoicing services is quite limited. The importance of excellence in getting customers on board and value added services increases. The unique chance to address hundreds of thousands of SMEs during the coming years, but hard competition on the other hand, push the providers to a very innovative offering. The enhancement and improvement of the offering brings a major push into the market and makes E Invoicing and the value added services very attractive for users.

Solution providers were the market makers for the last decade and many of them are expected to be game changers in the coming years.
4. **E-Invoicing / E-Billing as catalyst for AR/AP automation**

4.1 **Finance departments facing new challenges**

The past few years have not been easy for enterprises and their finance departments. Erratic markets, the globalization of the trading network, new regulation and compliance issues, increasing complexity of business processes and the steady change/ transformation have forced the function of finance to redefine its role in the organization.

Today’s finance departments face a complex and challenging business environment that requires tremendous business savvy. In this environment, innovation is an essential driver of excellence, and the finance department is no exception. But what form does innovation take in the department of the CFO?

Figure 30: Challenges and possible actions to improve the AR & AP department

<table>
<thead>
<tr>
<th>Joint AR/AP challenges</th>
<th>Description and possible actions to solve them</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation and compliance requirements</td>
<td>Access and generation or modification rights for master data are often not sufficiently arranged among the internal stakeholders. Increasingly, a unique identification of trading partners based on compliant master data is a legal requirement. A multi-channel and multi-format approach for invoice processing is more and more common, but can also result in redundancies of invoice data, and often originals and copies cannot be distinguished. Consequently, tax compliance is difficult to achieve despite the fact that it is of increasing importance. Eliminate the paper based process and substitute it with a very high portion of E-Invoices and, where necessary, imaging of the remaining paper based part.</td>
</tr>
<tr>
<td>Improve quality and up-to-dateness of master data from trading partners</td>
<td>Trading parties are often registered redundantly in the master database, only distinguished by a minor difference in the writing of a few letters. Paper invoices &amp; scanning/OCR increase the redundancies of master data and the situation does not improve. The objective requirement, and often a compliance requirement, is to register each trading partner uniquely in the database. Increasing the pure electronic collaboration with trading partners builds a cornerstone to achieving it. Pushing an electronic loop for orders and invoices paves the way for Customer Self-Care processes; they may update their own master data electronically. Suppliers can be enabled with a combination of an alerting and self-service capability to update information as required or when a particular incident or set of workflows triggers a new request for information or additional validation.</td>
</tr>
<tr>
<td>Improve operational efficiencies and corporate finance</td>
<td>See suggestions in chapter 7</td>
</tr>
<tr>
<td>Environmental improvement</td>
<td>Eliminate the paper processes by migrating to a fully electronic supply chain.</td>
</tr>
<tr>
<td>Joint AR/AP challenges</td>
<td>Description and possible actions to solve them</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Invoice data validation</td>
<td>Accounts Payable: The later in the process that invoice data are validated, the more the costs increase for handling exceptions. Accounts Receivable: Late payments by the customers are often caused by detecting errors too late in the case of incorrect invoices. The sooner the invoice data are validated, the earlier corrective invoices can be sent. E-Invoicing paves the way for real-time or near real-time data validation.</td>
</tr>
<tr>
<td>Increase the portion of purchase order based invoices; exploit the full potential</td>
<td>Practice the Opt-Out model (as defined in figure 49) for purchase orders and invoices: Pos can be provided just in electronic format, either via portal or as structured data file. The supplier shall be supported on the platform to flip the PO data into an invoice. The electronic loop for orders and invoices can be closed, resulting in benefits for supplier and buyer.</td>
</tr>
<tr>
<td>Reduce trading partner administration costs; increase electronic interaction</td>
<td>Trading partners are often faced by late payments and working capital issues. Especially if the trading partners are smaller companies, it may be very challenging for them to get access to suitable Supply Chain Finance Features (Trade Finance, Dynamic Discounting, quick payments etc.). This may be one of the main reasons for a high churn rate of customers and steady changes of suppliers, increasing your costs as a result. E-Invoicing solutions build an excellent basis to embed SCF features and to reduce the churn rate of trading partners.</td>
</tr>
</tbody>
</table>

Figure 31: AR specific challenges and possible actions for improvement

<table>
<thead>
<tr>
<th>AR specific challenges</th>
<th>Description and possible actions to solve them</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase visibility; missing basis to exploit the full optimization potential</td>
<td>Many enterprises still process invoices in a decentralized way. A large proportion of it is paper based. The finance department often does not have an overview about all issued invoices and status information like “invoice accepted, dispute, paid, etc.” Therefore it cannot exploit the optimisation potential. To increase transparency, the centralisation and automation of AR processes can significantly improve the chances of optimized cash management and forecasting. E-Invoicing solutions often support automated payment reconciliation, paving the way for a closed electronic loop between invoice and payment.</td>
</tr>
<tr>
<td>Reduce the high number of costly invoice queries</td>
<td>Large billers are often faced with this situation: 50% of the calls in the customer service centre are from customers asking for an invoice copy or more invoice details. Such reprint and information requests can be almost eliminated. Electronic bills/invoices provide the customers the suitable vehicle for customer self care. Days of Sales Outstanding can in most cases be shortened by some days in average.</td>
</tr>
<tr>
<td>AR specific challenges</td>
<td>Description and possible actions to solve them</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>Reduce the high number of discrepancies and exceptions</td>
<td>Typically, 20-30% of all invoices have to be treated somehow as exceptions, resulting in very high processing costs. The reasons are many-sided. Often, formal incorrectness like wrong addresses, missing information (reference, PO nb etc.) or tax relevant data are the cause for having to handle exceptions. If suppliers only exchange the invoices with their customers electronically, the invoice data are validated sooner by the customer. The earlier an incorrect invoice is rejected, the sooner a new one can be sent. E-Invoicing paves the way for real-time or near real-time data validation. However, E-Invoicing solutions cannot prevent disputes based on incorrect line items, amounts etc. but often provide features for quicker dispute resolutions. Structured or at least semi-structured dispute management/resolution can be a functionality within E-invoicing solutions. It typically supports a quick collaboration between the trading parties and often provides real-time updates and status information.</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>AP specific challenges</th>
<th>Description and possible actions to solve them</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase visibility; missing basis to exploit the full optimization potential</td>
<td>Many enterprises still receive and process invoices in a decentralized way. A large proportion of it is paper based. The finance department often does not have an overview about all invoices in circulation and therefore cannot exploit the optimization potential. For gaining better transparency about invoices in the workflow, its approval and payment status, the centralisation and automation of AP processes can significantly improve transparency, cash management and forecasting. With E-Invoicing, the transparency of inbound invoices can happen in real-time. Cash management can be improved and paves the way to exploit the full optimisation potential for corporate finances.</td>
</tr>
<tr>
<td>High number of small suppliers sending a low number of invoices.</td>
<td>E-Invoicing offers efficient tools and features for small suppliers. These solutions also build a vehicle for a partial or full standardisation of invoice processing. Scanning/OCR does not generate this advantage.</td>
</tr>
<tr>
<td>Reduce the high number of discrepancies and exceptions</td>
<td>Handling exceptions forms a major cost block for invoice processing. With paper based processing, a significant portion of invoices have to be treated as exceptions, resulting in high costs. The percentage of exceptions cannot be reduced much with scanning, but substantially with E-Invoicing! Data validation and rejecting invoices at an earlier stage reduces the follow-up costs. Disputes are often caused by discrepancies between PO, deliverables and the invoice. A high portion of PO based invoices reduces the number of disputes.</td>
</tr>
</tbody>
</table>
### AP specific challenges

<table>
<thead>
<tr>
<th>Description and possible actions to solve them</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exploit the optimisation potential by capturing discounts</strong></td>
</tr>
<tr>
<td>Typically, in a non-automated environment, it takes 23-27 days to approve an invoice for payment. Discounts cannot be captured. AP automation and E-invoicing significantly accelerate the processing time and often build the pre-requisites to exploit the potential with offered discounts.</td>
</tr>
<tr>
<td><strong>Inefficient matching process</strong></td>
</tr>
<tr>
<td>Automation of the PO match; AP automation as well as E-Invoicing paves the way to improve the matching.</td>
</tr>
</tbody>
</table>

### 4.2 Capability of AR/AP automation and E-Invoicing to exploit the full potential

Larger enterprises often intend to automate partially their paper based AR/AP processes with the aim to improve the internal operations. The electronic collaboration and E-Invoicing with trading partners is not sufficiently considered in the optimisation projects although they significantly support the automation of the AR/AP optimisation.

