Governance Issues in the EU’s e-Procurement Framework*

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Abstract
Government procurement accounts for a considerable proportion of economic activity in the European Union (EU) yet resists integration and harmonization. The European Commission believes that the solution to integrating government procurement into the single market lies in e-procurement. While technology has the potential to improve the efficacy of procurement processes among EU Member States, its use raises governance issues that must be addressed as a co-requisite to adopting the technological solution. This article outlines the Commission’s e-procurement policy, develops an analytical structure for assessing the framework and highlights governance issues that need addressing if e-procurement is to deliver on its promise.

Introduction
Public procurement processes in the EU have undergone a wide array of changes over the past two decades – not the least of which are sizeable investments in adopting and diffusing information and communication technologies (ICT) in contracting activities (Henriksen and Mahnke, 2005; Mota and Filho, 2011). Conventional procurement has evolved to include electronic procurement (commonly known as ‘e-procurement’), which is defined as ‘the use of electronic communications and transaction processing by government institutions and other public sector organisations when buying supplies and services or tendering public works’ (European Commission, 2010c, p. 2) – that is, electronic integration and management of procurement activities including purchase requests, authorization, ordering, delivery and payment between purchasers and suppliers (Reunis et al., 2004, p. 203; Tatsis et al., 2006, p. 63; IDC 2012, p. 77; PWC, 2011, p. 5). E-procurement in the EU has grown at a rapid pace through technologies such as Cloud and mobile computing, Web 2.0 and Big data, which are being employed not only in tendering for public works and identification of potential suppliers of goods and services, but also for interaction with suppliers, the purchasing of supplies and services in e-marketplaces, and the transferal of payments (Min and Galle, 2003; Standing et al., 2007). While the low costs associated with the use of technology and process efficiency has stirred up governments’ investments in e-procurement, there are challenges that range from data privacy and security to the implementation of technology for governance, on which literature is scarce.

Within the EU, the Commission has been pushing to make e-procurement ‘more a rule rather than an exception’ (European Commission, 2012b, p. 1). The e-procurement strategy is driven by Europe 2020, the Digital Agenda for Europe and European e-Government

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Action Plan, 2011–2015,1 which highlight the importance of connecting e-procurement capacities across the EU to ensure continuation of the single market (European Commission, 2010a, b, d). Recent initiatives include the Commission’s proposal to revise public procurement directives and the introduction of mandatory public e-procurement, including e-tendering from 2016, and an agreement between European Parliament, the Council and Member States on the adoption of a draft directive on e-invoicing in public procurement. Thus, the phasing-in of e-procurement in the EU is an integral part of an ambitious e-government agenda that is expected to transform the delivery and performance of public administration (European Commission, 2010b, p. 32) as well as reduce waste and deliver better procurement outcomes (lower price, better quality) by stimulating greater competition across the single market (European Commission, 2012a, p. 2).

However, the uptake of e-procurement by firms, in particular small and medium-sized enterprises (SMEs), across the EU remains limited (DG Enterprise and Industry, 2010, p. 83). The main factors that have contributed to lack of diffusion of ICT among SMEs are threefold: inertia among stakeholders to adopt ICT; the presence of a wide variety of technically complex systems that often lead to increased supplier costs; and concerns about the security of e-procurement processes (PWC, 2011, p. 8).

This article focuses on EU’s efforts to digitalize contracting activities, explores information governance issues, and proposes an integrated and effective e-procurement framework. Based on the problems faced by stakeholders (that is, contracting authorities and firms) in using e-procurement, the article highlights the importance of transparency and the need to ensure that all transactions are secure from end to end and that the infrastructure takes into account not just the need to ensure the security of business processes, but also stakeholders’ expectations. A model is proposed that offers a technology-neutral structure providing common standards and a scalable method for implementing an effective e-procurement system. A holistic approach is provided that balances market access, competition, transparency and accountability with the perceived information governance risks associated with e-procurement in light of stakeholders’ rights and obligations.

The structure of the article is as follows. The next section provides an overview on the current state of e-procurement in the EU. After that, related literature and linkages between e-procurement and information governance are reviewed before an overview is provided on the EU’s e-procurement initiatives. The article then moves on to present an interdisciplinary e-procurement framework that offers a strategic and technology-neutral structure for managing procurement-related information that rests on the pillars of transparency, accountability, competition and equity. The final section provides some conclusions, and comments on areas of future research.

