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Preface to the Focus Theme Section: 'Electronic Markets and e-Government'

MOGENS KUEHN PEDERSEN, JANE FOUNTAIN AND EURIPIDIS LOUKIS



INTRODUCTION

E-government or digital government (DG) has become a global theme in governments pursuing an agenda of providing citizen services and increasing agency efficiency using IT. In 2002 this journal introduced the theme of e-government (*Electronic Markets – The International Journal* – Vol. 12, No 3, Summer 2002 – Focus theme section on e-Government). Just like then, e-commerce is today considered a trigger of e-government. Citizens have acquired competence in handling and operating e-commerce applications (net banking, e-ticketing, e-shopping) but most governments have not offered public digital self-service to the same degree (Cap Gemini 2005) and the public digital services that have been introduced are generally used to a lesser degree than private services (Graafland-Essers and Etedgui 2003).

In 2002 the editors presented research showing the different impacts of similar applications in different countries leading to the realization that a government in one country cannot expect an application to draw the same public as it does elsewhere. Likewise, one should not expect citizens to react the same to an application. Instead, a

government needs to consider markets for differentiated products and services to satisfy the variation of needs among its citizens. Electronic markets (EMs) may be just that kind of application that will trigger requisite information from citizens in order to offer them the relevant government service.

Digital government has a very broad objective – bringing public services to citizen and business online – and so have electronic markets – bringing commercial activities online – and for the same reasons: both digital government (DG) and electronic markets (EM) are information systems based on information processes embedding IT in domains of practices that are rooted in traditions of servicing government and corporations respectively, while the objective of DG is to serve citizens and of EM to serve customers. The paradoxes of DG and EM are also alike: With existing administrative and commercial practices to implement DG and EM to achieve the abolishment of those practices. DG and EM are aligned in digital government electronic markets (DG-EM) servicing citizens and businesses with objectives of – or on behalf of – government.

Electronic markets are dual defined by their information design

and by their exchange or transactional qualities. The actual transfer of goods and services may take place in other channels than electronic according to their properties. The dual definition evokes elements both from information science and from economic theory. A dual approach determines relevant and necessary elements of information systems design for EMs. Added to these, objectives and processes of government are further factors determining a DG-EM.

In this preface/introductory paper digital government electronic markets (DG-EM) are studied from the perspectives of government, economics, information systems and design.

After a brief introduction to digital government and its association with electronic markets, we embark on a theoretical analysis of markets. The first step is ‘natural’ markets confronted with the theory of markets as production of an information good in order to understand EM properties. In the global Internet, EM has emerged in some cases without the essential properties of ‘natural’ markets. Second, electronic markets can be designed by reference to a set of properties beside those of ‘natural’ markets. No single optimal design presents itself, many designs are possible. The analysis explains why a DG-EM is not a premeditated design but more like an option that is still not well-defined. Optimal designs of electronic markets seem utopian in both private and public markets. Designing DG-EMs is thus not a purely technical exercise to achieve efficiency. It is required to determine legitimate objectives of digital government along with a strategy for an IT architecture and governance to exploit the exuberantly innovative world of IT. This is a call for adding a political value orientation like ‘good government’ (see beneath) to digital government.

The focus theme section presents outstanding research into how governments in various parts of the world have embarked upon the determination of EM objectives – direct and indirect – and the measures taken to prepare citizens and business better to take part in the future DG-EMs and other mechanisms of digital government. If conditions and constraints formed are not appropriate to citizens and business, digital government will not itself become a vision turned into reality: A ‘good government’ in the networked information society.

DIGITAL GOVERNMENT AND ELECTRONIC MARKETS: AN OXYMORON?

Markets have purely been the prerogative of business, not of government, which have relied upon bureaucracy as the way to command and control citizen and business. However, for many decades governments have engendered and facilitated efficient private markets, and protected or controlled others, applying regulations

and interventions where market performance was so deficient as to require a control of performance, such as in monopoly and cartel policies.

In addition, governments have facilitated the creation of private markets, for instance in environmental protection, where carbon dioxide emissions are traded across borders (EU Emission Rights 2005), but also as part of rebuilding industrial power, as in the case of Japan in the postwar years (in the 1950s) adopting a staggered entry, selective industry policy of commissioning at first one company to license a US technology (in fibres), and then, a few years later, another company to license the newest US technology in order gradually to trigger competition in the home market (Ozawa 1980). Today, governments adopt auctions (a basic market mechanism) to license cellular bandwidth to a handful of companies to achieve both a financial surplus and to leverage fast-paced launch of a competitive, commercial market based on the latest technology, thus imitating the competitive dynamics of a staggered entry of technology (Anandalingam *et al.* 2005).

