EEE: Electronic Commerce and Eastern Europe

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Introduction

The rapid growth of electronic commerce and the Eastern enlargement of the European Union are two processes that will change the life of many European citizens in rather dramatic ways. But apart from this rather obvious similarity these two processes seem to reside in different spheres of experience, at least this is what common sense would suggest. While e-commerce often is viewed as a typical Western, technology driven dynamics, the European Union's efforts to incorporate a handful of Eastern European countries seems to be the direct opposite: A policy driven initiative that mainly will have to struggle with the sluggish adjustment mechanisms of the East. The purpose of this paper is to show that such a dichotomy is not justified. Indeed, the argument of the paper provides a bridge between these two pivotal processes – walking over this bridge, forth and back, provides substantial additional information on both processes.
Another aspect of establishing such a link between the two spheres is that one is forced to look into a diverse set of bodies of specialised literature. Though this is quite the opposite of standard behaviour in most scientific disciplines – narrow specialisation still is the dominant game played, this more encyclopaedic research is far closer to the actually experienced, interwoven political, economic and technological developments. The practically oriented reader thus can use this walk to get an idea where it may be worthwhile to dig deeper. And, as is the case with some bridges, the arc that it spans between its endpoints might allow to look a little bit further.
The structure followed below proceeds from more general observations to some rather singular questions. Having discussed both some particular policy options, including technology policy options, are discussed.

General Observations

The possible success of electronic commerce often is described in terms of ***static comparisons of technical systems***: New technical systems are faster, smaller and offer more storage than the current generation of electronic equipment. Therefore the inevitable track of future developments follows the implications of technical enhancements – at least this is what this view purports.
'Information technology has reduced the cost of purchasing, helped manage supplier relationships, streamlined logistics and inventory, and reached out to new and existing customers more effectively.' [1, p. 9]
Note that it is not the traditional, heroic icon of economic theory, the entrepreneur, who turns inventions into innovations, who is responsible for these changes in firm behaviour – it is 'information technology' itself. To ignore the extremely difficult transition from an existing invention to a successful innovation, and to believe in a somehow independent and automatic progression of technology surely is deficiency of this view. Information technology is not a subject, it is not an actor in the sense that firms, households and individuals are actors –

technology is an epi-phenomenon. A closer look at actual innovative processes would reveal that the standard experience of an entrepreneur launching an innovation is not successful progress, it rather is failure and disappointment. Success is the exception, and it is only the filter of ex-post consideration of the sequence of surviving technologies that hides this fact. But without going into this inner dynamics of failure and success in some detail, it is not possible to say something about the direction in which technical systems will evolve. The term 'technical progress' remains an empty concept.
But there are a few merits of this methodology too. To some extent a simplistic extrapolation of possible uses of newly invented technologies produces visions, utopian settings that might stimulate innovators as well as virtual consumers. And in some cases the interaction of visions can produce actual behaviour – still with a high probability of failure, of course.
As is already visible in the cited sentence above, comparative statics then often expands into a list of different areas, where the two sets of technology are compared. A typical scheme for EC technologies is presented in table 1.

Table 1

	w.p.u.	b.p.u.	m.	b.h.h.	w.h.h.
Old Technology	Algo-0	Algo-1	Algo-2	Algo-3	Algo-4
New Technology	Algo-5	Algo-6	Algo-7	Algo-8	Algo-9

The column w.p.u. (**w**ithin **p**roduction **u**nits) provides a description of algorithms using old IT devices in entry Algo-0 and a description of algorithms using new IT devices in entry Algo-5. The other columns provide analogue descriptions for processes between production units (b.p.u.), markets (m.), between households (b.h.h.) and within households (w.h.h.). Note that Algo-0 to Algo-4 must be consistent enough to enable the overall reproduction of the described social system. For an envisaged, not yet existing system with Algo-5 to Algo-9 this constraint is less binding, though complete ignorance of consistency would hurt the strength of the vision.
To draw such a complete picture is probably as far as comparative statics can go.

