



# INFORMATION SOCIETY TECHNOLOGIES (IST)

Accompanying Measure – Key Action II

Contract Number: IST-2000-31104

## *SEAMATE*

*SOCIO-ECONOMIC ANALYSIS AND MACRO-MODELLING  
OF ADAPTING TO INFORMATION TECHNOLOGY IN EUROPE*

### **EXECUTIVE SUMMARY**

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## EXECUTIVE SUMMARY

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### Motivation and Objectives for SEAMATE

At the end of the 1990s and early in the next decade there was considerable optimism over the opportunities that the internet in particular and IST in general was to provide. However, for the most part the claims being made were not founded on considered analysis. By the time SEAMATE was being conceived in 2001 the environment was one where the initial euphoria about what the internet could provide had disappeared alongside the collapse of the internet bubble. While it was clear that in many ways the business and social environments had changed, there was a greater sense of realism regarding the scale of change. However, there remained little in the way of solid analysis of the impact that these changes are likely to have on the economies of Europe.

It was this situation, of clear changes occurring in the business and social environments and at the same time little authoritative analysis on these issues to inform policy makers that provided the motivation for the SEAMATE project.

The project objective was challenging, to

*make estimates, for the first time at the EU level, of the socio-economic impact of IST on the EU-15, Norway and Switzerland, founded on a dynamic macroeconomic analysis covering the EU countries and Switzerland with detailed treatment of industrial sectors. It will assess impacts on industry and consumers/households.*

### Key Messages from the Research

#### The Take-up of IST

- Preparedness for ICT matters as much as the availability of ICT. The decision by people and organisations to adopt technology is clearly influenced by factors related to its 'availability', the 'opportunity' it provides (eg cost savings, risk, security), but it is also influenced by the 'preparedness' of users, a concept that reflects the technical readiness and subjective willingness of the company to adopt IST. We find that 'preparedness' factors, such as social/company culture and management attitudes matter as much as either of the other two factors, but are less able to be influenced through policy.
- Raising the cultural competence of the population is a pre-requisite to knowledge production and a dynamic knowledge society. Future developments of ICT are conditioned by the cultural, social and economic prerequisites. Progress towards the Information Society will be limited if these pre-requisites are not taken into account. Problems and inequalities suffered by groups such as the elderly, women, residents in remote areas and the disabled, indeed exist and should be remedied, but their societal/national impacts are less than those of entire nations being laggard and/or failing to fulfil their potential.
- Considerable investment in R&D and education is needed. The considerable variation in rates of IST penetration and adoption across the EU15 are reflected in

the variation in the underlying prerequisites of innovation, including investments in R&D, education, as well as other kinds of skills and competences relevant to IST. Without these underpinning factors, the impact of new tools and networks on society and the economy will be less marked. The role which universities and other education organisations play in producing graduates who have the requisite levels of scientific and technological knowledge is crucial. Similarly, organisational process innovations may not occur without the availability of the higher level knowledge available to graduates in, for example, management studies or economics.

- Cultural and organisational change must accompany the introduction of IST by businesses.
- Differences in national culture (social capital) will influence adoption rates. Debate within society on the use of IST and the ability to reach consensus with regard to the necessary promotional steps and measures are important determinants of the speed of IST-diffusion and adoption within countries. The ability to discuss about the ICT in a way which makes it more likely that they will be used in order to reach collective economic and societal objectives could be looked upon as one component of ‘social capital’ of different European economies and societies and contributes to increase preparedness.
- Policy in accession countries needs to influence both availability and preparedness. The importance that we now attach to preparedness factors in the EU15 reflects the improvement that has been made in ‘availability’ and ‘opportunity’ factors recently. This in turn is in part a reflection on the focus of earlier policies. It is probably not appropriate for the policies in the Accession countries to have a similar focus now on preparedness factors. These countries probably still require policies designed to improve access and opportunity to prevent the disparities of access (digital divide) from increasing sharply.

### **Impact of IST**

- Investment in IST will bring stronger economic growth but it is unlikely to be sufficient to close existing gaps in GVA per capita substantially. In addition, because the investment in IST boosts productivity, the net impact on employment generation will be relatively small. In some cases ‘successful’ implementation of IST is likely to mean fewer jobs.
- The main impact of e-commerce is to lower prices and raise the standard of living of consumers, rather than to boost output and employment growth.
- Failure to invest in skills would result in greater polarisation in the labour market, with greater wage differentials between those with and without marketable skills, and limit the returns to companies of investing in IST assets.
- The impact would be strengthened if the level of organisational/managerial skills within companies was greater so that the necessary changes in an organisation’s structure and skill set could be implemented alongside the introduction of IST.

### **Informing IST Policy and Data**

- Current policy has a narrow focus and is founded on limited data. It has tended to focus on trying to increase the change of technologies being adopted by influencing factors relating to access and opportunity. However, the evidence base used to justify, monitor, and evaluate policies is currently weak.

- The focus of data collection needs to change. The strategy for determining priorities for data collection needs to change and should be organised according to a hypothesis-driven inductive approach, so that indicators are available to support policy development.
- Effort should be put into gathering data to help address the following question areas:
  - Which types of IST result in which impacts?
  - How effectively can policy actions steer the users' decisions to adopt different types of IST?
  - How do observed impacts affect the users' decisions to adopt differently different
  - How effective is policy at steering different impacts.
- Although policy has limited scope this should be used to shape the future. Even though SEAMATE finds policy has limited scope for steering and shaping ICT adoption and developments, it is necessary to use this chance of reflected intentional interventions by the means of various policies in order to benefit from the positive ICT potentials and prevent the undesired threats.
- Future policy should focus on innovation, flexibility, mobility and institutional and financial support.
- Policy needs to accommodate differentiation. Groups with special IST promotion needs comprise individuals with different and specific ICT needs and expectations. The groups are heterogeneous and contain various subgroups with important IST-related differences. While one part of an efficient IST promotion policy can be aimed at providing general support to all vulnerable groups, most measures must be differentiated and 'tailored' with regard to specific needs, constraints and resources of their addressees and targets. Finding the right policy mix between 'general' and 'tailored' programmes, as well as between 'top-down' and 'bottom-up' (including 'self-help') prescriptions is one of the main challenges of the current and future IST promotion policies.

## **Recommendations for Future Research**

We make the following recommendations for future research

- Understanding the needs of potential users. The importance and necessity of equal access to ICT and of digital inclusion for all continues to be stressed, but not much is known about the experience, attitudes and opinions of the affected and concerned population groups which now experience problems with ICT-access and use.
- Consolidating national business surveys. There has been and will be a large number of national business surveys conducted across Europe aimed at measuring business performance and the link to technology. Work is needed to consolidate and match them, to compare the results for successful and unsuccessful business in different countries. Such a pooled data set should be sufficient to draw conclusions on the behaviour of businesses and the impact on performance.

- Assessing the impact of IST on physical resources. Further analysis of the impact of ICT on physical resources is recommended so enrich the understanding of the impact of IST on productivity.
- Modelling new network dynamics. The modelling of network effects and the dynamic of diffusion of new IT products and services would benefit from further research into they dynamics of different industrial structures and market regimes, for example e-commerce oligopolies versus monopolistic competition.