#### Figure 33: Capability to cope with joint AR/AP challenges

<table>
<thead>
<tr>
<th>Joint AR/AP challenges</th>
<th>Capability to overcome the challenges with paper based AR/AP automation</th>
<th>E-Invoicing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation and compliance requirements</td>
<td>☔</td>
<td>☔</td>
</tr>
<tr>
<td>Improve quality and up-to-dateness of trading partners’ master data</td>
<td>☔</td>
<td>☔</td>
</tr>
<tr>
<td>Improve operational efficiencies and corporate finance</td>
<td>☔</td>
<td>☔</td>
</tr>
<tr>
<td>Environmental improvement</td>
<td>☔</td>
<td>☔</td>
</tr>
<tr>
<td>Invoice data validation</td>
<td>☔</td>
<td>☔</td>
</tr>
<tr>
<td>Increase the portion of purchase order based invoices; exploit the full potential</td>
<td>☔</td>
<td>☔</td>
</tr>
<tr>
<td>Reduce trading partner administration costs</td>
<td>☔</td>
<td>☔</td>
</tr>
<tr>
<td>Increase environmental improvement</td>
<td>☔</td>
<td>☔</td>
</tr>
</tbody>
</table>

**Legend:** High capability ☔ and low capability ☔ to overcome the challenges

#### Figure 34: Capability to cope with specific AR challenges

<table>
<thead>
<tr>
<th>AR specific challenges</th>
<th>Capability to overcome the challenges with paper based AR automation</th>
<th>E-Invoicing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase visibility; missing basis to exploit the full optimization potential</td>
<td>☔</td>
<td>☔</td>
</tr>
<tr>
<td>AR specific challenges</td>
<td>Capability to overcome the challenges with</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>paper based AR automation</td>
<td>E-Invoicing</td>
</tr>
<tr>
<td>Reduce the high number of costly invoice queries</td>
<td>⨿</td>
<td>⚫</td>
</tr>
<tr>
<td>Reduce the high number of discrepancies and exceptions</td>
<td>⨿</td>
<td>⚫</td>
</tr>
</tbody>
</table>

Figure 35: Capability to cope with specific AP challenges

<table>
<thead>
<tr>
<th>AP specific challenges</th>
<th>Capability to overcome the challenges with</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>paper based AP automation</td>
</tr>
<tr>
<td>Increase visibility; missing basis to exploit the full optimisation potential</td>
<td>⨿</td>
</tr>
<tr>
<td>High number of small suppliers sending a low number of invoices.</td>
<td>⨿</td>
</tr>
<tr>
<td>Reduce the high number of discrepancies and exceptions</td>
<td>⨿</td>
</tr>
<tr>
<td>Exploit the optimisation potential by capturing discounts</td>
<td>⨿</td>
</tr>
<tr>
<td>Inefficient matching process</td>
<td>⨿</td>
</tr>
</tbody>
</table>

The focus of many US companies in phase 1 is AR & AP automation and organisational excellence. European and Latin American companies often enter into the automisation process with an E-Invoicing project with their primary focus on collaboration with trading partners. Very soon, E-Invoicing projects result in follow-up projects for AR & AP automation (including scanning/OCR).

As long as organisations internally process paper and electronic invoices in parallel, the full potential cannot be exploited. A single and unified internal process regardless of the original invoice format (paper or electronic) results in maximum benefits. The combination of AR/AP automation and E-Invoicing is the right answer for this.

In most parts of the world, E-Invoicing / E-Billing might become the catalyst for a full AR & AP automation!
5. **Business Case for Issuer/Recipient**

5.1 **Saving potential**

The Finnish State Treasury and some Finnish companies have estimated that an incoming paper invoice incurs costs amounting to 30-50 Euro for the receiving company. By moving to electronic invoicing these costs can be reduced to 10 Euro by semi-automating the invoice process and to one Euro by fully automating the process [14]. Regarding in-depth analysis of Politecnico di Milano, the net benefits are 4 – 12 Euro per invoice in case of VAT compliant E-Invoicing and up to 65 Euro per cycle in case of full integration of the trade process [15].

Thanks to electronic and automated invoice processing, savings between 1 and 2% of turnover are realistic objectives.

As a consultant the author analysed the full costs based on traditional paper based processes and compared it with the new electronic automated solution. The example below reflects the situation in an industry company with 5,000 employees, based on calculated staff costs of 60€/hour (full costs including overhead, working place, etc.).

Figure 36: Saving potential for invoice/bill issuers (actual customer case)

<table>
<thead>
<tr>
<th>Process</th>
<th>Paper</th>
<th>Electronic, automated</th>
<th>Full-Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print, Envelope</td>
<td>3.90€</td>
<td>0</td>
<td>4.50€</td>
</tr>
<tr>
<td>Send</td>
<td>0.50€</td>
<td>0.40€</td>
<td>0.80€</td>
</tr>
<tr>
<td>Payment Reminders</td>
<td>4.50€</td>
<td>3.00€</td>
<td></td>
</tr>
<tr>
<td>Remittance &amp; Cash Management</td>
<td>2.20€</td>
<td>0.80€</td>
<td>4.50€*</td>
</tr>
<tr>
<td>Archiving</td>
<td></td>
<td></td>
<td>11.10€</td>
</tr>
</tbody>
</table>

**Saving per Invoice 6.60€ = 59%**

*) considered is 0.30€ processing cost by third party service provider
Source: Billentis

The invoices/bills in this example were relatively simple and had an average size of 1.5 pages. In most organisations, the invoices are more complex and the savings are higher.

Not considered in this calculation are indirect savings. This can include, for example, online updating of master data directly by the customers.
Figure 37: Saving potential for invoice recipients (actual customer case)

Not considered in this calculation are indirect savings. This can include, for example, the elimination of redundancies of the supplier master data and inconsistencies.

### 5.2 Know your volume

Sometimes, larger organisations do not know their precise invoice/bill volume. The reason for this is quite often the decentralised organisation or a heterogeneous layout of their AR and AP systems.

Over the last 16 years, the author has built key-metrics for being able to make a quick estimation of the invoice volume before the project start. Although not perfect in all cases, the key-metrics are based on the number of employees in an organisation and dependent on the industry.

**Figure 38: Key-metrics for number of invoices**

<table>
<thead>
<tr>
<th>Indication for Number of invoices per employee in various Industries</th>
<th>Outbound invoices per employee and year</th>
<th>Inbound invoices per employee and year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit &amp; Customer Cards</td>
<td>40,000</td>
<td>n/a</td>
</tr>
<tr>
<td>Mail order houses</td>
<td>8,000</td>
<td>n/a</td>
</tr>
<tr>
<td>Media</td>
<td>2,000</td>
<td>20</td>
</tr>
<tr>
<td>MRO Goods</td>
<td>1,400</td>
<td>450</td>
</tr>
<tr>
<td>Utility with direct distribution</td>
<td>1,200</td>
<td>20</td>
</tr>
<tr>
<td>Insurance</td>
<td>700</td>
<td>30</td>
</tr>
<tr>
<td>Electronic &amp; IT</td>
<td>400</td>
<td>26</td>
</tr>
<tr>
<td>Chemicals &amp; Pharmaceuticals</td>
<td>200</td>
<td>30</td>
</tr>
<tr>
<td>Industry independent average</td>
<td>200</td>
<td>80</td>
</tr>
<tr>
<td>Automotive Supplier</td>
<td>200</td>
<td>50</td>
</tr>
<tr>
<td>Food Supplier</td>
<td>200</td>
<td>20</td>
</tr>
</tbody>
</table>

*) considered is 0.40 € processing cost by third party service provider

Source: Billentis

© B. Koch, Billentis
In groups with service centres and/or subsidiaries, up to 10% can be added to the inbound volume for Intercompany Billing.

**Calculation example:** Utility Group with service centre structure and 5,000 employees

<table>
<thead>
<tr>
<th>Indication for Number of invoices per employee in various Industries</th>
<th>Outbound invoices per employee and year</th>
<th>Inbound invoices per employee and year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logistics</td>
<td>100</td>
<td>77</td>
</tr>
<tr>
<td>Airlines</td>
<td>35</td>
<td>11</td>
</tr>
<tr>
<td>Services &amp; Consulting</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Banks</td>
<td>n/a</td>
<td>11</td>
</tr>
<tr>
<td>Telco</td>
<td>n/a</td>
<td>39</td>
</tr>
<tr>
<td>Industrial manufacturer</td>
<td>n/a</td>
<td>60</td>
</tr>
<tr>
<td>Catering</td>
<td>n/a</td>
<td>100</td>
</tr>
<tr>
<td>Retail</td>
<td>n/a</td>
<td>250</td>
</tr>
<tr>
<td>Buyer Clubs, Trade, Wholesalers</td>
<td>n/a</td>
<td>300</td>
</tr>
<tr>
<td>Health insurance</td>
<td>n/a</td>
<td>3,100²</td>
</tr>
</tbody>
</table>

² In countries with healthcare systems like The Netherlands, Switzerland etc.
• Query handling
• Settlement time and improved Cash Management
• Easier and faster audit

Typically, just 7,500 – 30,000 paper invoices can be processed per employee per year in the AR department. Therefore, the direct staff costs in the AR department already vary between EUR 2.50 – 10 per invoice.

5.3.2 Current cost for inbound invoices

Even worse is the cost recognition on the inbound side. Per employee in the AP department, typically just 5,000 – 15,000 paper invoices can be processed per year. Therefore, the direct staff costs in the AP department already vary between EUR 5 – 15 per invoice. Further costs are generated in the paper-based workflow and archiving. Analysis in some organisations showed, that on average 6 invoice copies are generated and archived decentralised in the files of secretaries and heads of departments.

5.3.3 Cost differences among continents and countries

The figures in the previous chapters are generally appropriate for Europe and probably for most parts of Latin America and Asia. Of course, we do have major differences in the labour costs, which are lower in Mediterranean countries than in the Nordic states. Nevertheless, exactly the countries with lower labour costs have in most cases the highest legal requirements for invoicing and are therefore not necessarily able to process the invoices for lower costs.

Surveys imply that invoice processing in the US could be around 25 percent less expensive [5] than in Europe. This is understandable for several reasons. The US does not apply the VAT system like many other countries. The invoice is just one of several business documents for the audit trail. The legal requirements are lower. The US is in addition more harmonized than the various legislations in Europe. Furthermore, US enterprises have in most cases to support just one or two languages for the invoice processing. In some but not all cases, economies of scale also help US titans to achieve lower invoice processing costs than the majority of comparatively small European companies.

This does not however reduce the relative saving potential compared to today’s paper processing costs.

5.3.4 Future costs with automated processes

Small companies using E-Invoicing via website, have no implementation costs and very moderate or no running costs.

Besides the integration costs, large accounts have to consider the project costs.

In addition, third party service providers often charge a time and volume based fee for issuers and/or recipients. The level of these costs varies considerably depending on customers’ requirements. It is best to summarise customers’ requirements in a document (Request for Proposal) and ask for binding proposals. As an indication, third party costs of EUR 0.30 – 0.90 per invoice should be entered into the business case.

