Network For Teaching The Information Society (NET-IS)

THE GREEK INFORMATION SOCIETY EXPERIENCE

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Executive Summary

In today's rapidly changing and highly competitive global environment governments, organisations and citizens face more challenges than ever. The Lisbon objectives, aiming at the development of Europe into a competitive knowledge economy are closely related to the Information Society (IS). Information and Communication Technology (ICT) developments and the evolution of the Internet have facilitated huge growth of the IS and the media. New forms of work, such as tele-working, agile communities of people working in new collaborative virtual environments and "innovation ecosystems" (Small and Medium Enterprise (SME) global networks) are dynamic representatives of the world's new computerised economies (EU info Sheet 7.b). Proactive policies are needed to respond to the changes in technology and the eminent consequences.

The European core vision, shared across both industries and governments, of a converged setting for media and communication technologies and markets that every user will be able to connect everywhere, anytime, with access to adapted and high quality content and communication services, in a safe and accessible environment is one such policy (HLG, 2006a). The convergence[1] between ICT and mass-media will create new possibilities for developing services and e-business, targeting both citizens and companies. Traditional content (films, video, music) is today available in digital formats, and new digital services, such as interactive software, are emerging. The digital convergence of the IS and media services, networks and devices is becoming an everyday reality (HLG, 2006a). The ICT content is presented in three-dimensional multimedia formats in smaller, safer, smarter, faster, always connected and easier to use devises. Also social media or social networks, commonly called Web 2.0, where content is generated by users in web-sites such as Yahoo! Answers, Flickr, YouTube or Del.icio.us., is an emerging reality.

Digital convergence requires both policy convergence and a willingness to adapt regulatory frameworks where necessary in order to become consistent with the emerging digital economy.

e-Government systems differ from commercial Information Systems in that they frequently cover strategic goals that go beyond efficiency, effectiveness and economy. In addition, they include political and social objectives such as trust in government, social inclusion, community regeneration, community well-being and sustainability (Grimsley and Meehan, 2007).

In 1998 the European Commission expressed for the first time in the "Green Paper on Public Sector Information in the Information Society" the need to establish the foundations for the development of eGovernment at European, national, regional and local administration level (SCP-5, 2007). In order to make Europe a more attractive place for investment and work, efficient government is a necessity. eGovernment promotes competitiveness and innovation. It has become a tool for companies (in particularly SMEs), since limited access (administrative, financial and economic) as well as limited resources (time and money) obstruct stakeholders to take informed decisions. But also the start-up of new entrepreneurs is faster and less expensive with fully developed eGovernment. It has to be mentioned that SMEs count for a large part of Europe's economy. Around 23 million SMEs in the European Union account for 99% of all enterprises and provide around 75 million jobs (EU ICT, 2006).

The current EU objective of eGovernment policies is the provision of easier access to information and the realisation of more active citizen participation. In June 2005 the Commission launched a new strategic framework "i2010 - European Information Society for growth and development 2010" (COM 229, 2005; EU

[1] Technology trends that lead to blurring lines between different industries and their offerings (e-Business W@tch, 2006).

7.4, 2006). i2010 is a comprehensive strategy, to foster economic growth and jobs in the information society and media industries by deploying and modernising EU policy instruments that encourage development of the digital economy, such as regulatory instruments, research and partnerships with industry. i2010 emphasises ICT as a driver of inclusion and quality of life. The i2010 initiative framework for the EU Information Society and Media policies consists of three priorities, namely:

- Completing the Single European Information Space by promoting an open and competitive internal market for information society and media;
- Strengthening investment in ICT innovation and research in order to promote growth and jobs;
- Achieving an Inclusive European Information Society consistent with sustainable development and priorities set for better public services and quality of life.

Emphasis is given to research and development of new technologies, security and the reduction of administrative costs both in the public and the private sector (EKT, 2007).

The objectives of the i2010 strategy become reality through competitive EU programs regarding research and development of ICT, as well as particular applications that improve citizens' everyday life. The most important EU program for financing ICT research is the EU's Seventh Framework Programme (FP7) for research and technological development (2007-2013) which is designed as a key contribution to the EU's strategy for growth and jobs, followed by the Information and Communication Technology Policy Support Programme (ICT PSP) within the Competitiveness & Innovation Programme (CIP) programme. The aims of the ICT PSP are to boost growth and jobs in Europe. It is a financial instrument supporting policy through:

- Pilot projects & Thematic networks (including Best Practice Actions);
- Policy analyses, development & coordination with participating countries;
- Promotion, communication, information sharing & knowledge dissemination.

Three main themes proposed are:

- eGovernment, ageing and inclusion, eHealth;
- Initiatives for SMEs, intelligent cars, sustainable growth, privacy;
- Promotion actions, benchmarking and studies on Information Society development.

Among other programmes we may mention the "eContentplus" programme, aiming to make digital content in Europe more accessible, usable and exploitable, the "Digital Library" programme, aiming to preserve Europe's cultural heritage, the "eLearning" programme, for the effective integration of Information and Communication Technologies (ICT) in education and training systems in Europe, the "e-Safety" programme, that aims to accelerate the development, deployment and use of Intelligent Integrated Safety Systems, that use ICT in intelligent solutions to increase road safety and reduce the number of accidents on Europe's roads, the "IDABC" programme for Interoperable Delivery of Pan-European eGovernment Services to Public Administrations, Business and Citizens, as well as the "MEDIA" programme for the European audiovisual industry.

The government's concern in Greece is to ensure that the emerging Information Society will be a society for all, without discrimination between information "haves and have-nots", safeguarding citizens' rights and the freedom of expression and information.

Two important factors regarding on-line public services are a result of a combination of (SCP, 2007):

- Advances in the Information Society regarding the modernisation of the public Administration sector and its services to Citizens (A2C) and to Business (companies) (A2B);

- The requirements of a changing European Union which demands a new, innovative focus for the provision of public services.

A citizen-centred eGovernment (cc: eGov) is emphasised. The 2nd cc:eGov Workshop was held in February 2007 in Athens, addressing the challenge of designing efficient and effective services of public interest through systematic understanding of the citizen-consumers (CCe Gov, 2007; IDABC, 2007):

- Who are the citizens and where are they?
- What do citizens need and want?
- How can service relationships be constructed?

The workshop was highly participative, with attendees bringing their own cases to be explored by the discussion group and experts: speakers, cases, tools and typologies, as well as peer learning.

However, Greece still lags significantly behind (EU-annual report, 2007). Broad-band take-up is among the lowest in the EU. Use of Internet among citizens is also among the lowest in Europe. 3G and digital TV are still in their infancy. eGovernment service availability is also below the European average and instead of improving since last year the ranking even lower. eGovernment use is very low among citizens. Broadband access in schools is by far the lowest iEurope. ICT skill levels among employees in Greece are among the lowest in Europe.

However, important encouraging steps are being taken to improve the situation (EKT, 2007), such as:

- A national digital strategy has been created and its application is inaugurated;
- The exploitation of the Information Society is intensified;
- The development of the digital infrastructures is actively supported and important Information Systems applications for the public administration are developed;
- A big campaign called "Digital Hellas" has commended aiming to increase awareness of both citizens and companies, regarding the advantages of the use of new technologies in everyday life.