I. e-Procurements and the EU

Extolling the benefits of e-procurement, European Commissioner Michel Barnier stated that e-procurement ‘offers a unique opportunity to reform public procurement by radically simplifying its procedures’ (Barnier, 2012). The European Commission (2010e, p. 1) feels that e-procurement ‘is an important step towards harnessing the power of new technology

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for better procurement’. The growing support for e-procurement is also grounded in the rationale that this form of automation and information flow about tendering opportunities will generate competition and lead to efficient functioning of the single market (European Commission, 2010c, pp. 1–22). Another justification is that tendering public works electronically simplifies the procurement process, reduces waste, delivers efficient outcomes through lower prices and better quality, and generates better value for taxpayers’ money. The Commission envisages that e-procurement will provide an optimal balance between performance, cost-effectiveness and accessibility; increase efficiency in procurement through increased competition in the market place; and lead to higher transparency and lower transaction costs, thereby supporting transformation of the EU into a competitive, dynamic and knowledge-based economy (European Commission, 2012a, p. 3).

Finally, savings from e-procurement will promote fiscal consolidation – an aspect that cannot be overlooked, especially when the EU economy is struggling with the need to address fiscal constraints, cut deficits and find new sources of economic growth (European Commission, 2012a, p. 1).

From a public policy perspective, the underlying aims for implementing e-procurement include: limiting corruption, increasing accountability and promoting transparency (Henriksen and Mahnke, 2005; Hardy and Williams, 2008; Varney, 2011). The literature provides evidence that e-procurement tools are, in part, driven by the need to drive down costs and improve buyer-vendor relationships (Croom and Johnston, 2003; Brandon-Jones and Carey, 2010). Furthermore, e-procurement allows the contracting authorities to aggregate demand across different departments, thus reducing inventory and overhead costs (Croom, 2000; Wyld, 2002; Kameshwaran and Narahari, 2007) leading to lower total procurement costs (Essig and Arnold, 2001; Rai and Tang, 2006). Moon (2005) and Bendoly and Schoenherr (2005) eloquently summarize the benefits as: reduced transaction costs, faster ordering, a wider range of vendor choices, streamlined procurement processes, better control over procurement spending and employee compliance, access to more alternative buyers, less paperwork, and reduced project failure risks through agile programme and project management.

From a public administration perspective, e-procurement enhances transparency and accountability of the contracting activities (Croom, 2000), and provides fair and equal opportunities for suppliers, supports efficiency in tendering processes, ensures better value for taxpayers’ money, reduces transaction costs and lowers the incidence of maverick buying (Panayiotou et al., 2004; United Nations 2006). Transparency through automation allows procuring authorities to monitor contracts effectively thereby reducing fraud and corruption (Transparency International, 2013). This generates savings for taxpayers, maximizes efficiency and increases competition in the bidding process, thus impacting on the market conditions of other buyers (European Commission, 2012b, p. 1). The knock-on effects of e-procurement, as reported by UK Office of Fair Trading (OFT, 2004), include intense cost competition among homogenous bidders that in turn impacts on the market structure.

The EU has acknowledged a host of factors that pose as challenges to e-procurement implementation across the single market. Commonly cited barriers to the adoption of ICT

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by SMEs include lack of skills, knowledge and experience in the field of ICT applications; little awareness of the possibilities that ICT can offer in terms of changing business processes and the conduct of e-commerce and network infrastructure issues, such as access and interoperability; and mistrust regarding ICT and ICT vendors and service providers (DG Enterprise and Industry, 2010, p. 84). Further impediments to diffusion of ICT include additional costs, legal uncertainties, the financial unviability of e-commerce and no ‘one-shop facility’ to get advice on firms’ ICT needs through access to reliable experts (European Commission, 2013b, p. 102). Other significant issues include: stakeholder inertia attributable to lack of appropriate technical skills and incentives; and inadequate governance information on, say, how information will be protected in the digital environment across Member States. What also inhibits cross-border participation is the lack of harmonized administrative constructs and technological systems, the multiplicity of platforms and variations in service models and different levels of uptake of the e-procurement system across the EU.

In particular, interface complexity and the proliferation of user interfaces make it difficult for firms to respond to calls for tenders run on multiple platforms. The existing e-procurement platforms in national languages also make accessing markets excessively time-consuming, inefficient and frustrating for suppliers (PWC, 2011, p. 8). Thus, the rapid adoption of e-procurement hinges on the development of a sustainable framework that accounts for not only the technical and legal aspects of procurement, but also the, as yet sketchy, information governance paradigm. Problems with platforms and user interface are often dealt with on piecemeal basis, and issues concerning specific information requirements and the wider e-procurement processes are often ignored by those immersed in day-to-day problems (European Commission, 2010a, p. 9).

