

2005

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Recommended Citation

Henriksen, Helle Zinner and Mahnke, Volker (2005) "E-Procurement Adoption in the Danish Public Sector: The Influence of Economic and Political Rationality," *Scandinavian Journal of Information Systems*: Vol. 17 : Iss. 2 , Article 2.

Available at: <https://aisel.aisnet.org/sjis/vol17/iss2/2>

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E-Procurement Adoption in the Danish Public Sector

The Influence of Economic and Political Rationality

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Abstract. E-Procurement is on the political agenda throughout Europe. Denmark was among the forerunners in Europe, but the adoption of the public e-procurement portal (PePP) has been slow. In this paper, we use the lens of economic and political rationality to discuss and analyze possible explanations for slow adoption rates. We find that despite awareness of potential efficiency gains of IT in public procurement functions, political-structural factors slow down the adoption process. We suggest that while the awareness of economic factors stressing efficiency of e-procurement is a necessary condition for PePP adoption, enabling faster adoption requires considering and addressing political-structural factors that are specific to a particular political and administrative context.

Keywords: e-government, e-procurement, electronic marketplaces, adoption and implementation

1 Introduction

At present, e-government is on the agenda both in research and practice. E-Government initiatives seek to innovate interaction with citizens through elec-

tronic means, e.g., on-line public service delivery (Hoogwout 2002) and e-healthcare (Roberts and Alsop 2002). Other initiatives provide new electronic routines for political processes, such as voting (Grönlund 2002). Focus on the relationship between government and citizens is common among these initiatives (see for example Chen and Gant 2001; Devadoss et al. 2003). This paper is concerned with a distinct, yet complementary, aspect of e-government, namely the public sectors' deployment of IT enabled purchase and procurement processes for goods and services utilized as input for the fulfilment of public functions, which we, in this context, refer to as e-procurement.

"An effective public procurement policy is fundamental to the success of the single market in achieving its objectives," states a Green Paper issued by the European Union in 1996 (European Union 1996). The Internet was still in its infancy in 1996 (Kalakota and Whinston 1996) and was not an obvious means for optimizing public procurement processes. At the Lisbon EU summit in 2000, web-enabled e-procurement came into clearer public focus: "The emergence of the new Information and Communication Technologies (ICTs) offers promising opportunities as regards the efficiency, transparency and opening-up of public procurement" (European Commission 2000). Since this statement was made, a number of legislative directives concerning e-procurement have been outlined, for example Directive/2004/17/EC and Directive/2004/18/EC. In 2005, policy attention was reinforced with one more action plan on e-procurement (European Union 2005), which again stressed the potential benefits of public sector institutions adopting e-procurement. While initial public embracement of e-procurement may have been somewhat tempered during and especially after the burst of the dot.com bubble in the spring of 2000, today arguments in favour of e-procurement in the Danish public sector remain essentially unchanged.

For example, recent research identifies strong political interest in taking a public lead with respect to public awareness about e-procurement (Andersen and Henriksen 2004; Oliveira and Amorim 2001). In addition to this, public purchasing volume represents a huge potential for building national electronic marketplaces (Kawalek et al. 2003). As stated in a policy statement: "By virtue of the public sector's purchasing volume, increased use of e-commerce will contribute to the penetration of e-commerce in Denmark in general. The suppliers will get accustomed to e-commerce and an infrastructure will be established" (MSTI and MEBA 2000). Furthermore, it is generally assumed that to the extent products purchased by public institutions are standardized, e-procurement contributes to increased procurement efficiency (Bakos 1991; Malone et al. 1987). It is argued in the above-mentioned policy statement that a key incentive for e-procurement adoption is to free resources from purchase

tasks so they can then be used for improved services to citizens: “With a public sector procurement of goods and services for approximately DKK 100 billion per year, even modest improvements in efficiency will be of great value for the Danish society. As argued by Kawalek et al. (2003: 232): “...imperatives to improve services and to limit public expenditures become more forceful.” Against this background, this article is concerned with why the Danish Public e-procurement Portal (PePP) launched in January 2002 (DOIP 2005) has been adopted so slowly.

