INTER-RELATION BETWEEN INFORMATION SOCIETY AND EGOVERNMENT DEVELOPMENTS IN THE NEW MEMBER STATES

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This paper integrates the research results of in-depth case studies of Information Society developments in New Member States, three Candidate Countries, and some members of the EU15. Based on a better understanding of IS development paths in these countries and the related factors influencing them, this article discusses the potential inter-relations and synergies between IS developments in general and eGovernment developments in particular, and poses new questions for research.

1. Introduction

Immediately after the fall of the Berlin wall in 1989, thirteen countries began the process of joining the European Union. Ten of these became new member states (NMS) in May 2004.

In 2000, the Council of European Ministers meeting in Lisbon formulated common targets to make the EU the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion by 2010. All thirteen NMS and candidate countries (CC), though still striving to achieve the conditions of the enlargement process, signed up to these "Lisbon targets".

The major aim of this research has been to identify IS strategies for the European countries that would support their economic and social development towards the Lisbon objectives for 2010. In this context, in-depth analysis has been carried out at national level for the NMS and CCs[3], to better understand current IS developments, the relevant economic, political and socio-cultural factors which have contributed to IS development paths in the last decade, as well as indications of future possible developments and upcoming challenges.

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[2] *Disclaimer: The views expressed in this article are the authors' and do not necessarily reflect those of the European Commission.*

[3] The 10 New Member States since May 2004 are Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. The three Candidate Countries studied are Bulgaria, Romania and Turkey.

This paper integrates the research results of country case studies conducted by research institutions in eighteen European countries, including all thirteen NMS and CCs[4], and some members of the EU15[5]. Based on a better understanding of IS development paths in these countries and the factors that influenced them, the paper discusses the potential inter-relations and synergies between IS developments in general and eGovernment developments in particular, and poses new questions for research.

2. An assessment of ICT use in NMS

The analysis of ICT use requires a quantitative and qualitative analysis of ICT penetration rates, access and use. It also requires data gathering on the various patterns of behaviour of households, businesses and government institutions, and must consider both content production and human capabilities.

The research shows that the IS developments in NMS and CC are slowly catching up with developments in the EU15 rather than leapfrogging them, even if much has been written about the huge growth and potential of mobile telecommunications, the excellence of the skilled workforce or about the importance of Foreign Direct Investment (FDI) flows to the emerging ICT industry. We present hereafter a selection of the more relevant results which came out of the wide data analysis and country studies carried out [1] [5-18].

First of all, national reports time series data show several positive developments. The growth rate in both use and supply of ICT has significantly increased in recent years in most NMS and CCs. Moreover, still low levels of ICT consumption have been rising faster in the recent years than in the second half of 1990s, and in relative terms, ICT spending as a share of GDP is higher in these countries than in the former EU member states (see Table 1). In particular, governments are increasingly focusing on such investments and this should also contribute to a continued increase in ICT use.

In spite of these positive developments, the figures reflect significant gaps inside, among NMS and CCs and between these and the former fifteen member states (see Table 1). Indeed, research shows that today, all NMS and CCs mostly have lower ICT penetration rates than the EU15 average. These developments may be a consequence of the overall economic growth, however, not in all cases. On the one hand, some countries with low GDP per capita do much better in specific indicators, while on the other, and opposite to economic growth rate differentials, gaps between the NMS and CCs and the EU15 are widening in some cases (for

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[4] Over two hundred experts and researchers were involved in this research programme, in original research, interviews and workshops. The research programme covered data gathering, analysis and a synthesised assessment of those economic, political and socio-cultural aspects that could influence IS development in each of the countries. All data quoted in this article are based on this research. Detailed information is available at: http://fiste.jrc.es

[5] EU of 15 Member States until 1 May 2004.

example, in PC and fixed line penetration rates). It might be said that convergence towards the EU15 average is taking place, but the process is highly dispersed. Furthermore, the overall economic situation in the NMS and CCs - and the resulting uneven income distribution - is widening the gaps *inside* each country, between people (different age, education and income levels), organizations (different sizes), regions (rural and urban) that can access advanced technologies and services and those for whom they remain out-of-reach. While social divides are widening, the uneven diffusion of new technologies brings an additional complexity to these divides.

	Access Path[i]	Fixed lines /100 inh	PC/100 inhabitants	Internet users (%)	Digital Divide Index[ii]	ICT market value/GDP, %
BG	70	36	4	9	33	10,3
CZ	127	39	30	36	49	9,6
CY	136	38	21	33	n.a.	n.a.
EE	106	34	23	34	50	11,7
HU	106	25	12	21	37	9,2
LT	78	29	18	18	40	7,7
LV	69	32	14	16	37	10,3
MT	122	20	28	33	n.a.	15,5
PL	72	26	13	13	49	7,2
RO	45	41	8	11	32	6,8
SK	87	68	20	19	45	9,3
SI	123	53	32	48	44	7
TR	63	27	6	10	n.a.	5,5
EU15	135	55	36	40	53	6,1

Table 1. Summary table on IS indicators in NMS and CC (2003). i) combination of fixed and mobile penetration rate, ii) DIDIX, comprises indices of gender, age, education and income.

