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National Dependability Policy Environments

SPAIN

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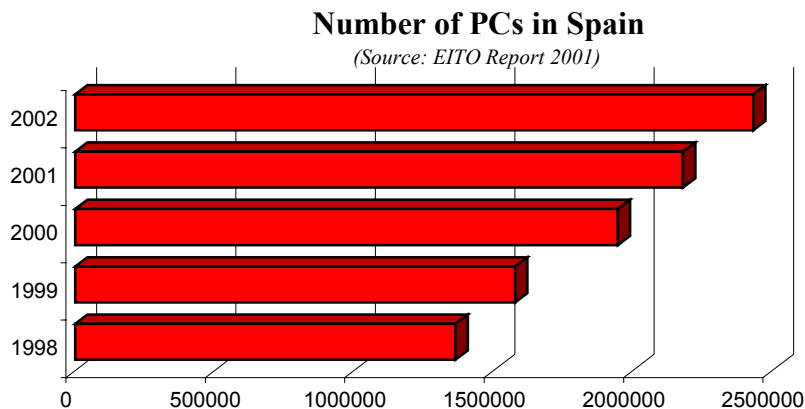
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Overview of the Country's Information Infrastructure

Spain is increasingly exploiting the functionalities provided by the new information and communication technologies. Between 1998 and 2001, ICT expenditures in Spain grew by 60.2%, with the total value increasing from 27,346 million EUROS to 43,797 million EUROS. In 2002, this figure is expected to rise still further to an estimated 47,608 million EUROS. Of this ICT total, 72% of expenditure relates to communications and 28 % to IT.¹

ICT intensity rose from 5% in 1997 to 6.85% in 2000.² Communications hardware increased from 1,623 million EUROS to 7,227 million EUROS; Communications services from 8,972 million EUROS to 19,919 million EUROS; IT hardware from 1,610 million EUROS to 5,838 million EUROS; and IT software from 644 million EUROS to 1,542. The largest increase, however, was seen in IT services, which rose from 515 million EUROS to 5,907 million during the four years.³ The contribution of IT to GDP was 1.41 % in 1997 and 2.25 % in 2000. The contribution of communications to GDP was 2.06 % and 4.09 % respectively.⁴ In 2000 the total level of employment in Spain was 14.6 million.⁵ The number of people working in communications was 91,075 – a share of only 0.61 %. This percentage has actually been decreasing over recent years since in 1997 it was 0.745 %.⁶

General IT penetration in Spain has increased noticeably over a short period of time. In 1999 penetration in households was somewhere between 10 and 11%⁷. A year later it had risen to 23.8%.⁸ The number of households with cable rose from 1.2% in 1998 to 2.4% in the year 2000. The number of PCs per hundred households also increased from just 8% in 1997 to 26.9% in 2000. A similar pattern can be found in businesses, where the number of PCs per hundred workers rose from 48% to 70.2% between 1998 and 2000⁹.



¹ European Information Technology Observatory, (EITO), 2001 p.457

² EITO

³ Figures for 1997 taken from SEDISI Cap 4-A. Figures for 2000 taken from SEDISI Cap.2.A

⁴ Ibid

⁵ INE

⁶ CMT 2000

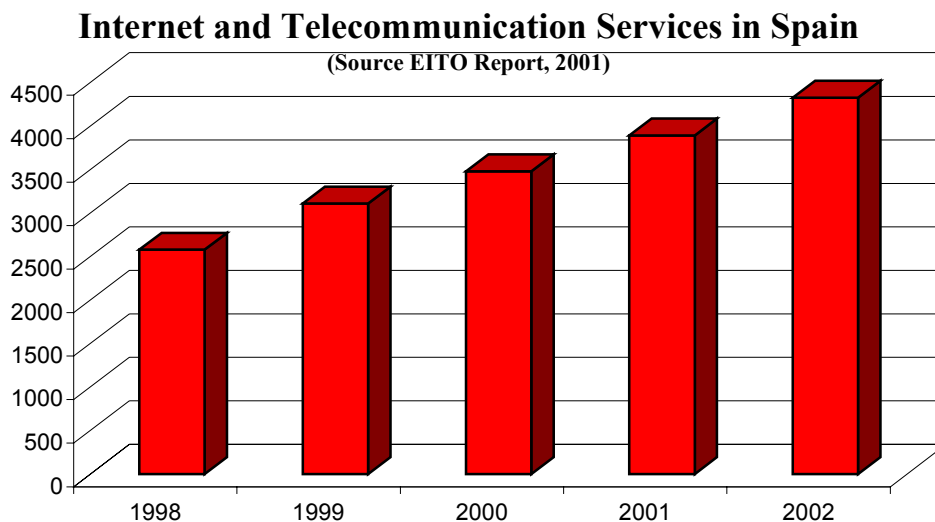
⁷ figures from SEDISI and EITO (p140) respectively.

