

# Questionnaire Knowledge/Interest e-invoicing

Programming language (s): [ ] Java [ ] Python [ ] PHP [ ] other, \_\_\_\_\_  
 Topics of interest

<ul style="list-style-type: none"> <li>• XML</li> </ul>
<ul style="list-style-type: none"> <li>◦ Basics</li> </ul>
<ul style="list-style-type: none"> <li>▪ Well-formedness</li> </ul>
<ul style="list-style-type: none"> <li>▪ DTD</li> </ul>
<ul style="list-style-type: none"> <li>▪ Schema</li> </ul>
<ul style="list-style-type: none"> <li>▪ UTF8</li> </ul>
<ul style="list-style-type: none"> <li>▪ Namespaces</li> </ul>
<ul style="list-style-type: none"> <li>◦ UN/CEFACT CII und CIO</li> </ul>
<ul style="list-style-type: none"> <li>◦ UBL</li> </ul>
<ul style="list-style-type: none"> <li>◦ Xpath</li> </ul>
<ul style="list-style-type: none"> <li>▪ Eval in Eclipse</li> </ul>
<ul style="list-style-type: none"> <li>◦ XSLT</li> </ul>
<ul style="list-style-type: none"> <li>▪ Saxon</li> </ul>
<ul style="list-style-type: none"> <li>▪ Apache FOP</li> </ul>
<ul style="list-style-type: none"> <li>◦ Schematron (e.g. <a href="http://web.archive.org/web/20160303142410/http://www.dpawson.co.uk/schematron/">http://web.archive.org/web/20160303142410/http://www.dpawson.co.uk/schematron/</a>)</li> </ul>
<ul style="list-style-type: none"> <li>▪ Validate using a schematron XSLT</li> </ul>
<ul style="list-style-type: none"> <li>• PDF</li> </ul>
<ul style="list-style-type: none"> <li>◦ Basics</li> </ul>
<ul style="list-style-type: none"> <li>▪ Creation e.g. w/Ghostscript</li> </ul>
<ul style="list-style-type: none"> <li>▪ Structure analysis e.g. w/itext RUPS</li> </ul>
<ul style="list-style-type: none"> <li>◦ PDF-A</li> </ul>
<ul style="list-style-type: none"> <li>▪ Purpose, ISO Standard</li> </ul>
<ul style="list-style-type: none"> <li>▪ Validation, e.g. using VeraPDF</li> </ul>
<ul style="list-style-type: none"> <li>▪ File attachments, PDF/A Schema extensions and RDF Metadata</li> </ul>
<ul style="list-style-type: none"> <li>• Legal and compliance</li> </ul>
<ul style="list-style-type: none"> <li>◦ GoBD</li> </ul>
<ul style="list-style-type: none"> <li>◦ Auditing requirements (Revisionsicherheit)</li> </ul>
<ul style="list-style-type: none"> <li>◦ Invoice retention</li> </ul>
<ul style="list-style-type: none"> <li>◦ Procedural documentation (Verfahrensdokumentation)</li> </ul>
<ul style="list-style-type: none"> <li>◦ Visualization requirements</li> </ul>
<ul style="list-style-type: none"> <li>◦ VAT regulations: Umsatzsteuergesetz, Kopie vs. Original</li> </ul>
<ul style="list-style-type: none"> <li>◦ EU/2014/55</li> </ul>

◦ EN16931
◦ E-Government-Gesetz
◦ E-Rechnungs-VO
◦ E-Rechnungen international
◦ Gross price definition
◦ Substitutional scans=Ersetzendes Scannen
◦ Invoice Recognition and ZUGFeRD
• History and generic info
◦ EDI, EDIFACT and APERAK
◦ unstructured vs structured Rechnungen
◦ UN/CEFACT vs UBL
◦ ZUGFeRD
◦ Factur-X
◦ Order-X
◦ XRechnung
◦ CIUS vs additional data
◦ PEPPOL
◦ E-invoicing vs e-Billing
◦ Frequent errors like TaxCurrencyCode #24, currencyID #39
◦ Document types like order, invoice, invoice correction, credit note, reminder
• Tools
◦ Open Source tools like Exiftool, XMLLINT
◦ Libraries
◦ Software stack/Creation tools like Visual Studio Code, IntelliJ
◦ Consuming tools like viewers, homebanking software
◦ Validators
◦ Miscellaneous
• Exercises
◦ Use Mustang to extract, combine and validate
◦ Use Kosit to validate
◦ Manual correction
◦ Xpath authoring
◦ Fix with VeraPDF
◦ Fix with Ghostscript
◦ Swagger