To address our research question, we focus on public sector institutions as potential adopters of the PePP. The remainder of the paper is organized as follows. First, we present the concept of public procurement and exemplify types of goods potentially purchased via e-procurement sorted by the different types of public sector institutions. Thereafter, the Danish public e-procurement portal will be presented in more detail. After outlining our methodology, we analyze reasons for the slow adoption through the lens of economic and political rationality. While the former highlights efficiency gains available to adopting agents, it fails to comprehensively explain slow adoption. Thus, we apply the lens of political rationality to explain why, despite obvious efficiency gains, decision makers in public administration are hesitant to adopt PePP. Finally, we discuss the relative importance of economic relative to political-structural factors to explain slow adoption of the public e-procurement portal in Denmark. Conclusions and implications follow.

2 E-Procurement in the Public Sector

The purchasing of goods and services in the public sector is central because it supports all functions of government; each governmental unit needs supplies and equipment to accomplish its mission (Thai and Grimm 2000). As emphasized by Thai and Grimm (2000), one of the most important challenges in government procurement is how to best utilize information technology in an age of communications revolution. Numerous researchers have discussed this challenge under the label “e-procurement.” The issue has been discussed both from a technological perspective (Panayiotou et al. 2004; Liao et al. 2003; Liao et al. 2002) and a managerial perspective (Devadoss et al. 2003; Coulthard and Castleman 2001; Oliveira and Amorin 2001; Rajkumar 2001). Regardless of the perspective taken, there is widespread consensus among the above-mentioned sources on which components constitute the concept of e-procurement and what the benefits of e-procurement are. On-line purchases and payment for goods and services in virtual markets constitute crucial ele-

ments of e-procurement. Successful adoption leads to potential benefits, which include the reduction of transaction costs, operational efficiencies, and a better foundation for decision making. Even if technological requirements are met and the implementation of e-procurement systems seems feasible, from a managerial point of view implementation has proven to be a challenging venture.

Rajkumar (2001) pinpoints the managerial challenges by listing critical success factors of e-procurement implementation. These include the definition of an e-procurement strategy, re engineering of procurement processes and management of expectations. Re-engineering of processes in the public sector is in itself a very demanding process (Andersen 2004) which, at times, tempers the enthusiasm for implementing e-procurement. Panayiotou et al. (2004) confirmed this belief in their empirical analysis of e-procurement adoption in Greece. Their conclusion was that implementation must be achieved in a manner of “incremental change” where technological solutions apply to regulations and policies.

Most purchases in public sector institutions require that a bureaucratic procedure be followed. The majority of items are bought on requisition. This means that a great deal of effort is put into sending forms back and forth in the system. The internal coordination costs are therefore high with respect to the contracting procedure for commodities. As pointed out by Berryman et al. (1998), electronic procurement of commodities represents the greatest potential for savings. E-procurement simplifies work procedures and automates processes, for example in order processing and the handling of invoices and payments. This, combined with the regulated tendering processes, makes the idea of automating procurement an attractive option compared to the status quo.

2.1 Public Procurement in a Danish Context

Like private procurement, public procurement is subject to efficiency and cost pressure. Unlike private procurement, however, public procurement is highly regulated. For Denmark, most regulation is based on European Union law. In the EU it is illegal to favour domestic firms over foreign firms. Thus, for purchases exceeding certain amounts, a publicly advertised tender in the Supplement to the Official Journal of the European Communities is mandatory (cf. Directive 93/36 of June 14th, 1993).

One aspect that should be kept in mind with respect to procurement in the public sector is the significance of public purchase policies. Guidelines for purchasing are used in the public sector more than in the private sector. The

public sector in Denmark has, for example, recently shifted focus from pure cost efficiency in purchase processes towards more qualitative measures. Ecology (green procurement) and non-discrimination clauses are examples of issues that have been given high priority in the public purchase policy.

In a report prepared by KPMG Consulting for the Ministry of Science, Technology, and Innovation (MSTI and MEBA 2000), different groups of commodities are identified as being suitable for e-procurement in Danish public institutions as indicated below.

