Is e-invoicing relevant in the US state sales tax context?

Prepared for the Council On State Taxation and State Tax Research Institute

May 2024

Introduction

Digital transformation is a priority of government agencies worldwide. Tax collection agencies are at the forefront of a global trend towards digital tax administration, with e-invoicing often playing a significant role. Since 2020, tax administrations have initiated or amended over 200 national digital tax administration (DTA) regimes globally, with 65% of these initiatives relating to e-invoicing.[1] Digital transformation of tax authorities generally involves moving away from paper-based and manual systems to electronic processes, with e-invoicing referring to the digital exchange of invoice data between buyers and sellers and the sharing of that information with the government in an electronic format for value-added tax compliance purposes. As of January 2024, more than 19 countries mandate e-invoicing for VAT for all taxable transactions, 49 require it for certain transactions, and additional countries have enacted plans to implement e-invoicing within the next three to five years.

Given this global activity, US companies with operations overseas have undertaken significant transformations of their people, processes, and systems to comply with these evolving tax compliance requirements. The spread of these compliance requirements in countries that impose a value added tax (VAT) has driven speculation as to whether the nearest domestic cousin to the VAT, the US state sales tax, may be subjected to similar compliance regimes.

Digital transformation of tax authority operations and compliance systems has proven beneficial in many respects for both taxpayers and tax authorities. For taxpayers, electronic compliance often means reduced tax return processing times and more efficient tax refund processes, among other benefits. For tax authorities, digital transformation has reduced operating costs and increased visibility into taxpayer information. In the United States, these benefits of digital transformation suggest that state sales tax compliance will continue to evolve toward a digital compliance approach, but the fundamental differences between the structure of the US state sales tax system and the VAT mean that the type of e-invoicing observed in VAT countries is unlikely to be replicated by US states in the current form observed in VAT countries. A key difference between the global and US contexts that diminishes the rationale for US states implementing e-invoicing in the form observed abroad is that many e-invoicing systems adopted around the world address a particular type of compliance issue faced under the VAT but not the sales tax. This type of noncompliance is related to inappropriate credit claims, which occur when a taxpayer inappropriately claims a credit to generate a refund for taxes paid by another taxpayer, referred to by the European Parliament as "missing trader intra-community fraud" in instances related to cross-border transactions.[2]

This paper provides an overview of e-invoicing from the perspective of US state tax policy, highlighting the key characteristics and features of the systems adopted in VAT countries and their applicability to the US. We first examine the implementation of several variants of e-invoicing systems for VAT that differ in terms of the timing of data provided to tax authorities by taxpayers and the role of the tax authority in authorizing invoices. We then analyze the potential for e-invoicing in US state sales tax collection systems and identify several potential factors to be considered by state legislators and administrators as sales tax digital transformation approaches are evaluated. Rather than the e-invoicing approach observed in VAT countries, a US-specific digital compliance approach may provide the greatest efficiency benefits for taxpayers and administrators, especially if such an approach were coordinated across states before implementation.

Key insights:

- **Digital transformation is a priority of government agencies worldwide.** Tax authorities are no different and are keenly focused on transformation of manual to digital processes. For many tax authorities globally, this transformation has included e-invoicing implementation.
- **The primary motivation for implementing e-invoicing in many VAT countries is to combat credit-related fraud** arising when a taxpayer claims a credit to generate refunds to which it is not entitled. This type of compliance issue is specific to multi-stage VAT systems and does not exist in the US state sales tax system, obviating the need for US adoption of e-invoicing for state sales tax purposes.
- **VAT countries have implemented three variants of e-invoicing:** (1) clearance (pre-transaction), (2) post-transaction reporting, and (3) post-transaction audit. In a clearance system, the taxpayer must receive tax authority validation of transaction details before issuing a tax-compliant invoice. This typically involves real-time sharing of an invoice and a pre-approval response from the tax authority during the transaction. In a post-transaction reporting approach, information is exchanged after a transaction occurs, but is not transmitted or validated in real time. And in a post-transaction audit approach, information is provided in a structured format typically during an audit. The clearance approach is considered by the European Union (EU) to be overly burdensome and most countries have settled on a post-transaction reporting approach that balances compliance benefits and taxpayer burden.
- **To reduce complexity, a broad-scale digital transformation initiative would require coordinated approach across states,** which does not currently exist in sufficient breadth to accomplish this goal. Revenue agencies' experiences in Latin America and the EU provide valuable lessons in why harmonization is important. Over the past decade, EU member states have been implementing e-invoicing using different approaches, and the EU is now attempting to coordinate these disparate regimes through centralized guidance. Due to the lack of an initially harmonized approach, EU member states are likely to require additional investment and create disruption in moving from a first-generation e-invoicing standard to a more coordinated standard backed by the EU.
- **E-invoicing is a transaction reporting approach which is fundamentally different from remitting tax payments at the time of the transaction** because the timing of VAT remittances is independent of the approach used for transaction reporting. Even in a clearance e-invoicing system in which tax information is transmitted to the tax authority at the time of the transaction, payments are generally batched and remitted after customer funds have been settled or even on a less-frequent periodic basis.
- **Several differences between the VAT and sales taxes reduce the relevance of e-invoicing in the US context.** First, tax gap and credit fraud concerns are not as prevalent in sales tax systems. Second, the fragmented nature of US state sales taxes renders harmonization challenging. Third, the lack of a coordinated approach to implementing a uniform state-level compliance system across multiple states reduces the potential benefits of e-invoicing.

What is e-invoicing for VAT compliance and how is it different than other digital sales tax compliance approaches?