Governments also apply markets for the purpose of increasing public welfare as in the case of health services and education delivered by competing institutions. Applying market creation and public participation as mechanisms for welfare and industrial policy does not preempt the potential use of the market for government purposes.

Moreover, many countries, as part of their ‘e-democracy’ programmes, organize ‘e-consultations’ (OECD 2001, 2003b) in order to enhance the engagement of citizens in public policy making, enabling them to express their needs (i.e., what public goods, services, works, etc. they need) in a much better and easier way in comparison with the traditional government–citizen communication channels. These e-consultations can be viewed as another ‘market-type’ mechanism for determining demand for public goods, services, works, etc. E-consultation and similar e-democratic processes are still in their infancy, but have considerable potential. An example of these processes is presented in the focus theme section (Pension Reform in Sweden).

Governments also adopt industrial policies to promote new technologies. This is the case for the Internet. At the Second EU/CEEC Forum on the Information Society in Prague, 12–13 September 1996, it was agreed to start concrete Information Society activities concerning inter alia ‘Application of Information and Communications Technologies in public administrations’ (Digital Economy: Policies Exchange and Development for SMEs 2001). The action programme considered the Internet as a promising new technology where any regulation would jeopardize the high expectations of the promising Information Society but also marks the extension of the reach of the agenda of

Information Society to government administration in EU member states.

Governments also look to *electronic markets* as a vehicle for government policies driving citizens or businesses to adopt technologies considered appropriate by government as steps towards commercial EMs; for example in the case of digital customs clearance reducing government's costs in control of trade and easing private company administrative procedures; digital company self-registration ensuring government agencies an instant electronic file of each new company registration at low cost and expecting business to increase use of IT for other commercial purposes; governments' electronic procurement to increase competitive purchasing at all levels of government stimulating private business competition; and to enforce in law the use of e-invoices in government procurement thereby raising e-commerce proficiency in private business generally. All of these innovations may be seen as government's digital policy toward business with the expectation that these measures will increase the application of commercial EMs and national business competitiveness. These measures have been implemented in many countries though without thorough evaluations of the results. The focus theme section in this issue presents new research on the success of government to influence the development of 'commercial EMs (enabling SMEs) and DG-EM (public procurement).

The above are examples of three major functions of government in liberal democracies: government policy formation, government policy implementation and government service operations (Gasco 2003). In the policy of DG, governments seek to improve democracy and need legitimacy. They, therefore, create digital venues for public participation. Initiatives to stimulate public participation take advantage of the Internet for information and communication, or e-participation. Some of these initiatives consist of simple websites, others are interactive and still others do not appear on websites anymore because they are automated by process integration as in the case of digital membership management in political parties facilitating automatic payment of membership fees if agreed to by the member.

The advent of e-government created new opportunities to apply market mechanisms in government. The OECD published in 2003 *The eGovernment Imperative*, defining e-government as 'the use of information and communication technologies, and particularly the Internet, as a tool to achieve better government' (OECD 2003a: 23), and recommending the application of three approaches in this area: Collaboration between agencies to solve complex issues, the citizen in focus, and public-private partnerships. Also OECD promoted innovations in government first described by Osborne and Gaebler (1993) when they introduced the market as a tool to manage public agencies to make them more efficient using both market-compliant incentives and an

entrepreneurial and company-minded approach to citizens and businesses as customers. Expecting that markets produce formal equality and transactional rationality it is expected that they will in turn positively affect bureaucracy so that it becomes more service minded. When government serves private business better that will strengthen efficiency and the competitiveness of private firms. Implementation of EMs, procurement portals, standardized grant procedures and other mechanisms are all considered appropriate means within this new paradigm of public management. Principles of new public management are often seen in digital government.

In the EU, the objectives of DG were identified by the Information Society Commission in 2003 as means to 'enhance citizens' access to information and services, increase transparency, and provide clear accountability by the public sector for the services they deliver.' 'Good government' of OECD is also built into the core idea of digital government. Though 'monitoring and evaluation' are part of the vision of DG responsibility in the OECD report, there is no paradigmatic model in place to ascertain the development towards DG and DG-EMs in the OECD. Even without a new digital government paradigm in place it is not an oxymoron to relate electronic markets to digital government.