<i>State institutions</i>	<i>Counties</i>	<i>Municipalities</i>
Travel and hotels	Medicine	Office supplies
Office supplies	Hospital supplies	Provisions
Books	Office supplies	Books
Office equipment		Material for education
IT		Ironmongery
Furniture		Fuel
Provisions		

Table 1: List of commodities suitable for e-procurement

All of these products are easy to catalogue and standardize; by implication, it is possible to procure them via electronic channels (Malone et al. 1987). Most of the product categories displayed in table 1 already have a long history in the on-line environment. This is the case with books (e.g., amazon.com), office supplies (e.g., officedepot.com), travel and hotels (e.g. amadeus.net) and IT (e.g., dell.com). The possibility of presenting and trading such products and services on-line demonstrates that technical problems can be successfully addressed on the supplier side. There are, of course, a number of other challenges that suppliers face when offering products through e-procurement channels; for a more comprehensive presentation of these challenges see (Henriksen et al. 2004). However, procurement is a bilateral process and the issue of whether public e-procurement is adopted depends on the technological capabilities of public institutions and their willingness to adopt the system.

2.2 Public E-Procurement Systems

The development and implementation of electronic commerce business models, such as a procurement portal in organizations is a challenge that goes beyond mere technological functionality (Larsen et al. 2002). Top management support, organizational adaptation, and training of employees are examples of critical issues for the successful implementation of any IT-system

(Kawalek et al. 2003). For the implementation of e-procurement in the public sector, an extra set of factors is considered to be influential. These include financial risk, risks of building the portal, and legislative issues (Oliveira and Amorim 2001).

Oliveira and Amorim suggest that three types of models can be considered in order to meet the specific demands related to implementation of public e-procurement: (1) The public model. Here, all tasks, including the investment and risks of building the portal, are run by the government. (2) The private model. Here, all tasks are run by private entities that bear the investment risks of the project. (3) The mixed model (public-private partnership). In this model the participants share investment risks and the benefits of the project.

2.3 PePP —The Danish Public E-Procurement Portal

Since the mid-1990s, the Danish government has published strategies for e-commerce and e-procurement with regular intervals (Henriksen and Andersen 2004). These strategies can be seen as an effect of the launch of the Bange-mann report in 1994 which positioned the information society on the political agenda throughout Europe. In 1999, the message of e-procurement in Denmark was explicitly stated in the policy document “The Digital Denmark” (MSTI 1999). It was emphasized that lists of types of goods and services suitable for e-procurement should be defined and that standard systems for e-procurement should be developed. The aforementioned report prepared by KPMG and the list of products presented in Table 1 are direct effects of the 1999-policy document, and the PePP is the standard system chosen for public e-procurement.

The model that the Danish public sector chose for the development and operation of their e-procurement system was based on the public-private partnership model (cf. Section 2.2). Public sector representatives specified and developed the PePP-system in collaboration with private players. While the public sector paid for using the portal, financial risk was placed with a private entity, the gatetrade.net portal (Gatetrade 2005), which was in charge of operation and management of the portal. Founding partners of the gatetrade.net portal included TDC, a large telecommunications company; Danske Bank, a leading Danish bank; Maersk Data, a subsidiary of Maersk industry group; and Post Denmark, which operates the national mail service.

When gatetrade.net was launched in 2000 it was introduced as a neutral third party marketplace. The four founders agreed upon placing all their procurement on the electronic marketplace in order to secure the necessary criti-

cal mass, both with respect to supply and demand. This, in principle, aimed to solve one of the classic problems of whether buyers or suppliers act as the catalyst for marketplace activity (Bakos 1991). However, one of the initial problems *gatetrade.net* faced was the limited number of willing suppliers. This is not surprising, given the general weakening in e-business during the launch of the marketplace. The strategy pursued by the consortia behind the PePP was to select a marketplace where there was a potential for business transactions from day one. This objective was to a large extent fulfilled, given that the PePP involved itself in an already ongoing electronic marketplace. Despite initially high expectations, adoption of PePP in public administration has been low. As a procurement manager of a municipality stated: “The PePP could be beneficial—especially when budgets get tighter; while there are huge possible savings, there are also huge efforts to be made to make them come true.”