Introduction to the Greek Country Report

The digital divide between administrations in EU member states that have implemented electronic government platforms and those with limited projects or plans is evident. In this matter, Greece lacks behind. During the years 1994 – 2000 the new technologies were not exploited to a satisfactory degree regarding potential improvements in the Greek everyday social and economic life. The reasons can be categorised as follows (Greek Digital Strategy, 2006; Λάρτος, 2006):

- *Low ICT use*: The ICT use in organisations was very low. In particular innovation in SMEs was at a low level and also collaboration between SMEs regarding innovative ideas was minimal.
- *Few eGovernment services*: The public administration did not manage to effectively use the new technologies and improve its services towards the Greek organisations. The reason seemed to be the lack of a technological vision and central coordination, as well as absence of a concrete electronic governance strategy in order to make the most out of the technology.
- *Low contribution of ICT companies*: The contribution of the ICT towards the GDP (Gross Domestic Product) was not satisfactory in comparison to other countries (1.32 % compared to Sweden with 4,56 % in year 2004 (scale of 1-8)), either regarding new technology production or ICT services. Also the degree of technology transfer between educational institutions and the market place in Greece was amongst the lowest, compared to other countries (3,70 compared to Finland 7,31 in year 2004 (scale of 1-8)).
- *No motivation for entrepreneurship*: Entrepreneurship was not encouraged in fields normally gaining advantages from ICT, but instead small or very small traditional enterprises were favoured. Also the creation and functional costs of new enterprises are rather high, compared to other European countries. For example in Greece the creation of a new enterprise takes 45 days and 16 processes need to be satisfied costing 69,6 % of per capita income compared to 4 days, 4 processes and 0 % cost in Denmark.
- *Limited ICT Skills*: The citizens did not gain any remarkable advantages, or improved quality of life, during the same time period (1994-2000) because of limited skills in ICT. In order to utilise the new technologies, the citizens need information about how they can profit from ICT, they need ability to use ICT and access to ICT. Those opportunities were not an option to people with limited access to technology: The gap between those that can take full advantage of Internet technology and services and those that are not able to do so should be diminished.

According to the European Commission i2010 report (2007), the Information Society in Greece is still developing slowly and Greece is close to the bottom of the EU ranking regarding most indicators. Broadband adoption is the lowest in EU, and even narrowband is not widespread. Lacking the necessary infrastructure, across all internet services usage is far below average. Accordingly, basic and specialist ICT skills in Greece are low. Announced ICT development initiatives for regulation, education, and infrastructure development are still in the early stages. A fundamental precondition for success is the rapid completion of the liberalisation of the telecommunication services market. This is expected to lead to significant reductions in the average cost of telecommunication services which, for business users in particular, remain expensive, as well as to further improve the quality and range of services offered. There is also a great potential for increased use of information and communication technologies (ICTs) in the public administration, in schools and in the workplace, which for the moment remains limited.

The Greek objective is to reach the EU level by 2009 (EKT, 2007). Emphasis is placed on wireless broadband Internet connections, in order to promote IS at distant areas.

Statistics on ICT infrastructure, usage etc.

The following Information Society indicators (Eurostat, 2007; Greek IS Observatory[2], 2007b) provide a good understanding of the maturity of conditions within Greece for the uptake of eGovernment services:

1st Table: e-Readiness

	EU25			Greece		
Percentage of	**2004 July**	**2005**	**2006**	**2004 July**	**2005**	**2006**
- households with computer access	54%	58%	62%	29%	33%	37%
- households with Internet access at home	42%	48%	51%	17%	22%	23%
- enterprises that use computers	95%	96%	97%	95%	98%	97%
- enterprises with Internet access	89%	91%	93%	87%	92%	94%
- households with a broadband connection	6.5%	17%	26%	0.2%	1%	4%
- enterprises with a broadband connection	43%	54%	67%	16%	39%	53%
- individuals using the Internet at least once a week	38%	43%	47%	17%	18%	23%
- individuals having purchased/ordered online in the last three months	16%	18%	21%	1%	2%	3%
- enterprises having received orders online within the previous year	14%	12%	15%	6%	7%	7%
- individuals using the Internet for interacting with public authorities:						
obtaining information	21.4%	20.7%	22.6%	7.2%	4.7%	5,5%
downloading forms	9.8%	10.5%	14.1%	2.8%	1.8%	0,9%
returning filled forms	5.6%	6.1%	9.3%	2.4%	3.2%	2,1%
- enterprises using the Internet for interacting with public authorities						
obtaining information	45%	51%	55%	61%	72%	71%
downloading forms	42%	49%	56%	58%	69%	67%
returning filled forms	29%	33%	45%	45%	56%	76%

In 2006, 37 % of the Greek households had access to a computer compared to 64 % in 15-Europe and 62 % in 25-Europe. Similarly Internet users were in total 23 % in the Greek households compared to 52 % in 15-Europe and 51 % 25-Europe (Eurostat, 2007). As we can see from the numbers above, Greek households seem to be notable lagging behind, regarding ICT access and use.

1. eSkills

ICT skills are crucial both for the ICT industry as well as for the economy on a global scale. Skilled labour force is a requirement for companies in all sectors for the implementation of new technologies. In the last decade, the share of the labour force with ICT skills has steadily increased. Around 20% of total employment in modern economies can be classified as ICT-skilled employment (HLG, 2006b). According to a manuscript based on Eurostat 37% of population have no computer skills whatsoever, while only 22% seem to be ac-

[2] The Observatory for the Greek Information Society is a key point of reference for accurate and up-to-date information on the Greek IS. The Observatory has created the eDatabank, an electronic archive with the studies – surveys conducted by greek and foreign institutions as regards the national progress made towards the IS.

quainted with a wide range of computer activities (DeMunter, 2006). 2nd Table shows some e-skill comparable values for Greece and EU 25. 3rd Table shows how e-skills usually are obtained.

2nd Table: e-skills

	EU25		**Greece**	
Percentage of individuals that have	**2005**	**2006**	**2005**	**2006**
copied or moved a file or directory	53%	55%	28%	43%
used a search engine	51%	54%	25%	35%
sent an email with attachment	43%	45%	18%	22%
addressed messages to chat-rooms, new-groups or on-line forum	18%	19%	4%	9%
used Internet for phone-calls	7%	9%	2%	4%
created a web-page	9%	9%	2%	4%
written a program with a programming language	9%	9%	3%	6%

A wider objective of the Information Society is to allow e-skills to be obtained not only within formal education, but also through personal studies and knowledge sharing (Zambarloukos and Constantelou, 2002).

3rd Table: Ways of obtaining e-skills

	EU25		**Greece**	
Percentage of individuals that have received eSkills through	**2005**	**2006**	**2005**	**2006**
formal education	20%	21%	14%	17%
training centres for adults	10%	11%	9%	12%
personalised studies by using books, cd roms etc.	20%	25%	5%	8%
personal studies	41%	41%	17%	29%
friends, relatives etc	41%	39%	15%	23%

According to the e-ranking by Economist Intelligence Unit (EIU, 2007) regarding e-readiness Greece scored in 2007 32nd ranking order (of 69) with value 6,31 out of 10 (6,42 in 2006). Below are the category scores and the weight per category. For comparison the scores for Denmark (First ranking order) are shown.

4th Table: e-readingess by Economist Intelligence Unit (EIU, 2007)

Category scores	Overall score	Connectivity and technology infrastructure	Business environment	Social and cultural environment	Legal environment	Government policy and vision	Consumer and business adoption
Category weight		20%	15%	15%	10%	15%	25%
Greece	**6.31**	**4.70**	**6.68**	**6.60**	**7.95**	**6.90**	**6.20**
Denmark	8.88	8.40	8.65	8.60	8.50	9.85	9.15

From the category scores we can see that "connectivity and technology infrastructure", "government policy and vision" as well as "consumer and business adoption" score very low compared with the equivalent values from Denmark.

Looking at the numbers in the previous paragraph at an EU level, we realise that Greece still lags behind other EU states.

In 2005 the Information Technology Committee, the highest institutional body in Greece for the strategy planning and the development of IT, adopted an integrated Digital Strategy for the period 2006 – 2013, declaring a clear vision through the slogan "A digital jump into productivity – a digital jump into quality of life" (Greek Digital Strategy, 2006).

One of the main objectives in the i2010 strategy is eInclusion, concerning the use of ICT to facilitate attempts to include groups of people at risk of social exclusion. The aims are to avoid new divides between digital "haves"and "have-nots" that present and future innovations may create (EU Info Sheet 7.3, 2006). In Greece, the National Network on Design for All (GR-DeAN, 2003) participates in EDeAN, the European Design for All eAccessibility Network, thus contributing to the implementation of the eAccessibility action plan targets and the eEurope initiative of the European Commission. It aims to promote the wide application of the "Universal Access" and "Design for All" principles in Greece, and to promote equal participation of people with disabilities to the Information Society in Greece. A web-portal is sponsored by OPIS and five Special Interest Groups (SIGs) support and encourage discussion, exchange of information and ideas among Network members, the European Commission, and the eAccessibility Expert Group.