Future internal costs will probably be 40-50% of past costs depending on the individual situation (see also example in chapter “5.1 Saving Potential”).

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World class enterprises are able to process 125,000+ electronic invoices per year and AP employee, roughly 10 times more than paper based invoices.

5.4 Business Case

5.4.1 Small businesses

Their large suppliers and clients quite often push them to accept respectively send electronic invoices “as part of the general contract terms or business rules”. Therefore, it is not necessarily the business case pushing them forward for electronic invoicing but good business relationships with their trading partner.

However, in most cases they find an easy and efficient way to practise it. This can be the use of an invoicing portal, where invoices can be uploaded or downloaded and stored for several years in a VAT compliant manner. Either no implementation is necessary or the effort required is very moderate. Key-in invoices on the portals of each large customer is however unpopular among suppliers and many insist on paper as long as they can. It is slightly better if the suppliers can key-in the invoices on the web portals of independent service providers and address several customers via the same platform. The absolute favourite for small businesses is to push PDF invoices to their customers (if they accept PDFs). This method is supported by numerous tools, and is quick and inexpensive.

5.4.2 Mid-sized and large businesses

Many solution providers offer an online business case calculation tool. Tools and ROI calculators are also offered by some universities and industry portals. Please find details for some sources in the appendix [16].

As many readers of this report perhaps cannot understand the language in some ROI calculators, here is a translation of the major points to be considered.

Figure 39: Items to be considered in a business case

<table>
<thead>
<tr>
<th>Item to be considered in a business case</th>
<th>Issuer</th>
<th>Recipient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantities and basic data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Number of electronic counterparts</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>- Electronic proportion of total invoice volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Interest rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Hourly rate of employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer churn rate with and without E-Invoicing</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Costs and Savings in the AR &amp; archiving department</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Costs and Savings in the AP &amp; archiving department</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Cash Management, payment due period, payment discount</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Initial costs (Project, implementation, hardware, software)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Operation costs internal and third party</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>
5.4.3 Financial benefits for the public sector

With at least 10% of the market invoice volume, the public sector belongs to the “Top 3 industries”. Measured by the number of trading parties, it is the clear leader: 45-65% of all companies in a country are suppliers to the public sector and send invoices to it. 100% of enterprises and households receive invoices from the public sector. That is why E-Invoicing initiatives by the public sector are key for the development of the whole country. Unfortunately, this sector often belongs to the laggards, despite the huge saving potential.

If a major proportion of paper invoices were replaced by electronic ones, the saving potential in Europe’s public sector could be at least 40 billion Euro (for inbound and outbound invoices). Today, less than 10% of it is exploited.

This tremendous saving potential is recognized in many countries, but to exploit it within reasonable time is another story. The federal administration is privileged to go into a leading role and to facilitate a country-wide public sector project. As the public sector itself is very fragmented, many stakeholders have to be involved and convinced.

The breakdown of volume in the Danish and Swiss public sector is known. The mix of these two countries is shown in the next chart.

Figure 40: Breakdown of saving potential in the public sector

In the broadest sense, this breakdown might also be applicable for many other countries. Assuming so, the saving potential breakdown for various countries could look as shown in the following table.
Figure 41: Indication for the saving potential in the public sector of some European countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Minimum public sector saving potential (million Euro)</th>
<th>States, Regions</th>
<th>Cities &amp; Municipalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>600 [17]</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>Belgium</td>
<td>900</td>
<td>400</td>
<td>470</td>
</tr>
<tr>
<td>France</td>
<td>4,200</td>
<td>1,700</td>
<td>2,200</td>
</tr>
<tr>
<td>Germany</td>
<td>6,500</td>
<td>2,600</td>
<td>3,400</td>
</tr>
<tr>
<td>Italy</td>
<td>3,000</td>
<td>1,200</td>
<td>1,600</td>
</tr>
<tr>
<td>Poland</td>
<td>1,700</td>
<td>700</td>
<td>900</td>
</tr>
<tr>
<td>Romania</td>
<td>1,400</td>
<td>600</td>
<td>700</td>
</tr>
<tr>
<td>Spain</td>
<td>1,800</td>
<td>700</td>
<td>900</td>
</tr>
<tr>
<td>Sweden</td>
<td>1,600</td>
<td>600</td>
<td>800</td>
</tr>
<tr>
<td>Switzerland</td>
<td>700</td>
<td>300</td>
<td>400</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>1,200</td>
<td>500</td>
<td>600</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>4,400</td>
<td>1,800</td>
<td>2,300</td>
</tr>
</tbody>
</table>

The difference to the total “public sector saving potential” above is the saving potential for the federal administration.

The above estimate is based on the assumption that 40% of the E-Invoices are exchanged in unstructured format (PDF) and 60% with structured XML invoices (fully automated processes). Many administrations insist on just structured invoice data. Their potential is higher than the figures above.

As attractive as E-Invoicing in the public sector appears, it is just as challenging to implement. The public sector is not one homogenous segment. The state administration forms one part. In addition, we find regions, cities and municipalities. Many countries have a federalist structure with high autonomy for each entity. However, Brazil and Mexico have proved that it is possible to establish E-Invoicing country-wide, even with a federal structure.

The state government has the most power regarding legislation and is preferred to initiate and steer such projects. However, the saving potential in their segment is just a small proportion within the public sector.

Cities are in an excellent position to push E-Invoicing/E-Billing and to save much money. The author collected various data and built key-metrics over the year. Of course, the key-metrics can vary a great deal from country to country and city to city. On average, a city receives one invoice per year and inhabitant. Cities, including all its service units (taxes, energy distribution, garbage removal, communication, etc.), issue typically 2-6 bills/invoices per year and inhabitant.

The estimated saving potential for cities is based on the assumption that 40% of the E-Invoices are exchanged in unstructured format (PDF) and 60% with structured XML invoices (fully automated processes).
Figure 42: Saving potential for cities

<table>
<thead>
<tr>
<th>Population (Millions)</th>
<th>Example of city (or metropolis) in this category Based on population as published in Wikipedia</th>
<th>Minimum annual saving potential (million Euro)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>Atlanta, Bradford, Boston, Bratislava, Bremen, Copenhagen, Denver, Dortmund, Dublin, Duesseldorf, Duisburg, Edinburgh, Essen, Frankfurt, Genoa, Gothenburg, Hanover, Helsinki, Kaunas, Leeds, Leipzig, Lisbon, Liverpool, Malaga, Manchester, Miami, Palermo, Rotterdam, Seattle, Seville, Sheffield, Stuttgart, Tallinn, Thessaloniki, Toulouse, Vilnius, Washington, Zaragoza, Zurich</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Berlin, Chicago, Madrid, Rome</td>
<td>80</td>
</tr>
<tr>
<td>4</td>
<td>Los Angeles, Montreal</td>
<td>110</td>
</tr>
<tr>
<td>5</td>
<td>Sydney, Toronto</td>
<td>130</td>
</tr>
<tr>
<td>7</td>
<td>London, New York, Tokyo</td>
<td>200</td>
</tr>
<tr>
<td>10</td>
<td>Moscow</td>
<td>270</td>
</tr>
</tbody>
</table>

Cutting costs is one part of the business case. Increasing revenues is another.
6. How to overcome barriers and to be successful with your project

6.1 Barriers and how to overcome them

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

Figure 43: Main barriers in many European countries [17]

<table>
<thead>
<tr>
<th>Barriers (European mass market)</th>
<th>Possible actions to overcome them</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal requirements are unknown or confusing</td>
<td>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 &amp; road-shows or engage evangelists. Many others (e.g. Austria, Belgium, Switzerland) operate an information portal with the most important information.</td>
</tr>
<tr>
<td>Missing market transparency about the solutions offered and the collaboration among various service providers</td>
<td>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).</td>
</tr>
<tr>
<td>Change/adoption of internal organisation processes (40% of larger organisations)</td>
<td>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.</td>
</tr>
<tr>
<td>Divergent requirements of trading partners regarding formats, methods and processes</td>
<td>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.</td>
</tr>
<tr>
<td>Not recognizing the business case</td>
<td>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 [16]</td>
</tr>
<tr>
<td>Trading partner does not support the electronic invoice</td>
<td>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, <a href="http://www.tieke.fi">http://www.tieke.fi</a>. Besides increasing transparency, often the trading partners just need inspiration to do it now and some guidance on how to do it.</td>
</tr>
</tbody>
</table>

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### Barriers (European mass market)

| 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. |

### Possible actions to overcome them

#### Barriers (mid-sized and larger US companies)

| 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 [16] |

| 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. |

### 6.2 Success factors

Although we have a high number of innovative people in our world, the majority of human beings change their behaviour only under slight pressure. That is why a simple invitation to your trading partners to support E-Invoicing may not automatically result in a quick success.

The weak economical situation results in high cost pressures and will probably become an accelerator for changes in the invoice processing. Readers are not recommended to wait for pressure from their customers or suppliers. Instead, it is wise to start an E-Invoicing project proactively.
Only then is it possible to clarify everything without too much time pressure and to move seamlessly from paper to electronic invoices.

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 the process automation and taking on board a high number of suppliers or customers within a short time)

Success factors in E-Invoicing projects:
- Awareness by senior executives about the potential of E-invoicing in a broader sense (the value is much more than just eliminating printing and stamp costs or entering invoice data into the ERP system)
- Management Support, as many divisions within an organisation are involved
- One very active project owner
- Defining a three year objective/strategy, but implementing it step-by-step including a quick-win result for step 1 (best is just one invoice stream in one division of a big company)
- Internal and external communication to key persons affected
- Being a rollout champion with an excellent strategy for taking on board a high number of suppliers/customers (opt-out strategy if possible, combined with active marketing)
- Being realistic regarding mid- and long-term technical capabilities in your organisation including workflow and archiving → right decision for make/buy and direct or network model
- Don’t re-invent and develop solutions which are already available for a fixed price and which have been well tested in other companies
- Being realistic regarding technical capability of your counterparts to send, receive and archive electronic invoices (this is quite often dramatically lower than you expect); simple and economical interfaces and possibly a third party archiving service are essential

The most promising models are described in chapter 2.3.