Market fragmentation is a potential flash point because e-procurement systems hold public information on core business assets, leading to stakeholders’ concerns over information governance that impacts on the level of their engagement with the e-procurement process (European Commission, 2010c, p. 9; 2010a, p. 16). Furthermore, unbundling procurement processes in certain instances may provide stronger incentives for certain types of goods (Timmermans and Zabala-Iturriagagoitia, 2013) and, hence, the system should be sufficiently robust to allow deviations from ‘one glove fits all’ standardization.

Formidable hurdles face EU policy-makers in terms of dealing with the market fragmentation prevalent under the current e-procurement framework as well as satisfying the expectations of users (in this case contracting authorities and SMEs) regarding information security. To ensure an effective public delivery of the e-procurement process, policy-makers must focus on developing an understanding of the support required to provide an e-procurement environment that ensures competition, transparency, accountability and equitable market access for bidders. They must also address the information governance and assurance requirements of stakeholders within a system of rights and duties.

II. e-Procurement: The Context and Related Literature

The Context

Growing academic interest in public sector expenditure on purchases of goods and services is attributed to the sheer magnitude of public procurements, which are typically between 8 and 25 per cent of the gross domestic product (GDP) in OECD countries, and
higher in developing countries (Trionfetti, 2000; Brulhart and Trionfetti, 2004; European Commission 2010a, p. 18; Khorana and Subramanian, 2012; PWC, 2011, p. 8). Estimates for the EU show that government purchases of goods and services account for nearly 15 per cent of its total GDP (Commission, 2006; Transparency International, 2013). In value terms, the overall market for purchases by the public sector in EU is €2.4 trillion, and the transition from conventional to e-procurement will yield savings of 5–20 per cent of the total procurement value (European Commission, 2010c). The savings achieved are expected to raise the EU’s GDP by 0.1–0.2 per cent after five years (Vogel, 2009). Deutsche Bank (2011) finds that full transition to e-procurement could generate an annual savings of €50–75 billion. On this basis, the European Commission came up with an ambitious proposal to modernize its public procurement framework (European Commission, 2011b, c, d), and achieve full transition to e-procurement from e-notification to e-payment by mid-2016.

The 2014 EU Procurement Directives are in line with the World Trade Organization’s (WTO) plurilateral revised government procurement agreement (GPA), which entered into force on 6 April 2014. The revised Agreement specifically recognizes the importance of e-procurement and explicitly covers contracts awarded by electronic means within the scope of Agreement (WTO, 2014). Highlighting the international dimension of e-procurement, it establishes rules for electronic publication of notices and electronic auctions. Despite limited uptake of e-procurement at the multilateral level, it has not deterred countries such as the EU, Korea, Brazil and India from employing e-procurement.

**Related Literature**

Despite recent governments initiatives to digitalize contracting activity that are driven by the need to improve service quality, reduce waste and make governments more effective, responsive and democratic (Bof and Previtali, 2007; United Nations, 2006), e-procurement is still in a nascent state and the reasons for the delay in uptake of e-procurement ranges from ‘stakeholders’ inertia and market fragmentation’ to ‘incompatible infrastructure’ (European Commission, 2010c, p. 4). Other factors include lack of uniformity in procurement methods and low compliance with GPA rules (Varney, 2011; PWC, 2011). A related issue limiting the uptake of e-procurement, often ignored, is stakeholder apprehension about information governance and related security issues (Barratt and Rosdahl, 2002; KPMG, 2012). Literature highlights the fact that high infrastructure costs and diverse administrative and technological constructs are impediments to e-procurement (Croom and Johnston, 2003). Rajkumar (2001) proposes that systems integration and data management are critical for the operational performance of an e-procurement system. Subramaniam and Shaw (2002) posit that a high degree of integration with existing organizational systems is vital for developing and implementing e-procurement systems.

This is not consistent with findings from across the EU Member States, where the EU has 300 platforms (PWC, 2011) and where systems vary widely. For instance, Portugal made e-procurement mandatory for all pre-award phases; Belgium, Cyprus and Netherlands have mandatory e-notification; Sweden, Denmark have e-invoicing. In addition, only certain levels of governments use e-procurement: in Austria, for example,
federal authorities use electronic framework agreements when purchasing specific goods and services. While some Member States tend towards centralizing procurement and employ central purchasing bodies, others have a more decentralized approach. Again, some e-procurements systems are run by public agencies, while others are provided by private sector companies and the contracting authorities pay on a flat-rate or per-use basis.