⁸ SEDISI

⁹ Ibid

In terms of the index of computerisation, the total ICT market value was 27,346 million EUROS in 1998 and is expected to reach 47,608 million EUROS in 2002 (of which 13,531 million EUROS relate to IT and 34,077 to communications).¹⁰ The total number of PCs in Spain rose from 1.36 million in 1998 to 2.18 million in 2001.¹¹ In 2000 the number of Internet hosts had reached 583,400, which represents a penetration rate of 1.57 %.¹² The number of ISP nodes attached to the Internet was 2006. Meanwhile, the number of Internet users has risen from 1.89 million in 1998 to 9.48 million in 2001. Finally, there are about 772 secure web servers in Spain.¹³

This positive ICT penetration data is leading to a rise in e-commerce. In 2000, the total number of e-commerce users was 0.7 million - a penetration rate of 3%. By 2005, it is predicted that these figure will have risen to 16.3 million and 38% respectively. At present there is a higher number of B2C users than B2B. Of the 0.7 million, 0.5 million were B2C users and only 0.3 million were B2B. This pattern is expected to continue with 11.9 million of the predicted 16.3 million users in 2005 expected to be B2C users. The total revenue of B2C transactions is also higher than that of B2B – 76 million EUROS in 2000 compared with only 58 million EUROS. However, the actual number of B2B transactions is higher than those of B2C – in 2000, there were 56 billion B2B transactions and just 13 billion B2C transactions.



Main ICT Regulatory and Legal Developments

One of the first and important regulatory activities involving information and communication technologies involved interconnections between operators.¹⁴ In terms of interconnection prices, the Order of 31 October 2000 has led to metropolitan interconnection. Consequently, several flat rate Internet access initiatives were launched. Nevertheless, there are still many issues to be addressed in relation to the

¹⁰ EITO

¹¹ EITO p495

¹² SEDISI D.3

¹³ SEDISI

¹⁴ CMT: Comisión del Mercado de las Telecomunicaciones. Telecommunications Market Commission, Spanish national telecommunication, audio-visual, telematics and inter-active services regulatory organ

interconnection costs between mobile and fixed-line telephone calls that make the competition difficult for operators of fixed-line telephones.

The Spanish mobile telephone market, nonetheless, has exploded with very limited government intervention. The dynamism of the market has stimulated the development of third generation mobile licenses in record time. In the present circumstances, however, the market is reaching its apex. The main problem for mobile services is limited competition, leading to a risk of oligopoly. This is the reason for such high prices compared to those of fixed-lines. The entrance of UMTS creates a new market that replaces the old one for GPRS and could eventually break the monopoly. Still, there is a reasonable chance that this will not happen due to the difficulties and barriers the new operators encounter in entering the mobile telephone market, such as the power of the already established operators, the financial resources and the use of the radio-electrical spectre.

In relation to the Internet, in the year 2000 several policy developments are creating the basis for future developments. In addition to the Royal Decree in terms of interconnection, the second main change was the opening of Telefonica's local loop, which will make Internet access services more dynamic by means of ADSL techniques. Still, connection to the Internet is through PSTN or ISDN (used by 99% of residential Internet users). The cable network is scarcely built-up. A second access technology which could be used both for the Internet and local network build-out is LMDS or radio access. However, similar to WAP, this option is far from providing satisfactory results.

Finally, the penetration of Internet in homes through digital television, although still incipient, is one of the most challenging events of the future. The government authorisations granted to earth digital television operators open up the possibility of offering interactive services, such as the Internet, once the relevant authorisations have been obtained. The possibilities of satellite digital television are widened.

In relation to e-Commerce, the public administration has the role of both user and promoter. There are two examples of electronic exchange of documents between enterprises and the Administration: the Government to Business (G2B) type at the Social Security Service; and the Government to Consumer (G2C) type at the Taxpayer Office. In this context, there are several interesting government initiatives. The Social Security (Ministry for health care and pensions) for example offers the *Sistema de Remisión Electrónica de Documentos (RED)*, to enterprises and professionals. This service exchanges soft copies of documents through EDI and allows two types of transactions: presentation of documents and data enquiries. The AEAT (Agencia Estatal de Administración Tributaria)¹⁵ provides tax and income tax return service through the Internet -Personal Income Tax being G2C and Value Added Tax, G2B.