6.3 Define the best Scope for your organisation

Many organisations already exchange some electronic messages along the supply chain with their counterparts. For them, E-Invoicing is just an enhancement and a next step towards automating the whole supply chain.

For a vast majority, E-Invoicing is the first step towards the electronic supply chain. That is why many organisations start with the “queen of all messages”. In most cases, it is a good approach starting with “just” the invoice message and aggressively increases the electronic share within your environment. E-Invoicing alone will already be an interesting business case! However, more future savings are possible with a fully automated supply chain.

In mid-term planning the next optimisation steps to take should be considered: Either in the pre- or post-processing of the electronic invoice.

Some invoice streams are more dominant and provide higher optimisation potential. The author believes that projects should follow that potential.
### Inbound

Organisations in a strong buying position may decide to replace inbound invoices first, as they are in a strong position to push their suppliers to deliver invoices in electronic format.

### Intercompany Billing

Volume and optimisation potential is quite often under-estimated. It is the only invoice stream fully under the control of each organisation. In one scenario, these invoices can quite easily be processed electronically or via account transfer. This is the case if all departments, branches or subsidiaries belong to the same tax entity in the same country. Wherever that is not the case, it can make sense to handle internal electronic invoices as for the external ones, with identical methods guaranteeing authenticity, integrity and legibility.

### Outbound

High volume organisations in the B2C sector already provide electronic bills to consumers with direct models. However, the success is limited in most cases. If 40% of clients are using it, it is already a good value. Most send electronic bills just to 25% with best in class to 75-90%.

To increase the electronic share, an opt-out rollout model (as defined in figure 49) should be practised and/or networks should be distributed (e.g. online-banks or other favourite portals of consumers). Delivery of PDF invoices via email or portal has become very popular in many countries. However, many large billers made a more significant step forward by practising the push method rather than a portal based approach. The same is true for B2B invoices for small businesses. In this case, the PDF invoices are ideally much more than just a paper replica. Instead, the PDF files can include – alongside the invoice image – also a layer with structured (XML) data and the ability to include forms and components for dynamic interaction such as dispute, payment etc. E-Invoices are prepared in a VAT compliant manner by the issuer (digital signature for at least relevant parts of the PDF container, verification and sometimes with long-term online archiving).

#### 6.4 Know your environment

In many projects in larger organisations, it was interesting for the author to see the heterogeneity of customer environments, e.g.:
- High number of different ERP systems
- Decentralised issuing and/or receiving of invoices
• No control and overview regarding paper invoices in the workflow
• No transparency concerning all the invoice streams, volume and the different ways in which they are processed
• Various decentralised long-term archives
• Unclear as to which document is the invoice original and which is a copy
• Parallel and isolated projects in different departments for scanning, workflow, archiving, digital signature solutions and E-Invoicing

If the reader is working in a large organisation, it is helpful to clarify the points above and summarise the current environment and the mid-term target environment.

6.5 Scenario for internal implementation
In a fragmented and large environment, the highest benefits can be achieved by following these steps.

Figure 46: Optimisation steps and benefits

As this objective can be (too) time consuming (e.g. 2 years) a good alternative is migration within a decentralised environment. If the constraints of future centralisation are already known, they can be considered in the planning and implementation of systems and processes.

Improve to electronic and automated processes is generally a good step. However, in most organisations, it may be advisable to critically scrutinize and streamline first all the processes. Often, 50% of historic burdens can be removed without losing anything.

6.6 Know the capabilities & constraints of your trading partner
Although valid in many sectors of our environment, the 80:20 rule is not applicable regarding invoice streams, except in very few industries. The pattern below for inbound invoices in a mid-sized or larger organisation is much more likely.
The number of suppliers sending more than 100 invoices per year is quite often just among 20-50. Perhaps another 1,000 send 10-100 annual invoices and the vast majority send less than 10 annual invoices. Large organizations have typically 10,000 suppliers and depending on the product n0,000 customers. The vast majority of suppliers and customers are SMEs with highly fragmented IT landscape and limited capability for import/export of structured invoice content and electronic archiving. In addition, these counterparties can be located in various countries with different legal constraints regarding tax compliant invoices, archiving, language and cultural behaviour.

E-Invoicing projects can just be successful, if the situation of trading partners is strongly considered in the project. This includes also thinking about what the incentives for them are and how they can easily be connected in a VAT compliant manner.

Whereas large issuers and recipients fully integrate electronic invoice processing into their environment, the requirements of mid-sized and small enterprises can be different.

**Figure 48: Requirements of organisations**

<table>
<thead>
<tr>
<th>Size</th>
<th>Issuer requirements</th>
<th>Recipient requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>• Full ERP integration</td>
<td>• Full ERP integration</td>
</tr>
<tr>
<td></td>
<td>• Two-way communication</td>
<td>• Two-way communication</td>
</tr>
<tr>
<td></td>
<td>• External archive (sometimes shifted to in-house in step 2)</td>
<td>• External archive (sometimes shifted to in-house in step 2)</td>
</tr>
<tr>
<td>Medium</td>
<td>• Full ERP integration</td>
<td>• Full ERP integration</td>
</tr>
<tr>
<td></td>
<td>• Export Tools (CSV, ...)</td>
<td>• Import Tools (CSV, ...)</td>
</tr>
<tr>
<td></td>
<td>• External archive</td>
<td>• External archive</td>
</tr>
<tr>
<td>Small</td>
<td>• Printer Driver</td>
<td>• Browser presentation &amp; download, e.g. via home banking</td>
</tr>
<tr>
<td></td>
<td>• WebEDI (type in invoice on a portal)</td>
<td>• PDF (including several layers with image, XML data and other features)</td>
</tr>
<tr>
<td></td>
<td>• Electronic forms</td>
<td>• External or CD archive</td>
</tr>
<tr>
<td></td>
<td>• PDF (including several layers with image, XML data and other features)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• External or CD archive</td>
<td></td>
</tr>
</tbody>
</table>
6.7 Compliant rollout model for your counterparts

Technique is just a small part of an E-Invoicing project. Much more important for the success and a high electronic share is the rollout strategy (on boarding of trading partner).

Figure 49: Different rollout models in use

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opt-In</strong></td>
<td>A issuer or recipient upgrades his environment for electronic invoice processing. He informs his counterparts about this new opportunity and invites them to send and/or receive invoices electronically. Each participant has to be persuaded to change to electronic invoicing. This can be done with strong arguments, incentives and/or slight pressure. The traditional and friendly method of taking companies on board was used in the past, but is more often replaced by the Opt-Out model where possible.</td>
</tr>
<tr>
<td><strong>Opt-Out</strong></td>
<td>A issuer or recipient upgrades his environment for electronic invoice processing. He informs his counterparts about this new opportunity and explains that after a certain deadline, invoices will only be exchanged electronically. If anybody wants to “opt-out”, they have to give notice. In many cases, it means also a (penalty) fee for keeping to paper based invoices. The Opt-Out model results in very quick results and a high electronic invoice volume. It can be practised by any larger organisation, but is mainly at the forefront for organisations in a steady interaction with a stable base of counterparts (e.g. Leasing companies, Transport &amp; Logistics, Telecom, Utility, Credit &amp; Customer Cards, Office Material, Suppliers of MRO articles and customer packaged goods, Online Services and any communities using Extranets or standard client software). Today’s issuers who use this model quite often use signed PDF invoices with or without additional XML data. This guarantees immediate readability by the recipient, although the benefits for them can be quite limited in the case of PDFs.</td>
</tr>
</tbody>
</table>

Figure 50: Success rate for an organisation and the electronic proportion one year after launch

<table>
<thead>
<tr>
<th>Model</th>
<th>Electronic proportion of all invoices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issuer driven “Opt-In”</td>
<td>1-5% with free market range</td>
</tr>
<tr>
<td></td>
<td>5-50% within existing supplier-buyer networks</td>
</tr>
<tr>
<td>Issuer driven “Opt-Out”</td>
<td>85-90%</td>
</tr>
<tr>
<td>Recipient driven “Opt-In”</td>
<td>1-5% for organisations without much purchasing power</td>
</tr>
<tr>
<td></td>
<td>50-70% for organisations in strong purchasing position</td>
</tr>
<tr>
<td>Recipient driven “Opt-Out”</td>
<td>Up to 90% for organisations in strong purchasing position and providing electronic orders</td>
</tr>
</tbody>
</table>

The majority of businesses in Europe do not have an ideal environment for using an Opt-Out approach. However, the model should be tailored to its practicability for each environment. Certainly, it will be practised eventually by some of your counterparts, with a direct impact on your situation.

6.8 Solution scenarios

Complete in-house developments are no longer a realistic option
- No chance for a good business case due to high project/development costs and very high follow-up costs
• Too time consuming
• No reason to re-invent solutions which are already offered by hundreds of solution providers and which are up-and-running already in other companies

Therefore, the real alternatives are purchasing third-party applications or using external services.