E-invoicing generally refers to the digital exchange of invoice data between buyers and sellers and the sharing of that information with the government in an electronic format.[3] A tax compliant e-invoice is one that is exchanged directly via service providers and/or a platform with the tax authority for the purpose of reporting business transactions for VAT compliance. In VAT systems, invoices contain information about the seller and buyer, including tax identification numbers, and are normally required to document input VAT deduction claims. In this paper, e-invoicing refers to tax authority requirements for businesses to issue tax-compliant e-invoices to comply with the VAT.

Generally, a VAT is a multi-stage tax, collected fractionally at every stage of the supply of goods and services. Entities subject to tax are responsible for charging, collecting, and remitting VAT to the government but do not generally bear VAT as a business cost. Taxable entities charge VAT on their sales (called output tax) and have a right to deduct VAT paid on business purchases, including direct inputs and overheads (called input tax). Input VAT is recovered by offsets against the output VAT charged; or, if there is an excess, by claiming a repayment from the government.[4]

E-invoicing for VAT compliance provides a means of verifying the accuracy of information reported to tax authorities. The adoption of e-invoicing for VAT compliance is intended to modernize this multi-stage collection and reporting process by harmonizing and expediting the method of reporting tax accrued at each stage, to improve tax administration and audit function efficiency, and to support business modernization and digitization of records in line with concurrent commercial and environmental trends. While these benefits include more rapid liability reporting to tax collection agencies, it does not necessarily require "real-time" reporting of liabilities or remittance of tax owed by VAT taxpayers.

E-invoicing regulations first emerged in Latin America and the Caribbean, with Barbados and Costa Rica in 2003, Chile in 2004, Mexico in 2005, and Argentina and Brazil in 2006.[5] Traditional VAT paper invoices in these countries lacked uniformity; manual invoice processing left room for manipulation and fraudulent credit claims. Tax authorities introduced e-invoice systems to improve transparency, enhance validation of invoices, and automate the audit process by verifying invoices through a digital signature. One of the earliest precursors to e-invoicing was Mexico in the late 1990s where businesses and the Mexico Ministry of Finance and Public Credit explored a system to create standardized e-invoicing for VAT, including electronic signatures that could be validated by the tax authority.[6] In the decade following the first e-invoicing regulations, e-invoicing adoption gradually expanded to include a greater variety of transactions, real-time reporting of transaction-level details, and eventually pre-population of VAT tax returns in some countries such as Chile in 2017.[7]

In other contexts, such as the European Union, the acceptance of digital invoices in 2006 and the exploration of an e-invoicing system from 2007-2009[8] was intended to improve business efficiencies and provide cost savings for taxpayers. While the European Union in 2014 mandated e-invoicing for all business-to-government (B2G) transactions within five years,[9] many of the early adopters of VAT e-invoicing for business-to-business (B2B) and business-to-consumer (B2C) transactions in Europe were countries with the largest VAT tax gaps and that had high estimates of missing trader intra-community fraud, or companies that deliberately failed to pay their VAT liabilities.[10] Three primary implementation methods for e-invoicing are implemented in VAT countries: the clearance (pre-transaction), post-transaction reporting, and post-audit methods. These methods vary both across and within countries depending on the size and complexity of businesses, industries, and regulatory requirements.

- Clearance refers to a pre-transaction clearance approach in which businesses issuing a tax-compliant invoice to another business must first transmit information to the tax authority and await validation of that information. Typically, the information transmitted to the tax authority includes buyer and seller identifying information; description, quantity, and pricing for items included in the transaction; and information related to sales credits or other adjustments which impact the net price of the transaction. For taxpayers operating in a country with mandatory clearance e-invoicing, businesses are required to either obtain authorization from a tax agency before sending an invoice or provide a draft e-invoice to the tax authority for authorization.
- In jurisdictions with clearance systems taxpayers must collect information about the transaction (e.g., description of goods or services, units, VAT rate and amount, exemptions, and discounts) and the buyer (e.g., name, address, taxpayer ID). Next, a taxpayer drafts invoices using the tax authority's e-invoicing platform or the taxpayer's own accounting software that complies with national tax authority standards. The draft invoice must be submitted to the tax authority or an authorized third-party platform for validation that it is completed correctly. Structured, standardized formats such as extensible markup language (XML) are required where data is transmitted for validation.