Croom and Brandon-Jones (2007) stress the need for an organizational information strategy explaining how information management of expenditure, product and service specifications, and supplier information are fundamental to the success of the system. Information governance, within the e-procurement framework, involves introducing a specification of decision rights and an accountability framework that applies to the creation, storage, use and deletion of information (Gartner Inc., 2012). Ensuring the confidentiality of information flows, safeguarding integrity, providing reliable systems architecture and validation of content authenticity is critical. So, while information assurance provides the technical and managerial measures designed to ensure confidentiality, integrity and availability of information, governance ensures the accountability and specification rights that can be applied to the information life-cycle (Kooper et al., 2011).

Governance, as highlighted by the OECD (2008, p. 61), is better policy outcomes, higher quality services, greater engagement with citizens and advancing the public reform agenda, while the World Bank (2003, p. 8) emphasizes ‘citizen empowerment through access to information’. Taken together, these views include not only services and administration, but also democratic processes and the relationships between citizens, civil society, the private sector and the state. This concept, however, owes its origin to politics, in which governance is widely perceived as a response to the mounting complexity and multilayered nature of (environmental) problems that are assumed not to have been adequately addressed by the hierarchical government (Bulkeley, 2005; Görg, 2007). More recently, governance has been portrayed as a change in management that is less hierarchical and more networked (Buizer et al., 2011). Van Kersbergen and Van Waarden (2004) contend that the meaning of ‘governance’ may differ, stressing shared characteristics and whether inter- or intra-organizational networks play a significant role. While there are several governance models defining distinct stages of sophistication and engagement, in essence these predict similar trajectories from information provision, through communication and dialogue to active engagement and participation (Moon, 2005; United Nations, 2002; World Bank, 2003; Andersen and Henriksen, 2006).

‘Information assurance’ is defined as

information operations that protect and defend information and its systems by ensuring their availability, integrity, authentication, confidentiality and non-repudiation which includes the restoration of information systems by incorporating protection, detection and reaction capabilities. (CNSS, 2010, p. 35)

The core requirements – confidentiality, integrity and availability – have been extended by Maconachy et al. (2001) to include authentication and non-repudiation. Thus it is imperative to provide a holistic and integrated approach to analyzing information governance and assurance issues from a stakeholders’ perspective.
III. The EU’s e-Procurement Strategy: Evolution and Recent Initiatives

In 1999, the European Commission published ‘e-Europe: An Information Society for All’, which specifically pointed to the need to go ‘beyond simply publishing legislation and white papers on the Web’ and to ‘establish a discussion and feedback forum’ (Commission, 1999, p. 16). The 2005 Manchester Declaration noted that ‘all public administrations will have the capability of carrying out 100 per cent of their procurement electronically’ and that ‘at least 50 per cent of public procurement above the EU public procurement threshold will be carried out electronically’ by 2010 (Commission, 2005, p. 2). However, stakeholder participation in the EU has remained strikingly absent (European Commission, 2010c, pp. 1–16).

Public procurement has now become an integral part of the Europe 2020 strategy, which emphasizes that public procurement policy must ensure the most efficient use of public funds and that procurement markets must be kept open Union-wide (European Commission, 2010a, p. 23). Recent initiatives include ‘A Strategy for e-Procurement’, which says that ‘the GPA agreement represents a changing approach in the EU and expectations are that information will be shared at a multilateral level’ (European Commission, 2012a, p. 10). An e-Tendering Expert Group (e-TEG) has been formed to define a blueprint for pre-award e-procurement to provide a basis for the development of ‘best’ solutions that balances usability with security; this is now available in the public domain (European Commission, 2013a, p. 7).

The 2010 Green Paper was the first step towards a co-ordinated and comprehensive review of the procurement framework to inform proposals for the reform of EU legislation (European Commission, 2010c, p. 1). This included a review of actions initiated so far by the Commission, including streamlining provisions to regulate electronic procedures and tools, such as dynamic purchasing systems, electronic auctions (e-auctions) and electronic catalogues (e-catalogues). It also highlighted e-CERTIS, a mandatory clearing house, and open e-PRIOR, a free online information source to help companies and contracting authorities to cope with different forms of documentary evidence required for cross-border tenders. It aims to provide greater clarity, legal certainty and set the equivalence criteria for cross-border submission with regard to certificates and statements across Member States. This was complemented by the implementation of cross-border e-procurement solutions through a pilot project, Pan-European Public Procurement On-Line, which provides an interoperability bridge to connect the existing platforms in EU Member States for award process.

The Green Paper was followed by the 2010 action plan, which provided the ‘roadmap for a strategy designed to accelerate the adoption of e-procurement whilst safeguarding the core principles and provisions of existing EU procurement legislation and wider Treaty principles’ (European Commission, 2010a, p. 19). The plan was organized around a ‘well-functioning Internal Market in e-procurement, improved governance, and an international framework for electronic public procurement’ (European Commission, 2010d, p. 20). This plan, which had a ‘soft law’ approach, aspired to ensure that economic operators from across the single market benefit from competing for public contracts (European Commission, 2010c, p. 7).