NATURAL MARKETS AND NATURAL ELECTRONIC MARKETS

The practice of markets has a long history. Launched by the highest authority, trade emerged in luxury items such as spices and in basic products like common salt (Hicks 1969). The 'natural' market was local in *barter* subsistence economies where a free choice of products was rare. Industrialization took local markets to a higher level of activity as local markets became national and national markets became international thus providing to consumers a real *choice* between competing products. The need to raise capital in scale demanded *new institutions* – among them the limited liability company – based on stocks that eventually were traded on exchanges set up as mutual organizations admitting only members to the trading floor. Many *new financial instruments* have been invented to facilitate trade in commodities, manufactured products, limited companies, real property and in foreign currencies forming new financial markets.

We brutally summarize the 'full' history of markets, however the apparently ubiquitous practice of markets explains why economic theory has taken the market for granted. In economic theory the creation of a market is not the prime concern. Rather the main focus lies in how characteristics of markets influence efficiency and how to influence these characteristics. The Noble Laureate in economics, Kenneth Arrow, has written that economists

‘really postulate that when a market could be created, it will be’ (Arrow 1974). This we call the ‘natural market thesis’ of economics.

Discussions of the ‘natural market thesis’ have shifted the focus to institutional economics: A comparative institutional theory of the two ‘naturals’ – market and hierarchy – seeks to explain the conditions under which one form predominates over the other. The thesis of comparative advantage of electronic markets over electronic hierarchies and the thesis that electronic markets are more transparent and have lower transaction costs of search and contracting all have stimulated much research regarding whether EMs would be more efficient than conventional markets.

In the field of management information systems Malone *et al.* (1987) proposed that digitalization decreases transaction costs of communication, brokering and integration (of value chains in business organizations) and that these efficiencies would lead to a comparative institutional advantage favouring electronic markets over electronic hierarchies. Malone *et al.* argued, however, that IT would affect both markets and hierarchies by reducing production costs in either (‘the electronic communication effect’). High asset specificity and high complexity of product description account for high transactions costs, therefore, hierarchy is the most likely mode of allocation in such cases. Since both asset specificity and product description are high in information and communication content an increase in digitalization is bound to reduce coordination costs. Further, they also suggested that analysts consider time-specificity. Information goods, such as financial news, are significantly less costly to make available digitally than in any other known physical format. Supposing markets are more information and communication intensive than hierarchies, as in the case of high asset specificity and complex product descriptions, then market imperfections are likely to proliferate and will elicit high coordination costs. According to Malone *et al.* producers are motivated to reduce alternative sources for buyers, logically opting for an electronic hierarchy where each buyer is linked to the producer’s database. But consumers prefer higher levels of choice leading them to push for alternative suppliers, thus shifting electronic hierarchies into electronic markets.

Distributors may establish electronic links to producers in an electronic hierarchy, but Malone *et al.* expect these links gradually to become electronic markets as the number of producers increases and standard communication and information links take precedence over proprietary ones. Malone *et al.* also conjecture a development path starting with biased markets or electronic hierarchies and moving towards unbiased EMs possibly followed by personalized EMs, whereby bias is reintroduced but as a customized service. These predictions seen in the context of the WWW on the Internet are still relevant to any study of EMs, but they

are couched in abstractions in which the design issues of EM are left unaddressed. Malone *et al.*’s thesis on the expansion of EMs should lead to relatively more companies in the markets as well as to more competitive markets. These conjectures have been subject to research.

Economists examine whether EMs are efficient, transparent and evolving into maturity in terms of stability, i.e. whether EMs ‘represent the economic ideal for frictionless markets: low search costs, strong price competition, low margins, low deadweight loss’, triggering research examining business-to-consumer EMs (Smith *et al.* 2000).

Efficiency has been studied in terms of four indicators: price levels; price elasticity; menu costs; and price dispersion. Findings from several studies (Bakos 1997, 1998, 2001; Gurbaxani and Whang 1991) corroborate expectations that EMs would evince price levels, elasticity and menu costs that are lower, whereas price dispersion is larger than in conventional markets. Interpretations for this surprising result include immaturity of markets, customer segmentation and price discrimination among others.