1. The digital strategy 2006–2013

The EU member states have committed themselves to adopt eGovernment objectives to ensure that by 2010 all citizens, including socially disadvantaged groups, become major beneficiaries of eGovernment. A major task for the member states is to ensure that public information and services become more easily accessible through innovative use of ICT, improved skills and support to all users. Also, increased awareness of the benefits of eGovernment and increased trust by the public, need to be ensured. eGovernment must reach a degree of development that allows European citizens and entrepreneurs to benefit from Interoperable Electronic Identity Management (eIDM). The eIDM is used for access to public services, electronic document authentication and electronic archiving. It also includes digital signatures for accessing to online public services in a secure manner. Several EU countries are already implementing eIDM, meeting national service needs, cultural traditions and personal data protection preferences. Practically eIDM means that if a citizen or a company wishes to emigrate or become established in another European member state then access to public services, such as for example health services and electronic vote are guaranteed respecting data privacy (SCP-5, 2007). The European Commission proposes a pragmatic approach to the interoperability of different eIDM systems. The aim is to allow identification for public services in any of the member states, with respect to the different national approaches and solutions without creating a barrier in the usage of public services across borders.

The digital strategy 2006 – 2013 replaces the "White Paper" of the Greek strategic approach to eGovernment entitled «Greece in the Information Society» of February 1999 (updated in 2002) and strengthens the role of the existing Operational Program for the Information Society, by re-examining its goals (Infosoc, 2007).

The Digital Strategy 2006-2013 aims to bridge the digital gap that still exists with other member states. It emphasises the use of ICT for achieving higher productivity in the economy and for improving citizens' quality of life. The essential difference compared to previous practices is the fact that it provides rather prescriptions of services to be offered, instead of specific projects per organisation. The aims of the digital strategy are the creation of all the necessary conditions for the materialization of a "digital leap" in terms of productivity and quality of life in the period 2006 – 2013. With the aim of promoting the Information Society in a coherent and integrated manner the new digital strategy meets the challenges of the 4th Operational Period (2007-2013) with a separate Operational Programme for the Information Society (OPIS), which is compatible with the new European policy for the Information Society "i2010" and with the "Jobs and Growth" Action Plan.

The basic objective, the development of Information and Communication Technologies (ICT) and new skills, will be accomplished in 4 steps as follows:

1st Step: Examination and identification of the source of the ICT use obstacles in Greece - Problem root cause analysis.

2nd Step: Analysis of the international policies and experiences on Information Society and the New Technologies. Identification of best practices and failures in 20 countries.

3rd Step: Study of the international and European developments in the field of Information Society (EU policy i2010, WSIS developments etc.).

4th Step: Setting the basic directions of the digital strategy for the period 2006 – 2013, by cooperation with involved stakeholders and taking into account the particularities of the Greek economy and society.

In order to achieve the digital jump into productivity and quality of life, six objectives interconnected with each other were agreed upon for the period 2006-2013 (Greek Digital Strategy, 2006; Digital Strategy, 2006):

Productivity improvement:

1. Promotion of ICT use in enterprises to increase their productivity and consequently the productivity of the country.
2. Reorganisation of the public sector;
    a. increasing the use of ICT in internal processes;
    b. improvement of digital services.
3. Support of ICT enterprises to improve their contribution towards the GDP.
4. Support of entrepreneurship in particular regarding the ICT enterprises or enterprises that dynamically use the technology.

Quality of life improvement:

1. Citizens' more dynamic exploitation of ICT on an everyday level;
2. Development of digital services for faster processes and reduction of bureaucracy.

Focusing on the Quality of Life of Citizens in the Information Society the emphasis is on the following areas:

- *Infrastructures:*
    - Broadband access (Year 2007 is announced as the "Broadband Year");

- Development of accessible one - stop shops;
- Financial support for ICT equipment for specific population groups.

- *Education:*
  - Distance learning;
  - Incentives for the development of accessible educational content.
- *Health:*
  - Accessible regional e-health services;
  - Universally accessible health records and other related information.
- *Public administration:*
  - Accessible e-services for the regional government;
  - Digital content and information services.

Year 2008 is a milestone for short-term activities. More than 65 activities are proposed. In the centre of all the activities are the human resources. Skill development will be achieved through training.

One of the most concrete eGovernment implementations within the digital strategy 2006 – 2013 is the National Network of Public Administration «ΣΥΖΕΥΞΗΣ» (SYZEFXIS) that became operational in November 2005. SYZEFXIS is a project of the Greek Ministry of Home Affairs, Public Administration and Decentralization. It aims at the upgrading of the Public Sector's telecom infrastructure to satisfy the needs for internal communication through broadband networks between all the bodies of the public sector (hospitals, social insurance funds, libraries etc), the public administration and local authority, as well the provision of access without digital exclusions to every service of the public administration to citizens and enterprises via the Internet. SYZEFXIS was connected to the 25 Trans-European Service for Telematics between Administrations (TESTA25) network and Hellenic Network for Research and Technology (GRNET) in June 2006. The TESTA network ensures collaboration between the government administrations of member states on all kinds of European e-government applications. It is a highly protected network used to exchange sensitive information about social security, fraud, people seeking asylum or shipping traffic etc. A few examples are CARE for statistics on accidents; FIUNET for information on money-laundering operations; PROCIVNET-CESIS for the exchange of information on protecting citizens against natural and technological disasters; and SAFESEANET for pollution and accidents. In July 2007 Greece was connected to the European S-Testa network, an extended version of TESTA (S stands for security) (Syzefxis, 2007; Infosoc, 20007).

2. The Operational Programme for the Information Society (OPIS)

The Special Management Service of the Operational Programme for the Information Society (OPIS) is one of the managing authorities of the 25 Programmes (Sectoral and Regional) of the 3rd Community Support Framework (CFS) (2000-2006) and is co-financed by the European Social Fund and the European Regional Development Fund (Infosoc, 2007).

The OPIS is an innovative horizontal programme, spanning across government departments aiming to implement the essential features of the Information Society. The OPIS is the main supporter of the implementation of an overall national strategy leading to the Information Society. Under the operational programme major institutional actions are being implemented, in parallel with supplementary measures. There is a website (CSF Citizens' Online Information System, 2007) that provides accurate and simple information in the Greek

language to individuals (financial support schemes, employment schemes, social support schemes, education & training etc.), to enterprises and entrepreneurs (financial support schemes, subvention of employment, personnel training programmes etc.) and to other bodies, such as educational and research institutions etc (financial support schemes, subvention of employment, personnel training programmes). Also, programmes which are expected to be launched in the near future are announced.

The Greek government pays particular attention to the promotion of the Information Society (IS) by considering that Information and Communication Technologies (ICTs) constitute an essential tool for an open and effective government and for the improved competitiveness of organisations. Continuous learning and adaptation of the education system are emphasised in order to prepare for new skills and new ways of working. At the same time a better quality of life is promised by the provision of improved health, transport and environmental services. Also the promotion of the cultural heritage and the Greek language is highlighted.

However, domestic demand for ICT products and services (public, companies and consumers) remains underdeveloped and problematic (Greek IS Observatory, 2006). The requirements of the public sector are weak and hindered by legislative inflexibilities and bureaucracy. This results in significant delays in the implementation of important projects. Requirements regarding greater familiarization of citizens and firms with ICTs and the creation of additional electronic services are more significant. Firms in the first place, followed by consumers, represent a much more important ICT market than the public sector.