However, even though the organizational and technical set-up of the PePP seemed to be robust and the expectations to the portal were modest with respect to the share of the total public procurement placed on the portal, this goal has by no means been reached. The potential scope of e-procurement for the public sector was estimated to be DKK 8 billion per year. By February 2004, two years after the launch of the PePP, the total value of public procurement transactions on the portal was approximately DKK 48 million (DOIP 2005). This gave rise to the pursuit of an answer to the research question: Why has the PePP been adopted so slowly?

3 Research Design and Data Collection

A qualitative, explorative approach was chosen to collect empirical evidence of possible reasons for the slow up-take. This is appropriate whenever the problem of understanding needs to be rooted in practice and cannot entirely be deduced from existing literature. Our approach resembles the method used by Flyvbjerg (1998) for mapping power relations in local policy. First, contact was established with a representative of one of the central political players. This yielded information about the policies and official e-procurement strategy relevant to municipalities. Next, through document analysis and discussions in open interviews we gained knowledge from other policymakers about state-of-the-art procurement patterns and user habits.

To examine problem dimensions of PePP adoption more in-depth from a user-perspective, the purchasing manager from the largest municipality in Denmark was involved to augment our understanding of the key problem dimensions. We gained insights into adoption challenges by interacting with

the purchasing manager of the municipality of Copenhagen. This interaction initially took the form of formal presentations given by the purchasing manager, followed by discussions and clarification of the presentation content. Further, interactions with purchasing managers of other municipalities became our primary source of information. These took the form of several semi-structured interviews. In sum then, our understanding of the problem dimensions of slow adoption rates was based on the data collected from these interviews, supplemented by secondary sources. This led to new discussions with the purchasing managers at different levels of public administration which, in turn, provided input for our analysis of varying rationalities for e-procurement adoption in the public sector.

4 Economic Rationalities for Adoption of E-Procurement

When it comes to procurement, public institutions, in the face of budget constraints, are driven by similar cost pressures that private businesses experience. Services of public institutions, such as Danish hospitals, nursery schools, and eldercare institutions, are similar to private businesses, managed by means of efficiency and budgetary controls. Thus, economic arguments emphasized in IS research in the private sector on rationalization, reduction of workload, and concomitant cost savings through IT-systems (e.g., O'Callaghan and Turner 1995; Clark and Stoddard 1996), are similarly salient in the public sector. The listed benefits thus had a revival under the labels of electronic marketplaces (Bakos 1998; Berryman et al. 1998).

The benefits derived from e-procurement (be it employed by private business or public institutions) include, according to Timmers (2000), a wider choice of suppliers, better quality, improved delivery, and reduced cost. In particular, we argue that the PePP enhances efficiency through two main avenues: (a) transaction cost savings and (b) reduced direct procurement costs.

Procurement carried out in an electronic marketplace helps in consolidating separate procurement functions on the state, county, and municipality level (see figure 1). Examples of procurement activities potentially undertaken by the PePP include bidding, ordering, and payment related data processing (Andersen 2004). This could lead to direct procurement cost savings in terms of human resources expenditures and administrative overhead in all three levels of public administration. In addition, demand bundled across public institutions reduces direct purchasing costs as public bargaining power increases relative to suppliers.

Positive side effects of the PePP include (a) increased transparency and accountability as electronically conducted processes allow better monitoring and benchmarking, and (b) easier, cheaper, and quicker exchange of information about prices and product offerings (Bakos 1991; Kaplan and Sawhney 2000). This creates a huge potential for transaction cost saving in terms of reduced search, matching, and order control costs.