A critical examination of studies of the hypothesis of the comparatively higher price competitiveness of EMs found inconclusive evidence in support and explained why one should not expect more intensively competitive EMs. Researchers pointed first to the most widely used explanations (price discrimination, lock-in effects and bundling) and then turned to address ‘composite goods’, limited market transparency, high endogenous costs and network effects, increasing returns to scale and positive feedback-loops, all factors that work against more competitive market performance (Schmitz and Latzer 2002). All together these factors leave open the question of whether EMs will be more efficient than conventional markets. Recently this journal published a set of papers offering empirical assessments of e-business. The general conclusion was that the impacts of e-business followed strategic thrust (though not always in the anticipated way) rather than what would be expected to follow from propositions based on economic theory (see ‘E-business Impacts Revisited’ focus theme section of *Electronic Markets* 15(3) 2005). Therefore, we conclude that there is no such thing as a ‘natural’ electronic market. Moreover, electronic markets are sensitive to strategy and should not be expected automatically to generate cost advantage over conventional markets (Porter 2001).

Stating the basis for their thesis Malone *et al.* wrote: ‘our primary basis for predicting the evolutionary path of these mechanisms is the observation that both the benefits and the costs of electronic integration become greater as the coupling between adjacent steps on the value-added chain become tighter’ (Malone *et al.* 1987: 495). This has been called the *information value chain integration thesis* that would lead to an expectation of

relatively fewer vertically integrated companies than in conventional markets. We will return to this thesis in a later section.

In the research on ‘natural’ versus electronic markets developments in financial markets hold informative examples. If we look at futures, or financial instruments (information goods), they are produced by an economic organization formed by its members. In finance, the institutional foundation of a market is made explicit by defining ‘a market as an organized institutional structure or mechanism for creating and exchanging financial assets that are claims on real assets’ (Bloomberg.com Financial Dictionary). Obtaining a monopoly by governments, financial assets are traded in a very strict, regulated institutional structure, a stock exchange (also trading in many other financial instruments other than stocks). Thus, due to the ‘information good’ property of market information (prices), economic organizations have been conferred privileges by governments to be established and regulated via the exchange’s statutory rules and central bank trading. When part of the London stock exchange undertook electronic trading the exchange broke down due to trading speed incompatibilities (Clemons and Weber 1990). The event revealed some of the precarious properties of electronic markets operating in coexistence with conventionally traded financial markets. Financial markets are highly competitive and yet are highly regulated – non-natural – conventional and electronic markets.

Another type of non-natural market is one created when a government grants patent protection against copying information for a designated period of time. Patent markets are trading in royalties for others to exploit patents. The nature of an information good obliges government to commission private institutions to undertake patent granting protection according to rules of category of invention and to the rights of the inventor.

The ‘natural’ market in economics is a methodological tool rather than a description of real markets which are institutionalized in widely different ways among other reasons because governments have a tradition of partnering with private companies in market creation.

Government participation has been surprisingly less visible in electronic markets. The influential Bangeman Report of May 1994 argued that the Information Society is market-led, so the broader the market opportunities, the more pervasive the effects because of ‘a new industrial revolution ... based on information, itself the expression of human knowledge’ – prevailed over suggestions to apply Tobin’s tax and other interventions in electronic (and financial) markets (The Bangeman Report, May 1994, Tobin tax, see <http://cowles.econ.yale.edu/faculty/tobin.htm>).

A kind of ‘natural’ market paradigm policy has been applied to the Internet, perceived as a *global electronic market*. In a recent book (Benkler 2006) the same interpretation of the Internet is found, arguing that the

World Wide Web is a proliferation of information systems with a common interface that has created a kind of ‘reality’ with emerging properties of a ‘natural’ electronic market. These emerging properties of production and exchange are market-like *without* property rights and value appropriation. By the sheer mutually recognized presence of ‘others’ in the network, supported by software tools, direct and indirect exchange of information goods is facilitated. The exchange of goods transfer into conventional goods may be less decisive here, since many of these intangible goods expand and enrich the networked information economy (the Information Society of Bangeman) in numerous ways, many of which are exploited in markets of tangible goods.

In his abovementioned book on social production Benkler suggests that the Internet has provided a new peer-to-peer dynamic producing a wealth of networks. He states that:

the technical and economic characteristics of computer networks and information ... provide the pivot for the shift toward radical decentralization of production ... [and] underlie the shift from an information environment dominated by proprietary, market oriented action, to a world in which non-proprietary, non-market transactional frameworks play a large role alongside market production. (Benkler 2006: 18)

The emergence of a substantial component of non-market production at the core of the economic engine presents a genuine limit on the extent of the market. (Benkler 2006: 18–19). A major empirical reference is the proliferation of software components and tools in the ‘sourceforge.net’ communities.