Instead of comparing two sets of possible technologies at a point of time, one could concentrate on the process that leads from an older technology to a newer one, concentrate on **dynamics**. A second look at table 1 reveals who the actual agents that drive technological development might be:

- In column w.p.u. it evidently is the group of persons that introduces new technologies in a production unit. This social character traditionally is called the entrepreneur[1].
- In column w.h.h. it is somewhat less clear how the group of human individuals constituting a household decides to introduce new IT technology. Indeed mainstream microeconomics is of no help, since its building blocks are single individuals[2] with given preferences and confronted with a given technology. What is needed is a theory of need development - of dynamically changing utility functions - in conjunction with a theory of decision making processes in households. Clearly such aspirations turn standard microeconomics upside down.
- At the next step from these two sets of basic agents towards the market processes where they meet, in column b.p.u. and b.h.h., their interaction (and thus the IT

[1] Note that Joseph Schumpeter [2] already 60 years ago saw that in the late 20th century this social character will not be a single innovative physical person any more, but rather groups of persons within large corporations.
[2] Nobel price winner Gary Becker [3] even tried to dissolve the concept of a family in this mainstream framework. Though this attempt is partly questionable, it at least addresses an important problem.

technology supporting it) cannot be determined by a single basic agent. It has been implemented by a ***political institution*** : a group of persons equipped with appropriate devices for rule enforcement and strongly enough legitimated by power delegation from the basic agents to guarantee a certain stability of the political institution. Indeed it needs an enormously large set of political institutions to manage and enforce the rule sets that the highly interdependent economic activities in our industrialised world need. I will call this set political infrastructure (compare table 2). Note that political institutions also interfere in columns w.p.u. and w.h.h., though within limits.

- Finally it becomes evident that market mechanisms are developed in the context of the political infrastructure too. Far from being self-enforcing and spontaneous meeting places – an often heard misleading metaphor – market mechanisms and market rules are enforced by market-makers. The latter are political institutions which use the power delegated to them to devise a market mechanism that allows market participants to use this well-defined mechanism without regard of their immediate direct coercive power. All their power in the market place typically is concentrated in the amount of money and commodities that they command[3]. Political institutions as market-makers thus have the very specific property to transform power into economic power.

The dynamic version of table 1 in table 2 gives a first impression. In the transition from the old system to the new system it could either be basic agents, or political institutions, or coalitions of subsets of these two groups that act as driving forces. To generate more information about this process it is necessary to assume goal functions for the involved agents, including those of political institutions.

Table 2

	w.p.u.	b.p.u.	m.	b.h.h.	w.h.h.
Old Technology	Algo-0	Algo-1	Algo-2	Algo-3	Algo-4
Old political infrastructure	Old political insitutions				
↓	↓	↓	↓	↓	↓
New Technology	Algo-5	Algo-6	Algo-7	Algo-8	Algo-9
New political infrastructure	New political institutions				

The goal function for a production unit in a capitalist environment seems to be obvious: Maximise profits. This is basically correct, but needs some further qualifications. It sometimes is reasonable for a firm to deviate from profit maximisation for some time, e.g. to lower prices below marginal cost, in order to eliminate a competitor. After this intermediate goal is reached, immediate profit maximisation takes over again. A necessary ingredient for goal functions of firms therefore is a time profile that important expected future profits at well specified points in time are today – the present value of any investment (understood in a broad sense) should be computable.

The goal function of a household, given the assumption of endogenous dynamic utility functions made above and strategic behaviour of household members is extremely complicated to model. The two almost trivial suggestions of standard microeconomic theory, namely that more consumption is preferred to less consumption, and that a falling relative price of a commodity increases its share in a typical consumption basket, are not a substitute for such a complicated model of household behaviour.

[3] Of course, varying bargaining skills, the different ability to influence other participants expectation processes and the like will produce deviations from this rule.

Finally the persons working in political institutions play dynamic strategy games with time-varying utility functions, somewhat similar to games played in households. This is not only the well-known problem of bureaucracy, this is the much more fundamental problem of the design of incentive compatible political institutions.

With these goal functions it should be possible to say something about the chances to move from the old system to the new system, where to intervene to support this process. But wait, there is a very important feedback still missing: Political institutions are not exogenously given, they are products designed by basic agents. Even in the short-run the persons steering them usually are elected by basic agents. Basic agents thus assume two roles, their original role with original goal functions in production units and households, and their role as citizen, as political entity that delegates specified power to political institutions.