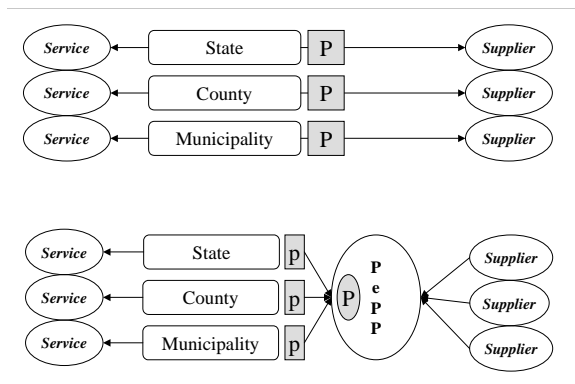


Figure 1. Efficiency gains through the PePP

4.1 E-Procurement Adoption from a Transaction Cost Theory Perspective

Malone et al. (1987) elaborate on the connection between transaction cost theory and information technology leading to electronic marketplaces. Building on their work, we suggest that their argument may apply equally well to the shifting of procurement functions from hierarchically organized public procurement to IT enabled procurement through privately organized markets, as it is the case with the PePP. Technological advancements in IT enables electronic interconnection. If this reduces transaction costs of various types of electronic markets, such as the PePP, then it becomes more attractive relative to hierarchical ways of organizing public procurement.

Benefits of the PePP can only be expected if both asset specificity and the complexity of product descriptions are low, as is the case with standardized products (as discussed in section 2). Even in the case of standardized goods, however, there is a possibility of asset specificity to occur. In essence, asset specificity refers to a small-number bargaining situation, resulting in depend-

ency that can be opportunistically exploited. For example, a purchasing department in a municipality has developed good relations to a particular supplier, e.g., it has developed human asset specificity surrounding the purchase of a standardized good. Hence, large-number of bargaining situations transform into small-number bargaining situations with accompanying opportunistic potential. Moving the procurement transaction to an electronic transaction platform can reverse small-number bargaining situations, increase transparency, and reduce associated transaction risks.

Public buyers and private suppliers could reap substantial benefits from the electronic interconnections conditional on three effects (Steinfield et al. 1995; Malone et al. 1987): (1) the electronic communication effect, where IT systems reduce time and cost of communicating information; (2) the electronic brokerage effect, where many different buyers and sellers are connected through a central database; and (3) the electronic integration effect, where the information technology is used to reuse data in different business processes. If as Malone et al. (1987) argue, the three effects lead to a relatively stronger decrease in the unit cost of coordination in markets, one would expect a shifting of procurement activities organized through public hierarchies towards a privately organized market-organization such as the PePP.

4.2 Economic Rationality and PePP Adoption in the Danish Context

The public sector in Denmark already uses modern telecommunication technologies for transferring data, both internally in the institutions but also in its interaction with citizens (Statistics Denmark 2003). The public sector institutions perceive the electronic interaction to be beneficial with respect to reduction in work-load and rationalization. The cost of coordination must therefore be expected to hold the potential of further cost reduction for the public sector if the e-procurement portal is adopted. This leads to the assumption that the electronic communication effect will affect the adoption of the PePP positively.

Likewise, given the fact that the Danish public sector has used the strategy of connecting to an on-going marketplace with a critical mass of suppliers, this could support the electronic brokerage effect. As outlined by Malone et al. (1987), the fundamental idea of the electronic brokerage effect is that the database can match buyers and sellers and thereby reduce the need for contacting a large number of sellers in the purchase process. However, a potential obstacle for gaining the full benefit of the electronic brokerage effect is the highly regulated tendering process, which the public institutions in EU countries are sub-

ject to. The underlying database structure for the PePP has to be very advanced in order to manage the highly regulated tendering processes. Given that a breach of the tendering procedures can lead to severe penalty, it is plausible to expect that public institutions will continue to allocate resources for ensuring that they comply with the rules for tendering.

The electronic integration effect is one of the concepts of e-commerce that has been discussed extensively by Massetti and Zmud (1996) in relation to EDI. In their argument electronic integration is pictured as multi-dimensional. However, even if electronic integration in its most simple form is to be fulfilled, this requires reuse of data throughout the organization. This leads to the net result that time is saved and errors can be avoided because data is only entered once. Gatetrade.net and the PePP offered integration with respect to purchase order, order confirmation, bill of carriage, and invoice. However, the limited number of types of messages that are exchanged electronically reduces the potential for full integration of data throughout public institutions. In addition, a critical issue with respect to electronic integration across several layers of public administration is the local standard and IT assets used. It can therefore be argued that the electronic integration effect, while technologically feasible, remains unrealized as decentralized actors in public administration incur locally the costs of system transition in terms of training, process change, and IT expenditures.