- Under the centralized approach, such as Italy's Sistema di Interscambio (SDI) e-invoicing system, taxpayers transmit e-invoice data directly to the tax authority's platform using a single, structured data format as set by the tax authority. Italy's tax authority conducts all validation checks anywhere from within "a few minutes" up to five business days and, upon approval, sends the invoice directly to the buyer and a receipt to the issuer.[11] If the information is not validated, the tax authority will send the issuer a rejection report. After approval, the tax authority normally does not retain a copy of the e-invoice unless the taxpayer has selected to use the tax authority's "e-archiving" service.
- In many Latin American countries, such as Mexico and Chile, tax authorities use a decentralized validation approach where taxpayers upload e-invoice data to either the tax authority or authorized third-party platforms for independent checks and authorization of the invoice. Upon approval, the e-invoice receives a QR code or "digital stamp." Buyers can then log onto the tax authority or third-party platform to download the approved e-invoice.
- While centralized clearance provides tax authorities direct oversight of the validation and approval process, many countries adopt a decentralized system for various reasons. A decentralized system can reduce taxpayer compliance burdens by enabling third-party operators to directly submit invoice data to tax authorities on behalf of taxpayers. Further, decentralization can reduce tax administration costs due to less central oversight by the tax authority and reduced IT costs to taxpayers and administrators.
- Under both the centralized and decentralized approaches, taxpayers file VAT returns monthly, quarterly, or annually depending on business turnover. In many jurisdictions, VAT returns are pre-populated by the tax authority or a third-party provider. VAT payment is generally required at time of filing, and amending or correcting invoices after receiving clearance can be procedurally complex.
- Post-transaction reporting relies on businesses submitting digital invoices in near-real-time or periodically on a daily, weekly, or monthly basis. A key difference from the clearance approach is invoices are generated by the seller of a good or provider of a service without pre-authorization by the tax authority. Tax agency verification is not needed prior to a transaction, but the tax authority cross-checks and validates buyer and seller identity and tax registration details after the transaction occurs.
- Like clearance models, valid e-invoices in a post-transaction reporting system must contain specified information, including tax identification numbers of issuers and buyers; quantity, unit costs, and discounts of goods sold; VAT rates; and amounts and discounts. Transaction-level data is also sent directly to tax authorities or approved third parties in a structured data format using tax authority approved software or other software that meets standards set by the tax administration.
- Post-audit, or post-transaction audit reporting, relies on businesses to exchange digital invoices and self-report their tax obligations accurately, subject to audit by the tax authority. Businesses do not directly submit their digital invoices to the tax authority unless requested for audit purposes. During an audit, tax administrations verify e-invoices as authentic, typically through a qualified electronic signature. Current audit processes involve a detailed review of sampled transaction data, while post-audit e-invoicing involves reviewing a complete set of transactions in a standardized data file.
- In the post-audit system, there is less standardization around how e-invoices are transmitted to recipients and how transaction-level VAT data is reported to the tax authority. In some jurisdictions, taxpayers are required to digitally report transaction-level VAT data in real time or periodically to the tax administration but are not required to use and share e-invoices directly with the tax authority. The scope of data required by tax authorities varies from a subset to all transaction-level detail contained on the VAT invoice, such as buyer and seller, VAT rates and amounts, discounts, and other taxpayer accounting or operational data such as data on stock inventories or payments.
- Data formats also vary by jurisdiction. In some countries such as Bulgaria, the Czech Republic, and Estonia, taxpayers must submit VAT transactional data in a structured format established at the national level, which is not aligned to any international standard. In other countries, such as Poland and Portugal, digital reporting of VAT information must align to the OECD's Standard Audit File for Tax (SAF-T), which is a globally recognized XML standard that can be easily audited by third parties.[12]

Table 1. Clearance, post-transaction reporting, and post-audit e-invoicing implementation methods (illustrative)

	Clearance	Post-transaction reporting	Post-audit (post-transaction audit reporting)
Description	Business submits invoice information to tax authority for authorization before e-invoice is issued to buyer	Business issues e-invoice to buyer without pre-authorization and provides e-invoices to tax authority for validation periodically after transactions occurs	Business issues e-invoice to buyer but has no obligation to obtain pre-authorization or provide copies of the invoice to the tax authority unless subject to audit. Issuers report VAT tax information (sometimes transaction-level details) periodically or jointly with their VAT returns.
Countries	Latin America: Mexico, Brazil, Chile, Peru, Colombia, Argentina, Costa Rica, Ecuador Europe: Italy, Belarus Asia: China, South Korea, Vietnam	Europe: Czech Republic, Estonia, Greece, Hungary, Latvia, Poland, Spain Africa: Côte d'Ivoire	Europe: Sweden, Denmark, Belgium, Finland, Norway, Portugal Asia: Singapore
E-invoicing requirement details	Invoices are normally required to contain information about seller and buyer, including tax ID numbers, nature and purpose of transaction, quantity and price of units sold, unit price, discounts, VAT rate and amount, issuer's digital signature, QR code and unique invoice code	Varies but invoices are normally required to contain information about seller and buyer, including tax ID numbers, nature and purpose of transaction, quantity and price of units sold, unit price, discounts, VAT rate and amount, sequential invoice ID number	Varies but at minimum invoices must contain information about seller and buyer, including tax ID numbers, nature and purpose of transaction, quantity and price of units sold, unit price, discounts, and VAT rate and amount In some jurisdictions, certain documents such as point of sales receipts, utility bills, or transport tickets are accepted as equivalent to e-invoices
Reporting frequency	Draft e-invoices reported to authority are required prior to issuance of invoice to buyer	E-invoices first issued to buyer and then submitted to tax authority post transaction either in near-real-time (e.g., daily) or jointly with VAT return	Invoices are not directly submitted to tax authority unless taxpayer is subject to audit
Reporting data format	Structured data formats (e.g., XML) using the tax authority's invoicing software or an authorized third-party	Structured data formats (e.g., XML). E-invoices can be issued using tax authority invoicing software, software provided by a third party, or the taxpayer's own proprietary software if in compliance with standards such as OECD's Standard Audit File-Tax (SAF-T) standard.	Both structured (e.g., XML) and unstructured data formats are used (e.g., PDF) for invoices, but only a listing of VAT transaction-level detail is reported directly to the tax authority Reporting of transaction-level VAT information is reported to tax authority using either a nationally defined data format or using internationally recognized file formats (e.g., SAF-T)

Reporting platform	Invoices are uploaded directly to tax authority invoice portal, using the PEPPOL network, or using an authorized third-party digital platform or APIs	Invoices are uploaded directly to tax authority invoice portal, or using an authorized third-party digital platform	Invoices are kept by taxpayers and not submitted to tax authority unless they are subject to audit
Tax authority validation	Electronic authorization code required from tax authority for each e-invoice before issuance. Validation is conducted either centrally by the tax authority in centralized clearance models or by trusted third-party providers in decentralized models	No pre-authorization required; tax authority validates e-invoices following the transaction	No pre-authorization required; tax authority validates invoices during audits for selected taxpayers
Tax returns and payment timing	Filing deadlines vary depending on type and size of taxpayer (e.g., monthly, annually) and payments are generally due at the time of filing the VAT return. In some jurisdictions, the VAT return is pre-populated by the tax authority based on e-invoice information	Filing deadlines vary depending on type and size of taxpayer (e.g., monthly, annually) and payments are generally due at the time of filing the VAT return. In jurisdictions with periodic rather than real-time invoice reporting, invoices are required jointly with VAT return.	Filing deadlines vary depending on type and size of taxpayer (e.g., monthly, annually) and generally payments are due at the time of filing the VAT return.