More specifically, when considering the whole set of ICT use indicators, six countries – Cyprus, Czech Republic, Estonia, Hungary, Malta, Slovenia – seem to be globally better positioned than the others, with mostly higher rankings on any observable indicator. Slovakia, Latvia, Poland and Lithuania share the middle profile, while the remaining three CCs – Bulgaria, Romania and Turkey – hold at markedly weaker positions.

3. Factors that influenced past IS trajectories in NMS

GDP growth, disposable income and resulting expenditure patterns (ICT expenditure as a share of GDP is higher in countries with higher GDP per capita) explain – but only partly - the positioning of "better-off" countries in terms of ICT use. Indeed, the various indicators and qualitative observations clearly show that, besides economic growth and income level, other factors have proved equally as important in the spread of ICT use. These should be considered when explaining, for example, Estonia's position (low GDP per capita / high ICT use), the comparatively low ICT expenditure in Slovenia, or on the contrary, the comparatively high expenditure in Slovakia and the resulting ICT use levels. Furthermore, as compared to the EU15, in some areas such as mobile telephony, spectacular growth rates have

allowed NMS and CCs to catch up in technological diffusion/adoption terms and to show penetration rates, in some cases, higher than EU15 average. Thus, while economic growth and the level of economic development have, as expected, been strongly correlated with ICT spending, some countries show a different pattern due to country specific factors.

Still, one has to acknowledge that countries with lower GDP per capita were not in a position to catch-up during the1990s, despite showing tremendous ICT penetration growth rates. The absolute and relative values (as a % of GDP) of the ICT market in NMS and CCs are much lower than in the majority of individual EU15 countries: the corporate sector's and households ICT spending is much lower in absolute and relative terms than in better-off economies. However, considering the experience of EU15 countries as well as the likely progressive income convergence of most NMS and CCs we can expect spending levels to increase, resulting in higher rates for those countries in the coming years. However, this growth is also expected to take place at different speeds, with different patterns in different countries, and in some countries, the potential slower speed of developments might generate additional lags.

These conclusions point to the importance of better understanding how national/regional contextual factors and conditions have created favourable conditions for achieving IS related developments. The findings point at ten important economic, political and socio-cultural factors across the NMS and CC that have strongly influenced their IS development trajectories since the mid 1990s (see Table 2 below). These ten factors are common to all observed countries and have impacted their IS developments in the last decade. Seven of them appear common to the five observed European countries/regions.[6] They are not specific to transition economies or to countries in the process of accession. Of course, the way those factors have influenced in each of the countries has been specific to their economic, political and social history, affecting positively or negatively the country's IS development. The three remaining factors are deeply rooted in the political and economic history of the NMS and CC and have played a much greater role in determining IS developments in these countries than in the EU15.

All ten factors might also impact IS developments in those countries over the next decade. These are not simply factors "of the past": this depends strongly on the degree to which the forces behind each factor have developed their driving potential towards a level that would still impact the emerging IS. Such an assessment has to be carried out on a permanent basis at each national, and sometimes, regional level.

Finally, the analysis of the relevant factors influencing past and future IS developments in the enlarged EU points at three emerging challenges that are expected to impact each country differently by 2010: the increasing competitive pressures, the growing social divides, and the expected tensions between economic growth, demographic ageing trends and education structures. Though they were less acute during the last decade, these challenges are now

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[6] Five case studies in EU15 have been elaborated: in Austria, Belgium (Flanders), Germany (Dresden), Greece and Ireland.

emerging as additional issues to address, on top of those inherited from the past, only some of which may have been solved.

	Common factors	Specific factors to NMS and CC
Economic	1. Economic structural changes 2. FDI & other financing tools 3. Corporate Sector and ICT industry	8. Economic growth, macro economic stability and the health of public finances
Political	4. Committed and collaborative IS policies 5. EU policies	9. Regulation and related institutional settings
Cultural and social	6. Education 7. Contextual factors (f.e. geographical or cultural proximity)	10. Consumption patterns

Table 2: Major factors influencing IS developments in NMS and CC

4. Inter-relation between IS and (e)Government developments

1 Influence of ICT use on eGovernment development

Internet usage statistics show that, although there is an increase in the use of eGovernment services, the use of Government on-line services do not yet represent today a "killer application" which would generate a sufficient motivation among citizens to acquire the necessary infrastructure and skills to use them. Thus, the pre-existence of Internet access infrastructure and skills seems a prerequisite for eGovernment services adoption by citizens.