Benkler’s view of limits to the ‘natural’ market adds a more radical agenda than that of comparative institutional advantage in institutional economics. Usually, the ‘natural’ market has limitations due to non-market factors, while here it is suggested that a market-like type of electronic exchange limits the working of conventional markets. Benkler’s boundary to ‘property and markets’ from within the Internet contests the finding, rejecting the thesis that the electronic market represents the most transparent, most efficient and global market ever seen. A ‘natural electronic’ market emerging from within the global network and without basic market properties challenges both the concept of electronic market and the ‘natural’ market presumption that the market is only limited by distorting institutional factors.

What does it mean to limit the ‘natural’ market by another type of ‘natural’, electronic market? Today, information goods can be produced globally and made available equally globally for next to zero marginal cost, and become joined with any other information and be published as yet another information ‘nugget’ at the Internet, equally free to access and use for anyone at any time – as an information good that is both a

synchronous service and an asynchronous information good. A network information economy develops, first due to comparative cost advantages (entry barriers are low and continuously made even lower) and, second due to the advantages from a relevant production of information, knowledge and culture built freely on top of previous social productions. Benkler (2006: 56) writes that:

many more 'niche markets' – if markets, rather than conversations, are what they should be called – begin to play an ever-increasing role in the total mix of our cultural production system. The economics of production in a digital environment should lead us to expect an *increase in the relative salience of non-market production models in the overall mix of our information production system*, and it is efficient for this to happen – more information will be produced, and much of it will be available for its users at its marginal cost.

Like institutional economists Benkler finds limitations to the 'natural' market thesis though for quite different reasons: The social production model of 'natural electronic' markets will limit 'natural' markets. Yet, and contrary to Benkler, 'natural electronic' markets are enabled by hierarchically organized (privately) and state-enabled structures in the case of the Internet (from the basic infrastructure of URLs to open standards based protocols, etc.). Benkler overlooks these enabling and constraining conditions, which may become even more salient given the interventions of the Chinese government in the operations of Chinese Internet service providers.

To conclude, information goods in the network information economy are produced and exchanged by a social production model without property rights and economic appropriation mechanisms, witness the large scale production of (open source copyrighted) software, encyclopedia (wikipedia) and many other goods and services on the Internet. The Internet is not a 'natural electronic' market though it seems so. It is an institutionally regulated network with an unprecedented decentralized access and availability at very low costs thus reducing entry and exit barriers significantly compared to other markets. For these reasons we may call it 'networked markets'. Today this 'networked market' has upset many commercial software markets. For example Linux, Apache, MySQL and OpenOffice are all products freely available over the Internet reducing the market shares of their commercial counterparts.

The liberal state has begun to revise its agenda as a consequence of these changes in production and consumption of information, knowledge and culture, while it still has an open agenda for a digital government. Governments may come to rely more on Internet production as a 'natural electronic' market, a market without property rights restrictions on copying, using and distributing information goods, and without each

processing of information engendering an economic appropriation. An example of exploiting the 'networked market' is found in a roadmap plan for an Open Technology Development policy based upon open source software from the Internet combined with an intranet based open source software production in the Department of Defense in the US (OTD Roadmap plan 2006). Another is the US Federal government's initiative to establish a software component repository (a networked market without economic valuations) built on the principles of open standards, open source code and compliance to Federal Enterprise Architecture Principles (CORE.gov).

ELECTRONIC MARKETS BY DESIGN

After the abandonment of the 'natural' market thesis in economic theory (although not in methodology) and the recognition of a 'networked market' representing radically decentralized information production on the Internet where synchronous and asynchronous exchanges take place without claims of property rights and economic revenues as incentives for the production of the information goods, we are facing the question: How do electronic markets fit in digital government? Analyses can be summarized in the statement that markets are organized institutional structures or mechanisms for creating and exchanging assets, products and services.

There is no theory of a 'naturalistic' design of information systems. On the contrary, all information systems development theories are design oriented rather than 'naturalistic'. Equally interesting, the outcomes of information systems design are 'mechanisms' for production, storage, processing and distribution of information. In this perspective, information systems produce information goods with public good characteristics. This is most evident in Internet-based mechanisms, though there is as much evidence of information systems that lock-out 'non-members' and therefore become a club good where access is regulated by owners. Thus, design of electronic markets determines access and membership, i.e., lock, stock and barrel of its 'mechanisms'. It follows logically that an EM can be designed in consideration of almost anything that will influence its 'mechanism', which is not saying that it will work to reach an optimum.