This last feature added to the dynamic view immediately shows why technology policy (E-commerce support) as well as a policy that incorporates large amounts of basic agents and their mainly different political institutions (EU enlargement) is so hard to understand. It is not just the question 'How do we get from here to there?", it is the question "Which coalition will carry us – against some opposing coalition – from here to there? And what will the 'there' of the carrier coalition look like, when we arrive?".

At this point of the argument one probably would call for more specification. It seems to be necessary to look at explicitly defined cases to gain more insight. And this is what the next chapter provides.

Singular Observations

In the late eighties large parts of the institutional structure in Eastern European countries broke down. In particular major national bodies regulating macroeconomic aggregates were eliminated. Western consultants of the newly emerging political leaders in the East often became prey of their own ideological exaggerations of the natural character of market economies. Even after many years no spontaneous emergence of entrepreneurs and markets occurred, the implementation of a 'naturally' evolved capitalism failed. A closer analysis of the involved entities along the lines of the last chapter can give some answers. Here are a few:

1. If the rule enforcing **political institutions in a state vanish**, then the immediate consequence is that **the activities of unlawful actors increase**, their business booms. The most prominent recent example for this process has been the deterioration of law in the states of the former Soviet Union, but there are many others. From a theoretical point of this question also has received increased attention in the last years, two directions of research stand out.
First, on a very fundamental level, the decision of the using direct power to acquire another entities assets (neglecting existing rules) or bargain via a market process (accepting the rules) has been formulated as economic decision, see e.g. Jack Hirshleifer [4] most interesting recent book. This approach can be extended to include also the possibility to exert non-market power by strategic information production, see [5] for an early treatment or [6] for a more recent contribution. This type of extension is relevant for IT research, simply because IT provides the instruments to produce information, particularly for mass communication. The study of communication processes thus has been flourishing recently too (compare [7], [8]), though the confluence of economic, sociological and technical contributions is far from being satisfactory. Note also that Herbert Simon [9] very early highlighted that the very emergence of production units as firms has its major rationale in the economic savings that are possible

with the better organised communication system of a firm. This strand of theory building does not simply brand certain actions as criminal with reference to a given set of regulations, it rather works on the extension of theory to incorporate and to understand such actions in a wider framework of human and institutional behaviour[4]. Of course, such a better understanding then could be the starting point for the design of more useful regulation systems.
The second research direction concentrates on the economic activities in international financial markets that escape the legislative bodies of the major industrialised blocks[5]. Here again theory tried to disentangle which activities can be considered to be on this, and which are on the other side of the border to criminality (with respect to a suggested common notion of legal actions, a problem in itself). This type of research seemed to be extremely urgent – even before the 11th of September 2001 – because in the view of many experts in the field a global financial crisis was looming. In a sense this crisis now seems to unfold, and a fundamental re-design of the global monetary system, a rule system again, will have to provide clear definitions of the mechanisms for political institutions – what is legal, what is criminal. Modern mechanism design has to pay particular attention to the incentive compatibility of the new rules. They concern the centre of both processes addressed in this paper; they are crucial for electronic commerce and they are crucial for the economic performance and stability of nation states and continental blocks. A rich body of interesting research has evolved in this area, e.g. [13], [14] and [15], but it is rather questionable if policy-makers and their consultants will indeed use these theoretical insights.

2. The organisational structure of production units and political institutions is a crucial element to be considered – there is no spontaneously emerging 'natural' (neo-liberal or capitalist) organisational form. Path dependency in the evolution of production units as well as in the political infrastructure these units are embedded in has to be taken serious. Again the theoretical study of path dependency has received increased attention in recent years, see e.g. [16], [17] and [18]. Several non-mainstream attempts to apply these models to Eastern European developments were developed. In the area of e-commerce these ideas often are implicit in managerial perspectives, compare [19], though the explicit link to economic theories is rare. There also is an evolving empirical literature on governance and economic performance of corporations, see [20].

3. The macroeconomic environment of the trading partners of transition economies plays a very important role for the transition process. One aspect of this problem area is that the transition process coincides with the emergence of continental economic units, the famous Triade. Thus a new macroeconomic global framework is in the making, compare [21] for an introduction to the topic. The other important aspect is the fact that this influence mainly is exerted by **monetary variables**, like exchange rates, interest rates and monetary indices describing financial soundness. International monetary policy therefore immediately influences even small production units and households. Note that the carrier systems of these monetary variables are electronic media, their use is based on social acceptance and enforceable contracts, expectation formation processes are crucial. Monetary developments, like the introduction of the EURO or the development of the EURO-Dollar exchange rate are directly intermingled with political processes – and both depend on the technological features of the carrier media too.