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3 E-procurement tools such as dynamic purchasing system and electronic communication have received widespread support from all Member States, including the UK.
In December 2011, the European Commission adopted proposals to modernize and reform public procurement directives (European Commission, 2011b, c, d) leading to a gradual yet ambitious transition to e-procurement in the EU. The proposals include the revision of directives for procurement in the water, energy, transport and postal services sectors as well as public works, supply and service contracts. A new directive on concessions, which were until now only partially regulated at European level, has been adopted. The EU has adopted Procurement Directives in 2014, which were published in the Official Journal of the EU on 28 March 2014 and came into force on 17 April 2014. The legal bases for public procurement are enshrined in ‘procurement directives’ under 2004/17/EC (procurement in the water, energy, transport and postal services sectors; Commission, 2004a) and 2004/18/EC (public works, supply and service contracts; Commission, 2004b) as well as a directive on concessions as part of the Single Market Act. The proposed directive endeavours to modernize the procurement market by focusing on simple and flexible procedures through (a) increased possible use of negotiation through the competitive procedure with negotiation and prior publication; (b) simplified procedures for regional and local contracting authorities, which can replace the publication of individual contract notices by the publication of a general notice for their planned procurement for the next year; (c) reduction of documentation requirements through the compulsory acceptance of self-declarations, whereby a bidder declares on oath that he fulfils the criteria that are a pre-condition for tendering (for example, no conviction for corruption); (d) aim for full electronic communication in public procurement within a period of two years after the implementation deadline of the adopted directive; and (e) the shortening of deadlines (European Commission, 2011b).

In 2011, the European Commission also published a Green Paper, entitled ‘Towards a more efficient European procurement market’ that focused on modernizing EU public procurement policy (European Commission, 2011a, pp. 13–19). The Green Paper reflected on how a modern procurement system could be achieved and, in parallel, launched a public consultation to identify key areas for reform and to solicit stakeholders’ views on concrete options for legislative change. This was followed by Commission’s guidelines (in 2012), which had three main aims. The first aim is to make electronic means of communication mandatory for the notification of tender opportunities and ensure electronic availability of all tender documents by mid-2014, when the revised directive would be transposed. In other words, it envisaged that central purchasing bodies would move to full electronic communication, including the submission of bids by mid-2014. The second aim is to set targets making electronic communication mandatory for all contracting authorities by mid-2016. And the third aim is to adopt detailed provisions to encourage the interoperability and standardization of e-procurement processes (European Commission, 2012a, p. 5). In another related communication, the Commission proposed a series of measures to support stakeholders, including small businesses, to ensure timely transition to e-procurement and incentivize e-procurement a public governance tool. These measures include: supporting financially and technically the development of e-procurement infrastructure via EU programmes and funding; identifying and sharing best practice in the area of e-procurement; monitoring the level of uptake and the benefits of e-procurement; and implementing a

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4 The report on utilities directives specifically reiterates enforcing measures to facilitate the uptake of e-procurement as this will improve cost-efficiency and strengthen the integration of EU public procurement market (European Commission, 2012c, p. 6).
wide-ranging dissemination strategy to inform stakeholders of the opportunities and benefits offered by e-procurement (European Commission, 2012b, p. 2).

IV. An Effective e-Procurement Framework for the Single Market

Conceptual Framework for Successful Implementation of e-Procurement by the EU

Drawing on the debate about harnessing the electronic form of procurement, this article proposes a conceptual framework that outlines an interdisciplinary overview on how to increase transparency, accountability, market access and compliance within the existing framework (Henriksen and Mahnke, 2005; Varney, 2011; European Commission, 2011a). Such a framework is relevant given that within the context of functioning of the EU’s single market some related issues that need resolving are: How can competition be fostered to ensure efficient functioning of the single market? How can the contracting authority ensure that all transactions (end-to-end) are secure and that the e-procurement service takes into account not just the technological aspects, but also the need to ensure security of the business processes and stakeholders’ expectations? How can the contracting authorities go about enhancing transparency of the system and ensuring the authenticity of bidders’ credentials? Can it trust that the credentials provided by suppliers are reliable? And finally, how can bidder information be protected in terms of the retention and disposal instructions for the resulting digital assets from e-procurement? To answer these questions, Figure 1 presents transparency, accountability, competition and equity as four building ‘blocks’ of an effective e-procurement framework. This is in line with openness, participation, accountability, effectiveness and coherence that underpin good governance. By drawing on these attributes the proposed model explains how an effective system can lead to a competitive business environment that allows government to procure high quality of goods or services at lower prices and address distance and information gaps and ensure efficiency in data processing.