Greece faces a series of challenges in its progress toward the Information Society (Greek Observatory 2006; 2007; Greek Digital Strategy, 2006; EKT, 2007), such as:

- Population's limited ICT skills;
    - Low proportions of the workforce have the necessary ICT skills;
    - Lack of incentives for retraining and Life Long Learning;
    - Need for improved educational infrastructure at all levels of education.
- Lack of information and knowledge about ICT benefits – a significant percentage of consumers and firms are not convinced about the tangible benefits of ICT investments;
- Technophobia - poor functionality of services and equipments (lack of technological culture in the public administration);
- Resistance towards required organizational changes;
- Slow development of telecommunication services (high prices of broadband access).

Agrafiotis (1997) goes so far as to argue that in the case of the Greek society, certain conditions and circumstances are not yet present and therefore the use of the term information society can become rather dysfunctional. He states that the term "information society" is being used in the field of techno-science, as well as in politics, cultural studies, journalism, and public discussions. The term seems to be pertinent and relevant from a scientific point of view and acceptable from the political and socio-cultural perspectives of all modern societies. The question, in addition of being academically interesting, seems also to be of immediate practical concern. The requirements for successful, collective and organized action are conceptual accuracy and the study of its social perception. From a societal point of view (both socio-cultural and political), the technologies of information and telecommunications embody the nature of the obstacles that do not permit the use of the expression information society in the Greek society. It is urgent to determine which of these obstacles can be removed and by which mechanisms and social actors. It is equally important to determine which socio-cultural and political particularities of Greek society will permit different social actors or groups to elaborate their presence in a global world.

Despite the many challenges it is believed that ICTs offer an opportunity to overcome the present weaknesses. In Greece there is also a potential for small-scale development. A coherent and flexible set of initiatives is needed to offer incentives and to create the appropriate regulatory framework.

External demand is increasing. Export activities of ICT firms have been limited to large firms from manufacturing sectors and trade. There are a few exceptions of smaller export-oriented firms for IT services. There are also some indications that domestic demand is strengthening, while firms tend to exploit the external demand, at a greater extent. A significant number of large and medium-sized firms adopt advanced ICT tools to an extent comparable to other developed countries.

These firms also cooperate throughout their value chain with numerous smaller firms. The later will be forced to collaborate, in order to maintain their position in the relevant market and hold on their big clients, even if they are not fully convinced about the benefits of ICT investments. At the same time, younger and more intense ICT users that are entering in the economic activity will leverage ICTs' diffusion in the country.

The state's role on the creation of secondary demand is also reinforced. Apart from its informative and training campaigns, it provides many more electronic services to the public and simultaneosly it improves its efficiency and functions by adopting new technologies. eGovernment services result into more effective government services: The realisation of eGovernment services is based on more efficient interactions with enterprises and better services to citizens. Innovative ideas take advantage of the collaboration environment in order to create new services and tie together the private and the public sector. These services will provide cost benefits, efficiency, and productivity gains to its users. Besides, at the public policy level, initiatives and actions concerning directly or indirectly the information society are flourishing, although incorporated as additional elements in various other policy areas, such as education, employment, investments policy, etc.

The supply change is scattered, small in size, with numerous firms. It also seems to lack some systematic efforts for learning and market specialization. The fact that the sector is relatively new, in a business area characterized by very fast technological developments, may be responsible for the lack of an established entrepreneurial culture. Price competition is intense, but all the firms seem to sell similar products / services without any substantial differentiation. Despite the fact that the sector can be characterized as innovative, R&D is very scarce and limited to a small number of firms. These firms mostly collaborate with universities, on the basis however of an interesting, extensive and important research agenda.

Within the overall strategy for the European Information Society and its specific objectives and implementation procedures, Greece formulates its Information Society strategy based on a number of fundamental principles:

- Innovation and entrepreneurship: The Information Society is developing on the basis of market mechanisms and the regulatory framework must facilitate new business initiatives and innovation.
- Democracy and personal freedoms: The Information Society must extend the democratic process and protect citizens' rights.
- Equal opportunities and social cohesion: The Information Society must provide all citizens with access to the opportunities, knowledge and markets made available by the new technologies.

There are two general strategic objectives of the OPIS for the period 2000-2006:

The first general objective falls under the heading of "Citizens and quality of life" This relates to improvement in the quality of life for the average citizen by actions in critical sectors such as public administration, health, transport and the environment. The main aims are the improvement of the services, offered through

integrated information and communications systems as well as through the provision of real time Services in Public Administration

The second objective "Economic Development and Human Resources" relates to the creation of conditions appropriate for supporting a process of economic and social development in which technology and knowledge are the main instruments for increasing incomes, employment and the skills of the labour force, as well as productivity and competitiveness. It includes creation of an education and training system adapted to the needs of the 21st century, support of economic mechanisms and employment by making the most of new technologies, development of telecommunications infrastructure and promotion of the Greek culture.

3. Future trends

Innovation is a top priority for the EU. ICTs are widely recognised as a key enabler for innovation. A comprehensive policy agenda is developed to support this purpose. However, policy makers also have to understand how new economic and societal developments can extend the benefits of the information society to new groups and foster competition and European industrial leadership (COM 146, 2007). The following issues should be addressed in the i2010 mid-term review 2008:

1. A new wave of innovation in networks and Internet, supported by emerging technological trends (very high-speed networks, ubiquitous wireless technologies, web 2.0, the Internet of Things, Grids, new network architectures, web-based services, user interfaces, user-created content and social networking). These trends will influence
    a. the business and working environment by providing new opportunities and new solutions for eBusiness;
    b. the employment, by improving the work-life balance;
    c. the role of users, which will be extended to include content creation and innovation.
2. A user's perspective on innovation. Users use ICTs to create and exchange their own content in innovative ways. With the 2008 eInclusion initiative, i2010 has an in-built focus on users and the interest of consumers is already present in the Commission's ICT policies. Challenges for policy makers concern among others privacy, interoperability, transparency on contractual terms and pricing, complexity of applications and inefficiencies of litigation.
3. Improving framework conditions. One of i2010's main objectives is to create a single information space. Until today the emphasis has been on networks and content regulation. The EU is still far from a single information space. Many EU consumers avoid buying goods and services via the Internet from another Member State. Legal concerns and regulatory barriers are still an obstacle for enterprises to engage in eBusiness.

Electronic public administration

A Strategic Planning Project Model was developed by a UNTC workgroup (Tsekos, 2001). The model is a generic data model for strategy formulation and strategic planning in Public Administration (PA) and has two complementary directions:

1. A top-down approach to document major processes utilizing high-level data models;
2. A bottom-up approach for testing and validating the proposed data and process models with real-life data derived from field research.

The model was made available for all member states and can easily be customised to suit different public administrations.

The second Priority Axis of the OPIS deals with the improvement of public services and the quality of life. The aims are to provide citizens and firms with services of high quality, in-time and at the lowest possible cost at central, regional and local levels.

Within this frame, the following aims and objectives are emphasised:

Government on line**:** business plans, studies and pilot projects.

- Preparation and co-ordination of Public Administration agencies;
- Development of pilot applications related to the use of ICTs, in order to improve the quality of Public Administration services provided for citizens and firms;
- Transforming the above pilot applications into real applications beyond the prototype stage.

Regional geographic information systems and innovative actions: strategy and an action plan for the Information Society in all regions:

- Encouragement of innovative pilot activities related to the development of Information Society applications at regional and local levels;
- Establishment and support of geographical and environmental mapping;
- Establishment and support of administrative systems at a central, regional and local level;
- Database and Information Technology Infrastructure in a modern Land Registry regulatory frame.

ICT applications in health and welfare:

- Wider strategic improvement of the quality of the provided medical care;
- Upgrading of citizen service;
- Reorganization of administration and finances in the health sector;
- Creation of a fully revised health and welfare system that makes use of modern ICTs;
- "Intelligent" transport;
    - decrease in travel time;
    - reduction of the loss of productive time;

- decrease in environmental pollution;
- improvement of transportation safety.

- Training and modernization in the public administration;
  - Training of public sector employees;
  - Introduction of modern automating office and telecommunication systems.

