



Information Society Strategies: From Design to Implementation

THE CASE OF SPAIN'S PLAN AVANZA



Working paper for the workshop:

*“Common Challenges and Shared Solutions: Good Governance in Information Society Strategies,
the Spanish Case Study”*

Madrid, Spain
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FOREWORD

At the request of the Government of Spain, specifically from the *State Secretariat of Telecommunications and the Information Society (the SSTIS)*,^a the OECD is conducting a Peer Review of the country's Plan Avanza ("the Plan") strategy for the advancement of the Information Society.

The present document is a preliminary report which describes and discusses the Plan's main objectives, structures and governance mechanisms with the purpose of identifying the points of strengths in the design and implementation of the Plan, and possible areas for improvement. This document is to be used as a basis for discussion at the international workshop being held in Madrid in November, 2009: "*Common Challenges and Shared Solutions: Good governance in Information Society strategies, the Spanish Case Study*"^b which will focus on the common challenges inherent to the design and implementation of information society strategies, as well as good practices which can be applied to improve performance. Plan Avanza is utilised as a case study.

This document, which is to be considered a work-in-progress, is based on extensive desk review of Plan Avanza programmes and strategy documents, as well as on findings from a preliminary data collection mission featuring interviews with government officials and staff from SSTIS.^c This preliminary report will be revised to incorporate additional learning and examples of country experiences from the workshop, interviews with associations of ICT-users and industries, interviews with other key stakeholders in central and local government, and subject-matter experts from academia. In particular, interviews with regional and local government stakeholders will be conducted in a second data collection mission. The final report will build on this document and will be present the results of further analysis on the impact of the Plan on key beneficiaries (government, business and the public sector).

The Peer Review is being conducted by the *OECD's Public Governance and Territorial Development Directorate* in collaboration with the *OECD's Science Technology and Industry Directorate*. Bruno Lanvin, Executive Director of *INSEAD's eLab*, has accepted to oversee the writing and overall content of the report. His contributions are acknowledged here with special thanks.

Neither the production of the present draft report nor the corresponding workshop would have been possible without the invaluable participation and active support from H.E. Francisco Ros Perán, *Secretary of State for Telecommunications and the Information Society*, and the staff at the SSTIS.

^a <http://www.mityc.es/en-US/Paginas/index.aspx>

^b Leaders and practitioners of Information Society strategies will participate from a wide array of countries, including: Canada, Germany, Great Britain, Portugal, South Korea and the United States.

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EXECUTIVE SUMMARY

Spain has dedicated significant efforts and resources to the advancement of its information society, and progress has become evident. In recent years, coverage of broadband, mobile network communications and digital terrestrial television has amplified, ICT take-up amongst citizens and firms is rising, the government is increasingly adopting ICTs for service delivery, and the ICT sector is showing promise as a key driver of economic growth. Indeed, broadband and mobile networks cover 99% of the population, 70% of public services are available online, over 13 million eID cards have been issued, and the ICT services sector has demonstrated positive trends in growth and employment.^d Perhaps most importantly, consensus regarding the importance of the information society (IS) for Spain's future has been consolidated, and there is growing awareness concerning the value of ICTs and the ICT sector for the country's economic recovery and sustainable energy policies.

Plan Avanza, Spain's strategy for the information society, has played an important role in contributing to these positive results. Plan Avanza, which began in early 2006, has streamlined the national IS portfolio, leading and co-ordinating initiatives with other ministries, regional and local governments, the private sector and non-profit organisations under a set of shared objectives. The present document is a working paper produced within the framework of the Plan Avanza Peer Review project conducted by the OECD. The document aims to highlight the strategy's principle objectives and policies. It also discusses some of the essential components of the strategy's governance apparatus in order to identify good practices and areas for future improvement.

Today, complex, large-scale and multifaceted IS strategies such as the Plan Avanza call for adequate governance frameworks and mechanisms to ensure that objectives, resources and tools are aligned to achieve intended results. The good performance of such strategies depends on consideration of a number of governance issues including: strategic priority-setting; inclusion of key stake-holders; obtaining adequate resources; forming and managing partnerships for effective collaboration; application of appropriate implementation tools; adapting regulatory and legislative frameworks; and monitoring and evaluating results. Indeed, as can be observed in other OECD member countries who have adopted cross-cutting IS strategies, getting these governance mechanisms right can be the key determinant of success.

Plan Avanza provides an excellent case study on managing the design and implementation of these strategies, and offers examples of good governance practices which transcend borders and can be considered elsewhere. The governance of Plan Avanza has been a priority since the earliest stages of its policy design and choice of implementation instruments. What can other OECD member countries learn from Spain's experience? While there is no standard roadmap for creating an IS governance framework, some central learnings do seem to transcend borders:

^dred.es; European Commission; Ministry of Interior; and OECD calculations based on data from Spain's national statistics office (INE), respectively.

- ***Because information societies involve many actors and interests, strong leadership is required to set up a common vision and ensure its implementation across government.*** Whether responsibility for the design and implementation of an IS strategy is handled by a single government entity, or shared across inter-ministerial committees, strong leadership is nevertheless essential to establish shared objectives and ensure effective co-ordination during implementation. In Spain, centralised leadership by the State Secretariat for Telecommunications and the Information Society (SSTIS) has led to greater buy-in and facilitated concerted action.
- ***As cross-cutting policies, Information Society strategies cannot work in isolation but benefit from making the most of interfaces with other relevant government policies areas.*** In Spain, strategic alignment of Plan Avanza with other key government policies such as the national e-government agenda has created opportunities for complementary initiatives and mutual support during implementation.
- ***Information Society strategies can increase responsiveness if they adopt inclusive approaches and forge close partnerships with stakeholders.*** Effective collaboration mechanisms can create incentives for stakeholders to participate and contribute ideas and resources in the development of the information society, nationally and locally. In Spain, greater inclusion and consultation have helped garner political support, and grease administrative gears for more effective action. Additionally, the co-implementation framework adopted has been crucial for increasing the Plan's reach and capitalises on local knowledge and capabilities.
- ***Key "support factors" bridging technology with results cannot be overlooked in the design and implementation of information society strategies.*** Awareness, capacity-building, information and knowledge-sharing, technical and business support- these often intangible factors provide linkages between ICT infrastructure and their value to society. Plan Avanza has reflected this philosophy, incorporating these catalysts into programmes and policies.
- ***Information Society strategies flourish when they are provided the necessary speed, flexibility and expertise to operate in their complex and dynamic environments.*** A well functioning model is one that is able to respond to fast-paced technological change and draw from a cadre of diverse and high-calibre human resources. In Spain, the co-management scheme in addition to the utilisation of entities such as the public enterprise red.es, have helped Plan Avanza respond effectively to IS needs, increasing its agility, and integrating multi-disciplinary expertise with project oversight and monitoring during implementation.

Plan Avanza's governance framework has started to show results. While the Plan has established a solid foundation for future work, some challenges and unexploited opportunities remain. Greater inter-ministerial dialogue could help to align the Plan more strongly with other key sectoral policies; for example in the areas of economic recovery and modernisation, innovation, energy, education, transport and construction. Continued leadership on behalf of the SSTIS will be key to promote policies for energy efficiency and security in a co-ordinated and effective manner. For example, as "green ICTs" become increasingly important in the current economic context, Plan Avanza can support the development and application of these new technologies, and harmonise efforts amongst numerous stakeholders. Moreover, building on the success of the co-implementation model of the Plan will become increasingly important if the complexity and scope of Plan Avanza continue to grow. Lastly, maintaining strong oversight mechanisms remains an important challenge in an operating model relying on co-

implementation with stakeholders. While this model has brought many benefits, whole-of-strategy evaluation mechanisms could be reinforced to better measure and assess the overall performance of the Plan. Building on these preliminary findings, the next steps of this project will examine how Plan's initiatives impact on its main beneficiaries (citizens, businesses and public sector).