Our empirical analysis of both secondary and primary data reveals that economic arguments in favour of adoption of market-based e-procurement are well received and appreciated by potential adopters. The electronic interconnections are established in the public sector in Denmark. The PePP is also seen to have increased the number of alternative suppliers that can be considered for improved matching and decreased costs of the entire product selection process. The technical requirements necessary to achieve the electronic integration effect are also in place. An IT-module fitting the standard financial system used in the public sector institutions has been developed and there is an agreed communication standard (XML). By implication, all three effects may potentially be available for standardized public procurement through electronic market transaction.

Although the pre-conditions for achieving efficiency gains seem to be fulfilled, adoption is slow and arcane. The potential scope of e-procurement for the public sector was, as mentioned earlier, estimated to be DKK 8 billion per year. By February 2004, two years after the launch of the PePP, the total value of public procurement transactions on the portal was approximately DKK 48 million (DOIP 2005). This suggests that the adoption of e-procurement has not taken off and that decision-makers have not fully realized the economic poten-

tial of e-procurement suggested in theory. This data naturally gives rise to speculations about the cause of resistance towards adoption of the PePP, despite large potential efficiency gains. A way to go forward in analyzing this issue is to recognize that public administration (despite similar cost pressures as private businesses) operates in a different world of control.

5 Political Rationality and the Adoption of E-Procurement

Why, if efficiency gains are well known and technological feasibility of implementation is ensured, is the adoption of PePP in Denmark not more advanced? Why do actual adoption patterns deviate from predictions expected in an economic rationality argument? In the following, we analyze slow adoption through the lens of political rationality. We find that the economic rationality regarding the PePP adoption was constrained by political rationality of dispersed actors in public institutions. Their behaviour demonstrated local political interests and rationality rather than the pursuit of efficiency alone. Political actors and potential adopters are aware of and acknowledge potential savings (direct procurement costs and transaction costs) through shifting procurement activities from several decentralized layers of public hierarchies toward a transparent central e-marketplace. However, whether related efficiency gains are realized depends on whether potential adopters are willing to sacrifice political independence for an increase in overall public procurement efficiency. Here, our empirical analysis indicates that adopters assume a rather local approach to efficiency, maximizing their own power position, budgets, and their attractiveness to voters, rather than caring for the greater public interest.

Accordingly, political rationality merits attention alongside economic rationality. Politicalization of decentralized procurement practices in the Danish public administration (Andersen 2004) might shed light on explaining deviation between potential and realized adoption rates of PePP. Compared to other countries in the EU, Danish counties and municipalities have relatively more independent competencies (Knudsen et al. 2002). Minimum standards are generally outlined at the state level, but in order to cater for regional standards—even in a relatively small country—there is a political consensus, which accepts regional differences. This is a balancing act between homogeneity and the qualitative benefits gained by the population regional preferences (Knudsen et al. 2002).

The extensive decentralization of public sector tasks and responsibilities taken place during the last ten years is generally expected to lead to a reluctance to subscribe to the idea of centralized purchases via electronic marketplaces (Andersen and Henriksen 2004). Similar to other nations (Hutchcroft 2001), Denmark has experienced a shift from central governance to decentralization. During the 1990s the responsibility for individual institutions was decentralized. One crucial issue is therefore whether the economically independent institutions are interested in subscribing to a system that, in principle, centralizes purchase processes and facilitates central monitoring and central control.

In addition, purchasing managers often possess power which exceeds formally assigned positions (Elbanna 2003). This is because the manager controls the relationship to suppliers as a primary contact. There is no reason to believe that purchasing managers are willing to give up their power position. By implication, even if there were common shared understandings of economic benefits of the PePP, centralized procurement practices conflict sharply with the balance of power between public agencies and norms of de-central public governance as well as personal interests of regional purchasing managers.

Furthermore, the classical dilemma of the relationship between politicians and administrations might contribute to explain slow adoption rates. Weber (1922) argued that there is a division of labour between politicians and administrators. Politicians are in charge of outlining visions, goals, principles of action and strategies, whereas administrators implement the ideas of politicians and run the day-to-day administration. The top-down mode of issuing directives for e-procurement, as presented in this article, reflects this view on division of labour in public institutions. However, during the period of decentralization, administrators have gained a stronger position on those domains that were typically the province of politicians (Hansen and Ejersbo 2002). Forcing the administrators to give up these sources of power in the name of the benefits of e-procurement may therefore be hard to accomplish.