The eGovernment services to Greek citizens are generally considered inadequate because of their small number and limited interaction they offer. Most of them are simple information portals that, in some cases, provide forms that citizens can download and submit to relevant local offices. The most important portal is the taxation portal of the Greek Ministry of Economy and Finance (MEF), which provides online submission of the tax declaration and of the regular trimester value added tax ("Φ.Π.Α" – FPA) for professionals and enterprises. TAXISnet[3] - Taxation e-services was introduced by the MEF. The General Secretariat of Information Systems ("Γ.Γ.Π.Σ." - GSIS) is responsible for the operational planning, implementation and development of the ICT. Other important eGovernment services are available in official governmental portals, such as online search facility that helps citizens find the electoral department with which they are registered (relevant before National Elections), job search, national library search, and other online services and information for participating examinations organised by the Ministry of Education and Religious Affairs.

According to a report by the United Nations Centre for Public Service Professionalism (UNTC) (Boufeas et. al., 2004), the main characteristics of the Greek Public Administration that hinder the provision of eGovernment services include:

1. Low efficiency levels in administrative mechanism because of many hierarchical levels and bureaucratic organisation;
2. Integrated information systems are developed separately for each individual organisation to meet their specific needs, thus lacking interoperability regarding communication or data exchange between multiple local offices;
3. Existing technical infrastructure in public administrations is insufficient due to the fact that investments in ICT have been rather low;
4. Profound shortage of ICT skills among public administration employees. The lack of specialised personnel often means that the ability to operate Information Systems is limited.

In addition citizens do not have any unique individual identity number, such as the ID number for example for Swedish citizens, which consists of the year of birth – month of birth – day of birth, plus four digits with a certain meaning. The Swedish citizens get the ID number at birth and it is used in all instances within Sweden. The sequence of the numbers in the date of birth also ensure easy sorting of data. In Greece the citizens have different ID numbers dependent on data register, e.g. police-ID, taxation-ID, school-ID etc, and often the persons' name, plus parents' or husband's/wife's names are used for identification.

All these characteristics above need to be addressed if the eGovernment in Greece is to be successfully launched.

There is a lot of demand for eGovernment services at the moment; citizens are eager to adopt eGovernment initiatives due to the fact that citizens today are dissatisfied with the actual service delivery that involves long queues, delays and bureaucratic procedures. At present, however, very few services are offered through the Internet. Apart from VAT and income declarations which can be completed and processed via electronic

[3] TAXISnet was one of 44 from 281 projects that received the distinguished award for best practice in the European. Union's Conference "From Policy to Practice" in November 2001 – see www.gsis.gov.gr/home.html

means through the TAXISnet, no other important services are available for the moment (2008) for the public. However, all the public domain processes are going through a Business Process Re-engineering (BPR) stage and, as of 2007, 40 e-administration public services ensure easier access for citizens and companies (ΕΚΤ, 2007). Some eGovernment portals have also been developed mainly offering document downloading possibilities, but not enriched with additional services (Europa, 2007). The creation of the Citizen Service Centres ("ΚΕΠ" - KEP), an initiative of the Hellenic Ministry of Home Affairs, Public Administration and Decentralization, is an important improvements. At KEP citizens can have access to public service information and to a number of standardised administrative procedures. The service is complemented by a 24-hour administrative information call centre (four-digit 1564 telephone service), and by a 'Telephone Application System' (1502) where citizens can request up to 60 different certificates (Cap Gemini, 2006).

Information society and the economy

In Greece growth performance over the last decade has been among the best in the OECD countries (OECD, 2007). In particular encouraging is that growth has been sustained over the last two years, despite substantial fiscal consolidation, mainly being driven by investment and exports. However, significant further reforms are needed to ensure that good performance is sustained in the future.

Empirical evidence from growth accounting models proves the relationship between use of ICT and productivity. These models also measure the short-term impact. Beroggi et al. (2005) describe a new conceptual method for identifying indicators to measure the impacts of ICT on society and the business world. The model is based on a new paradigm for developing statistical indicators, relying on an inductive and hypothesis-driven approach, where the policy makers and the users of ICT are placed at the centre of the model.

The impact of ICT on productivity (efficiency gains in the ICT sector and in terms of investment in ICT) in the EU has consistently been only half of the impact in the US over the last ten years. From 1995 to 1999, ICT stood for 0.9 % of the annual productivity growth in the EU compared to 1.7 % in the US. From 2000 to 2004 the equivalence was 0.5 % and 0.9 % (EU Info Sheet 7.a, 2006).

The third Priority Axes of the OPIS relates to the creation of conditions for the smooth transition of Greece into the post-industrial digital economy, which is based on production, diffusion and the use of knowledge and information. The strategy for the achievement of the transition includes the following actions:

- Creation of the appropriate institutional and business environment for the smooth transition of the country into the new global digital economy;
- Reinforcement of Greek enterprises in order to be integrated in the Information Society;
    - Promotion of the use of ICTs by enterprises (especially SMEs);
    - Creation of conditions for the success of the new technology-based firms;
    - Promotion of entrepreneurship.
- Development of Research and Technological Development actions (R&TD);
- Demonstration and utilization of the research results in ICT fields;
- Development and extension of networks and advanced telematics services;
- Creation of a workforce with appropriate skills able to work in the new environment and conditions created;
- Promotion of new types of work, eg. tele-working;
- Creation of a positive environment for the promotion of employment in Information Society related lines of work;
- Creation and diffusion of content relevant to research in ICTs.

1. The national infrastructure of telecommunications

The national infrastructure of telecommunications forms the backbone of the Information Society. An issue that will affect everything governments do is convergence (the ability to offer voice, data, video and other multimedia services over a single or multiple infrastructure, as well as the ability to access such services at any time, anywhere and with any proper device); it is to telecommunications what globalisation is to trade (HLG, 2006a). Convergence is bringing about industrial changes both at the horizontal level (traditionally separated industries compete with each other) and at the vertical level (new partnerships emerge bringing about the need for new business models as well as trends towards vertical integration). In ICT-related sectors, the following technology trends have been named as important drivers for convergence (e-Business W@tch, 2006):

- Digitisation of content - the distribution of content over IP-based channels;
- IP transformation of telecommunication services - the delivery of voice services over IP-based channels;
- Increased availability and importance of broadband Internet connections in Europe - the digital delivery of high value content services;
- Increasing availability and capability of mobile technologies - connecting services based on mobile and fixed-line network.

The usability and speed of the national telecommunication infrastructure is crucial for the development of the Information Society. Similarly critical are the costs of storing, transmitting and processing digital information. Within the national telecommunication infrastructure the development of a variety of products and services characterising the Information Society on a whole are developed. These are:

- The development of telecommunication network infrastructures for local access, including small cities and non-urban or distant areas for the provision of key broadband services;
- Introduction of new telecommunications technologies in the everyday life of citizens;
- Development of advanced telecommunications services to support applications throughout the whole range of economy and society;
- Development and modernization of post office infrastructures and promotion of post offices into multi-dimensional centres;
- Training of the executive staff of the Ministry of Transport and Communications / Communications Secretariat General (YME/GGE), of the National Telecommunications and Post Commission (EETT) and of the other regulatory agencies on cutting-edge telecommunication technologies and applications issues;
- Utilization of human resources at the Greek Post Offices (ELTA) particularly in the sector of education and continuous training. The main objectives are to change organizational structure, the mentality and the technological base of ELTA.

The Metropolitan Area Networks - MAN

The aims are to create Metropolitan Area Networks (MAN) in 75 municipalities, wireless area networks in 120 municipalities and in 20 local co-operations between municipalities and smaller units, as well as 770 wireless broadband public Hotspots in more than 400 organizations mainly from the tourist services. The utilization of the satellite HellasSAT will provide broadband access to islands and other distant locations.

Digital culture

Traditionally separate ICT markets, such as the Internet, telephony and television, are converging. Nowadays a single networked infrastructure can deliver the full range of multimedia content to both fixed and mobile devices (EU Info Sheet 7.1, 2006). In October 2005 the broadband penetration rates in Europe surpassed these of the USA.