RESUMEN EJECUTIVO

España ha dedicado un esfuerzo significativo y numerosos recursos para el desarrollo de la Sociedad de la Información en el país, y los progresos comienzan a ser evidentes. En los últimos años, la cobertura de banda ancha, las redes de telefonía móvil y la televisión digital terrestre se han ampliado sustancialmente en España al igual que el uso de tecnologías de la información y la comunicación (TIC) por parte de ciudadanos y empresas. También la Administración está adoptando las TIC de forma significativa para la prestación de servicios públicos y el Sector TIC se está consolidando como pieza clave para el crecimiento económico español. De hecho, las redes de banda ancha y telefonía móvil dan cobertura hoy en día al 99% de la población, el 70% de los servicios públicos están disponibles online, y se han expedido hasta la fecha más de 13 millones de DNI electrónicos. Además la parte dedicada a servicios del sector TIC ha demostrado una tendencia positiva de crecimiento sostenido y creación de empleo^e. Quizás lo más destacado de este periodo ha sido la consolidación del consenso nacional sobre la importancia de la Sociedad de la Información (SI) para el futuro del país, y la toma de conciencia colectiva del cada vez mayor valor de las TIC en general y la contribución del Sector TIC en particular como elementos clave para la reconversión económica y lograr una estrategia energética sostenible.

El Plan Avanza, la estrategia española para la promoción de la Sociedad de la Información, ha jugado un papel determinante para lograr estos positivos resultados. El Plan Avanza, el cual comenzó a principios de 2006, ha sido la estrategia nacional dedicada a promocionar la Sociedad de la Información en el país. La Secretaría de Estado de Telecomunicaciones y para la Sociedad de la Información, ha liderando la estrategia y coordinando esfuerzos con otros ministerios, gobiernos regionales, ayuntamientos, sector privado y organizaciones sin ánimo de lucro para desarrollar una serie de objetivos compartidos centrados en el desarrollo nacional de las TIC en todos los ámbitos. El presente informe preliminar es un documento de trabajo producido dentro del marco del Informe de revisión entre pares del Plan Avanza que está siendo desarrollado por la OCDE. El documento preliminar pretende destacar los principales objetivos y políticas desarrolladas dentro del Plan Avanza. También analiza de manera pormenorizada algunos de los componentes clave de la estrategia de gobernanza e implementación del Plan, para identificar buenas prácticas y áreas de mejora futura.

Actualmente, la complejidad, el amplio alcance y la multiplicidad de aspectos que implican las estrategias de Sociedad de la Información como el Plan Avanza, requieren adecuados marcos de gobernanza y mecanismos de gestión complejos para asegurar que objetivos, recursos y herramientas están alineadas para lograr los objetivos previstos. El buen resultado de las estrategias SI dependen en gran medida de tomar en cuenta una serie de temas relacionados con la gobernanza incluyendo: establecimiento de prioridades estratégico, inclusión de agentes clave; obtención de recursos adecuados;

^eLos datos mencionados provienen de Secretaría de Estado de Telecomunicaciones y para la Sociedad de la Información, Ministerio de Industria Comercio y Turismo de España, Observatorio Nacional de las Telecomunicaciones y la Sociedad de la Información de red.es; Comisión Europea; Ministerio de Interior; y estimaciones de la OCDE basadas en datos del Instituto Nacional de Estadística (INE) respectivamente.

formación y gestión de acuerdos para una colaboración efectiva entre agentes; aplicación de apropiadas herramientas de implementación; adaptación de los marcos normativos y legales; y evaluación y seguimiento de resultados. De hecho, esto se ha observado en otros países de la OCDE que han adoptado estrategias transversales de Sociedad de la Información, logrando con estos mecanismos de gobernanza adecuados la llave determinante para el éxito.

El Plan Avanza aporta un excelente estudio de caso sobre gestión e implementación de estrategias SI, y ofrece ejemplos prácticos de buena gobernanza que trascienden fronteras y pueden ser considerados como ejemplo exitoso por los demás países. La gobernanza del Plan Avanza ha sido una prioridad desde los primeros pasos del diseño de esta política así como la elección de sus instrumentos de implementación. Que pueden aprender los países de la OCDE de la experiencia española? Aunque esto no pretende ser una hoja de ruta para la creación de un marco de gobernanza, algunos aprendizajes centrales adquiridos con el Plan Avanza pueden trascender fronteras y resultar útiles para otros países.

- ***Porque las sociedades de la Información implican a varios actores e intereses, un fuerte liderazgo es necesario para establecer una visión común y asegurar la implementación a través de los diferentes niveles de gobierno.*** Ya sea una única entidad gubernamental la responsable del diseño e implementación de una estrategia SI, ó bien esta responsabilidad sea compartida por varias entidades a través de comités interministeriales, un liderazgo fuerte es esencial para establecer objetivos comunes y garantizar la eficacia de la coordinación durante la implementación. En España, el liderazgo de la Secretaría de Estado de Telecomunicaciones y para la Sociedad de la Información (SETSI) ha logrado una mayor aceptación y facilitado la acción coordinada entre organismos.
- ***Como estrategias transversales, las estrategias de Sociedad de la Información no pueden trabajar aisladas sino que deben establecer sinergias y relaciones con otras políticas y estrategias gubernamentales para obtener óptimos resultados.*** En España, el alineamiento estratégico del Plan Avanza con otras políticas clave como la estrategia nacional de e-Government, han generado oportunidades de creación de iniciativas complementarias y apoyo mutuo durante la implementación.
- ***Las estrategias de Sociedad de la Información pueden incrementar su interés y capacidad de respuesta si adoptan enfoques inclusivos y forjan acuerdos de colaboración estrecha con los agentes implicados.*** Los mecanismos de colaboración efectiva pueden crear incentivos para que los agentes implicados se involucren, participen activamente y contribuyan con ideas y recursos en el desarrollo de la Sociedad de la Información, a nivel nacional, regional y local. En España una gran inclusión y consulta previa entre los agentes implicados ha ayudado a la estrategia a contar con un amplio apoyo político y a engrasar los engranajes administrativos para una acción más efectiva. Además, el marco de co-implementación de la política con los diferentes niveles de gobierno (nacional, regional y local) ha sido crucial para aumentar el alcance del plan y capitalizar el conocimiento y las capacidades locales.
- ***Existen otros factores clave que dan soporte al éxito de las estrategias SI y con los que es necesario contar y tender puentes con el despliegue de la tecnología para obtener buenos resultados. Este tipo de factores no pueden pasarse por alto en el diseño e implementación de estrategias de Sociedad de la Información.*** Formación, creación de capacidad, información y conocimiento compartido, apoyo técnico y empresarial- Estos son algunos de los factores “intangibles” que favorecen lazos de unión entre las infraestructuras TIC y su valor y utilidad para

la sociedad. El Plan Avanza ha reflejado esta filosofía, incorporando este catalizador en sus programas y políticas.