In terms of fostering B2B and B2C trade, the "telecommunications regional action programme" (ARTE)¹⁶ aims to assist SME integration in the Information Society. ARTE/SME's II is a program of the Ministry of Science and Technology and is co-financed by the European Regional Development Fund (ERDF). Projects are on-line with studies, pilot projects and introductions of e-commerce applications for specific sectors of economic activity.

The Government initiative 'INFO XXI: La Sociedad de la Inform@ción para todos' aims to build the Information Society of Spain. It consists of several structured programs and action steps to help stimulate the Information Society development in Spain and bring it closer to the public. The Action Plan INFO XXI (2001-2003) has been developed to co-ordinate Public Administration initiatives. The objectives of

¹⁵ Fiscal Authority

¹⁶ Programa de Acciones Regionales en Telecomunicaciones

this plan are in line with those of E-Europe 2002 and involve the liberalisation of telecommunication sector and support for the development of electronic commerce. The Plan includes three sections.¹⁷ Firstly, it calls for a legal framework favourable to ICT services development, including the advancement of the liberalisation process of the telecommunications sector. Secondly, it wants to foster indirect promotion of ICT technologies and implementation through tax incentives. These initiatives are particularly targeted to SMEs and the public in general.

The Plan also calls for more electronic public services. It calls for improved ICT functionalities inside the public administration and during interaction with citizens. Finally, the Plan calls for the development of the Information Society in both social and economic fields. In particular, its focus is for more education and training, as well for the promotion of the Spanish language over the Internet.

Assessment of Phenomena Undermining Dependability

In Spain there is a need to establish an official, national body for the collection of data relating to cyber-crime and cyber-abuse. At present, there is no coherent data collection system. Nevertheless, national laws, on the whole, provide good protection against different types of on-line crimes. This is set to improve still further with the imminent publication of laws dealing with Electronic Commerce and Electronic Signature, aimed at increasing the level of dependability of on-line transactions. That said, the types and levels of cyber-crime in Spain are similar to those existing in other countries.

Spanish Internet users, nevertheless, do not have a very good knowledge of the possible types of abuses and crimes. Most people think that the rate is higher than it actually is and this is the main reason for a lack of trust in the on-line environment. B2C and B2B solutions are very often avoided. There is a demand amongst users for an official standardised procedure to validate the trustworthiness of on-line transactions. This procedure should be applied to digital signatures and certification authorities supporting the quality of any contract.

Government Initiatives Aimed at Tackling Cyber-Security

The Ministry of Public Administration fosters a policy of development of the Information Society through its Consejo Superior de Informatica (CSI).¹⁸ The CSI is in charge of preparing, developing and enforcing the Government's policy on computer systems. It operates as a plenum and its activities are sub-divided in Comisiones Ministeriales de Informática¹⁹. One of the more interesting bodies is the Technical Committee on the Security of Information Systems and Personal Data Processing (SSITAD).²⁰ Its main task is to unify information systems security-related actions among all government departments. In order to achieve this objective, SSITAD defines common infosec-policies and procedures, provides advices and training and fosters general awareness. It also works on the adoption of international and European regulations on information systems security.

¹⁷ The plan has been prepared by the Comisión Interministerial de la Sociedad de la Información y las Nuevas Tecnologías (Interministerial Commission for the information Society and new technologies) according to the Royal Decree 1289/1999 dated 23 July

¹⁸ Superior Informatics Council – <http://www.map.es/csi/csi.htm> (visited on 21 March 2002)

¹⁹ The Ministerial commissions on informatics

²⁰ Comité Técnico de Seguridad de los Sistemas de Información y Tratamiento de Datos Personales - Technical committee on the security of information systems and on personal data processing

Both the Policía Nacional²¹ and the Guardia Civil deal with cyber-crime. The national police operates through the Unidad de Investigación de la Delincuencia en Tecnología de la Información²², and the Guardia Civil uses the DDAT (Departamento de Delitos en Alta Tecnología²³). The Dirección General de la Policía²⁴ and the Comisaría General de Policía Judicial²⁵, which are part of the Ministry of Interior, have an emergency service for cyber-crime. This citizen/police contact service permits a fast and efficient reaction from the police to prevent cyber-crime. The 24 hours alert system works in the areas of cyber-crime, child pornography and telecommunication fraud.