Source: Summary compilation of e-invoicing requirements, filing and payment terms for indirect taxes in 214 jurisdictions as reported by Bloomberg Tax. Information as of July 31, 2023.

Use of standards

As e-invoicing and digital compliance regimes in VAT countries are adopted, the regulatory and technical frameworks that taxpayers must comply with have continued to evolve asynchronously.

In practice, e-invoicing standards across the world are fragmented, with a mix of national formats, global standards, and industry-specific implementations. Sometimes varying e-invoicing standards for different types of transactions exist within the same country, such as for B2G sales versus B2B sales, different subnational locations, and different types of businesses and industries. For example, some countries mandate additional data fields in addition to the use of a global standard. This attenuates the influence global standards have on broader uniformity.

As mentioned above, even in post-audit systems, differences exist in the scope of data and standards used to digitally report transaction-level information. For example, some countries require businesses to list transactions according to a national format, and other countries require digital reporting of VAT transactions based on the OECD's Standard Audit File for Tax (SAF-T), which can include additional accounting and audit information such as inventory stocks. In some countries the use of multiple standards creates further fragmentation.[13]

Such fragmentation of standards threatens to devolve into localized e-invoicing standards for each country both globally and regionally.[14] The challenges of maintaining different e-invoicing approaches are magnified if localities within the same country impose differing indirect tax reporting systems.[15] The emergence of disparate e-invoicing standards and approaches across many jurisdictions causes greater compliance costs for the very taxpayers proponents argue benefit from the streamlined reporting impact of e-invoicing. This lack of consistency has become more of a concern regarding e-invoicing than mandatory e-invoicing requirements themselves.

The complexity and compliance costs of e-invoicing

The clearance method was initially viewed as a way for tax authorities to develop a real-time view of compliance. However, this method imposes burdens on taxpayers which are increased by disparate implementation approaches in each country. To function on a multinational basis, the clearance method employs a set of common technical and business standards, interoperability between different e-invoicing systems and service providers, digital encryption for the secure transfer of invoices, and significant investment in technology. Many EU countries have found the costs of establishing the clearance method disproportionately burdensome compared to their countries' tax gaps. This has resulted in disparate approaches to e-invoicing within the EU, and indeed, across the world.[16]

Like the US state sales tax framework's substantial variation across the states despite adoption of broadly similar tax regimes, EU member states' independent tax systems and administration result in disparate approaches to e-invoicing despite the universal adoption of VAT as a major revenue source. The challenges the EU has faced implementing digital compliance due to the staggered timing and approach to initial adoption across member states provide an example of the significant costs and technical hurdles that would need to be overcome by US states to establish an efficient implementation of accelerated digital state sales tax compliance systems. As of May 2023, only 12 EU member states had implemented any digital reporting requirements for VAT, and only Italy had a mandatory e-invoicing requirement for B2B and B2C transactions, in part due to the significant cost and technical hurdles that must be overcome.[17] While Poland has recently approved mandatory e-invoicing for B2B transactions by July 2024, other European countries such as France, Germany and Spain have recently introduced legislation for mandatory B2B e-invoicing but have pushed back deadlines due to implementation challenges.[18]

The EU example is illustrative of the technical issues and burdens that would be faced by US states and state taxpayers. In the EU, due to the initial fractured adoption of digital compliance regimes, nations that have developed their own approaches to e-invoicing may in the coming years be forced to adopt new standards to harmonize processes across the bloc.[19] With adoption of each new e-invoicing standard and modification of existing systems come significant implementation costs for businesses. IT systems must be adapted or replaced, employees must be trained, and additional third parties and vendors must be identified and consulted. For example, for each national adoption or amendment, IT systems must be changed to align with new specifications of XML formatting, contemplating detail down to which special characters can be included in a description of goods, and technical rules to validate the number of data fields required for different types of transactions. One EU-sponsored study found mandatory B2B and B2G e-invoicing implemented in Italy in 2019 cost Italy's 3.5 million businesses €1.8 billion in one-time implementation costs. The study estimated that more than 90% of those costs were borne by micro-sized companies and the self-employed. While larger companies also had significant costs given transaction volume and internal accounting and tech system complexity, most larger Italian companies had advanced Enterprise Resource Planning (ERP) or automated accounting systems with embedded functionalities for e-invoicing reporting in place prior to B2B e-invoicing requirements.

With varying national e-invoicing and VAT digital reporting systems, multi-national businesses are forced to adapt their IT and accounting systems to meet each individual standard. Across the 12 EU member states implementing e-invoicing or VAT digital reporting in the EU, businesses have spent an estimated €3.5 billion in implementation costs, as shown in Table 2, with administrative burdens varying depending on the type of reporting system. The costs tend to be lowest in countries adopting a national standard for reporting VAT transactions and highest for e-invoicing. Larger companies tend to have the highest costs both in terms of one-time implementation costs and ongoing maintenance costs.