Several models of electronic market processes have been suggested over more than a decade. One influential contribution is the information process model of Kambil (1992) listing 10 processes (see Table 1). Most economic studies of EMs have stressed only information associated with exchange processes 1 to 4. What is summarized as *valuation* (process 4) in the Kambil model of exchange has been disregarded in many studies overlooking inspection and examination information (on

Table 1. Exchange-related processes

<i>Exchange-related processes</i>	<i>Process description</i>	<i>Exchange-related systems</i>
1. Search	Information processing activities undertaken by exchange partners to identify trading opportunities	Trade search system
2. Communication	The process of exchanging information to support an exchange relation	Market access and communications system
3. Product specification	Information processing undertaken to specify the product features or characteristics	Product specification language and quality standards
4. Valuation	Negotiation and related information processing to determine the price of the good or service to be exchanged	Price formation and evaluation systems
5. Logistics	Negotiation and specification of delivery, and actual transfer of property and property rights	Logistics and routing systems
6. Settlement	Negotiation, specification and delivery of payment for property transfers	Settlement systems
7. Influence	Enforcement of credible commitments, incentives and sanctions to attenuate opportunism risks in exchange relations	Commitments, incentives and sanction system
8. Legitimization	External legitimization or validation of exchange relation	Contracting and legitimization system
9. Monitoring	Information processing to determine if exchange partners adhere to contract	Monitoring system
10. Dispute resolution	Resolution of uncertainties and disputes that arise in the exchange relation	System of decision rights and court ordering or arbitration processes

the spot, time and item specific information) or have downplayed its significance by choice of standard products with no or low inspection information value, for example CDs and books (e.g., Bakos 2001; Smith *et al.* 1999). In cases of (electronic) service the inspection opportunity is indirect or non-existent and, therefore, service is an experience good where ex post evaluations play a role in repeat buying of the service that, therefore, is offered on a subscription basis to facilitate generation of customer experience.

In government contexts all citizens and businesses are in principle repeat 'customers' by the very nature of membership in a nation. Experience good value is often translated into trust or brand value. This aspect of an exchange process is subsumed under search, reducing search costs, though this is very different from non-experiential search and therefore it needs to be stipulated as ex post, contingent information only of value in recurrent exchanges. All governments' legitimacy to some extent depends upon acting trustworthily, and this extends into government purposes pursued in DG-EM. These are some reservations to the Kambil-exchange model relevant in the context of digital government indicating that a broader framework is necessary when considering EMs for a public purpose.

An indication of EM design versatility lies in these distinctions: *Direct search markets* where partners seek each other out; *brokered markets* where agents are

employed to seek compatible partners; *dealer markets* acting as intermediaries to hold, buy and sell product inventories; *auction markets* where traders transact directly through a centralized intermediary (auctioneer) (Kambil and van Heck 1998: 11). These four types of markets are not preemptively determining different market organizations for the simple reason that each can be further specified, for example auctions can be Dutch, English or Vickery in their type. Such differences suggest the complexity of an EM design and why a strategic approach makes sense if it includes a strategy for design, for a participatory building of market transactions, and foremost for making people aware of and engaged in use of this new market (Kambil and van Heck 2002).

The analysis reveals information process complexity in design of EM and that *market creation by design* must include a strategy conditioning the working of mechanisms in any EM. Finally, a digital government, being nationally accountable, cannot choose a basis for design of DG-EM on a purely business oriented information process model.

ELECTRONIC MARKETS FOR DIGITAL GOVERNMENT

Governments adopting EMs to inform citizens better as customers with a choice embark upon a line of

development where information economics becomes relevant to the design of government-triggered markets along with institutional economics of transaction costs. Informed customers trade better than lesser informed which is why consumer policy and competition policy both support measures to ensure information quality and availability (Vickers 2003). Embarking on DG is more than applying information systems to government administration. It is to embark upon a trajectory of EMs according to the thesis of *information value chain integration* mentioned earlier. First, what are the distinctions of government that need to be included in the design of DG-EM? Second, how do these influence the development of DG in the perspective of the *information value chain integration thesis*? Another critical question is whether the role of government changes with the advent of electronic markets?