Another institution is the APD - Agencia de Protección de Datos²⁶. It is a public body fully independent of the Administration, whose main task is to watch over the fulfilment of legislation on data protection especially in relation to information rights and data access, opposition, modification and deletion. The APD carries out campaigns and circulates information for the general public to claim their rights. To this end, it has published a citizens guide.²⁷ It also provides recommendations to Internet users about their rights and obligations in the area of data privacy. It also provides different application forms for claims on rights of access, deletion and modification of personal data.

Registro General de Protección de Datos (RGPD)²⁸, which is part of APD, oversees the security of personal data. The RGPD has two commitments. Firstly, any natural person, legal entity and private or public body must report the creation of files containing personal data. Secondly, people can have access to the information stored at the RGPD to find out the existence and purpose of personal data processing and the identity of the person responsible. All enquiries are public and free.

In Spain, the technical response that guarantees security comes from the cryptographic system of public keys. The legal response is based on the Real Decreto Ley de Firma Electrónica and that of the EU Directive on Electronic Signature.

The new services on electronic signatures are currently at an impasse. Following the regulation of this initiative, there has been no further initiative from within the private sector and little from the public sector, except for the CERES project (see below). With regard to e-commerce and contracts on electronic goods and services, SSICE²⁹ is still to be approved, although there is Directive 2000/31/CE on e-commerce in the European market.

This blocking of progress is in part due to the limitations caused by the Ley 14/1999 on types of signature (electronic and electronic-advanced) - the legal value of the non-advanced electronic signature is still unclear. The same considerations apply to the complex accreditation system for certification system providers (Order of 21 February 2000) and to the recognised certificate for electronic signature.

²¹ National Police

²² Information Technology Crime Investigation Unit

²³ High Technology Crime Department

²⁴ National Police Department

²⁵ General Judicial Police Department

²⁶ Data Protection Agency

²⁷ It can be consulted at <https://www.agenciaprotecciondatos.org/data.htm>. (visited on 21 March 2002)

²⁸ General Registry of Data Protection

²⁹ the Anteproyecto de Ley de Servicios de la Sociedad de la Información y de Comercio Electrónico

There are several government schemes aimed at fostering the use of dependability-enhancing technologies and services. The AEAT (Agencia Estatal de Administración Tributaria)³⁰ has been appointed by the Finance Ministry to contribute to develop e-commerce and the information society of Spain. AEAT provides certificates and security for users on the income tax return services. The CERES (CERTificación ESpañola) project led by the Fábrica Nacional de Moneda y Timbre (FNMT)³¹ establishes a Public Certification Body to authenticate and guarantee confidentiality between citizens, enterprises or other institutions and the Administration. The FNMT is the State Body under the Ministry of Economics whose managing organ is the Administration Committee where relevant institutions related to the FNMT activities are represented. The FNMT is in charge of the issue, repeal and renewal of certificates used in the services AEAT gives through the Internet.

The chambers of commerce and a foundation made up of notaries and brokers are now preparing themselves to act as certification bodies for the certification signature in Spain. Up until now, the only bodies that offered these services in Spain were the FNMT, who certified the electronic signature in the past projects for income tax return by Internet, and the Comisión Nacional del Mercado de Valores³² who have their own certification system.

Early warning is also becoming a priority of the Spanish government. The public entity Red.es, which is part of the Secretariat for Telecommunications and Information Society of the Ministry of Technology and Science, is tasked to contribute to the development of the Telecommunications and Information society of Spain. In addition to domain-related services, Red.es provides early warning information about viruses through its Antivirus Early Warning Centre, the “Centro de Alerta Temprana Antivirus”.

Industry And Other Non-Government Activities Related To Dependability

There are a number of industry initiatives related to dependability. The AECE (Asociación Española de Comercio Electrónico)³³ is a group of enterprises supporting self-regulation in this area. IT supports the flexibility of legislation on personal data protection and on the reliability and security of e-commerce. Their latest, pioneering initiative was a code of ethics for the processing of personal data obtained from the Internet. CommerceNet Español is a consortium for the growth and use, as well as promotion and building of e-commerce on the Internet. They are working in the A4EC (Adapting for E-Commerce) project aimed at SMEs. SEDISI (Asociación Española de Empresas de Tecnologías de la Información)³⁴ is a non profit organisation that promotes debate on common problems and defines which actions favour the development of the sector. They have recently released specific information concerning information security.