Figure 51: Third-party services and applications

<table>
<thead>
<tr>
<th>Services</th>
<th>Applications/Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• SaaS (Software as a Service)</td>
<td>• E-Billing/E-Invoicing applications for automated or semi-automated issuing and receiving electronic invoices, including handling of various output/input formats</td>
</tr>
<tr>
<td>• E-Invoicing network service (single-point-of-contact; any-to-any-to-any connection)</td>
<td>• Signature software or devices, Public Key Infrastructure (PKI); Signature verification tools and portals</td>
</tr>
<tr>
<td>• Any-to-any data formatting</td>
<td>• Invoice cockpit (monitor all invoices circulating within an organisation)</td>
</tr>
<tr>
<td>• Rule based data validation</td>
<td>• Invoice management</td>
</tr>
<tr>
<td>• VAT tax compliance service</td>
<td>• Workflow</td>
</tr>
<tr>
<td>• Invoice management service (including digitalisation and data capture of remaining paper invoices)</td>
<td>• E-Procurement</td>
</tr>
<tr>
<td>• E-Procurement, E-Marketplace</td>
<td>• Interface software</td>
</tr>
<tr>
<td>• Archiving Service</td>
<td>o data conversion and mapping tools</td>
</tr>
<tr>
<td>• Other added values like supply chain finance, analytics and reporting etc.</td>
<td>o printer driver with E-Invoicing, signature and transfer features</td>
</tr>
<tr>
<td></td>
<td>• Archive</td>
</tr>
</tbody>
</table>

The scenario chosen from the above will depend on
• Make or Buy policy of each organisation
• Own IT and processing environment
• Invoice volume
• Business Case
• Internal requirements
• Requirements and capabilities of counterparts

Larger organisations quite often analyse 2-3 scenarios, compare them and decide on one of them. This step is then followed by a Request for Proposal (RFP), sent to 2-4 providers.

6.9 Roadmap

Small organizations can technically become up-and running within just a few days. More time consuming will be the onboarding of the counterparties.

In large organizations, the project and implementation time can strongly vary, depending on existing environment and degree of integration.
Figure 52: Indication for project and implementation time

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Centralised, homogeneous environment</th>
<th>Decentralised, heterogeneous environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key-in/upload invoices via 3rd party Web portal or printer driver</td>
<td>0.1 – 1 days</td>
<td>1 month</td>
</tr>
<tr>
<td>Receive/download invoices via 3rd party Web portal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archive operated by 3rd party</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invoice export/import via AR/AP application</td>
<td>0.5 – 2 weeks</td>
<td>3 months</td>
</tr>
<tr>
<td>Archive operated by 3rd party</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario above including analysis, re-design, workflow and archive</td>
<td>6 months</td>
<td>1 – 1.5 years</td>
</tr>
<tr>
<td>implementation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario above, including integration of invoices with related messages</td>
<td>up to 1 year</td>
<td>up to 2 years</td>
</tr>
<tr>
<td>along the supply chain (order, delivery notes, payment, remittance etc.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.10 Project Checklist

Analysis
- Internal
  - Involved and related processes, systems and divisions/branches/subsidiaries
  - Invoice streams
  - Obstacles and how to solve them
  - Structure, capability and legal constraints (especially in multi-national companies)
- Of your counterparts
  - Volume
  - Technical capability
  - Willingness to adopt
  - Legal framework
- Strategic focus and priorities

Concept
- Solution scenarios
- Decision Make or Buy
- Step-by-Step approach (division by division) or “big-bang” (company-wide project)
- Implementation scenario
- Required investments and operation costs
- Rollout strategy

Request for proposal (RFP)
- Top 20 requirements
- Other “nice to have” requirements

If solution or service is to be purchased
- Provider evaluation
- Benchmark
- Contract
- Test
Implementation

- Internal adoption
- Test
- External adoption with suppliers and customers
- In countries where legally required (Germany, Switzerland, …): Document everything in a “procedure documentation”

Rollout

- Concept with scenarios for each sector of counterparts
- Dialogue with key suppliers and customers
- Mass-rollout

During the whole project: Communicate at least twice as much as you believe is necessary – you can never over-communicate!
7. **E-Invoicing opportunities in a challenging market environment**

7.1 **Overview**

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 drivers for process automation were the improvement of financials. This is especially valid during today’s challenging economy.

The author sees a set of parameters where E-Invoicing has a major impact on the optimization of corporate finance.

Figure 53: Optimise corporate finances with E-Invoicing

![Optimization of corporate finance with E-Invoicing]

7.2 **Reduce costs**

Chapter 5 describes in detail how the Business Case might look like – and that is already very promising. The author intended to apply today’s reality to those calculations: Organizations replace a portion of its paper invoices with electronic ones and only partially optimize their processes.

The next chart describes the classical evolution in most organizations. Today, just low hanging fruits are picked. Very few enterprises also challenge their processes in general and streamline, re-design and optimize them. It is likely that it will take some more years until the market is mature for this next step. Thus, this chapter focuses on the migration path options.
7.2.1 Increase electronic proportion

By monitoring the international markets for 16 years, the author analysed the differing developments in organizations. The success rates and electronic proportions differ greatly.

Figure 55: Success rate dependant on practiced on-boarding methods

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classic approach</td>
<td>Mainly large companies are innovators for E-Invoicing. They push their larger trading partners to send and receive the invoices electronically. The Opt-In on-boarding method is practiced (convince one by one to enter into the electronic community). For the vast majority of organisations, the achievable share of E-Invoices with large trading partners is just 25-30% after several years.</td>
</tr>
</tbody>
</table>
In a next step, the large innovators also try to push their mid-sized and small trading partners to support electronic invoices. Even by increasing the marketing activities, a large organization does not have the power to make the market alone. They are dependent on the maturity of the mass market. The annual growth rates are limited.

This market evolution was common in the past and is still in progress today in most countries. It did not cause a broad break-through in the markets up to today.

For most large companies, it is possible to achieve an electronic invoice share of at least 60% after 3 years. This will not happen automatically with a smart and friendly approach towards trading partners. Instead, powerplay and marketing is necessary for increasing the share of E-Invoices. In addition, the general contract terms should be enhanced to provide the contractual instrument to force trading partners towards E-Invoicing.

Although the rollout is strongly based on powerplay, this is still a fair method if the promoter or its service provider offers appropriate solutions for any kind and size of trading partner and for fair conditions. Registration and usage barriers shall be as low as possible. This can happen, for example, by taking the first step using only the internet. An account shall be pre-defined for each trading party and can be activated with just a click of the mouse, followed by completing the user’s master data.

An increasing number of large companies are practicing this method.

For most large companies, it is also possible to achieve an electronic invoice share of at least 80% after 3 years. The “Pressing” method is enriched with penalties for counterparts which insist on paper invoices. Electronic invoice exchange is declared as the default channel, but penalties are applied for paper invoices:

- Suppliers charge typically EUR 1 – 3.50 to consumers and EUR 5 – 25 to companies per paper invoice
- Buyers reduce the paid invoice amount typically by EUR 15 – 25 per paper invoice if the suppliers are not willing or not able to send the invoices electronically

Closed electronic loop for orders and invoices

In many large companies, at least 40% of the invoices are based on Purchase Orders (15% in the US, Paystream Advisors [18]). This rate is steadily increasing. Enterprises have the chance to receive all PO-based invoices electronically within just a few months.

Suppliers are keen to get purchase orders. If they only get the chance to receive them electronically in the future, they will accept the new channel rapidly. In addition, they also have the chance to return invoices electronically. This model results in a quick win-win situation for suppliers and buyers.

Considering these known facts, it is surprising that more organizations do not switch to more promising on-boarding methods.
7.2.2 **Enhance the degree of process optimization**

Today a major bulk of electronic invoices is just digital images of paper. This is not really a surprise, as people are familiar with PDFs and the barriers to start with are quite low. However, the benefits are mainly on the supplier side and buyers are keen to move towards the next steps.

Improvements, which can be noticed on the market
- PDF Images → Intelligent PDFs including images + structured invoice data (+ interactive components, digital signatures, logfiles, workflow functionality); PDF invoice becomes interpretable by both humans and computer systems
- PDF Images → structured XML invoices
- Scanning of images only → Scanning + OCR + Workflow

Any development as mentioned above helps to increase the degree of automation on the recipient’s side as well. The weak economy might accelerate the next evolutionary step towards fully automated processes and to tap the full potential in the mid-term.

More advanced organizations might have a broader objective than just to optimize the invoice processes. This is indeed worthwhile: The automation and optimization of the invoice process is typically only 1/3 of the total potential. Considering this, the full purchase-to-pay and order-to-cash process might be pushed to the foreground during the coming years.

Figure 56: Exploit the full optimization potential

7.3 **Increase elasticity of costs**

7.3.1 **Inhouse developments vs. 3rd party solutions**

Businesses in smaller countries intend to use solutions proven on the market. Such solutions are indeed available in high numbers (hundreds) and of good quality. From this perspective, it is sur-
praising that mainly businesses in larger countries still intend to re-invent things and develop in-house solutions. This is not only the case with large organizations, but even in companies with less than 20,000 employees. In such scenarios, it is the IT staff who often drive projects. Clarifying legal requirements for all trading parties (located in dozens of countries) is extremely challenging or almost unsolvable for them. Such projects typically never succeed. Companies eventually switch to state-of-the-art third party solutions.

7.3.2 **Shift fixed costs towards variable costs**

Customer demand today is becoming more and more erratic and the turnover is subject to considerable variations.

Thus, most companies try to reduce fixed costs and to shift them towards variable costs. Providers of E-Billing/E-Invoicing solutions reacted at a very early stage and offer suitable products for any kind of demand.

Due to investment freezes in many companies and attractive on-demand pricing, numerous businesses are expected to change from inhouse operated solutions to SaaS (Software as a Service), white label or network services offered by third parties.

It is therefore scalable regardless of organization size and, most importantly, businesses only pay for the services they use.

7.4 **Improve Working Capital**

7.4.1 **Challenges and today’s options for organizations**

The crisis in the global financial markets, a corporate credit squeeze, combined with weak economic growth, all change financial managers’ minds on working capital optimisation. Invoice automation is a key component to achieve this objective!

There is a growing demand for financially efficient supply chains, with customers and their suppliers under conflicting pressures to improve payment terms, reduce prices and improve cash flow efficiencies.