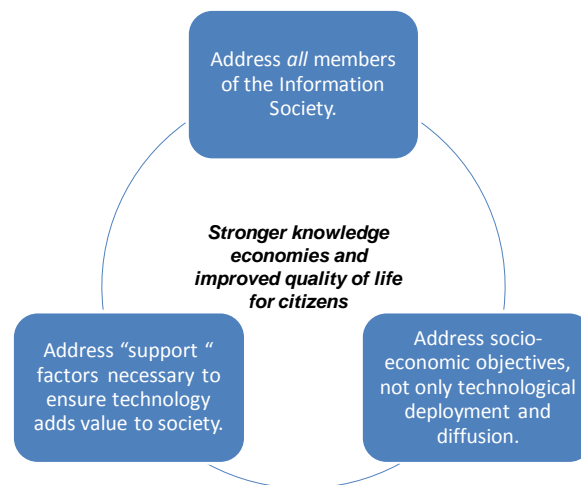
- ***Las estrategias de Sociedad de la Información prosperan cuando cuentan con la agilidad necesaria, flexibilidad y experiencia para actuar en un contexto complejo y dinámico.*** Un modelo que funcione bien es aquel que puede responder de manera rápida al cambio tecnológico acelerado a través de un equipo de recursos humanos adaptativo y con altas capacidades. En España, los esquemas de co-implementación como los que utilizan instituciones específicas como la Entidad Pública Empresarial red.es ayudan al Plan Avanza a dar respuesta a las necesidades de la SI que van surgiendo, con la agilidad y flexibilidad necesaria, integrando experiencia multidisciplinar con apoyo técnico a los programas y haciendo seguimiento de los mismos durante su ejecución.

El modelo de gobernanza que ha adoptado el Plan Avanza ha dado resultados muy positivos. Sin embargo, aunque el Plan ha establecido un modelo institucional sólido, persisten algunos retos importantes y existen oportunidades sin explotar que deberían tenerse en cuenta para planes de acción futuros. La colaboración intensa entre ministerios podría ayudar al Plan alinearse de manera estrecha con otras políticas nacionales, especialmente en las áreas relacionadas con la recuperación y modernización económica, la innovación, energía, transporte, o la construcción. El continuo liderazgo por parte de SETSI seguirá siendo crítico para el fomento de políticas coordinadas de mejora de eficiencia y seguridad energética. Por ejemplo, las TIC verdes incrementaran su importancia en el contexto económico actual, y el Plan Avanza podrá promover el desarrollo y la aplicación de estas tecnologías y armonizar los esfuerzos entre los diferentes agentes involucrados. Así mismo, el éxito de los esquemas de co-implementación de programas del Plan se podría explotar de manera más intensiva ya que se espera que la complejidad y alcance del Plan aumentará en los próximos años y contar con este esquema de co-ejecución podría ser útil para dar respuesta rápida a los nuevos retos tecnológicos que se vayan planteando. Por último, mantener un fuerte mecanismo de monitorización y evaluación del Plan será un reto a tener en cuenta en todas las áreas de acción ya que es la manera de hacer seguimiento de las actuaciones conjuntas que coimplementan varias entidades. Así como el modelo actual ha aportado numerosos beneficios, los mecanismos de evaluación podrían reforzarse para lograr mejorar la medición del impacto global del Plan Avanza. Una vez relatados estos hallazgos preliminares los siguientes pasos de este proyecto se encaminarán a examinar cómo las iniciativas desplegadas por el Plan Avanza han impactado a sus principales beneficiarios que son ciudadanos, empresas y administración pública.

INTRODUCTION

1. Over the years, a growing number of OECD countries are widening the scope of their Information and Communication Technology (ICT) policies. While initially focused on the deployment of ICT infrastructure and development of the ICT sector, mandates have progressively broadened to encompass wider social and economic dimensions. These objectives now include promoting sustainable economic growth, boosting productivity, providing employment opportunities, encouraging innovation, and improving the effectiveness of public services and citizens' quality of life. In short, many ICT policies have become *Information Society* (IS) strategies, and are increasingly regarded by policy-makers and stakeholders as powerful instrument for societal change, and for the building of competitive, equitable and sustainable knowledge economies. See Box 1.1 for a discussion on how ICTs can contribute to socio-economic outcomes.

Figure (i). Characteristics of Information Society strategies

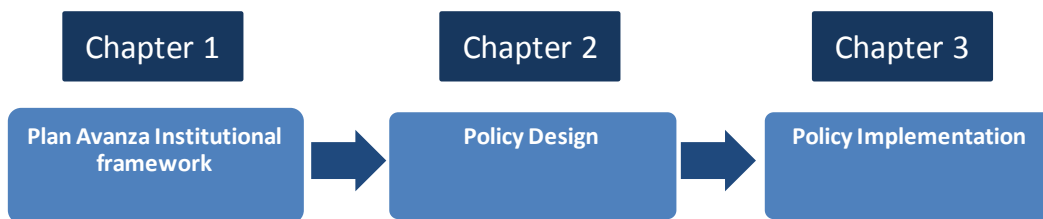


Source: OECD elaboration.

2. Achieving these wider socio-economic objectives requires action at the nexus of technology and society. Another relevant feature of IS strategies, then, is that they bridge technology with their potential benefits, providing the often intangible “support” factors needed to maximise the value-contribution of technology . Indeed, experience in OECD countries has shown that the availability of ICTs does not necessarily translate into economic growth, efficiency, innovation or improved quality of life; other key catalysts are essential to capitalise on the potential benefits of ICTs such as: training and capacity-building, organisational change, technical support, interoperability, security, affordability, communication and awareness, and knowledge-sharing. For instance, despite growing availability of public services online, take-up has plateaued in recent years,¹ and some ICT tools have remained under-appreciated and under-used due to a lack of a combination of the aforementioned factors.

3. The OECD Peer Review of Spain's Plan Avanza has three objectives: (i) analysing and understanding the origins, principles, and objectives of Plan Avanza, (ii) identifying major governance challenges and critical factors of success in the design and implementation of the Plan, and (iii) assessing the impact of Plan Avanza on Spain's economy and society. This working paper will address the first two issues. Hence, the present draft report is divided as follows. Chapter 1 discusses the rationale for Plan Avanza in the Spanish context and outlines its strategic objectives and priorities. Chapter 2 addresses the key factors and mechanisms affecting policy design. Chapter 3 looks at innovative approaches used during implementation and the major policy instruments applied. Some key Plan Avanza initiatives will be highlighted throughout to exemplify the Plan's governance framework.

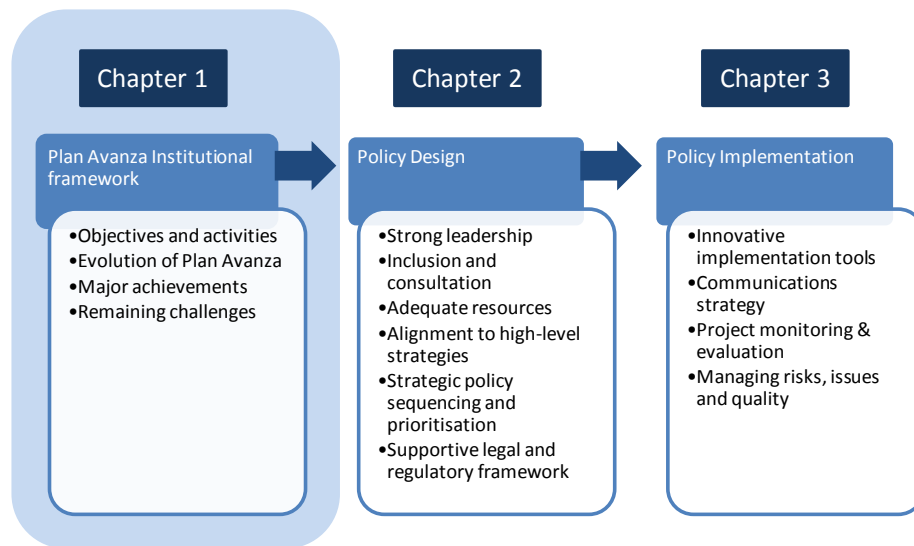
Figure (ii). Overview of preliminary report for Workshop



4. It is important to note that the present document is a preliminary report drafted to foster discussion at a November workshop held in Madrid, and is based on meetings and interviews with the SSTIS. The final peer review report will build on this document and take into account the view of other key stakeholders such as other ministries, regional and local governments, civil society, and subject-matter experts on Plan Avanza.