The availability of broadband connections has had an impact on the intensity of Internet use and on the kind of services accessed both by individuals and businesses (EU Info Sheet 7.1, 2006). Having a broadband connection increases the tendency to take up Internet services. The effect is correlated with the bandwidth required. People in households having broadband are almost four times more likely to use more advanced services such as VoIP and video conferencing. Also enterprises that have broadband are nearly 3 times more likely use more complex application, e.g. tele-working, compared to those with only narrowband (EU Info Sheet 7.1, 2006).

OTE, the national telecommunications provider, reported on 15 January 2007 that broadband connections in Greek households more than tripled, reaching a percentage of 13% throughout Greece (760.000 broadband connections at the end of December 2006, compared to 215.000 in December 2005).

The Commission continues the debate on media pluralism and media literacy. The new MEDIA 2007 programme (2007-2013), provides financial support for the European audiovisual sector. Measures will be outlined to support the introduction and take-up of mobile TV (combination of personal mobile communications and audiovisual content) across the EU. It is an example of digital convergence, a concept at the heart of Commission's i2010 strategy for the Information Society (COM 409, 2007; HLG, 2006a).

The Film Online Charter, initiated by the Commission and agreed by business leaders in 2006, is a first milestone for multilingual and innovative online content (anywhere-anytime availability access to adapted content of increased quality). The next step is to ensure that users are confident in the use of these new services. In 2006 the Commission proposed a regulation to limit international roaming tariffs for the users of mobile services (COM 146, 2007).

The Digital Libraries initiatives are also being implemented. The Commission issued guidance on digitisation, online accessibility of cultural material and digital preservation, and on scientific resources.

Education and R&D

Innovation and ICT uptake in Europe are highly dependent on the e-skills of the workforce. This includes ICT-related business skills for both practitioners and users. However, evidence shows growing e-skills gaps. On EU level there is a shortage of absolute numbers of ICT workers and a worrying decline in the number of students studying IT and computer science (EU ICT, 2006). Europe's educational and professional training systems do not sufficiently seem to deliver the skills needed to ensure workforce competitiveness and economic innovation. If these issues are not addressed, the competitiveness of European companies in the global market in most industry sectors is at risk.

In the 21st century services is one of the upcoming elements of economic activity and value creation (approximately 70% of GDP and employment in western economies). Management of advanced services, as well as successful innovation, require different skills than the skills of traditional ICT professions. A cross-discipline skill set is required ranging from traditional ICT to management disciplines. The services economy will require fundamental changes in curricula at schools and universities (EU ICT, 2006). However, for full potential as a knowledge-based economy, Europe needs e-skills, including basic skills, to be embedded throughout the population. Future generations will gain ICT user skills as part of their education.

In order to successfully exploit the advantages of ICTs educational and vocational training systems pay an important role.

Moreover, the transition to a knowledge-based economy will make education and training a lifelong process rather than a one-off activity. Where knowledge becomes the main value driver for business and the key to be employable over the duration of a working life, technology-enabled learning (eLearning) can significantly contribute to lifelong learning and make it a reality – if it is effectively and consistently promoted and can build on the necessary ICT user skills of learners.

During the last few years there has been a rigorous effort by the Ministry of Education and Religious Affairs in Greece to equip all levels of education with PCs and Internet connections, in parallel with lessons in Information and Communication Technologies (ICTs). The Ministry also provides an educational intranet, the Greek School Network[4], which interlinks all schools (kindergartens, primary schools, schools of secondary education and Institutes of Vocational Training, called IEK) and provides basic and advanced telematics' services (EKT, 2007). The Greek School Network aims at introducing new Information Society Technologies and Network technologies to all stages of the educational system, through the development of a unified network with countrywide coverage in the service of education. Thus basically all Greek schools today use computers for teaching and learning purposes and also have internet access. However, only 13% used the internet via a broadband connection according to the European Commission survey in 2006 regarding use of Computers and the Internet in Schools in Europe. With this figure Greece ranks at the very bottom of the 27 countries participating in the survey.

Another effort is to provide a cheap laptop to pupils and to all freshman university students as well as to provide teachers in secondary education the European Computing Driving Licence (ECDL) certification after excessive training.

Government funds have also been allocated to SMEs to modernise their businesses by introducing ICTs and by training their employees in using them.

[4] http://www.sch.gr/en/

The most important Priority Axes of the OPIS concerns Education and Culture.

Education: The aims are to adapt the educational system to the needs of the digital age and to increase the use of new technologies in education. The objectives emphasise:

1. Creation of schools, universities and the academic community (including administrative services) networks.
2. Promotion of Life Long Learning (LLL) and training of teachers/lecturers and pupils/students. A cohesive action plan (in accordance with the recommendations of the eEurope 2002 and eEurope 2005 action plans), has the following aims:
    a. Access to the Internet and multimedia tools by all schools by the end of the Operational Programme. One of the main objectives is the supply of low-cost equipment;
    b. Training of teachers/lecturers in the Internet and multimedia tools and applications, as well as other new technologies. This also involves:
        i. Development of appropriate multimedia educational applications;
        ii. Promotion of certification of educational software applications;
        iii. Interconnection of digital libraries;
        iv. Creation of distance learning centres for use by teachers/lecturers and pupils/students.
3. "Computer-literate" graduates of compulsory education.

Achievement of all these objectives depends on the initiation of new methods that accelerate the implementation process. The development of digital educational content is an important requirement that need to be promoted.

Culture: ICTs will be used to manage, document and promote Greek culture and civilisation.

The cultural sector is one of the basic comparative advantages of Greece. The possibilities offered by modern ICTs for the creation and exchange of images, texts, sound, etc., help to eliminate language obstacles and geographical distance. ICTs also provide important opportunities for the dissemination of ideas and information about Greek cultural and historical heritage and contemporary digitalisation.

Significant benefits, both social and financial, are expected both in the broader cultural sector, in science and cultural education, and in the context of the leisure industry and economy. Economic benefits will arise either directly, through direct entrepreneurial utilisation of cultural products, or indirectly, by making the most of parallel activities (tourism, the recreation industry, cultural content, education and trade).

The general objectives of the strategy for culture within the Information Society include:

- Promotion of ICTs for the scientific and administrational documentation and management of the Greek cultural reserve (including the management of intellectual rights);
- Support of new forms of cultural expression involving the use of ICTs;
- Support for the content industry;
    - development of cultural services and value-added products;

- development of related business activities;

- Promotion of culture and cultural education;
  - Promotion of the Greek cultural and historical heritage (both ancient and modern);
    - via Internet;
    - via modern communications networks;
  - active participation of specialists scientists, young people and the general public;

- Strenghtening of the Greek language.

Recommendations – interesting topics for future information society research

The degree to which the EU policy and regulation regarding the Information Society can be consistently and timely adopted in the different EU counties, seems to highlight the importance of the cultural particularities and the national ICT environment.

Many people consider that the Internet creates converge values (Couger et al., 2001) and that managing IT in a global context is largely the same as managing IT in a domestic context. The other view proposes that there are differences depending on cultural aspects, different business and legal environments, different languages and varying technology availability (Siakas and Georgiadou, 2007; Tractinsky and Järvenpää, 1995).

Tsatsou (2005) articulates a major critique on the current EU policy process regarding the failure of the EU to recognize and adjust its policy to the existing cultural particularities of its Member States. She poses the question of whether digital divides constitute 'cultural divides' having an impact on the policy, regulation and future evolution of the EU Information Society. She addresses the need of an EU policy that takes into account the socio-cultural particularities of each EU Member State without loosing its broad scope and common aim throughout the EU.

ICTs are considered to be powerful drivers of growth and employment (COM 229, 2005). Differences in economic performances between industrialised countries are determined by the level of ICT investment, research, and use, and by the competitiveness of information society and media industries. However, the issue is probably more complex. Deep-rooted cultural and social patterns are also likely to influence the differences in performance and EU emphasis on research into these issues is considered important. To emphasise the importance of cultural awareness some results form earlier studies are demonstrated below.