6 Discussion: Political Rationality vs. Economic Rationality in the Adoption of PePP

In contrast to economic rationality, which pictures individual actors making technology adoption decisions as responsive to positive cost-benefit calculations, political rationality stresses inconsistent identities and preferences in a

multiparty power struggle revolving around technology adoption (March 1994). Even if cost-benefit calculation favours technology adoption for reasons of reduced transaction and production costs, political rationality may retard technology adoption because questions of who gets what, when, and how remain unanswered. For example, even if e-procurement systems save cost for the general public, losing a local IT budget in a particular public administration might prevent adoption. Political rationality seeks to address such problems with reference to how agreements are negotiated, with whom actors form coalitions, and which partners enable decision makers to preserve identity when adopting technology (March 1994). For example, despite obvious cost savings, if decentralized decision making on procurement budgets is part of the municipality's decision makers' legitimacy, e-procurement initiatives can be perceived as a threat to this legitimacy if these are negotiated at a more central level. In other words: technology adoption decisions are perceived to be important to legitimacy.

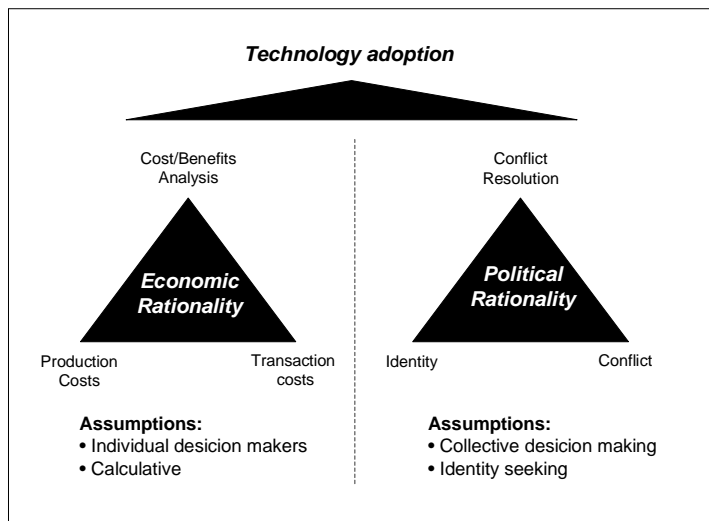


Figure 2. Economic rationality versus political rationality

As figure 2 illustrates, technology adoption may be explained by different types of issues depending on whether it is viewed from an economic rationality or political rationality perspective. The economic rationality perspective suggests focusing on individual decision making, calculative in nature and based on objective measures such as cost-benefit analysis. Political rationality, on the other hand, suggests focusing on collective decision making, and con-

fronts possible conflicts among the stakeholders and challenges to their identities in the context of technology adoption.

Conflict arises whenever identities collide (Morgan 1986). While conflict is often seen as interpersonal, it also extends to adversity between rival groups and coalitions that influence collective identities (Morgan 1986). As Durkheim (1982) argues, to be linked means to be alike. Individuals are linked in political organizations through the control of scarce resources, control of decision procedures, as well as control of knowledge and information. Loss of control of such critical resources threatens group identity and cohesion (March 1994) because contributions to groups are always a function of inducement (March and Simon 1958). By implication, technology adoption that is perceived as leading to a group's loss of control of resources and loss of occasions for participation in decision making threatens group identity and leads to conflict, politicking, and time consuming negotiations to reach agreements. By implication, in de-central administrative systems, technology adoption decisions need to be understood through the understanding of participants' identities.