CHAPTER 1

PLAN AVANZA: THE PAST IS PROLOGUE



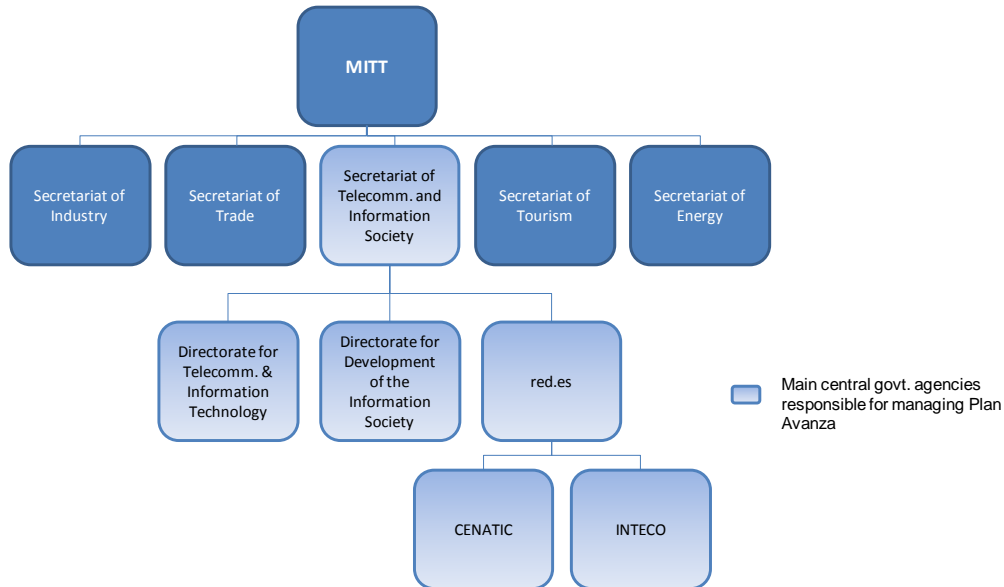
Introduction

1. The focus of this first chapter is to describe the main framework of Plan Avanza- its preliminary objectives, the rationale for targeting specific beneficiaries, as well as the evolution of priorities over time in response to exogenous factors and progress made thus far. The major achievements realised in the past four years will also be highlighted, in order to place the Plan in the wider context of Spain's changing information society and identify remaining challenges.

2. Plan Avanza is Spain's umbrella strategy for the advancement of the Information Society (IS). The Plan was approved in 2005 by the national Senate and launched early in the following year with its first 2006-2009 Action Plan.^f The Plan operates under the direct authority of the Ministry of Industry, Tourism and Trade (MITT), specifically under the State Secretariat of Telecommunications and the Information Society (SSTIS). Implementation responsibilities are shared by the SSTIS and red.es, a public enterprise also charged with managing two key departments which directly contribute to the Plan's objectives: CENATIC (the National Centre for the Application of ICTs based in Open Source) and INTECO (the National Communications Technology Institute).

^f A second action plan will begin in 2010 with scope to 2012, and is discussed in more detail later in this chapter.

Figure 1.1 Organizational Chart of MITT and agencies responsible for Plan Avanza



Source: MITT and SSTIS. OECD elaboration.

Plan Avanza objectives and activities

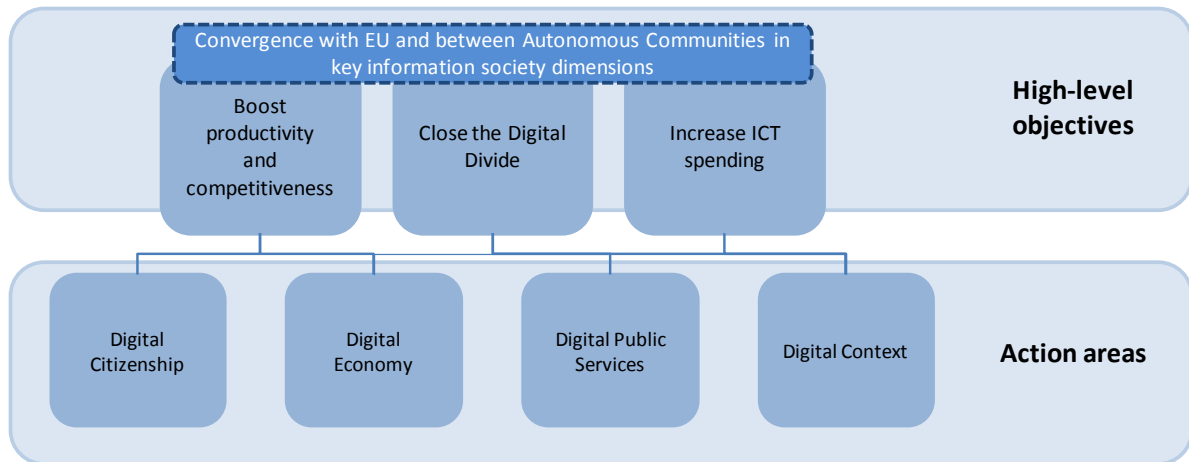
3. The strategy's objectives reflect both the technological and socio-economic dimensions necessary for consolidating the knowledge economy in Spain, as well as the need to converge with other EU member countries in key IS dimensions. While the Plan's high-level objectives are inherited from those of the European Commission's *i2010 strategy: A European Information Society for growth and employment*, as will be discussed these have been adapted to fit the specific challenges and needs of the Spanish context. Specifically, the three strategic objectives are:²

- **Increasing diffusion of ICTs in the Spanish economy.** One important aim of Plan Avanza is to tap the potential of ICTs to help boost productivity, innovation and competitiveness and catalyse a shift toward more value-added economic activities.
- **Closing the Digital Divide to improve quality of life for citizens.** The Plan works to ensure equitable and universal access to ICT infrastructures (in particular, mobile phone networks, broadband Internet and digital terrestrial television), as well as to increase take-up of digital public services.
- **Increasing levels of ICT spending.** Part of Plan Avanza's mission is to help increase ICT expenditure in Spain to 7% of GDP (public and private combined) by 2010. Over time this initial estimate has been adapted in accordance with growth of the ICT sector.

4. These three objectives in turn translate into four pillars of activity, or action areas, unique to the Plan Avanza strategy. Each has its own specific goals.

- **Digital Citizenship:** Policies under this strategic pillar are designed to increase ICT competencies in the population and promote the utilisation of digital services. This action area also provides citizens with opportunities to acquire ICT equipment and Internet access for their homes, and includes communication initiatives to raise awareness of the benefits and applications of ICTs.
- **Digital Economy:** Across the whole of the Spanish economy, this pillar works to promote the incorporation of ICTs in firms' operations and business models. For instance, there are programmes designed to increase the use of ERPs, CRMs³, e-commerce and e-billing, among other tools that have been shown to contribute to greater productivity. In the ICT sector, the implemented policies aim to promote growth and foster innovation by providing support for the development of new ICT products/services. Lastly, initiatives under the digital economy pillar work to increase the availability of specialised human capital available to firms of the ICT sector.
- **Digital Public Services:** Plan Avanza supports the integration of ICTs in the production and delivery of public services across all areas of government (health, justice, education, etc.) as well as in all tiers- from central, to regional and local. The goal is to assist the Spanish public administration in increasing digital interaction with citizens, thereby improving the responsiveness of government, as well as back-office effectiveness and efficiency.
- **Digital Context:** Of the four action areas, the digital context pillar is the broadest in scope. In order to meet the goal of universal accessibility to key ICT infrastructures, Plan Avanza implements large-scale projects to increase coverage of mobile telephony networks, broadband Internet and digital terrestrial television. Additionally, this area of activity aims to improve the quality, speed and accessibility of these key ICT infrastructures. Developing quality digital contents throughout the public and private sector is a third challenge for this pillar. Finally, initiatives belonging to the digital context objective work to increase users' security and confidence online.