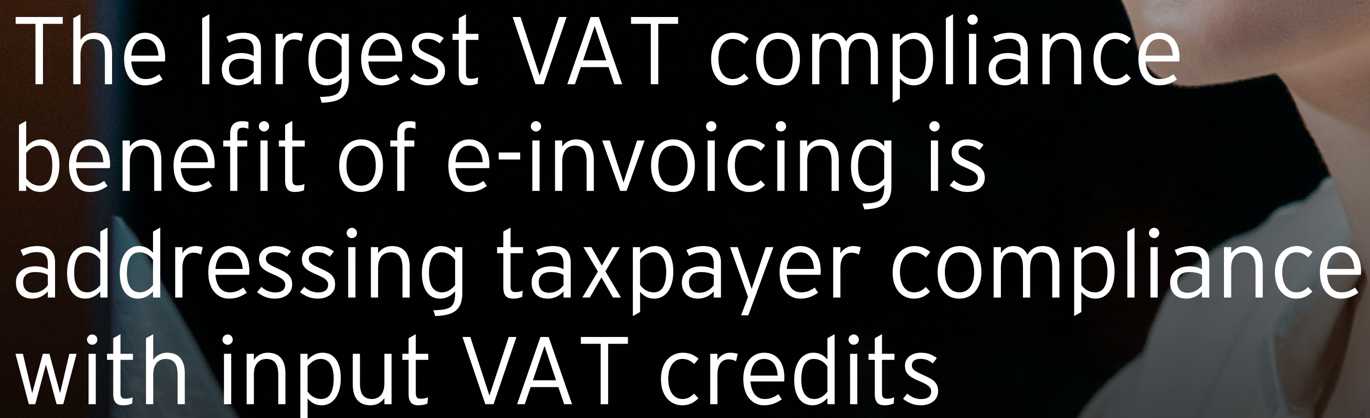
Digital reporting requirements can present some cost savings from the removal of other reporting obligations, the pre-population of VAT returns, and faster VAT reimbursements. In Finland, for example, one EU-sponsored study found that the average processing cost for paper invoices in 2019 was €30 per invoice compared to €1 for an e-invoice.[20] However, another EU-sponsored study found, on balance, businesses have a net cost from implementing VAT digital reporting requirements.[21] The same study estimated that multinational businesses have significant annual compliance costs of more than €1.6 billion across the 45,000 MNCs operating in the 12 EU member states due to Europe's fragmented VAT system. Moreover, companies have reported only minor benefits from the implementation of VAT e-invoicing and real-time reporting requirements, with most companies reporting few instances of quicker or fewer audits, less administrative fines or removal of other obligations, or quicker VAT reimbursements.

Table 2. Administrative burdens and implementation costs on businesses for VAT digital reporting requirements in the EU

VAT Digital Reporting System	Countries	# of taxpayers affected	Annual burden per taxpayer	Total administrative burdens
Clearance e-invoicing	Italy	3.5 million	€500 (micro) €600 (small) €3,400 (medium) €16,300 (large)	€1,830 million
Post-transaction real-time reporting of VAT transactions	Spain Hungary	578,000	€580 (micro) €2,510 (small) €1,350-4,870 (medium) €4,710-20,980 (large)	€581 million
Post-audit reporting of VAT transactions: OECD SAF-T format	Poland Portugal Lithuania	3.2 million	€230 (micro) €870 (small) €1,350 (medium) €2,470 (large)	€881 million
Post-audit reporting of VAT transactions: Nationally defined format	Czech Republic Bulgaria Hungary Estonia Lithuania Slovakia	1.4 million	€150 (micro) €450 (small) €760 (medium) €1,950 (large)	€225 million
Total implementation costs across 12 EU member states				€3,517 million

Source: Interviews of businesses, VAT subject matter experts, and service providers by European Commission researchers as reported in Impact Assessment Report on Proposal for a COUNCIL DIRECTIVE amending 2006/112/EC as regards to VAT rules for the digital age, pp. 42-47. European Commission website, 8 December 2022, https://taxation-customs.ec.europa.eu/system/files/2022-12/VAT%20in%20the%20Digital%20Age_Final%20Report%20Volume%201.pdf.

Due to the considerable investment required to achieve a full clearance system, the 2028 EU Digital Reporting Requirements will require e-invoicing system design to include "post-audit continuous transaction controls" but no clearance, and clearance will not be allowed as a requirement of EU e-invoicing systems implemented going forward.[22]



The largest VAT compliance benefit of e-invoicing is addressing taxpayer compliance with input VAT credits

VATs levied throughout most of the world impose tax on the value of a final sale and provide a credit for documented taxes on a taxpayer's input purchases. The benefit of this system is that taxpayers are incentivized to report all input purchases on which tax is paid, and in doing so, report the identity of the taxpayer from which purchases were made.

This incentive to report VAT paid on input purchases creates an opportunity to fraudulently claim credits when no input VAT was paid by fabricating the record of a transaction. This input-credit fraud uses fabricated invoices to generate and redeem input credits, which are refundable in many nations.[23]

Another VAT compliance issue is missing-trader fraud. Here a trader (seller) may exploit cross-border transactions and abscond with VAT collected from a purchaser instead of remitting to the tax authority. This "missing-trader" fraud is the largest source of VAT non-compliance and accounts for approximately one-quarter of the EU VAT revenue lost to noncompliance.[24] Companies that unknowingly claim credits generated by a missing-trader transaction may face the loss of credits or other penalties. This creates an incentive for taxpayers (and ultimately tax authorities) to use e-invoicing to verify a seller's identity and the details of a transaction. In addition to early detection of fraudulent claims, e-invoicing can enhance businesses internal risk management capabilities by identifying unintended errors and improving data collection and processing.