A number of related buzzwords currently dominate the mass media

- Optimize cash flow and working capital
- Decrease DSO
- Accelerate processing and workflow cycle to benefit (dynamic) discounts
- Payment guarantees; Reduced risks
- Trade Finance; Supply Chain Finance
- Access to liquidity; Reduce capital outlay
- On-demand SCF (not full turnover, just some invoices)
- Enable suppliers to keep pace with buyers’ growth.

These topics reflect the market demand, but also what providers of such finance tools and instruments increasingly offer.

The major challenge for solution providers is to offer a balanced product portfolio appropriate for suppliers and buyers, regardless of company size and the location of the trading party.

There is also a major part, which is directly under the control of suppliers and buyers and their internal processes and whose improvement may not be outsourced.
7.4.2  Improving company internal processes

7.4.2.1  Increase transparency for inbound invoices

Typically, 30-35% of larger companies still manage the invoices decentralised. Almost all of them use several ERP and accounting systems. This environment does not allow the financial manager the required transparency about the number, the total amount and the status of invoices.

E-Invoicing often results in a central outbound and inbound gateway, aggregating all invoices. This significantly increases transparency for finance managers and is a pre-requisite to optimise the working capital.

7.4.2.2  Accelerate internal invoicing cycles for inbound invoices

Suppliers of goods and services suffer from the credit crunch. This is especially valid for SMEs. For that reason, they increasingly offer discounts to their clients. Despite these discounts, the effect is very limited and the payment period (e.g. 15 days to benefit from discounts) cannot be improved significantly.

The reason is primarily that many larger invoice recipients are just unable to process paper invoices faster than within 23-25 days.

A recent consulting customer of the author confirmed to have missed discounts with a value of EUR 1.50 per paper invoice. The discount benefits alone more than compensate the project costs and investments for the E-Invoicing in this project!

An efficient workflow and archive solution is in most cases another result of an E-Invoice project. This enables real-time monitoring of the invoice processing and permits an optimisation of the working capital.

7.4.3  Trade Finance / Supply Chain Finance (SCF)

Supply Chain Finance refers to the set of solutions available for financing specific goods and/or products as they move from origin to destination along the supply chain. It shall improve the Working Capital for suppliers and buyers. This is of special relevance during the challenging economy and the fact that an increasing number of trading parties is located abroad.

The market opportunity for a SCF solution is significant. The total worldwide market for receivables management is US$1.3 trillion. Payables discounting and asset-based lending add an additional US$100 billion and $340 billion, respectively. Only a small percentage of companies are currently using SCF techniques, but more than half have plans or are investigating options to improve SCF techniques [Wikipedia]. Some 43% of German companies and 61% of British enterprises are planning to monetise their receivables & payables to provide liquidity within their supply chain [19].

Some of the solutions that could be sold under the banner of SCF with relevance to E-Invoicing include, but are not limited to:

- Asset-based lending, e.g. mortgage, factoring and reverse-factoring
- Receivables management services – Provides third-party outsourcing of receivables management and collections process. It also provides financing of those receivables and guarantees on the payment of those receivables.
- Dynamic payables discounting –Provides third-party outsourcing of the payables process and leverages a buyer’s credit quality to obtain favourable financing rates for suppliers.
Suppliers are mainly interested in financing, guaranteed and early payments, whereas the focus on the buyer side is more on working capital / benefit of discounts etc. Providers should address both sides with suitable solutions and they should be appropriate for small businesses. It should also be possible to use it selectively on a case-by-case basis.

One component of SCF is currently gaining much traction and forms an ideal combination with E-Invoicing. It is therefore described in the following chapter.

7.4.4 Dynamic discounting

Dynamic discounting is a process which allows buyers and sellers of commercial goods and services to dynamically change the payment terms – such as net 30 – to accelerated payment based on a sliding discount scale. Dynamic payables discounting is “dynamic” in one or more ways. Dynamic discounting is also known as dynamic discount management, early payment discounting, or payables discounting.

It encourages suppliers to opt in for early payments. Dynamic discounting allows buyers and sellers to dynamically change the payment terms to accelerated payment based on a sliding discount scale. The buyer allocates a “pool” of liquidity, determines liquidity limits, and establishes the interest rate for early payments. Once invoices are approved, the suppliers are automatically informed about new early-payment options. Through the portal, suppliers are able to view their approved invoices and trigger payments prior to the nominal due date, accepting the corresponding discounts.

The dynamic discounting functionality may be directly implemented as a Plug-In in the ERP or accounting application of suppliers and buyers. Another smart way is a “Pay me early button” on the buyer’s E-Invoice portal (in case of direct exchange) or on the portal of the E-Invoicing network operator.

7.5 Collaboration model for Trade Finance Services and E-Invoicing operators

There is no doubt that Trade Finance / SCF will become increasingly important during economically challenging times. Considering a survey by Demica [19], top banks expect annual SCF growth rates of between 20% and 30% in 2015. This could slow down towards the end of the decade but is still estimated to be more than 10% by 2020.

E-Invoicing has the potential to become a catalyst for a strong growth of SCF. The author expects that the way to enrol successful and scalable SCF solutions is to fully embed it into a single E-Invoicing platform that can then handle all information exchanged between companies and financial institutions electronically. Payment Service Providers (banks or non-banks) could collaborate in a complementary manner with technology companies operating E-Invoicing network platforms.
Figure 57: Complementary collaboration model

<table>
<thead>
<tr>
<th>Role</th>
<th>Description &amp; comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funder</td>
<td>Funders might be financial institutions, investment funds, private equity companies or the buyer himself. A funder establishes the rating criteria against which it elects to provide its funding capital. Funders commit to the pool and can participate in more than one pool, based on their current risk appetite. Flexible and auction-like models with coverage for international trading partners are in demand.</td>
</tr>
<tr>
<td>Open SCF Network</td>
<td>This might not yet exist today. Banks often operate their proprietary platforms. Customers dislike to be “captured” within a proprietary solution without a guarantee of competitive prices. Some non-bank provider platforms are slightly more open. The suggestion is a provider-neutral and open platform with price competition and multiple funders.</td>
</tr>
<tr>
<td>Payment Service Provider</td>
<td>May be a bank or not. He pools the various funder products and ensures communication between the SCF network and one or several E-Invoicing network operators.</td>
</tr>
<tr>
<td>E-Invoicing network operator</td>
<td>Millions of organisations are already using E-Invoicing operator networks. They are familiar with a variety of technology and process requirements of their customers of any size located in any country. As long it is not a commodity business, this is a key success factor of technology companies as service provider. Banks may also be the E-Invoicing network operator, but are most successful if a country has the maturity to be served with standardised commodity business products. What the Financial Service provider community definitely has as an advantage is the capability to offer SCF, and this is in increased demand on the market. As long as a bank is itself an E-Invoicing operator, it might have the potential to address up to 35% of their own user community only. If it shifts the focus and is instead a provider for SCF, it might address almost all E-Invoice users via partners, which act as resellers for them.</td>
</tr>
<tr>
<td>Role</td>
<td>Description &amp; comments</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Open E-Invoice exchange network</td>
<td>An increasing number of operators connect each other’s platforms to exchange electronic invoices and other related messages cross-platform.</td>
</tr>
</tbody>
</table>

7.6 The E-Invoicing Opportunity

E-Invoicing and process automation might be THE answer for today’s challenges in the market. It is the enabler to significantly cut costs, to improve working capital and to increase the elasticity of costs.

The time is right for taking the next step now!
### 8. Ricoh

**European Headquarters:**

Ricoh Europe PLC  
20 Triton Street  
London  
NW1 3BF  
United Kingdom

| Countries with highest E-Invoicing revenues | UK, Netherlands, France, Spain, Germany. Ricoh has operations in 200 countries world-wide and can reach 95% of the Fortune Global 500 companies’ employees. |
| VAT compliant E-Invoice processing guaranteed for | AUS, AUT, BEL, BRA, BGR, CAN, HRV, CYP, CZE, DNK, EST, FIN, FRA, DEU, GRC, HKG, HUN, ISL, IRL, ISR, ITA, JPN, LVA, LIE, LTU, LUX, MLT, MEX, MCO, MAR, NLD, NZL, NOR, POL, PRT, QAT, ROM, SAU, SGP, SVK, SVN, ZAF, ESP, SWE, CHE, UAE, UK, USA. |
| Number of employees dedicated to E-Invoicing and related offering | 270 |
| Active users on E-Invoicing platform | Suppliers: 85000  
Buyers: 1000  
Consumers: 10 million |

**Core offering**

Ricoh Invoicing Services (formally i-Invoicing) is a fully managed service, allowing organisations to outsource the processing of all paper and electronic AR and AP services to Ricoh whilst enjoying all the benefits of invoicing electronically. Ricoh also offers a self-service electronic invoicing solution designed specifically for small and medium-sized businesses.

**Covered processes/messages along the supply chain**

End to End Accounts Payables and Accounts Receivables

**Value-added services**

Hybrid services, Migration process, Other document types

**Main target market segments**

Large, medium and small companies and the public sector

**Supported languages**

All local languages

**Competitive differentiator**

Ricoh Invoicing Services enables companies to gradually migrate both their customers and suppliers from paper to electronic invoicing, in a secure and efficient manner, at a speed that suits their business needs.
Ricoh Invoicing Services – electronic invoicing that suits everybody

Ricoh Invoicing services enables you to reap all the benefits of invoicing electronically whilst your customers/buyers and suppliers can continue to invoice in whichever format best suits them. As a $20 Billion company with worldwide presence, and the only specialist with ISO27001 globally, you can be confident in a robust partnership ready to support your transformation and help you reap the benefits of e-invoicing immediately.