Hofstede and McCrae (2004), for example, argue that culture is a collective (common to most of the people in a social group) attribute manifested in behaviour. Hofstede (1994), one of the most recognised researchers in cross-cultural studies, identified (after an extensive research in 1966 including 116,000 questionnaires in 50 different countries) four key elements or dimensions of culture, which represent common problems with different solutions, varying from country to country, in the following areas:

- social inequality, including relationship with authority (Power Distance);
- the relationship between the individual and the group (Collectivism/Individualism);
- concepts of masculinity and femininity (Femininity/Masculinity);
- ways of dealing with uncertainty, relating to control of aggression and the expression of emotions (Uncertainty Avoidance).

Originally the scores for each country were to be a continuum between 0 and 100, but after some countries were added, and the formula had been developed scores greater than 100 became possible (Hofstede, 1994). The scores for Greece on the four cultural dimensions are as follows:

- Power Distance: 60 - Relatively high Power Distance, which means that the Greek society accepts the fact power is distributed unequally among individuals and control-oriented management style is normal. Gil-Garcia et al. (2007) found by studying six public sector information-sharing projects, that the perception of a controlled oriented management style limits the expectation of benefits. They consider

this to be a managerial and cultural impediment pertinent characteristic of the government environment.

- Collectivism/Individualism: 35 - Greece meets the criteria for the Collectivism side, characterized by a tight social framework in which people distinguish between in-groups and out-groups and expect their in-group to look after them. Most of EU countries are on the Individualism side.
- Femininity / Masculinity: 57 - Greece meets the criteria for Masculinity, which indicates that importance is placed on assertiveness, competitiveness and materialism in the form of earnings and advancement, promotions and bonuses.
- Uncertainty Avoidance: 112 - highest value of all countries in the survey, indicating that Greeks feel a very high uncertainty about ambiguous situations and the future. People seem to be busy, fidgety, emotional aggressive and active (it is acceptable to show feelings and aggression). In high Uncertainty Avoidance countries people usually believe in absolute truths and refuse to tolerate deviance.

Hofstede's work has both been praised and criticized. Although more than 40 years have passed since his study no other cultural classification has replaced his paradigm (Siakas and Georgiadou, 2007). The strength of his work lies in the clarity and consistency of identifying cultural dimensions and thus allowing cross-cultural comparisons.

European policy-makers and regulators that have awareness of cultural divergence between EU states are likely to add significant value aiming at stimulating the adoption of the EU policy regarding the Information Society. A broader perspective in order to take into account new trends is needed. Reflections should embark upon barriers that hinder the adoption of the EU policy and the provision of pan-European online services. The cost and risks of different solutions regarding the European information society should be explored.

Bibliography

Agrafiotis, D. (1997): Information society and Greek society: Socio-cultural and political incompatibilities, IFIP TC9 WG 9.2/9.5 *International Conference on Culture and Democracy Revisited in the Global Information Society*, Corfu, GRECE (08/05/1997)

Beroggi, G. E. G. – Täube, V.G. – Lévy, M. (2005): Statistical indicators for monitoring and controlling the ICT system (in: *International Journal of Technology, Policy and Management*, Vol. 5, No. 1, pp. 93-120)

Boufeas, G. – Halaris, I. – Kokkinou, A. (2004): Business plans for the development of e-government in Greece. An appraisal (in: *United Nations Thessaloniki Centre for Public Service Professionalism (UNTC) Occasional Papers*, No 5/2004)

Cap Gemini (2006): *Online Availability of Public Services: How Is Europe Progressing? Web Based Survey on Electronic Public Services, Report of the 6th Measurement, June 2006* (http://www.observe.gr/files/meletes/Capgemini%20-%20egov_benchmarking_June06.pdf, accessed 20 May 2008)

Castells, Manuel (1996): *The Rise of the Network Society* (Blackwell, Oxford)

CCeGiv (2007): *Designing efficient and effective e-public services: developing a systematic understanding of citizen-consumers and their needs*, *GR:* 2nd International cc:eGov Workshop - Organisational change for citizen-centric eGovernment, 20-21 February 2007, Athens, Greece (http://www.ccegov.eu/?Page=Workshops, accessed 20 May 2008)

COM 409 (2007): "*i2010 – Strengthening the Internal Market for Mobile TV*", communication from the commission to the council, the European parliament, the European economic and social committee and the committee of the regions, Brussels, 18.7.2007

COM 146 (2007): "*i2010 – Annual Information Society Report 2007*", communication from the commission to the council, the European parliament, the European economic and social committee and the committee of the regions, Brussels, 30.3.2007

COM 229 (2005): "*i2010 – A European Information Society for growth and employment*", communication from the commission to the council, the European parliament, the European economic and social committee and the committee of the regions, Brussels, 1.6.2005

COM 173 (2006): *i2010 e-government action plan: Accelerating e-government in Europe for the benefit of all*, Brussels, 25.04.2006

Couger, J.D. – Halttunen, V. – Lyytinen, K. (1991): Evaluating the motivation environment in Finland compared to United States - a survey (in: *European Journal of Information Systems*, Vol 1, No 2, pp. 107-112)

E-readiness (2007): *The 2007 e-readiness rankings*, Raising the bar, A white paper from the Economist Intelligence Unit, Written in co-operation with The IBM Institute for Business Value

EIU (2007): *The rising stakes of digital leadership. The economist intelligence unit*, 26 April (http://ec.europa.eu/information_society/eeurope/i2010/docs/annual_report/2007/country_factsheets/2007_factsheet_gr.pdf, accessed 20 May 2008)

EU Info Sheet 7.1 (2006): *i2010 - 2005-2006: A period of rapid market developments,* May, Fact sheets: 12; 35

EU Info Sheet 7.2a (2006): *i2010 - The world's economies depend on Information & Communication Technologies (ICT),* May, Fact sheets: 6, 35

EU Info Sheet 7.2b (2006): *i2010 - The Adoption of Information & Communication Technologies (ICT) by Business,* May, Fact sheets: 6, 35

EU Info Sheet 7.3 (2006): *i2010 Inclusion: Policies and technologies that improve public services,* Fact sheets 6, 12, 35

EU Info Sheet 7.4 (2006): *i2010 - What comes next? Plans for 2006 - 2007,* May, Fact sheets: 6, 35

EU-Report (2007): *i2010 - Annual Report 2007* (http://ec.europa.eu/information_society/eeurope/i2010/, accessed 20 May 2008)

European Commission (2007): Greece - i2010 Annual Report 2007, (http://ec.europa.eu/information_society/eeurope/i2010/, accessed 20 May 2008)

European Commission (2006): *Information Society and Media Directorate General Lisbon Strategy and Policies for the Information Society, Lisbon Strategy and i2010, Use of Computers and the Internet in Schools in Europe 2006*, Country Brief: Greece, 6/2006

Greek Observatory (2007): http:// www.observe.gr/, accessed 20 May 2008

Greek IS Observatory research (2007): *Information Society Politics Greece* (http://www.observe.gr/page/default.asp?la=2&id=183, accessed 20 May 2008)

Greek IS Observatory (2007a): *Best processes of establishment and operation of businesses concerning the transactions that are realised with the public sector - Government to Business*, Foundation for Economic and Industrial Research (http://www.observatory.gr/files/meletes/BP_TPE_P3_EN.pdf, accessed 20 May 2008)

Greek IS Observatory (2006): *Study of the ICT sector in Greece: Current Situation and Future Trends*, *Foundation for Economic and Industrial Research,* Deliverable 14, Prospects of the ICT sector in Greece – policy implications, October 2006 (http://www.observe.gr/files/meletes/ICT_14_final_eng.pdf, accessed 20 May 2008)

GR-DeAN (2003): *The National Network on Design for All* (http://www.e-accessibility.gr, accessed 20 May 2008)