Figure 1 suggests that an effective e-procurement implementation is a staged approach in which each building block consequentially builds on another and ensures consideration of information-related issues. The top level lists main building blocks attributes, highlights e-procurement tools and related issues in information governance. For example, transparency and accountability are building blocks that can be the starting point for compliance with information governance such that higher transparency and accountability strengthen the case for stakeholders trusting the information produced by e-procurement systems. The third and fourth building blocks comprise competition and equity, which seek to promote stakeholders’ participation in e-procurement processes and procedures.

Transparency (T) is sufficient, but also a necessary condition to ensure accountability (A) of the procurement activity by contracting authorities. This is based on the premise that e-notification and e-access to tender information will reduce procedural times and simplify lengthy procurement procedures. The use of a common e-procurement platform and e-marketplace will generate competition, increase the pool of bidders and provide equitable market access for SMEs as well as increase accountability of the contracting authorities, thus increasing transparency in procurement process. The subcategories, identified by mapping information governance requirements against procurement processes, demonstrate a close interdependency between the subcategories within each building block. For example, the intent for procurement is expressed as e-notification (T1), which is an
obligation (A1) under the e-procurement framework on the part of the authority to implement using e-tools. This system of rights and obligations translates into increased opportunities for existing and future providers (C1), allowing contracting authorities to test e-procurement processes innovations while providing flexibility in the bidding process. At the same time, the rights of bidders (E1) cannot be overlooked. In other words, it is the obligation of the contracting authorities to store information using e-tools (A1), but at the same time it is a right in terms of bidders (E1) to be assured of the safety of information and integrity of the tools used in the procurement process. The model suggests that electronic processes and procedures (T2) will allow for effective monitoring and authentication of bidding activities and bidders (A2), facilitating cross-border economic participation through competitive market structures (C2), which will promote interoperability and provide wider access to all bidders in the e-procurement market place (E2). Under the present system, the degree of inter-operability between Member States’ e-procurement systems remains low and convergence to common sets of standards has been slow. Issues that particularly require attention are: e-signatures, e-invoicing, e-ordering, e-catalogues and e-attestation. Further, e-attestations are not prevalent and this tool currently cannot be employed for cross-border procurements across EU Member States.

While the e-procurement framework aims to increase transparency by publishing tender notices and providing standardized information electronically, this increases information availability (T3) and provides ease of access for bidders, in particular for SMEs,
to procurement notices advertised by contracting authorities. Although data on participation by individual firms are not widely available, it can be inferred that bidder participation will increase when information is freely available, but there are related information governance and assurance issues about the chain of custody and digital continuity (A3) of the procurement process. While on the one hand there are information assurance issues to be looked into; on the other, procurement can be secured from the most efficient supplier at less costs, thus generating value for taxpayer money (C3) and fostering greater interaction between procuring agencies, policy-makers and bidders (E3) for an optimum outcome – that is, high quality, low prices – of contracting activity. Finally, increased stakeholder interaction is likely to lead to increased citizen participation, making the procurement process more democratic. The proposed model is based on the assumption that effective framework complemented by information governance practices are important components of the e-procurement infrastructure for ensuring wider market access for SMEs. Use of ICT increases government transparency, efficiency and customer-oriented service delivery, but despite EU’s efforts it is not yet running as an effective medium to facilitate citizen consultation, policy discussion or other democratic inputs into the policy-making process (Torres et al., 2006).

The second level reflects e-procurement drivers that impact on the uptake of e-procurement implementation – that is, the degree of convergence in the regulations and technical infrastructure embedded in the legal framework across EU Member States. Convergence is absolutely vital in the longer term with e-procurement regulations setting out a coherent set of regulations that define the role and obligations of procuring authorities with regards to the e-platform and e-marketplace. Under present circumstances, wider legislative changes are required and legislation must include uniform rules on e-tools such as e-signatures, e-invoicing and value-added tax. In the EU, some measures such as the adoption of a standard form for procurement notices and a common procurement vocabulary and electronic system for publishing tender notices on Tenders Electronic Daily (TED) have since been implemented. There is, however, no mechanism among Member States for infrastructural convergence and mutual recognition of nationally accepted digital solutions, which include authentication and evidentiary documents. Such recognition is needed to facilitate SME participation, but this can proceed only when there is some common core functionality across Member States’ systems. Thus, simplification of procurement processes will allow contract notices and awards monitoring at the Member State level, which will support convergence to common e-procurement standards and improve overall accountability of the system. The best way forward is to make available common templates for tenders and platform-related technical specifications as well as using open-source software instead of application services provided by third parties. This will ensure a greater degree of homogeneity among e-procurement systems and make procuring agencies more accountable across the single market. Furthermore, given that the existing e-procurement landscape consists of many different systems and processes with EU Member States using different technical features and functions, problems are created for suppliers seeking to participate in multiple systems. The result is the absence of an efficient procurement market, which in turn contributes to suboptimal outcomes as there is little possibility for bidders to re-use previous experience as they move between systems. This helps to reiterate having common standardized e-procurement tools as these determine the efficiency of any e-procurement framework. Furthermore, when no legal or
technical challenges exist, trustworthiness is a significant issue. A common e-procurement infrastructure that allows assessment of the validity of evidentiary documents is key information assurance issue.