The shift toward an economy in which information is central rather than peripheral may thus have fundamental implications for the appropriate role of government. In particular, the public good nature of production, along with the presence of network externalities and winner-take-all markets, may remove the automatic preference for private rather than public production. In addition, the high fixed costs and low marginal costs of producing information and the impact of network externalities are both associated with significant dangers of limited competition. (Stiglitz *et al.* 2000)

For the sake of simplicity we will disregard this important question for the present and assume that governments do not need to change their roles and policies due to DG; they only have to change their operations.

Democratic governments are accountable in their operations to several kinds of control, including special auditing services, access of the press on behalf of the public, and citizens and businesses themselves have the right to be informed about their rights and duties. Government agencies also hold other agencies accountable to perform properly. So the accountability of governance is strongly institutionalized. Any DG-EM will be subject to the same institutionalization and exempted from only a few of the obligations and constraints that pertain to government operations.

We address a few of these obligations and constraints pertaining to government services to illustrate our point that governments deal with markets to create politically acceptable market performance and that such considerations also apply to a DG-EM. First, in a digital government context the concept of a market defined for a single (homogenous) product is often too restrictive since governments often want to support a *family of products and services* giving citizens a choice where the citizen needs some degrees of freedom whether it is in the timing of the demand for the service, the mode of delivery, or other particularities associated with a service.

Second, a market transaction consists of a contract of *caveat emptor*, which means that the buyer has full responsibility for checking quality and suitability of the product before taking it over. This would mean that government would be absolved of any responsibility for its products or service to the public, a condition hardly acceptable to any constituency of government.

Finally, the market stipulates the economic transaction (a physical exchange of a good for another, usually a money payment) whereas *information exchanges* that establish the nature, quality, properties etc. of the product or service to the buyer is neglected because this knowledge is assumed to exist *ex ante* in traditional market models. If a government considered product and service information a non-issue it would constitute to failure of governance.

Therefore, applying the concept of EM in a digital government context requires attending to multi-product and multi-service markets; contractual obligations discarding the principle of *caveat emptor*; and an emphasis on information exchange as a precondition for any economic, entitling or otherwise obligating transaction with a public agency.

These three concerns qualify the concept of DG-EM to a multitude of applications that may look more or less market-like in their design. They need to be modelled in information processes particularly accounting for their role in an electronic market. These concerns are not meant to be preemptive but worthwhile in discussing claims and reservations in using EM in DG beyond those presented in commercial exchange models.

The second question in this section concerns the internal logic of developing DG applications. The thesis of *information value chain integration* suggests that any step towards digitalization in the value chain generates a pressure upon adjacent links in the chain to become digitalized, too (Barua *et al.* 1995, 2001; Malone *et al.* 1987). In other words, information processes are viral in organizations and their market relations. Does this thesis apply to governments? If we consider models of DG these are often evolutionary indicating an evolution from a 'simple' to a 'mature' application where the latter often appears like a customized market-like (interactive) application, for example as one-stop shopping for citizens (Layne and Lee 2001; Wimmer 2002). Above it has been argued that EM comes about by design which would establish constraining factors to any change as for any other information system. This does not exclude a pressure for further digitalization of inputs and of complementary processes. Yet, it is only on the Internet where property rights are not evoked and a price is not demanded that the barriers to digitalization pressures are low and that we expect to find viral development of information systems, including EM. In the context of DG it would be much more likely to find constraining factors operating, meaning that any public application has grave difficulties in being seen as a first

step in a series of systems developments expanding across administrative silos and systems (Fountain 2001). It would take a powerful strategy as well as political power to arrive at both vertical and horizontal integration of information systems. This is evident in the stop-go character of many nations' deployments of public information systems and this also explains why we still see rather few examples of electronic markets in digital government.

THEME PAPERS ON ELECTRONIC MARKETS FOR DIGITAL GOVERNMENT

A theory of digital government has not emerged from the hundreds of articles written in recent years on digital government nor has a paradigm been established. We claim in the call for papers that electronic markets represent a viable and fruitful conceptualization of the change from bureaucratic government to digital government, meaning government as a decision-making and allocating mechanism, wedded to periodic public elections of politicians constrained in the short run by constitutional institutions, yet having the potential power to change constitutional rules in the long run, legitimately authorized to govern and to appoint civil servants to enforce obligations and to service the needs of the public.