Individual EU member states' introduction of digital reporting requirements, including e-invoicing, for B2B transactions are inconsistent but appear to track the extent of VAT fraud and collection efficiency. The VAT gap varies greatly across EU member states, ranging from 1.3% in Finland to 35.7% in Romania.[25] Through December 2022, VAT digital reporting requirements were predominately adopted in member states with VAT tax gaps larger than 10%, with Spain the only exception.[26] Italy, the only country with the clearance method currently in effect, historically had the largest VAT gap in the European Union, with losses exceeding €35 billion in 2018. With broader digitalization of taxation-related processes, this trend is beginning to shift in Europe, with Italy, Poland, and France expected to have clearance systems by 2024 and other member states having a post-audit batch system.[27]

Operational, policy and legal considerations with e-invoicing in the U.S sales tax context

Compliance improvements are less likely to occur from e-invoicing in the United States' sales tax context

Sales tax is an important source of revenue for states, accounting for 31% of total state tax collections on average, making compliance with this tax important for states.[28] Yet the primary compliance purpose for implementing e-invoicing regimes (i.e. credit fraud) does not easily translate from the VAT context to the US state tax system. In contrast, US tax compliance rates are generally high by global standards relative to the countries that initially adopted e-invoicing as discussed below. This means potential revenue gains are a less significant driver for implementing e-invoicing in the US, and the primary compliance purpose for e-invoicing of combatting input credit fraud is not present in the US.

State sales tax compliance estimates are not abundant but suggest relatively high compliance rates. Prior research suggests non-compliance for state sales and use taxes has been roughly the same as individual income tax noncompliance with estimates between roughly 5% and 20%.[29] A Washington state study found that 61% of sales tax theft and evasion occurs in firms with less than $500,000 in sales.[30] VAT compliance effects in other countries do not provide a useful guide to potential state benefits because the VAT structure has built-in self-enforcement via the credit mechanism, a feature absent from sales taxes.

A non-uniform US state sales tax system creates barriers for efficient e-invoicing system implementation

US state and local sales tax systems are non-uniform, with 45 states and the District of Columbia each levying distinct sales tax systems, with uniquely defined tax bases and rate structures.[31] Five states (Alaska, Delaware, Missouri, New Hampshire, and Oregon) have no sales tax while six states rely on sales tax more heavily due to having no broad-based individual income tax (Florida, Nevada, South Dakota, Tennessee, Texas, and Washington). Of the 45 states collecting sales tax, 37 also have local sales taxes, with around 13,000 of the roughly 35,750 local jurisdictions allowed to impose sales tax imposing sales taxes. In several of these states (Alabama, Alaska, Colorado, and Louisiana), local sales taxes are predominately administered locally, without centralized control or collection by the state tax authority.

States vary in their approach to defining the sales tax base. In many states, the sales tax is imposed on tangible personal property transactions which has been expanded over time to include certain additional categories of services and intangible sales. In other states, the definition of the base begins with all gross receipts of business, with extensive exemptions for certain types of transaction. Complicating the definition of state sales tax bases further is that the test of taxability is based both on the nature of the good or service being sold as well as the identity of the buyer and the intended use of the product. A taxable commodity sold to one buyer may be exempt for another buyer if the use of the good is a qualified exempt activity, such as being directly used or consumed in manufacturing.

While the Streamlined Sales Tax project ("Streamlined") is a step toward simplification, it is insufficient to ameliorate these potential burdens. Streamlined is a nearly quarter-century-old project intended to bring states into closer alignment and coordination on the definition of the state sales tax base. To date, 23 states have become full members of Streamlined, which means these states have enacted provisions which broadly indicate they have achieved uniformity of these tax bases (even if some goods are not taxed), state administration of local sales taxes, simplified tax rates (one tax rate with exceptions for food and drugs), and uniform sales sourcing rules.[32] While Streamlined provides a centralized registration

system for certain sellers, only 24,000 retail businesses out of the 2 million operating in the US today are registered through Streamlined's Sales Tax Registration System.[33] Many of the remaining businesses are likely small sellers that would also likely be exempted from an e-invoicing system due to size or transaction volume.

This degree of non-uniformity and fragmentation poses challenges for the effective and efficient implementation of an e-invoicing system for sales tax. If left unresolved prior to the implementation of e-invoicing, this fragmentation would result in a significant increase in the potential cost of a digital e-invoicing system.

State sales tax e-invoicing costs for taxpayers and government would be significant

According to EY's 2022 Tax and Finance Operations Survey, 62% of US businesses believe that complying with emerging digital tax filing requirements, including e-invoicing, would impact their company's tax risk profile. About 60% of companies said e-invoicing would increase along with the workload of their finance and tax function.[34] 65% of US businesses with more than $500 million in annual revenue plan on spending at least $10m to comply with digital tax filing requirements, including e-invoicing outside of the US, in the next five years.

Business transformation associated with digitalization is complex, which requires a broader digitalization strategy rather than finding different approaches to address new compliance requirements from dozens of jurisdictions. These costs arise from business transformation driven by digital tax filing requirements cutting across business information systems, finance processes, tax functions, and people strategy, including:

- Business systems. Critical enterprise resource planning (ERP) systems and tax engines would need to be configured to determine accuracy in tax details reported to the tax authority (e.g., VAT determination and treatment on transaction).
- Finance processes. Accounts payable and accounts receivable invoice processes would need to be analysed and potentially reconfigured to produce compliant e-invoicing outcomes, as transaction data input and entry is critical to ensuring e-invoicing data requirements are met.
- Tax functions. Verification that tax and relevant controls are embedded into basic business processes that have previously not required interaction with the tax authority would be required to ensure capture of relevant data to feed into both e-invoicing and subsequent tax compliance and reporting processes.
- People strategy. Existing digital talent gaps may be magnified as businesses will need to hire new tech talent and re-skill existing staff to meet new system requirements.