Thus transparency, accountability, competition and equity are identified as the building blocks, and even critical success factors, for an effective e-procurement framework that forms the basis for developing policies that relate to governing and assuring information and reflects the need for ensuring the following:

- A coherent and simple legal framework to sustain an e-procurement system that will support the efforts of the contracting authorities and economic operators to reduce administrative costs and speed up individual procurement procedures through use of electronic tools.
- A common e-procurement infrastructure to maintain deploying technical tools such as platforms to support cross-operability to provide a system that allows the garnering of scale economies in procurement administration.
- The enhancement of overall efficiency by streamlining tendering processes and procedures, improving the access of businesses to electronic tools, opening up markets to competition and widening the pool of competing suppliers.
- An increase in accessibility and market access for wider inclusion of firms in contracting activity, following easier access to information about tender opportunities through reduction of distance barriers and information gaps.

**Strategic Factors for Uptake of e-Procurement in the EU**

Figure 2 draws on the building block framework shown in Figure 1 and illustrates the flow and interaction between various strategic factors highlighting the cause-and-effect links determining the evolution of e-public procurement in the EU. It shows that the success of the proposed framework would require addressing infrastructural constraints, information assurance and governance issues as well as initiating steps for an enabling business environment and promoting stakeholder participation.

As Figure 2 illustrates, regulation is an important element of the macro-environment for e-business and e-procurement within which contracting agencies and firms operate. The main factors likely to influence the pace of uptake of e-procurement strategy in the EU, and identified as important, are: (a) infrastructural standardization; (b) information assurance and security framework; (c) overall business environment; and (d) organizations, stakeholders and incentives. The increased uptake of e-public procurement can positively impact the single market through its ability to provide easier access to contract opportunities, and will lower administrative and transaction cost. This suggests that e-procurement is likely to be successful only when the system is aligned with the legal framework and infrastructure complemented by business initiatives and increased stakeholders’ interaction. Thus, a legally complaint framework that ensures convergence of procurement systems across EU Member States is a must and is increasingly visible in recent EU initiatives – particularly the proposal for new directives.

Information assurance issues are equally important as are the level of inter-operability and standardization of the solutions available as these influences the evolution of e-procurement. In particular, inter-operability is important for e-purchasing, and a precondition for making compatible IT systems (which can be both internally with
Enterprise resource planning systems and externally with other procurement systems). Security is another vital issue, as lack of trust in this area can deter the uptake of e-procurement by suppliers and buyers, given concerns about possible security flaws in transactions over the open Internet. Thus, EU e-procurement systems initiatives must focus on the mechanisms for holding information and the context that will provide an enabling environment for procedural convergence.

Structural business environment initiatives cannot be ignored as these emphasize the conditions of market and structure that drives contracting activities. At present, there are differences in the level and type of regulation of the e-procurement process. For instance, Austria has regulated the areas regarding communication, storage of data and the use of specific procedures, whereas Germany has only regulated storage of data. This area, in turn, informs decisions to be made about the systems that will impact on the market structure and the ability to provide fair and wide access to individual firms.