In line with these directions four papers have been selected for publication in this focus theme section on 'Electronic Markets for Digital Government' (out of 27 initially submitted papers, resulting in an acceptance rate of 15%), which can be grouped into two categories. The first category includes two papers presenting research on new innovative forms of EMs in government. The first paper of this first category concerns the use of 'Electronic Markets for Allocation, Financing and Distribution of Public Goods'. It argues that EMs can be used not only by the executive branch of government, but also by its legislative branch, for supporting and enhancing one of its main functions: the creation of laws that govern the allocation, financing and distribution of public goods. It proposes particular EM mechanisms for these purposes and identifies basic barriers to their practical application and potential solutions, based on a review and synthesis of literature from economics and political science. Finally it concludes that the use of appropriate EMs in the above areas can correct distortions in the current political system, augment critical government functions, transform the relationship between government and citizens, and finally transform our current 'Thin Democracies' into 'Strong Democracies'.

The second paper in this category concerns 'Electronic Markets Connecting Citizens to Pension Reform'. It argues that EMs can be used by public agencies, not only for enabling electronic transactions of

citizens and enterprises with government and for electronic public services delivery (which is the 'dominant paradigm' today), but also for influencing citizens to behave in line with public objectives, in this way enabling new forms of 'electronic governance'. It is based on two case studies (founded on the 'Actor Network Theory') of two EMs that aim to connect citizens to pension reform in Sweden; in particular, these government EMs attempt to influence the choices of the individual citizen both in the labour market (selection of jobs) and in the capital market (selection of pension funds), in accordance with the political objectives of the pension reform. The paper concludes that EMs can be effective mechanisms for improving citizens' knowledge about all possible pensions' sources and 'for enhancing the quality of their choices of pension funds, in this way contributing significantly to the success of a critical political objective: the pension reform.

The second category of this focus theme section includes two papers researching mutual influences between typical 'commercial' EMs and 'digital government' EMs. The first paper examines the 'opposite' direction: it investigates 'The Effect of Enabled Capabilities on Adoption of Government Electronic Procurement System by Malaysian SMEs'. In particular, based on a survey of 206 CEO/Owners from Malaysian SMEs and on qualitative research, it investigates the effect of their internal IT-related enacted capabilities (which are associated to a considerable extent with their participation in 'commercial' EMs) on the adoption of government electronic procurement systems (which constitute basic types of 'digital government' EMs) by them. From the survey data collected the authors construct structural equation models, from which (in combination with the results of the qualitative research) it is concluded that internal IT-related enacted capabilities affect positively the perceived net benefits from the adoption of a government electronic procurement system, which then positively affect attitudes towards this adoption from a competitive perspective.

The second paper in this category focuses on 'Exploring E-Government Impact on Shanghai Firms Informatization Process'. Based on a survey of 1,540 firms from 14 industries in Shanghai (founded on 'Process Models' and the 'Resource-based View of the Firm') it investigates the effect of e-government services-capabilities provision and also of IT-related government regulation and promotion activities in the development and use of IT infrastructure by private companies. Such infrastructure is of critical importance for their participation in 'commercial' EMs, and therefore for the entire growth of EMs in this area. Using the data collected from this survey, and following a structural equation modeling approach, the authors conclude that the provision of e-government services-capabilities by the government positively affects IT infrastructure development in private companies, and also that IT-related

government regulation and promotion activities positively affect the development of their IT management systems and policies.

We close this preface/introductory paper of this Focus Theme Section by pointing out that extensive further research is required in the area of 'Electronic Markets for Digital Government', and in general on the interrelation between EM and DG, mainly in the following directions:

- New innovative forms of EM in government (new ways of using the capabilities of EM in government), which support and enhance critical government functions; pilot implementation and evaluation of such forms; identification of their impact, advantages and disadvantages; identification of barriers to their 'real-life' application and of solutions.
- Similarities and differences between commercial EMs and digital government EMs; transfer of knowledge and experience between them; interrelations and mutual influences between commercial EMs and digital government EMs; also common infrastructures, integration of commercial and government EMs and their impact.
- New functions, responsibilities and roles of government due to the advent of electronic markets, which result in many changes in the economy and the society (e.g. such as the ones mentioned by Stiglitz *et al.* 2000); also needs for government intervention (e.g. regulation, monitoring) in some types of EMs, which enable new types of behaviours by some stakeholders that can have extremely negative consequences to other stakeholders, and in general cause major changes in power balances (e.g. in electronic capital markets with just 'one click' huge capital can be transferred to different countries and markets, even several times in the same day, resulting in large 'unfair' profits and also in considerable problems at the company, industry and country level, which necessitate government intervention, etc.)
- Methods of designing and architecting EM for DG and provision of proper governance for these 'mechanisms' to ensure that they serve public, political purposes.

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