Electronic invoicing at your own pace

Electronic invoicing offers significant cost savings and benefits, but not everybody is ready to send and receive invoices in digital format. Ricoh Invoicing Services offers the ideal solution. We take care of all formats of invoices (EDI, email attachments, PDFs faxes, paper etc.), we complete the digital capture and processing, enabling you to receive and send inbound and outbound invoices electronically. So, you can receive all the benefits of invoicing electronically today, and your customers/buyers and suppliers can continue to invoice in whichever format suits them. We will work with you to migrate your customers/buyers and suppliers to electronic invoicing at their own pace, which works for everybody.

Accounts Payables

As shown above, invoices come in from your suppliers via EDI, email, PDF, fax and on paper. Ricoh will receive these invoices and undertake the extraction of the key data, no matter where on the invoice they appear. We validate the data and then convert it into whatever format your ERP will accept. So regardless of whatever format the invoice is received in, you will receive it electronically straight into your ERP.

Accounts Receivables (AR)

For AR, we operate the reverse process. We take a data feed directly from your ERP system, and depending on your customer/buyer’s preference, we can then either put their invoice into a portal and send them an email link so they can download their invoice (and print it themselves if they require), send the invoice data via EDI, in an email or as a PDF attachment to an email or indeed we can print it and send it in the traditional mail. Ricoh’s global network of print centres enables you to have paper invoices printed and mailed in the country where your customer is located, ensuring faster and cheaper delivery. Electronic invoices can also be dispatched with e-signatures to ensure they meet all regulatory requirements.

Information security – ISO27001

Ricoh holds a single, global certificate for ISO27001 in all spheres of operations. All invoices are stored in our digital archive, which meets the toughest information security standards as well as the needs of local legislation with regards storage. We also have in-built disaster recovery as standard enabling Ricoh to offer robust data protection as part of our i-Invoicing solution.

Electronic Invoicing for SME’s

Ricoh also offers an electronic invoicing solution designed specifically for small and medium-sized businesses. The self-service system enables organisations to meet an increasing shift in customer demand for electronic invoices whilst being completely customisable, allowing organisations to retain their current branding and apply templates in a dynamic, flexible electronic format.

For more information and to get in touch, visit us at www.ricoh-europe.com/i-invoicing
Accounts Payable Case Study – Dalkia, Europe’s leading energy service provider

Ricoh provides a tailored Invoicing Services solution for Dalkia. Intelligent data capture allied to automated processing has improved the integrity of Dalkia’s financial data. The elimination of time consuming manual processes has released resource and is saving the company €200,000 per annum.

The Challenge

Dalkia, Europe’s leading energy service provider, manages more than 100,000 energy facilities on behalf of its clients. The company implements tailor-made eco-efficient solutions that save money reduce emissions and release manpower. Dalkia employs more than 50,000 people in 42 countries and, in 2010, had a turnover of €8.6 billion.

The company’s Spanish operation is enjoying rapid growth with new customers benefitting from managed energy services. The growth in business has led to a corresponding increase in back-office administration. The accounts payable department has, for example, seen a massive increase in the volume of supplier invoices.

Manual processing of supplier invoices was stretching the company’s internal resource. Basic processing - recording invoice data, filing copies and acknowledging receipt – took an average of 5 minutes per invoice. With 10,000 invoices to process, the company was wasting 800 man-hours every month, the equivalent of 3.5 full-time employees!

Recognising the constraints imposed by processing invoices internally, Dalkia looked for a more effective solution. The objective was to release resource and save money by externalising manual processes. The new partner would be expected to provide a fast and effective managed service capable of meeting future growth in Dalkia’s business.

Ricoh’s Solution

“We chose Ricoh, a company with experience in this process and with some very advanced systems for managing invoices” Xavier Morros, Shared Services Centre Director, Dalkia Spain

Like Dalkia, Ricoh provides managed service solutions. A flexible approach means that customers can migrate their entire invoice process, or parts of it, to Ricoh’s electronic invoicing managed service. Ricoh provides a tailored service, processing all supplier invoices for Dalkia and presenting essential information in an easily managed electronic format.

See www.ricoh-europe.com/i-invoicing
Ricoh provides Invoicing Services solutions for a number of blue chip organisations across Europe. With extensive managed service facilities already in place, Ricoh was easily able to accommodate Dalkia’s invoice volume. All inbound invoices are now forwarded directly to Ricoh’s shared service centre in Madrid for processing.

In the service centre, Ricoh operatives scan Dalkia’s supplier invoices, making digital copies and recording invoice data. The use of intelligent software simplifies capture. Key fields, such as the supplier name, invoice number, date and invoice value, are automatically recognised, extracted and recorded. Missing data is manually validated.

Having captured invoice data, Ricoh transfers it to Dalkia for upload to the company’s purchase ledger system. Digital copies of the original invoices are also made available via the Ricoh cloud. Once the invoices have been successfully uploaded to the Ricoh cloud, Ricoh sends an automated acknowledgement to the originator confirming receipt.

**Customer Benefits**

Ricoh provides a managed end-to-end service for Dalkia. Automated processing eliminates human error and ensures that invoice data is accurately recorded. Supplier invoices are lodged within Dalkia’s purchase ledger system within 24 hours of receipt, ensuring that an accurate and up-to-date record of liabilities is available to management.

As Dalkia’s purchase ledger clerks no longer waste time inputting data and filing invoice copies, they are able to make more productive use of their time. Same day automated acknowledgement of invoice receipt has reduced the number of supplier phone calls and, with digital copies instantly available from the cloud, enquiries are quickly answered.

At current volumes, outsourcing manual processes to Ricoh is estimated to have released the equivalent of 3.5 full-time employees, saving the business approximately €200,000 pa. Ricoh’s solution is fully scalable. As Dalkia’s business grows and supplier invoice volumes increase, Ricoh can absorb the growth without Dalkia needing to increase headcount.

An additional benefit for Dalkia is that Ricoh maintains an archive of supplier invoices. The archive is readily accessible - via the Ricoh cloud - and securely backed up, protecting business continuity in the event of disaster. Ricoh is the only provider in the sector to achieve the ISO27001 standard for information security on a worldwide basis.

See [www.ricoh-europe.com/i-invoicing](http://www.ricoh-europe.com/i-invoicing)
9. Appendix A: Law and regulations

Appendix A written in cooperation with Christiaan van der Valk

9.1 Legal acceptance of electronic invoices

Almost all countries in the world, except some in Africa and Asia, accept correctly processed & archived electronic invoices as originals. Therefore, from the legal point of view, there is no longer any reason to wait with an E-Invoicing project.

Only where E-Invoicing is an in-house development do users have to invest a significant amount of time and money in further legal analysis. That is why the author recommends either purchasing existing packaged solutions or using third party services compliant with law in all countries where you trade. Experienced providers of such solutions and services will be able to inform you in more detail about the legal requirements. The following chapters will give just a brief overview for readers interested in a generic overview.

For detailed questions, the author recommends to investigate the sources as mentioned in appendix B or a discussion with your solution/service provider.

9.2 Types of legal requirements; a rapidly changing picture

The world of electronic invoicing has changed drastically between 2012 and 2014. Viewed from an international business perspective, developments around the European model, which essentially transforms paper-based processes into electronic ones, were still centre stage at the beginning of 2013; just a year later, Europe has become just one consideration among a patchwork of national E-Invoicing regulatory challenges faced by international business. This rapid change in the perspective of enterprises has been driven by the fact that countries newly introducing electronic invoicing mandates have almost without exception chosen a model inspired by the Latin American ‘clearance’ approach. The mushrooming of mandates based on this ‘clearance’ model has been a wake-up call for many larger corporates, which are now typically working towards a proactive global E-Invoicing strategy where operational readiness for compliant E-Invoicing in countries in Latin America, but also for Turkey, Russia and China ranks among the highest priorities.

The following figure shows the composition of the principal regulatory features in a number of selected regions (averages among countries with active E-Invoicing regimes) and a number of significant individual countries.
Figure 58: summary of regulatory requirements across selected regions and countries

Below is a brief description of these features and the methodology used for their relative importance in the chart:

**Tax authorization needed**
A value of 100 was allocated where a country requires that the tax administration, Finance Ministry or other part of the public administration (including law enforcement) explicitly authorizes a business before it starts sending and/or receiving invoices electronically. A value between 0

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3 Countries included in the regional summaries: for “Commonwealth” (Australia, Canada, Hong Kong Special Administrative Region, New Zealand, Singapore, South Africa), for “EUROPE” (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine), for “LATAM minus Brazil” (Argentina, Chile, Colombia, Costa Rica, Mexico, Peru, Uruguay), and for “ASIA minus Turkey” (Israel, United Arab Emirates, South Korea, Taiwan, Japan, Malaysia, Philippines, Thailand).
and 100 was given if such authorization requirement is conditional, implicit, recommended or customary.

**E-invoicing mandate**
A value of 100 was allocated in cases where all businesses must by law use invoices in electronic format. A value between 0 and 100 was given if such a mandate does not address all businesses or if the mandate is not all-encompassing in terms of types of invoices, business processes etc.

**Prescriptiveness**
A value of 100 was allocated where a country leaves no choice to businesses as to how to achieve E-Invoicing compliance. A value 0 means complete freedom of choice as to the method used by businesses to comply. A value between 0 and 100 was given if the applicable legal regime falls in between these two extremes.

**I&A (integrity and authenticity required)**
A value of 100 was allocated where a country requires businesses to ensure and be able to demonstrate (a) the integrity of all mandatory fields of an invoice and (b) the authenticity of its origin (the identity of the supplier or, where allowed, the third party acting on its behalf) during the legal lifetime of an invoice. A value between 0 and 100 was allocated where such requirements are generally assumed but not explicit in the law, or if there is a formal policy within the tax administration not to seek such evidence.