Finally, the role of organizations, stakeholders and incentives refers to contracting authorities and firms that are involved, how their respective roles and responsibilities are defined, and how these interact. This drives e-procurement as the organizational set-up influences the configuration of suppliers’ incentives to use e-procurement, which are a set of motivational factors that make the stakeholders act as they do within the defined organizational structure and processes. Further, this is linked to technical ICT skills that in turn depend on the level of experience and trust that stakeholders have in use of electronic tools.
From information governance and security perspective, attention to information governance is required not purely for legal and evidential purposes, but also for operational and infrastructural reasons. Given that e-procurement processes are complex (Leukel and Maniatopoulos, 2005), a co-ordinated transformation that takes into account information issues is important to the success of the EU’s e-procurement strategy. Within the context of e-procurement, information will add value only when consideration is given to its arrangement, appraisal, access and resilience, which suggests that a holistic management of the information lifecycle can increase its utility for the contracting authorities. Basic aspects of information governance that must be taken into account include assessing the effectiveness, efficiency, flexibility, sufficiency of information and information strategies throughout the data governance lifecycle. The accuracy, validity and timeliness of information (Schwolow and Jungfalk, 2009), depends on the quality of data (Al-Hakim, 2007), which in turn impacts information governance. How flexible and innovative e-procurement strategies are depends on how they have been designed and set up to anticipate unintended uses. Thus while information classification and appraisal enable evaluating each building block and the specific sub-classifications in terms of information governance, each of these sub-classifications requires a series of steps to ensure that information is managed in line with its value and related attributes. For example, ‘information classification’ refers to its organization and how digital evidential assets can be used, which requires a thorough understanding of the e-procurement processes to deposit, access and retrieve information, while attaching relevant retention and disposal instructions for the resulting digital assets. ‘Information appraisal’ refers to the selection of information for the procurement process, and includes information regarding the notification of tender, the process of the award and the monitoring of ongoing management of contracts and decisions relating to expenditure on each aspect of the process.

Conclusions and Directions for Future Research

This article has examined how to move procurement systems in the EU from the norm of non-electronic systems to e-procurement. It highlights the need for a comprehensive approach to implementing an e-procurement framework that addresses insurance governance and assurance issues while ensuring transparency, accountability, competition and equity. Transparency and accountability are by-products of good governance and primary building blocks that can lead to an efficient e-procurement market which guarantees market access. In addition to these, from the perspective of the EU, a unified framework complemented by convergence in rules and technical infrastructure are critical. Only by recognizing that this is a necessary precondition to realizing e-procurement’s potential can the European Commission obtain the active participation of Members States in developing a unified framework and, subsequently, altering their legal systems to reflect a unified approach. While fostering competition and guaranteeing equity in terms of market access are important for the success of the single market, inter-operability across borders and between business-to-business and business-to-government e-procurement systems needs attention as this impacts cross-border trade and firm competitiveness. Thus, it is critical to remove roadblocks and provide incentives to move the transition of procurement systems forward.
Findings suggest that a piecemeal approach is unlikely to achieve the goal of employing e-procurement as a norm. Until now, there have been, at best, disparate approaches to encouraging the move to e-procurement or, at worst, an assumption that the existence of theoretical benefits would be sufficient to induce the desired change. Sadly, however, the projected benefits have failed to convince firms to actively take up e-procurement. It is suggested in this article that re-examining the public policy strategies in the light of the comprehensive approach developed through our framework could yield improved outcome and a more rapid transition from the conventional procurement system to e-procurement. The Commission and Member State governments can support the uptake of e-procurement by formulating a strong and coherent vision for all stakeholders by playing an increasing role in driving the positive effects of ICT on growth. In doing so, the European Commission has a central role in ensuring that the use side is fully enabled through integrated markets that allow for firms to benefit from scale and competition. In addition, having policies in place to equip people with the right skills to use technologies are equally important. Finally, it is crucial to harmonize regulatory frameworks through a single coherent framework rather than different frameworks as is the case now. These must be complemented by Member States’ actions as they also have at least an equal role in implementing the harmonized rules and simplifying administrative procedures, rules and regulations that affect cross-border activities – be they digital transactions, flows of data, international sourcing of talent and skills, or business regulations.

We have also highlighted in this article the fact that the wider business environment cannot be ignored. Research points out that it is important to provide an enabling business environment and standardized infrastructure that takes information assurance and security issues into account. Issues that need addressing within the EU are ensuring confidentiality of e-procurement processes, building trust in the reliability of the electronic submission of tenders, digital signatures, electronic catalogues and e-invoicing. As with any adoption of new processes and technologies, there are risks, which implies that governments and end-users need to work together to employ ICT in ways that actually enhance the ability to manage key risks of data privacy and security. This is particularly relevant when there is a strong need for organizations to improve efficiencies by using collaborative solutions and real-time information exchange.

Future research is required to contextualize the direction of e-procurement. Any framework that is put in place needs to be sufficiently flexible to take on board new technologies; of course, data interfaces, data management and data processing – central elements of e-procurement – are some of the most rapidly evolving areas of technological progress. The Cloud is an important example of a growing technology that can be and is being used for e-procurement, and case studies on the uptake of this novel feature in procurement is one obvious next step forward.
References