Third-party processors and intermediaries are likely to represent additional costs for some taxpayers but may also help relieve the burden for small and medium-sized businesses. For many businesses, the only feasible approach to compliance with multiple state digital sales tax compliance systems would be to outsource compliance functions to a paid third-party processor. While the use of such third parties may mitigate the incremental one-time cost of changes to in-house systems and permanent staff resources, it would create additional ongoing vendor costs.

Many tax authorities are investing in technology and digital approaches to improve the taxpayer experience, and e-invoicing would create incremental implementation costs for tax authorities that are not part of current digitalization strategies. While no US state has undertaken the implementation of an e-invoicing system, the potential cost of such an implementation can be estimated based on cost estimates for state proposals and the international experience of tax authorities who have implemented e-invoicing for VAT. As an example, Italy began implementing a mandatory clearance e-invoicing system in 2006, at which time the Italian Digital Agency estimated that the implementation cost was approximately €130 million, including design, development, testing, and deployment of the system. The annual operating costs of the system are estimated at €20 million annually.[35] As another example, the Mexican government implemented mandatory e-invoicing (CFDI) in 2010. The implementation of CFDI, according to the Tax Administration Service (SAT), required an investment of approximately $880 million pesos (around $44 million USD, as per 2010 exchange rates) over three years.[36]

Conclusion

While tax authorities and multinational businesses are investing significant resources to digitize operations to enhance tax reporting and remittance, the applicability of e-invoicing to sales tax compliance in the US state and local sales tax context differs significantly from the VAT context in terms of both design and administration. E-invoicing for VAT was developed to improve compliance with invoice crediting for VAT paid on invoices, a feature of the VAT that does not exist in the US sales tax context. Establishing an e-invoicing system in the US similar to VAT implementations where businesses issue invoices in a tax-compliant digital format and tax authorities validate or pre-clear transactions in (near) real time would result in costs for both businesses and tax authorities, which may not be justified by the benefits. In contrast, a US-specific digital compliance approach may provide the greatest benefits for taxpayers and administrators, especially if such an approach were coordinated across states before implementation.

Appendix: US state sales tax and accelerated third-party remittance proposals

States over the past decade have given serious consideration to digital sales tax collection and remittance processes that bear some similarity to a VAT e-invoicing regime. While not directly comparable to the e-invoicing systems proposed by tax administrators in other nations, there is some activity within the United States related to implementing digital systems for state sales tax remittance near the time of sale. This appendix provides an overview of various U.S. sales tax proposals over the past decade and contrasts these with e-invoicing.

Many states already require advance payments, limiting potential revenue gains from accelerating payments if a change in payment timing were to accompany the adoption of e-invoicing at the state level. The responsibility for collection and remittance of sales tax currently rests with sellers, with filing requirements varying by state.[37] Generally, the amount of taxable sales or tax due in a locality determines how frequently a business must file within that jurisdiction. For example, many businesses upon initial registration to collect sales tax remit tax on a quarterly basis. Once taxable receipts or tax owed cross a certain threshold, businesses are required to remit taxes more frequently (e.g., monthly). In at least 23 states, businesses are required to make accelerated or advanced payments of sales and use taxes based on their reported and anticipated taxable sales at the time of registration.[38] The sales thresholds that require businesses to make prepayments vary from $2,500 in sales per month in Oklahoma[39] to $200,000 per month in Arkansas.[40] If the amount of actual tax due exceeds the prepayment by a certain amount, businesses are penalized. This is often used by the states to accelerate additional revenue into a fiscal year for budget purposes, and only provides a one-time revenue benefit to a state.

State proposals for digital sales tax compliance vary in their approaches. Proposals to require payment card processors to remit sales tax on behalf of retailers have been considered in approximately eight states in recent years. There are three key dimensions on which proposals for digitized sales tax accelerated reporting and remittance requirements have varied: (1) what level of detail a state tax administration requires for a transaction, (2) when businesses should remit information to the state, and (3) which entities should be responsible for reporting tax-related data. In other words, digital sales tax reporting systems could require transaction-level or aggregated tax data, information submitted in real time at the point-of-sale or batched and sent periodically (e.g., weekly), and whether payment processors or businesses directly should report data in a government-prescribed format.

For example, in Massachusetts, accelerated sales tax remittance proposals were included as part of budget packages in 2017, 2018, 2019, 2021 and 2022. Massachusetts' proposals advanced an approach requiring credit card and payment processing companies to determine the tax owed on each transaction handled for retailers and requiring payment processors to remit the tax to the state daily. These proposals, although determined to be theoretically possible, are also extremely expensive to implement and maintain and provide no real benefit to the State other than a one-time revenue acceleration.[41] Ultimately Massachusetts enacted an alternative method of achieving that revenue acceleration by requiring businesses with more than a minimum threshold of prior-year sales tax remittance to make advance payments of sales tax based on prior year records.[42] Other states, including Arizona, Missouri, New York, and Connecticut, have explored proposals to require daily sales tax remittance from sellers without enacting them.

In 2023, a Rhode Island measure[43] was introduced to require credit card companies that collect tax for the state to provide remit the tax collected within 48 hours of a transaction, and the Nevada Department of Taxation advanced a measure

requesting funding to finance a third-party feasibility study of a point-of-sale sales tax collection system.[44] While neither proposal passed, a legislative committee hearing before the Nevada Assembly Ways and Means Committee highlights the flawed thinking behind continued interest in the idea. During the hearing, a Department of Taxation representative said they believe this concept is the wave of the future, especially looking to "continuous transactions controls" and real-time e-invoicing clearance processes in other parts of the world, and that it would help small businesses with compliance and to avoid comingling tax revenue with business funds. These comments demonstrate that concepts of e-invoicing used in the VAT context and accelerated point of sale sales tax remittance can be conflated during state policy-making discussions, and that the key differences between the VAT system and the US state sales tax system are often misunderstood.