Figure 1.2 Plan Avanza's four strategic pillars



Source: MITT and SSTIS. OECD elaboration.

5. The scope and selection of the Plan's core activities have been strategic and based on the recognition that, in order to develop a successful strategy, it was essential to address the entire progression of factors necessary for building a healthy information society. One useful framework for identifying these factors is provided by the Networked Readiness Model (NRI) of the World Economic Forum and INSEAD. In order to assess the sophistication of information societies, the NRI model is founded on three important dimensions: (i) the "friendliness" of the environment (e.g. exogenous factors which can determine conduciveness for the development of a solid IS society); (ii) the degree of readiness, or, levels of accessibility and capacity of key stakeholders to adopt ICTs; and finally (iii) usage, in essence, the rates of take-up of ICTs and extent to which these provide benefits to society. The model is dynamic, as it traces- for example- progression from the deployment of infrastructures, to ensuring their ample coverage and accessibility, to their application and value-contribution. To use the terminology of the NRI framework, government-induced plans may push infrastructure (and e-readiness), but in the end it is usage by citizens, firms and public administrations which make the difference in terms of competitiveness, job creation and inclusion.

Box 1.1 The potential of ICTs for fulfilling socio-economic objectives

How exactly are ICTs linked to Spanish economic performance and social well-being? The relationships between advanced information societies and socio-economic indicators have long been discussed in academic literature and, in practise, policy-makers are recognizing ICTs as powerful tools for achieving their goals. The *Seoul Declaration for the Future of the Internet Economy*, for example, signed in June of 2008 by the OECD's 30 members, nine non-members and the European Community, acknowledges the importance of the Internet and related ICTs for improving quality of life, providing new employment opportunities, fostering innovation and entrepreneurship, as well as in facilitating research. Furthermore, the European Commission, via *i2010 "A European Information Strategy for Growth and Employment,"* additionally highlights how ICTs may help increase productivity, competitiveness and social cohesion. The RIGA Ministerial Declaration at the 2006 EU conference on "*ICT for an inclusive society,*" reached consensus on the role of ICTs in social inclusion, the promotion of cultural diversity, and quality of life. More recently, the Swedish Government has underscored the role of ICTs for sustainability and eco-efficiency in "*A Green Knowledge Society: an ICT policy agenda to 2015 for Europe's future knowledge society.*" While economists continue to assess the degree of impact ICTs can have, a general consensus seems to have formed around the belief that, while ICTs are not the only factors necessary for achieving these aims, they can clearly act as enablers and platforms for growth and social cohesion.

Economic impacts of ICTs. ICTs can impact a country's economic performance both directly and indirectly. Directly, the ICT-producing sector can contribute to economic growth as it continues to expand at a rapid pace in a dynamic market characterised by high levels of demand. In OECD countries, it accounts for around 8% of GDP and 6% of employment.⁴ Indirectly, ICTs and ICT investment can contribute to economic performance in the following ways:

- *ICTs and productivity:* ICT-intensive sectors have been demonstrated to be amongst the most innovative and productive, and there are good reasons for this phenomenon. ICTs can boost both multi-factor (MFP) and labour productivity. Furthermore, ICTs may help strengthen value-chain links, reducing transaction costs and providing further efficiency gains.
- *ICTs and innovation:* By facilitating knowledge-sharing and co-creation, ICTs help in the formulation and sharing of ideas, which can in turn lead to the development of new products, services or organisational improvements. ICTs also facilitate wider innovation, e.g. in healthcare, education, environmental protection.

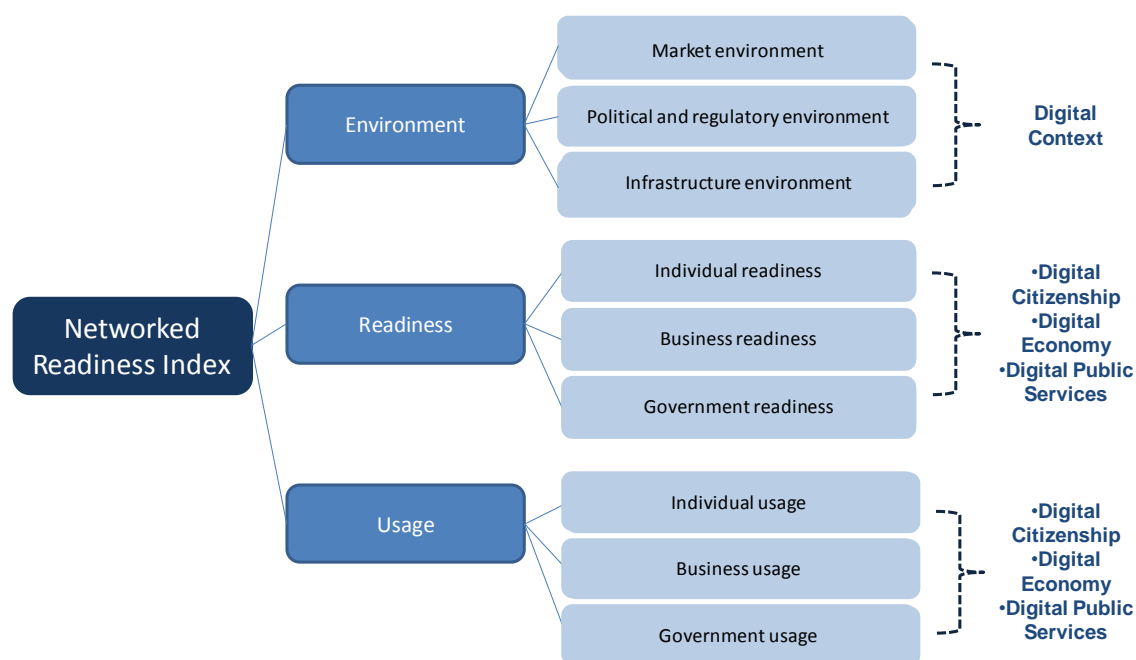
Social impacts of ICTs. The "digital divide" is both a form of and a cause of social exclusion.⁵ Some important links between ICTs and social outcomes include:

- *ICTs, skills and employment:* Because of the growing dominance of the ICT sector and the prevalence of ICTs in the workplace, those with low digital literacy risk fewer job opportunities and lower wages, along with the economic and social repercussions this may have.⁶
- *ICTs and quality of life⁷:* Assistive technologies can help disabled or older persons maintain independence. In government, ICTs can improve responsiveness and efficiency of service delivery.⁸ Finally, ICTs can have an important role in reducing emissions and improving energy efficiency, if integrated in energy and transport infrastructures.⁹
- *ICTs, civic participation and transparency:* Web 2.0 and social networking technologies¹⁰ have played roles in (i) facilitating collective action- as groups can more easily reach a critical mass and individuals can more easily establish links with those who share similar interests; and (ii) allowing a greater degree of consultation in policy-making, as they facilitate communication between government and citizens. In some countries, ICTs have even been utilised for online voting, drafting legislation and the circulation of petitions.