HLG (2006a): *The Challenges of Convergence*, European Commission Discussion paper, i2010 High Level Group, 12.12.2006

HLG (2006b): *The economic impact of ICT: evidence and questions,* European Commission Discussion paper, i2010 High Level Group, 20.04.2006

Hofstede, G. (2001): *Culture's consequences: comparing values, behaviours, institutions, and organisations* (Thousand Oaks, California; Sage Publications, London)

Hofstede, G. – McCrae, R. R. (2004): Personality and Culture Revisited: Linking Traits and Dimensions of Culture (in: *Cross-Cultural Research*, Vol. 38. Issue 1 pp. 52-85)

ICAP (2006): *Greece in Figures, Greek Financial Directory* (http:// www.financial-directory.gr or http://www.icap.gr, accessed 20 May 2008)

ICTPSP (2007): E*ntire CIP program* (http://ec.europa.eu/enterprise/enterprise_policy/cip/index_en.htm)
ICT Policy Support Programme (http://europa.eu/ict_psp now available)
(http://ec.europa.eu/information_society/activities/ict_psp/index_en.htm)
EU Information Society and Media: ict_policy_presentation_2007

IDABC (2007): *European eGovernment News Roundup*, N. 172 - 16 January 2007
(http://ec.europa.eu/idabc/egovo, accessed 20 May 2008)

DeMunter, Christopher (2006): *How skilled are Europeans in using computers and the Internet?* EuroStat manuscript 7.06.2006

Gil-Garcia, J. R., – Chengalur-Smith, I. – Duchessi, P. (2007): Collaborative e-Government: impediments and benefits of information-sharing projects in the public sector (in: *European Journal of Information Systems,* No. 16, pp. 121–133)

Grimsley, M. – Meehan, A. (2007): e-Government information systems: Evaluation-led design for public value and client trust (in: *European Journal of Information Systems,* No. 16, pp. 134-148)

OECD (2007): *Economic survey of Greece 2007,* Organisation for Economic Co-Operation and Development, 30 May 2007 (www.oecd.org/eco/surveys/greece, accessed 20 May 2008)

SCP-5 (2007): *Administration to Business (A2B), The European strategy promotes e-Government, Single Contact Point 5*, European Project

Siakas, K. – Georgiadou, E. (2007): Knowledge Sharing in Virtual and Networked Organisations in Different Organisational and National Cultures (in: Ettore Bolisani (eds): *Building the Knowledge Society on the Internet*, Idea Publishing (in press))

Stephanidis, C. (ed.) (2004): *Universal Access and Equal Participation of people with disabilities in the Information Society in the context of the Operational Programme "Information Society" of the 3rd Community Support Programme* (Secretariat for the Information Society, Hellenic Ministry of Economy and Finance - framework for current activities promoting e-inclusion and e-accessibility,
http://www.infosoc.gr/NR/rdonlyres/0B306F9C-A8194F96ABB1A21945D1D2B3/1092/final_report.pdf, accessed 20 May 2008)

Syzefxis (2007): http://www.syzefxis.gov.gr/, accessed 20 May 2008

Tractinsky, Noam – Järvenpää, S. L. (1995): Information Systems Design Decision in a Global versus Domestic Context (in: *MIS Quarterly*, Vol. 19, Issue 4, December, pp. 507-529)

Tsatsou, P. (2005): *Civil Society in Greece: Shaping new Digital Divides? The Digital Divides as 'Cultural' Divides. Implications for Closing Divides,* ESRC Seminar on 'Bridging the Digital Divides', Oxford Internet Institute, UK, 4 March 2005
(http://www.oii.ox.ac.uk/collaboration/seminars/20050304_Panayiota_Tsatsou_Paper.pdf, accessed 20 May 2008)

Tsekos, T. (2001): UNTC, *Greece: Building an enterprise architecture for Public administration: a high-level data model for strategic planning*, Strategic Planning in Public Services, A Project of CARIFORUM and the European Development Fund
(http://unpan1.un.org/intradoc/groups/public/documents/CARICAD/UNPAN010295.pdf, accessed 20 May 2008)

Zambarloukos, S. – Constantelou, A. (2002): Learning and skills formation in the new economy: evidence from Greece (in: *International Journal of Training and Development*, Blackwell Publishers, Vol. 6 (4), pp. 240-252)

I. Bibliography in the Greek Language

CSF Citizens' Online Information System (2007)[5]: (http://www.info3kps.gr)

e-Business W@tch (2006): *ICT and e-Business in the Telecommunication Industry ICT adoption and e-business activity in 2006*. The European Commission, Enterprise & Industry Directorate General, Sector Report No. 9/2006 (http://ec.europa.eu/comm/enterprise/ict/policy/watch/index.htm, www.ebusiness-watch.org)

EDET (2005): Εθνικό Δίκτυο Έρευνας και Τεχνολογίας - ΕΔΕΤ Α.Ε. Εθνική έρευνα για τις νέες τεχνολογίες και την κοινωνία της πληροφορίας Η χρήση ηλεκτρονικού υπολογιστή στην Ελλάδα

EKT (2007): Εθνικό Κέντρο Τεκμηρίωσης / National Documentation Centre

EU ICT (2006): *Fostering the competitiveness of Europe's ICT industry*, EU ICT Task force Report, November 2006

Kep (2007): http://www.kep.gov.gr/

Καϊτατζή-Γουιτλοκ Σοφία (2003): *Η επικράτεια των πληροφοριών*, Εκδόσεις Κριτική, Αθήνα

Κάλλας Γιάννης (2006): *Η κοινωνία της πληροφορίας και ο νέος ρόλος των κοινωνικών επιστημών* (Εκδόσεις Νεφέλη, Αθήνα)

Καστέλς Μανουέλ (2005): *Ο γαλαξίας του διαδικτύου, Στοχασμοί για το Διαδίκτυο, τις επιχειρήσεις και την κοινωνία (Εκδόσεις Καστανιώτη Αθήνα), Greek translation from Castells Manuel (2001): The Internet Galaxy (Reflections on the Internet, Business and Society)*

Λαζακίδου Αθηνά Α., Λαζακίδου Γεωργία Α. (2004): Νέες δυνατότητες & προοπτικές στην κοινωνία των πληροφοριών (Εκδόσεις Κλειδάριθμος, Αθήνα)

Λάριος Γιάννης (2006): *Ψηφιακή Στρατηγική 2006-2013*, Πρόταση προς δημόσια διαβούλευση, Επιτροπή Πληροφορικής

KTP Strategy Greece (2002): Η Ελλάδα στην κοινωνία της πληροφορίας: στρατηγική και δράσεις - από τον στόχο στο αποτέλεσμα: Η υλοποίηση της στρατηγικής για την κοινωνία της πληροφορίας (http://broadband.cti.gr/download/strathgikh.pdf)

eInclusion Greece (2007): (http://ec.europa.eu/information_society/activities/einclusion/policy/a_documents/pdf/greece_einclusion.pdf)

Infosoc (2007): Information Society, the official Greek portal for the I.S.; Managing authority for operational programme (http://www.infosoc.gr/infosoc/el-GR/)

[5] Management Organisation Unit (MOU) of the CSF updates regarding funding opportunities provided by the Community Support Framework

Greek Digital Strategy (2006): Η νέα Ψηφιακή Στρατηγική για την περίοδο 2006-2013 (http://www.infosoc.gr/NR/rdonlyres/A13F889F-DE92-4DCF-B64A-37351BFC69B9/3053/ktp_all.pdf), or (http://www.infosoc.gr/NR/rdonlyres/A13F889F-DE92-4DCF-B64A-37351BFC69B9/660/GreekDigitalStrategy20062013.pdf)

Digital Strategy (2006): *Ψηφιακή στρατηγική 2006-2013* (http://www.infosociety.gr_digital_strategy)

Greek IS Observatory (2007b): *Ετήσια Μέτρηση των δεικτών των σχεδίων δράσης eEurope* & *i2010 για έτος 2006*, Για την κοινωνία της πληροφορίας, Μάρτιος 2007