**Archiving**
A value of 100 was allocated in case there is a requirement for an electronic invoice to be archived for subsequent tax administration auditing purposes. A value between 0 and 100 was allocated where archiving requirements exist but the period is very short (less than a year), or if such archiving is viewed as more of a formality which the tax administration does not typically pay attention to.

**Digital signature/Timestamp mandatory**
A value of 100 was allocated when a country has a hard requirement for an electronic invoice to be digitally signed and/or time-stamped using a Public Key Infrastructure-based time-stamp at some point during its legal lifetime. A value between 0 and 100 was allocated where such signature or time-stamp requirements are not absolute and can under certain conditions be replaced with technologies and/or processes that provide an equivalent result.

**Mandatory XML**
A value of 100 was allocated when a country specifies an XML-based invoice schema as the exclusive format for an electronic invoice original.

**‘Clearance’**
A value of 100 was allocated if an electronic invoice must be sent to the tax administration or its licensed/accredited agent for authorization prior to issuance as an original tax invoice. A value between 0 and 100 was allocated if clearance is required within a relatively short time after instead of after the transaction, or in cases of alternative clearance processes e.g. requirements for a code to be fetched from an online tax administration service and integrated into an invoice instead of the whole invoice being sent to the clearance service.

**Clearance + buyer acknowledgement**
A value of 100 was allocated if the clearance process is legally only considered complete if the buyer has sent the tax administration or its licensed/accredited agent a confirmation that it has received and validated the invoice.
**Full cycle clearance**
A value of 100 was allocated in case the tax administration or its licensed/accredited agent not only clears the invoice but also serves as transport mechanism or access point for the buyer to obtain the cleared invoice.

**Accounting document compliance**
A value of 100 was allocated in case the clearance process for invoices also applies to certain other formalized B2B/accounting documents if sent electronically.

**Localization**
A value of 100 was allocated when a country’s requirements for electronic invoicing are exclusively or to a large extent intertwined with requirements for processes, service provider relationships, hardware and/or archiving to remain within its national boundaries. A value between 0 and 100 was allocated where such localization requirements exist but are conditional or narrower.

### 9.3 Electronic invoice issuance/processing and archiving by third parties

Most countries’ E-Invoicing laws allow outsourcing of tax-relevant functions to third parties. This gives issuers and recipients of electronic invoices the opportunity to offload technical and legal complexity to experienced service providers. They then typically act in the name of and on behalf of the issuer/recipient. Such services can include data conversion from source to target format, digitally signing and verifying, validating invoice content, various ‘clearance’ processes, exchanges between issuer and recipient, archiving data on behalf of users, etc.

Outsourcing of tax-relevant functions never changes the fact that the parties to the underlying sales transaction are accountable to the tax authorities. Enterprises can seek to obtain warranties for compliance with certain legal requirements by service providers, but this always remains a private agreement and has no impact on the taxable person’s tax responsibility.

In some countries with a ‘clearance’ model, service providers accredited by the tax administration must be used, or their use may be among a limited number of implementation options. In such cases, the service provider is primarily an agent acting on behalf of the tax administration (or at least performing processes that are regulated and supervised by the tax administration) rather than a private vendor; however, it is common that such tax administration-accredited entities also provide non-regulated value-added services.

In many countries, restrictions are in place regarding the location for the archiving of E-Invoices. This is of special interest if cloud computing is the base for archiving. Cloud computing is a very young technology. It is for sure not the objective of legislators to prohibit the usage of Cloud computing, but the legislation is lagging behind the practice and the global scandal created by the USA’s National Security Agency’s extensive data access in 2013 has made users more conscious of political factors related to where and by which vendors data are processed or archived. Enterprises in EU member states are advised to ensure that archiving services by third parties are performed in compliance with the law, which in most cases means that the invoices need to be stored within the territory of an EU Member State. Even if all legal requirements can be met by using a Cloud storage service for archiving electronic invoices, there is little experience with this type of solution and users should exercise caution before making design decisions involving Cloud storage.

### 9.4 Procedure/Process description

Many countries require businesses to document their E-Invoicing process environment, the end-to-end electronic invoice transport, processing and storage. Where such documentation is not
mandatory, it is commonly viewed as good practice. Descriptions should typically include all relevant information about:

- Flow of invoices & related documents
- Manual and automated process steps
- IT and communication environment, interfaces, database
- Procedures for guaranteeing invoice integrity and authenticity

Procedure descriptions play a major role for all users in such countries, regardless of their approach to compliance. When a service provider is used for certain tax-relevant processes, users can often obtain the documentation of these processes from the service provider.

9.5 Objectives and status of legal changes in the European Union

Background

While it was stated above that the relative importance of the EU approach to electronic invoicing has somewhat diminished in recent years, it is worthwhile briefly looking back at the regulatory changes that entered into force early 2013. The primary purpose of the changes enshrined in VAT Directive No. 2010/45/EU, which creates the foundation for today’s rules in EU Member States, was to give businesses more implementation choice as regards compliant electronic invoicing on the basis of a legal regime that in principle has the same requirements for paper and electronic invoices.

The key points of the Directive are:

- The use of an electronic invoice shall be subject to acceptance by the recipient (remark of author: this can be a constraint for the usage of the Opt-Out rollout).
- It must comply with VAT Regulations
  - Electronic and paper invoices are to be treated equally – the administrative burden on paper invoicing should not increase.
  - The authenticity of the origin, the integrity of the content and the legibility of an invoice, whether on paper or in electronic form, shall be ensured from the point in time of issue until the end of the period for storage of the invoice.
- Proof of authenticity and integrity may be provided:
  - With any mechanism each taxable person deems suitable (setting a freedom of evidence rule for EU invoices, whether paper or electronic; note that evidence must still be provided within a reasonable time)
  - A reliable business controls-based audit trail between an invoice and a supply of goods or services. This method is available for paper and electronic invoices.
  - An advanced electronic signature on an electronic invoice based on a qualified certificate and created by a secure signature creation device.
  - Electronic data interchange (EDI) of electronic invoices.
- Member States do not have the option to impose other rules for E-Invoices
- The rules regarding electronic invoices that apply are the rules of the Member State from which the supply is made (this relates to the complex subject of ‘place of supply’ rules but in practice is often the Member State of the supplier).
- Rules concerning the storage of invoices are in practice mostly determined by the Member State where the taxpayer is established.

Status

All EU Member States have now transposed Directive 2010/45, including the compliance options set out above. In a number of Member States, the tax administration has issued further guidance on each of the compliance options.
Not all Member States have faithfully transposed the Directive:
- One group of countries have introduced additional options or requirements.
- Others have not implemented all elements of the Directive i.e. some have not explicitly transposed the freedom of evidence rule.
- Some do not mention all compliance methods, e.g. stating only one or a subset, or only the general requirement of integrity and authenticity.

9.6 Which method is appropriate for organisations in the European Union?

The new European legislation aims to give enterprises more choice from among equivalent implementation options to meet the legal requirements of integrity and authenticity evidence. The base idea behind this new legislation is that business practice is too diverse to be caught in a limited number of compliance methods. However, more choice of means to comply also means that businesses will now have a greater responsibility to select an implementation option that ensures compliance. Unfortunately, the wording of Directive 2010/45 on available methods (“business controls” for example) is often used to justify a relaxed view of the regulatory requirements. This is a grave error: businesses must still be able to prove integrity and authenticity of their invoices over a long period, and this long-term evidence position is often not fully achieved by existing control frameworks. Businesses should therefore analyse their ability to generate and maintain appropriate evidence across their different processes and trading relationships, and on that basis decide which mechanism is the most cost-effective to ensure compliance where gaps are identified. Since all businesses are different, no method is more or less appropriate than others are in an absolute sense.

When assessing the relative costs and benefits of available options, companies should base their ROI calculations on actual solution costing rather than preconceived ideas or popular views of what is cheap or expensive. When a service provider is involved on behalf of one or both trading partners, certain compliance methods may become more or less attractive due to this particular type of setup. One thing that has changed since entry into force of VAT Directive 2010/45/EU is that businesses, rather than mechanically adopting a technology-based compliance method, have started becoming more cognizant of the importance of high-quality end-to-end processes. This often leads to more awareness of strengths and weaknesses of existing processes, including a better understanding of the transaction evidence such processes naturally generate. Based on such a gap analysis, we see many businesses make choices for or against using technology (such as compliant EDI or qualified electronic signatures) for maintaining adequate integrity and authenticity evidence with more confidence and on a more strategic basis than previously.

A number of publications providing guidance on the new EU legislation are available. This is especially valid on the European scale with the European Commission [12] and CEN Workshop on E-Invoicing [13]. Readers more interested in a compendium about E-Invoicing legislation in Europe and many other countries around the globe are recommended to read the TrustWeaver whitepaper as referenced in [20].
10. Appendix B: Glossary, Sources

10.1 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 59: Glossary

| AR       | Accounts Receivable       |
| AP       | Accounts Payable          |
| B2B Invoices | In this report: Includes all tax compliant invoices to corporate as well as to the public sector |
| Bill     | Includes all categories of bills sent to consumers (B2C/G2C) |
| E-Billing| “E-Billing” covers in this report the electronic bills from Business-to-Consumers (B2C). Some market participants use this term alternatively for the process on issuer side in general, regardless if the customer is an enterprise or household. |
| EBPP     | Electronic Bill Presentment and Payment; focus in B2C; this acronym is more popular outside Europe |
| EIPP     | Electronic Invoice Presentment and Payment; focus in B2B/B2G; this acronym is more popular outside Europe |
| 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. |
| 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. |
| Order-to-Cash | Supplier perspective for the processes order-delivery-invoicing-payment |
| Purchase-to-Pay | Buyer perspective for the processes order-delivery-invoicing-payment |
| SME      | Small and Medium sized Enterprise |

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10.2 Sources

Figure 60: Key sources used in this report

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