Source: OECD.

6. Plan Avanza's action lines reflect this same philosophy: the digital context pillar ensures that key ICT infrastructures are made available, that a strong ICT sector provides quality products and services, that the country's regulatory environment favours the continued advancement of the information society. The remaining three pillars aim to make certain that beneficiaries are both able and capable of adopting ICTs and exploiting them to their full potential.

Figure 1.3 Action lines according to the 2008-2009 NRI Framework¹¹



Source: WEF/INSEAD 2009-09. OECD elaboration.

Target beneficiaries

7. Plan Avanza was designed with certain beneficiaries, or target groups, in mind. Specifically, it aims to generate benefits for citizens, businesses, and the public sector. As is the case with the Plan's action lines, there is an important rationale behind this approach: the Plan recognizes that an advanced information society consists of many stakeholders and, to be successful, the strategy requires engagement from all members of the information society. In the absence of this universalism, it is likely that supply and demand for ICTs will not synchronise. For example, development and availability of public services online is fruitless if neither citizens nor firms utilise them; firms are unlikely to adopt e-commerce business models if citizens do not feel comfortable making purchases online. Likewise, citizens and firms have fewer incentives to participate in the information society if digital contents are of poor quality, if government services are poorly matched to needs, or there are few employment opportunities in the ICT sector. This principle has been recognized at the very inception of Plan Avanza.

8. While all Plan Avanza initiatives target one or more of these three groups, there are certain collectives however, who have been prioritised. Arguably these groups are those most in need of support from Plan Avanza either due to (i) high risk of social exclusion; (ii) high applicability of ICTs for producing a positive impact on quality of life; or (iii) high level of demand or urgency for intervention (e.g. currently undergoing important modernisation reforms or greatly lagging in ICT use).

Table 1.1 Overview of Plan Avanza beneficiaries and specific target groups¹²

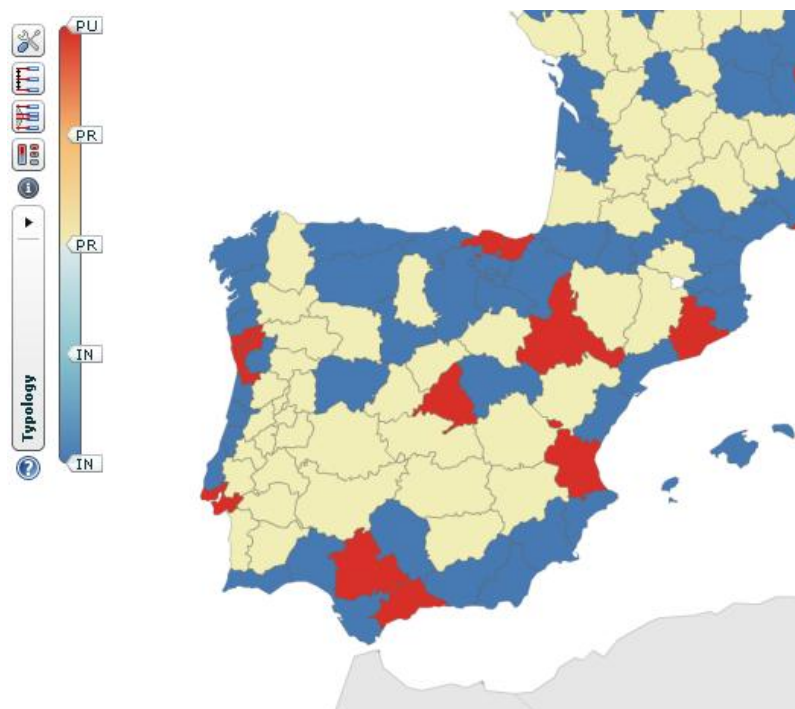
Beneficiaries	Specific Objectives	Specifically targeted groups
Citizens	<ul style="list-style-type: none"> (i) Increasing inclusion of citizens in the Information society (e.g. accessibility) through deployment of ICT infrastructure (ii) Increasing awareness and take-up of eServices to improve quality of life (iii) Building and improving ICT skills (iv) Building confidence in ICTs 	Older people, disabled persons, women, persons living in rural areas, University students in ICT-related areas of study
SMEs	<ul style="list-style-type: none"> (i) Promoting the adoption of ICTs in business operations (eCommerce, eBilling) (ii) Promoting structural economic change by developing the ICT sector and supporting innovation in the ICT sector (iii) Increasing accessibility of firms to ICT infrastructure (iv) Building ICT skills (v) Building confidence, security in ICTs and awareness of digital public services 	SMEs, firms in ICT sector (specifically in digital contents)
Public administration (specific beneficiaries and objectives vary by Ministry and level of government)	<ul style="list-style-type: none"> (i) Supporting the implementation of projects for development of electronic public services (ICT deployment and infrastructures) (ii) Supporting ICT-enabled modernisation of back-office procedures (iii) Building ICT skills of civil servants (iv) Developing digital content 	Areas of Education (schools and Universities), Health (hospitals and pharmacies), Justice (including registrars offices and justices of the peace) and the Interior (police), Local govts (town halls), rural areas

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials.

Citizens

9. **Rural Regions.** Approximately 92.7% of the Spanish territory qualifies as rural, accounting for some 42% of the country's population. Rural areas are at high risk of digital exclusion since, historically, they demonstrate higher levels of unemployment and lower levels of economic growth.¹³ Citizens living in rural areas, for instance, find it more difficult to access public services, and firms in these areas are less likely to attract investment and may have more difficulties in accessing new business opportunities.

Figure 1.4 Typology of Spanish provinces according to OECD criteria^g



Source: OECD Regional statistics database.

10. At present, there is a clear digital divide in Spain between urban and rural areas in the use of ICTs, and Plan Avanza specifically targets these areas recognizing the role that ICTs can play to help increase convergence. Indeed, these technologies can help overcome the barriers of physical distance, facilitating access to information and services and improving the quality of life for citizens. For instance, rural tourism depends heavily on the Internet for communication and reservations; long-distance learning via the Internet can help citizens living in rural areas gain skills they might not otherwise had access to; the Internet can reduce the isolation of SMEs and offer new business opportunities through e-commerce, or reduce transaction costs resulting from longer distances.

Table 1.2 Digital Divide in sparsely populated areas of Spain¹⁴

Population Density	Percentage households having Internet access at home	Percentage households using a broadband connection	Percentage of individuals who accessed Internet, on average, at least once a week
At least 500/km ²	58	52	56
100-499/km ²	50	43	47
Less than 100/km ²	38	31	38

Source: EuroStat Information Society database, 2008.

^g PR: predominantly rural, IN: intermediate, PU: predominantly urban, according to population density.

11. A second rationale for targeting these regions is the lack of incentives for the private sector to deploy key infrastructures. Many rural areas are sparsely populated and it is not always profitable for the private sector to invest in these regions. Rural areas in mountainous terrains are particularly costly for large-scale infrastructure deployment. This is a significant challenge considering that 24% of the country has an elevation of over 1,000 meters.¹⁵ Universal coverage of key ICT infrastructures would not be possible without public sector intervention on the part of Plan Avanza to incentivise ICT investments from the private sector. Box 1.2 highlights the Plan's Broadband extension programme, targeted to rural areas in particular.