Proponents of accelerated sales tax remittance systems have suggested varied benefits, including reducing lost time-value of money for the state due to monthly remittance, reducing fraud risk due to sales suppression devices, mitigating the risk of taxpayer fund comingling, and easing compliance burdens for small businesses.

Meanwhile opponents of the process argue there is not a true problem of substantial fraud or a tax gap in transactions involving payment cards and electronic payment systems like there is in VAT countries. They also point to large projected costs associated with setting up a new technology process and ongoing maintenance expenses borne by taxpayers and additional information security and taxpayer privacy concerns raised by inserting additional parties into the tax collection process.[45] Opponents say the revenue impact would be equivalent only to a one-time acceleration of a single month of tax collections without meaningful changes in overall tax collections in the long-run due to real effects such as increased compliance.[46] And, this effect would only be achieved in states that do not already have advance payment requirements, which exist in over 20 states.

Table A1. Accelerated sales tax remittance proposals

State	Year(s)	Proposal	Entity responsible for remittance	Legislation
Arizona	2018	‣ Require the AZ Department of Revenue to develop a payment system for the remittance and collection of tax at the point of sale ‣ Require payments of additional tax amounts for the transaction privilege tax (TPT), a gross receipts tax.	Businesses (Point of Sale) DOR responsible for technology development	SB 1091
Connecticut	2016 2017 2019	‣ Require businesses to incorporate technologies at the point of sale for daily sales tax remittance ‣ Allow Commissioner of Revenue Services to enter into agreements with payment processors to remit sales taxes on behalf of retailers	Businesses (Point of Sale) Credit Card Processors	2019: HB 5891, SB 877 2017: SB 1057, Substitute SB 1047 2016: HB 5636
Massachusetts	2017-2022	Annual proposals in Governor's budget, including: ‣ Require daily remittance of sales tax on credit card and other electronic transactions from all retailers and credit card processors beginning in 2024 (FY2021 proposal)	Credit Card Processors	Multiple, including FY2022 HB1

Missouri	2019	▸ Require sellers to use a payment processor to collect and remit sales tax from online sales	Credit Card Processors	HB 648
Nebraska	2021	▸ Governor announced a tax modernization plan in 2021	n/a	n/a
Nevada	2023	▸ Require the Department of Taxation to conduct a feasibility study and request for proposals to implement a point-of-sale sales tax remittance system.	Businesses (Point of Sale) Credit Card Processors	SB 465
New York	2019	▸ Require daily sales tax deposits into escrow accounts ▸ Establish a mechanism for the state to have immediate access to their collected taxes.	Credit Card Processors	A.B. 4887
Rhode Island	2023	▸ Require remittance of state and local taxes by credit card processors within 48 hours of the processing of a transaction.	Credit Card Processors	H 5164

Endnotes

Introduction

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[2] Missing Trader Intra-Community Fraud (europa.eu), Policy Department for Budgetary Affairs, June 2021.

What is e-invoicing and how is it different than other digital sales tax compliance approaches?

[3] Globally, the definition of e-invoicing varies across jurisdictions to include both unstructured (e.g., digital images of invoices) and structured electronic formats. Tax Administration 3.0 and Electronic Invoicing Initial Findings, OECD Forum on Tax Administration, 2022. https://doi.org/10.1787/2ffc88ed-en. However, under the EU VAT Directive 2014/55/EU, unstructured formats are no longer recognized as e-invoices in the European Union.

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[11] Bloomberg Tax Analysts, Electronic Invoicing and Value Added Tax, 31 July 2021, page 18.

[12] As mentioned below, Portugal has a mixed reporting system of SAF-T for taxpayers reporting VAT transactions on a monthly basis and certified real-time e-invoices for other taxpayers.

The complexity and compliance costs of e-invoicing

[13] For example, in Portugal multiple standards are used since "real-time reporting" of VAT information is not uniformly implemented. About a third of taxpayers provide e-invoices directly to tax authorities in real time whereas two-thirds report VAT transaction data according to the SAF-T system on a monthly basis. See European Commission, VAT in the Digital Age: Final Report: Volume 1 Digital Reporting Requirements, March 2022, p. 17, https://taxation-customs.ec.europa.eu/system/files/2022-12/VAT%20in%20the%20Digital%20Age_Final%20Report%20Volume%201.pdf.

[14] "Clearance models, compliance issues, and further complexity: A 2020 insight into the global e-Invoicing landscape," Order2Cash website, https://www.order2cash.com/clearance-models-compliance-issues-and-further-complexity-a-2020-insight-into-the-global-e-invoicing-industry/. "EU rejects pre-clearance e-invoicing," VAT Calc website, https://www.vatcalc.com/eu/eu-rejects-pre-clearance-e-invoicing-vat-in-the-digital-age/.

[15] For example, Brazil has implemented e-invoicing for five different indirect taxes at the national and subnational levels, but reporting requirements vary across Brazil's 5,000 municipalities, and the country does not have sales and use taxes each of which can create its own e-invoicing rules. Once a provisional (municipal) invoice is created, it must be converted to the national standard (Nota Fiscal Electronica NF-e) by the locality.

[16] Impact Assessment Report on Proposal for a COUNCIL DIRECTIVE amending 2006/112/EC as regards to VAT rules for the digital age, European Commission website, 8 December 2022, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022SC0393

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Appendix: US state sales tax and accelerated third-party remittance proposals

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This study was prepared by Ernst & Young LLP in conjunction with COST and STRI.

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