Where conflict resolution can be enforced through central decision-making power, IT system adoption can be ordered by fiat and command. However, even in this case, as is well known from the literature of organizational change, to implement a novel IT system by order is a far cry from its effective utilization (Elbanna 2003; Markus 1983). To complicate matters, in de-centralized political organizations, both implementation and use of e-procurement systems cannot be centrally ordered and enforced. Instead, conflict resolution in the context of technology adoption needs to be achieved by negotiations and agreement. As Weick (1995) suggests, adoption and use of technology depends on coordinating cognitive processes in groups through participatory conversations that contribute to a dynamic process of organizational sense-making and identity building. Thus, participants taking part in conversations revolving around technological change may have different identities requiring consideration in the adoption of technology in political organizations (Danziger et al. 1982). To the extent that professional roles as politicians or administrators on a central, regional, and local level are implicated, technology adoption processes need to consider how collective sense-making proceeds in addition to making appeals to economic benefits and costs.

7 Conclusion

Similar to Fountain (2001), our analysis suggests that it is not straightforward to apply those models developed for the private sector to the public sector. Part of our analysis was based on the IS research communities widely accepted interpretation of transaction cost theory. Though it can be argued that the assumptions outlined by Malone et al. (1987) were met in the Danish public sector, there has yet to be a significant move towards electronic markets.

Denmark was among the forerunners with respect to establishing a public procurement portal (DOIP 2005). The strategy for establishing the portal was driven by a partnership between the private and the public sectors. In practice, the public sector chose to have their portal as a supplement to a private driven electronic marketplace. The electronic infrastructure was established, but widespread activity on the portal has so far been absent. Out of an estimated potential of DKK 8 billion of e-procurement per year, only DKK 48 million was exchanged through the e-procurement portal from its launch in January 2002 and until February 2004.

Our analysis suggests that even though the economic rationalities behind adoption of electronic marketplaces and e-procurement are widely shared across levels of public administration, this is not enough for adoption of initiatives such as the PePP among the public sector institutions in Denmark. Structural-political issues related to the widespread decentralization that has taken place in the public sector during the last ten years, create a serious barrier for a centralized procurement process through the PePP. Thus, our analysis and arguments suggest that future empirical research on the adoption of PePP needs to assess comparatively economic alongside political rationality. It is only on the basis of both that adoption speed can be more comprehensively explained and managed.

This research has focused on a single country context, providing limitations that serve as occasion for future research on the adoption of PePP. While Denmark's institutions are de-centralized to a high degree, this is not the case in other countries in the European Union. A cross country comparison could thus shed light on whether and how alternative degrees of decentralization in public administration would influence the weighting and relation between factors discussed in an economic and political rationality perspective. Interestingly, Coulthard and Castleman (2001) found that the success of e-procurement strategies depend on finding the balance between decentralization and centralization. An interesting issue for future research would be to address the question of how local self-governance, with respect to decisions related to when and what to purchase, can be combined with the advantages of

the central public procurement portal with respect to where and how to purchase.

In addition, research into the relative importance of economic and political rationality in the adoption of PePP can be advanced by considering the presence of alternatives and legal enforcement. The adoption of PePP is also dependent on available alternatives. A recent survey on e-procurement among Danish municipalities (Henriksen et al. 2005) suggests that there are alternative modes of e-procurement. Future research should undertake a more thorough analysis of e-procurement adoption patterns where alternatives to the PePP are included in the analysis. In addition, how legal enforcement impacts adoption patterns is an issue future research should pursue. For example, in Denmark electronic invoices have recently been legally enforced on public institutions. This may constitute a new *ratio decidendi* for adoption of e-procurement, which might also increase the relative importance of adoption factors associated with economic rationality. By contrast, the present analysis is based on a situation where adoption of e-procurement is based on softlaw policy documents. To what extent legal enforcement tilts the balance from political-structural factors explaining adoption rates towards economic factors, is a matter that future empirical research could beneficially address.

The adoption of PePP, as our arguments and analysis reveal, depends on the political-structural context as much as on the potential economic benefits. This would compel those interested in its fast adoption to reconsider local identities, occasions for participation in decision making, and possibilities for local interests and influence. Therefore, further empirical documentation of the various factors that need to be managed to harmonize the varying interests of local and central institutions is an essential next step. Researchers should explore changes in these factors over time, especially as both central and local decision makers gain experience in addressing the various adoption challenges discussed in this paper. Moreover, given that central, regional, and local managers vary in their identities, interest, and institutional realities, an important question for future research is how changes in the balance between central and local authority influence the relative importance of political-structural and economic factors influencing PePP adoption.

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