[4] For an excellent historical review of these questions on a macro-level compare Peter Paret's work [10].
[5] See the work of Lester Thurow for a better understanding of the notion of industrialised blocks [11], [12].

Enter now the envisaged Eastern enlargement of the European Union. Indeed, the new place of added social entities still has to be determined[6]. In a sense this means that in table 2 the development in each column has to be specified. Of course such a detailed treatment is beyond the scope of this paper. The remarkable fact to be highlighted here is that it is not only the structure of production units that has to be considered and that then will induce all other changes. Households and the political infrastructure supporting the other columns are at least as important – and they are subject to e-commerce and e-government induced technological changes too. The interaction of the whole systems has to be taken into account.

Of outstanding importance is the role of Western political institutions and firms: It will be their vision of e-commerce and e-government that will be playing a leading role in introducing e-government and e-commerce in transition economies. Past experience has shown that the images of the functioning of market economies of local players in transition economies often have been naïve, to say the least. These experiences surely translate into questions of electronic government and electronic commerce. The responsibility of Western entities in this respect should be made very explicit, it will be beneficial for Western Europe too. What transition countries need is a clear-cut economic and political transition path to a future e-Europe that is worth to approach. By the way, households in Western Europe would be grateful for such a perspective too.

Some Specific Policies

Let me start with E-government. It can be defined as the scientific area that studies IT-supported rules for interaction between units in the sense of table 2 and questions of implementation of such rule sets. From the relative stability of such rule sets – i.e. they remain essentially unchanged for certain periods of time till the eventually are reformed – follows the typical **structure of e-government topics**

- The stability of the sets of rules and institutions is the focus of IT-supported law issues,
- The relative flexibility of the sets of rules and institutions is the focus of e-democracy feedbacks and voting theory,
- The IT-support of the continuous flow of action between the above two is the focus of e-administration.

Unfortunately much of the current work in e-government concentrates exclusively on the third of these areas, ignoring that it only makes sense if its context, embodied in the first two areas, is specified as well. For transformation economies this is particularly important, since the recent shake-up of their political infrastructure has left systems that easily can destabilise completely. Applying theoretical approaches to these urgent questions is mandatory in the moment.

E-commerce should be defined in a broad way too: It is any IT-supported production and exchange. The somewhat unusual part of this definition is that also IT-support within production units falls under this header (compare table 2).
The introduction of e-commerce then follows the goal-directed behaviour of firms:

- There is a continuous increase of IT-support due to profit maximisation via cost reducing technologies.

[6] One of several important contributions is that of Kandogan [22], where the question of voting power is discussed.

- There are sudden bursts of new IT-investment due to sudden changes[7] of the business environment in certain areas.
- And finally there is a dispersion of already introduced IT-support through the adaption of firms to the confluence of technology, policy measures and economic mechanism designs they are exposed to.

For the support of transition economies the goal should be clear: It is the implementation of adequate democratic governance and the supporting economic systems. In that sense the European Union's Eastern enlargement is an extraordinary but extremely challenging opportunity, since

- The EU itself is still an emerging political entity. There are many undefined policy areas including insufficient, e-democratic feedback from Europe's households. Decision processes are slow and not transparent.
- Severe global economic crisis is ahead. This will slow down initiatives on all levels.
- The recession of the new economy has been a very severe setback. It now is on its lower turning point, but the turn-around of expectations in the broader public will still need some additional time.

But there are positive signs too:

- Social entities in the East as well as in the West are in flux. They are open for change and the current crisis can make them to enthusiastic followers of intelligent, new proposals if these proposals work for them.
- The European Union's as well as the global market mechanisms are under forced re-design. This is a chance for a conscious, global democratic initiative.
- There is a slight shift within the Triade towards Europe. North America is currently very unlikely to perform a soft landing in the recession ahead. Considerable amounts of capital now flow back from the US to Europe. Japan still has not mastered to signal financial stability to become a serious competitor. European initiatives thus might be able to have enough financial support for large scale innovations, including social innovations.

With these perspectives the scientific community as well as the business community in the area of e-commerce and e-government should start to double its efforts to make the optimistic path of future evolution become reality.

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