AIMC (Asociación para la Investigación de Medios de Comunicación)³⁵ is an organisation that does research work on the audiences of the communications media. Finally, AECOC (Asociación Española de Codificación Comercial) represents more than 13.000 enterprises which are mostly SMEs. It has been working for more than ten years in the Electronic Data Interchange (EDI), in the definition of sector standards and the lending of services.

³⁰ Tax authority

³¹ National Money and Stamp Factory

³² Securities Market Commission

³³ Spanish Association for Electronic Commerce

³⁴ Spanish Association of Information Technology Companies

³⁵ Association for the research of communications mediums

In addition, there are two User's Associations in Spain working in this field. The AUI (Asociación de Usuarios de Internet) is a non profit organisation created to protect Internet user's interests and to promote Internet utilisation. The Asociación de Internautas is another non profit organisation, this time created to protect Internet user's interests against telecommunication operators, ISP's, TIC's corporations and any organisation working on this subject.

Public-Private Partnerships

There are two main ICT public-private partnerships in Spain. Firstly, there is the Consejo Superior de Cámaras de Comercio. Industria y Navegación de España³⁶ which represents the 85 chambers of commerce of Spain. The chambers have two primary functions. On the one hand, they represent businesses and their interests to the Administration. On the other hand, they provide public services to the businesses. As part of these activities, they have launched a digital certificate service called "Camerfirma" guaranteed by the Chamber of Commerce.

Secondly is FESTE (Fundación para el Estudio de la Seguridad de las Telecomunicaciones Españolas)³⁷ which is sponsored by the Consejo General del Notariado³⁸, the Consejo General de la Abogacía³⁹ and the Universidad de Zaragoza. FESTE is made up of professional bodies that represent solicitors, lawyers and brokers. They carry out projects and studies on security and on the use and development of ICT.

Research and Development

Dependability research is carried out by the Spanish Council for Scientific Research (CSIC) and some universities.⁴⁰ CSIC depends on the Research and Technology Office of Spain It collaborates with other national, regional and local administrations, and other research organisations, universities and private corporations, both nationally and internationally. It includes the Department of Information Processing and Codification, Institute of Applied Physics, CSIC⁴¹ and the OID research team, Centro Técnico de Informática (CSIC-CTI), CSIC.⁴²

Many polytechnic universities have projects on Information Sciences, and in particular on network security. They are: Catalonia Polytechnic University, Applied Mathematics and Telematics Department; Rovira and Virgili University, Department of Computer Engineering and Mathematics and the Superior Technical Engineering School⁴³; the Polytechnic University of Madrid, Computer Science Faculty and the Computer Systems, Languages and Software Engineering Department⁴⁴; La Laguna University, Mathematics and Physics Department and the Department of Statistics, Operational Research and Computation⁴⁵; the Autonomous University of Barcelona, Superior Technical School of Engineering and

³⁶ Superior Council of Chambers of Commerce Industry and Navigation of Spain

³⁷ Foundation for the study of security on telecommunications - <http://www.feste.es>

³⁸ National Notaries Council

³⁹ General Lawyers Council

⁴⁰ Consejo Superior de Investigaciones Científicas

⁴¹ <http://www.iec.csic.es/> (visited on 21 March 2002)

⁴² http://www.cti.csic.es/sis_comu/oid/ (visited on 21 March 2002)

⁴³ <http://www.etse.urv.es/recerca/crises> (visited on 21 March 2002)

⁴⁴ <http://www.ls.fi.upm.es> (visited on 21 March 2002)

⁴⁵ <http://www.deioc ull.es> (visited on 21 March 2002)

Computer Science Department⁴⁶; the University of Valladolid, Sciences Faculty and the Department of Algebra and Geometry; and Malaga University, Superior Technical School of Telecommunications Engineering and the Department of Communications Engineering⁴⁷

Particular interest is dedicated to mobile agents for intrusion detection, PKI, cryptography, digital signatures, watermarking, micropayments and access control. Further areas include data protection; electronic commerce; IP networks security; secure channel coding; error correcting codes for Cryptography; secret sharing protocols; primality and pseudo primality; chip card applications; and electronic voting.

Approximately 70 researchers work in these areas. The level of funds assigned to Information Security and Dependability is about 600,000 EUROS per year. There are no regular funds from industry, only certain contracts for a value of 100.000 EUROS per year.

⁴⁶ <http://www.ccd.uab.es> (visited on 21 March 2002)

⁴⁷ <http://www.uma.es/~APD>