Box 1.2 The National Broadband Extension Plan (PEBA)

One Plan Avanza programme tailored specifically to rural areas is the PEBA project (the National Program for Broadband Deployment in Rural and Isolated Areas), which was implemented between 2005 and 2008. Two calls for proposals were launched (2005 and 2007), resulting in 29 smaller projects implemented by two operators (27 from Telefonica and 2 from Telecable). The aim was to ensure broadband affordability and ensure the availability of certain key service requirements without distorting competition:¹⁶

- Minimum bandwidth: 256/128 Kbps
- Price caps: 39 € (one-off sign-up fee) plus 39 € (monthly fee) during the 36 first months.
- Comparable technical characteristics to commercial broadband services
- Technology neutrality (any technology could in principle be deployed, although subject to the assessment of the Evaluation Committee)
- Deployed infrastructures should be open to third parties for at least 3 years (e.g. DSL wholesale obligations, on conditions fixed by the telecoms regulator)
- Deployment objectives were defined and a list of eligible population centres was included in the calls for proposal.

The total budget for the programme was 90 million Euros, of which the MITT provided 18 million in zero-interest loans and 8.4 million in grants to ERDF¹⁷ objective 1 regions. ADSL (86.3%), WIMAX (5.1%), satellite (8.4%) and HFC (0.2%) technologies were used, depending on the technology solution most adequate for the region in question. Only three Autonomous Communities did not participate in the Plan.

As was the case with mobile phone deployment, a follow-up committee was established which included the SSTIS, Autonomous Communities, local governments and operators, and was in charge of monitoring the implementation, and holding quarterly meetings. It was also in charge of approving amendments to the projects, the communication strategy, bi-lateral cooperation with Regional Broadband Deployment Plans and dissemination of results.

As the main outcome, 99% of population has broadband coverage, taking into account all technologies. Indeed, over 8 million people gained broadband coverage under the programme. Operators are now offering download speeds of around 3 Mbps (for DSL technology), in line with commercial offers, well above the initial 256 Kbps requirement. Currently in Spain, the majority of broadband contracts (43.4% of the 9.2 million contracts) have a speed of between 4 and 10 Mbps. The PEBA is to be continued under Plan Avanza 2 (Infrastructure Subprogram), focused on providing the remaining uncovered population with broadband availability.

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

12. **The elderly.** Plan Avanza specifically targets older persons since the country has a very large population of ageing citizens and there is a significant age-gap in the use of ICTs. Approximately 17% of

the Spanish population is above the age of 65 years, while the OECD average is 14.4%. Between the ages of 55-74, only 32.9% of persons utilise Internet, compared with 60% of persons aged 45-54.

Table 1.3 Digital divide by age in Spain¹⁸

Age	Percentage of individuals who have used mobile phone	Percentage of individuals who have used a computer	Percentage of individuals who have used Internet	Percentage of Individuals who used Internet, in the last 3 months, for obtaining information from public authorities web
16-24 years	98.0	96.1	95.2	34.6
25-34 years	97.6	90.2	85.7	52.2
35-44 years	96.3	79.3	74.3	52.4
45-54 years	92.0	65.4	60.0	51.5
55-64 years	81.4	38.9	32.9	45.7
65-74 years	64.8	19.6	13.4	32.6

Source: Spanish National Institute of Statistics (INE), 2009.

13. **Women.** Women are also prioritised by the Plan as they are, on average, less likely than men to utilise ICTs: for instance, 63.4% of men between the ages of 16 and 74 years are Internet users while only 56.2% of women are regularly online.¹⁹ This “digital gender gap” can aggravate already existing disparities between men and women in the Spanish labour market, where ICT skills are becoming increasingly important. For instance, in Spain, women make up only 42% of the labour force,²⁰ as only 51% of women were actively employed or looking for employment in the last quarter of 2008 (compared to 69% of men). The Programme for Gender Equality in the Information Society is a Plan Avanza initiative which provides NGOs with funding to carry-out projects aimed at teaching women ICT skills and increasing their employment opportunities.

14. The IS strategies of other OECD member countries also target citizens, albeit with some additional variations in the particular groups and activities. The Digital Britain strategy, for instance, aims to exploit ICTs as tools for “social mobility” and works actively with underprivileged areas, unemployed persons and prisoners to provide ICT training and allow for ICT-enabled job searches. Like Plan Avanza, older and disabled persons in Britain are also important beneficiaries although objectives prioritise the development and deployment of assistive living technologies. Moreover, farmers in Britain can hope to benefit from ICT innovations such as electronic livestock monitoring and animal health alerts. Finland’s Ubiquitous Information Society strategy also touches on the area of e-participation, promoting the use of ICTs for boosting civic participation whether by using online dialogues and other consultation tools or more directly by e-voting.

Businesses

15. **SMEs.** Small and medium-sized enterprises are the backbone of the Spanish economy, making up around 97% of all businesses. Accounting for approximately 82.2% of employment, they represent about 68.5%²¹ of value-added to the Spanish economy. Compared to larger firms, SMEs may be disadvantaged in the adoption of ICTs as they face additional barriers in terms of higher costs or elevated risk. Indeed, due to lack of economies of scale, SMEs may face disproportionately higher costs when integrating new equipment or software. With fewer staff, back and front-office procedural changes resulting from new technologies may incur more risks to stability of daily operations. Though growing rapidly compared to previous years, presently between 23-24% of SMEs utilised CRM and ERP applications, and fewer participate in e-commerce. The trend is clear: the smaller the firm, the lower probability of their adopting ICTs. Box 1.3 highlights another Plan Avanza programme aimed at SMEs.

Table 1.4 SMEs are the fabric of the Spanish Information economy²²

	Small (10-49 employees)	Medium (50-249 employees)	Large (250 or more employees)	Total in Spanish economy
% of SMEs with ERP applications	19.3	41.9	63.7	23.2
% of SMEs with CRM applications	21.7	33.7	46.3	23.8
% of SMEs who have made online purchases	20.0	27.9	37.1	21.4
% of SMEs who have made online sales	9.7	16.7	27.2	11.0

Source: National Observatory of Telecommunications and the Information Society (ONTSI), 2008 annual report.

Box 1.3 The NEW programme for SMEs

Plan Avanza's NEW programme (an acronym for "no enterprise without web") is one such initiative aimed specifically at SMEs. The project has two components: the first consists of information sessions to boost awareness regarding the productivity and competitiveness benefits of having an online presence and taking advantage of e-commerce opportunities. The second component includes integration of a package of web applications, offered at special rates thanks to strategic partnerships between developers and red.es. Technical assistance is also provided by red.es to facilitate their adoption.

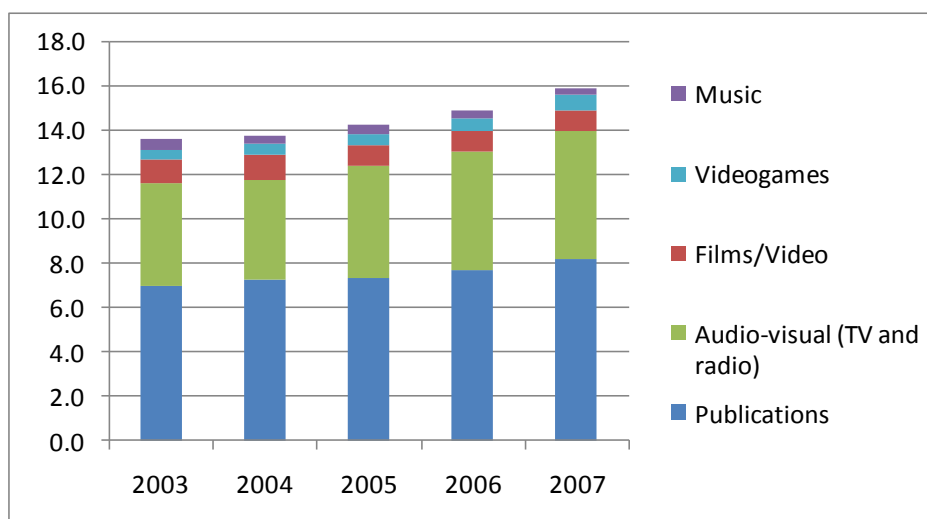
The program has been implemented in two phases (sep'07-mar'08 and oct'08-jun'09) by red.es, with a budget of 3.5 million Euros. Thus far, 58,000 SMEs have assimilated the web solutions.