With this preliminary consideration, specific characteristics of IS developments and ICT use in NMS and CCs might shed some light into potential eGovernment adoption trends. On one side, the current low Internet and PC penetration rates among the population, and the still early stage of broadband developments [2] will with no doubt influence the take up of eGovernment services provided through Internet and the consequent business case for the necessary governments' investments. On the contrary, the high mobile penetration might provide the channel for a wider provision of Government services, as already is taking place in some of the countries analysed.

Furthermore, the trends identified on ICT use, characterised by slow and dispersed convergence towards EU average, where some of the existing gaps have not narrowed but, in several cases, have significantly widened since 1998 (such as for the fixed lines penetration and PC use), do not seem to change dramatically, in a short term perspective, the available (limited) access infrastructure.

Finally, there are widening gaps inside each country, between people (different age, education, and income levels), organizations (different sizes) and regions (rural, urban) in access to advanced technologies and services. These "digital divides" created by the uneven

diffusion of and accessibility to new technologies are adding complexity to the existing social divides, and are expected to influence eGovernment developments as well.

2 How IS influencing factors do also influence eGovernment developments

Some of the factors identified as influencing past (and future) IS developments (Chapter 3), are expected to have both a direct and an indirect effect on eGovernment developments.

A well developed supply ICT industry stimulated by a strong FDI is expected to have a positive impact on the modernisation of the public administration and on the implementation of new eGovernment on-line services.

Policies aiming at developing IS in general, for example, providing access for all (such as the deployment of Public Internet Access Points) or aiming at developing ICT-skills through different forms of education, are expected to positively impact eGovernment adoption.

Policies aiming at establishing a competitive telecommunications market, leading to improved quality of services and competitive prices, could stimulate Internet adoption in general and the use of eGovernment services in particular

Finally, the current social changes, which are leading to evolving consumption patterns towards an increased share of income devoted to leisure and telecommunications, are also expected to positively impact the demand for and adoption of eGovernment services.

3 How eGovernment policies and developments can contribute to IS developments

(e)Government developments and policies can have a significant effect stimulating the development of Information Society, both on the supply side, contributing to stimulating the ICT industry development, and on the demand side by stimulating the use of ICTs by citizens, by the public and the private sectors, and, finally, addressing digital divides.

Firstly, governments spend an equivalent of 45% of EU's GDP. This points at the significant economic role of governments representing a relevant share of the demand, contributing to the development of the ICT industry. Furthermore, there is a strong driver for the continued modernisation of the public administration and the public services, mainly motivated by the increasing economic pressure of diminishing budgets, controlled deficits (euro) and the increasing users' demand for more transparency, efficiency and service quality. This modernisation process could reinforce the government's role in stimulating demand as a direct user as well as stimulating the use of ICTs by civil servants, citizens and businesses.

Secondly, recent analysis [4] points at the forthcoming next stage of the Information Technology "era" in the next 20 to 30 years, characterised by the potential of a full deployment and competitive use of ICTs by all the sectors of the economy, as shown by past major techno-economic changes (such as those generated by electricity or oil). In this next

stage, ICT public policies can play a key role in achieving this full potential. Thus, while public policies have been a key factor influencing IS developments in the past (competition, R&D, investment, education), these will become even more significant in the future.

Thirdly, the existent and increasing social divides identified in the countries analyzed deserve special consideration from the eGovernment perspective, in particular, as social divides, associated with income disparities, rural regions, less educated segments of the population (etc), do have some influence on the digital divide. Indeed, although, digital divide, is also influenced by other factors, such as age, low levels of education and unemployment appear as key influencing factors, resulting into a significant match between social and digital divides [3]. While the private actors can choose their preferred customer segment, public services need to be available and accessible for all. Therefore, government programmes and policies addressing eGovernment developments in these countries, might have an important role to play in addressing issues such as access for all, accessibility, the needs of the ageing population, functional illiteracy and lack of ICT skills, and doing so, the digital divide.

5. Conclusions

This analysis points at the existing and increasing potential inter – relation between IS and eGovernment policies and developments, raising areas for possible future research.

The research has shown that general policies are key to developing the IS and the benefits it offers. ``Building the Information Society`` is a societal project and requires a holistic approach in terms of generic policies (economic growth, macro-economic stability, competition, education etc), versus specific and more narrow IS policies. Furthermore, specific policies for IS development should be linked to general policies to build synergies and maximise their effect. There is thus the opportunity to explore how stronger links between eGovernment policies and more holistic IS development policies could positively contribute to speed-up IS and eGovernment developments in these countries.

The research also points at increasing social divides in the enlarged European Union, and the related expected increasing digital divides, influencing the potential benefits of eGovernment investments and deployment. There is thus the opportunity to explore the role of eGovernment strategies and policies in addressing issues such as access for all, accessibility, the needs of the ageing population, functional illiteracy and lack of ICT skills, and doing so, maximising the benefits of the eGovernment policies and related investments.

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