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

16. **ICT Sector.** The Plan strongly targets the ICT sector. Activities targeting these firms in particular are dedicated to promoting growth, supporting innovation initiatives and developing more specialised human capital in the digital contents sector to increase the talent pool available. Indeed, as a whole, Spain's ICT sector has lagged behind OECD averages in terms of overall value-added and employment, although there is variation between the information services and manufacturing subsector. Overall, performance of the Spanish ICT service sector is stronger than that of ICT manufacturing. For instance, there is a trade surplus in the ICT, employment in this particular sector is six times higher, and value-added in this subsector is also higher. In comparison, Spain's ICT manufacturing sector is weaker, and Spain is among the top ten OECD net importers of ICT goods.

17. Within the ICT sector, the digital contents sector is of particular interest to the Plan Avanza strategy since it is a promising emerging economic sector in Spain and globally.²³ The average annual growth rate for this sector in the period from 2003-2007 has been 4%, and in 2008 the industry generated 15.9 billion Euros. The digital contents sector has also stoked regional economic development, as several "clusters" have emerged in recent years, namely in the Barcelona, Madrid, and Valencia Communities, depending on the specific activity (e.g. video games, audio-visual, film, publishing, etc.)

Figure 1.5 Annual sales of digital contents sector (billions of Euros)²⁴



Source: National Observatory of Telecommunications and the Information Society (ONTSI), 2008 report on the digital contents sector.

18. Innovation in the ICT industry can also contribute to national strategies formulated in response to the economic crisis. The Spanish “Plan E”, for instance, sees clean technologies and energy efficiency in key infrastructures as core components of economic recovery. ICT applications are indeed necessary to support highly complex and decentralised energy generation and distribution; they contribute to energy efficiency improvements in buildings, transport and the electricity sector. A number of OECD countries have set particular focus on the development and deployment of “Green ICTs”, e.g. rolling out smart electricity meters in the United Kingdom, furthering “Green ICT” exports in Denmark and supporting ICT R&D for “smart” buildings and electricity grids in countries such as Germany, Japan, Korea and the United States.

Public Sector

19. Long-term objectives for Plan Avanza include integration of ICTs across the whole of the public sector. However, in the past five years, the Plan has focused primarily on public services with a high potential of impact on quality of life of citizens (education and health) and public administrations undergoing large-scale modernisation initiatives (such as justice institutions and local governments).

20. **Ministries of Education and Health.** The Plan has dedicated considerable resources to bringing ICT technologies into classrooms and universities, integrating ICTs into pedagogical methodology. For example, the Internet in the Classroom programme has impacted close to 10,000 schools and 2,700,000 students. Currently, 98% of public schools in Spain have a broadband internet connection. Additionally, eHealth initiatives have also been pursued to integrate hospitals and pharmacies into a centralised national database. These are key basic services where ICTs have a large potential to influence the responsiveness of service delivery.

21. **Ministries of Justice, the Presidency and the Interior.** These Ministries are undergoing considerable e-government and modernisation transformations, and the Plan’s contribution to these has been focused on ensuring that: (i) reforms are implemented in an effective, homogenous and timely manner in order to comply with new e-government legislation, (ii) that issues of interoperability are addressed from

inception, and (iii) that specialised technical expertise is made available where it is lacking. For instance, the Online Civil Registries programme has a budget of 129 million over four years and is implemented jointly by Plan Avanza and the Ministry of Justice. The project consists of rolling out a web-based system, Infogeg, across local civil registries, enabling civil registry officers to record information onto an online intranet. Additionally, the programme digitises all birth, marriage death and guardianship records dating back to 1950. As the same system is implanted across the country, there are significant cost-savings and interoperability gains.

22. **Local administrations.**^h Lastly, the Plan prioritises local governments, specifically municipalities. Indeed, in order for local administrations to participate in public sector modernisation and e-government reforms, Plan Avanza support is needed. This is because, like SMEs, local governments may not have the technical resources needed to implement and sustain ICT projects. Furthermore, the lack of economies of scale may prevent smaller city councils from pursuing these initiatives as they are too costly (see box 1.4 for a discussion on how Plan Avanza aims to mitigate these issues). For instance, a survey of local administrations in Spain performed by the National Observatory for the Information Societyⁱ revealed that smaller municipalities spent, on average, less on ICT initiatives and equipment, had less digital content available, and fewer staff. It is important to note that the views of local governments will be included in the finalised document.

23. There is a wide array of initiatives targeting government administration across OECD IS strategies. For instance, Greece's 2007-2013 Operational Programme for the Information Society is very active in the area of culture, working with the Ministry of Culture, museums, and libraries to exploit ICTs as tools for promoting the Greek culture and language, documenting cultural heritage, and managing national cultural attractions. In addition to back-office integration of ICTs, Finland's Ubiquitous Information Society strategy aims to develop customizable portals that citizens can utilise for a more personalised interaction with government. Digital Britain aims to provide new services where online benefits advisors can provide assistance to citizens and, in particular, to vulnerable customers.

Table 1.5 Number of surveyed municipalities according to size and ICT staff available²⁵

ICT Resources available	Over 30,000 inhabitants	15,001-30,000 inhabitants	3,501-15,000 inhabitants	1,001-3,500 inhabitants	300-1,000 inhabitants	Below 300 inhabitants
More than 50	6	0	0	0	0	0
Between 20 and 50	12	0	0	0	0	0
Between 10 and 20	19	0	0	0	0	0
Between 5 and 10	31	12	1	0	0	0
Between 3 and 5	24	35	8	0	0	0
Between 1 and 3	7	50	72	40	13	0
None	0	2	19	60	87	100

Source: National Observatory of Telecommunications and the Information Society (ONTSI), *Survey of Local governments (2008)*.

^h This section will be revised following interviews with representatives of local administrations during the second phase of the project.

ⁱ <http://www.ontsi.red.es/index.action>

Box 1.4 Plan Avanza: maximising economies of scale to overcome barriers to implementation in local governments

There are over 8,000 municipalities in Spain, many of which are sparsely populated with few, if any, in-house IT personnel. As a result, some local governments may lack the budget and expertise to implement initiatives for the integration of ICTs in their back-office and front-office operations, or to actively participate in e-government reforms.

As a centralised source of technical and financial support for ICT initiatives, Plan Avanza acts as a demand aggregator, working with the FEMP (Spanish Federation of Municipalities and Provinces) to coordinate with local governments in a homogenous and unified manner. By pooling resources, Plan Avanza exploits economies of scale to reduce costs, and allow for greater interoperability and speedier, more efficient implementation. Indeed, rather than each local government pursuing ICT projects individually, one single programme can be rolled-out across the country simultaneously. A few examples of how Plan Avanza allows local public entities to join the information society include:

Plan Avanza Local: this programme consists of developing and rolling-out technology solutions for local governments. Applications such as LOCALGIS, LOCALWEB, SIGEM, and CATASTRO have been commissioned by Plan Avanza in consideration of the procedures and functions typical to local governments. These can be customised as per the necessities of each particular municipality, and installed with the support of the Plan. By providing the bare-bones technology solution, significant cost-savings can be achieved by local governments as they do not need to incur the costs of developing their own bespoke applications.

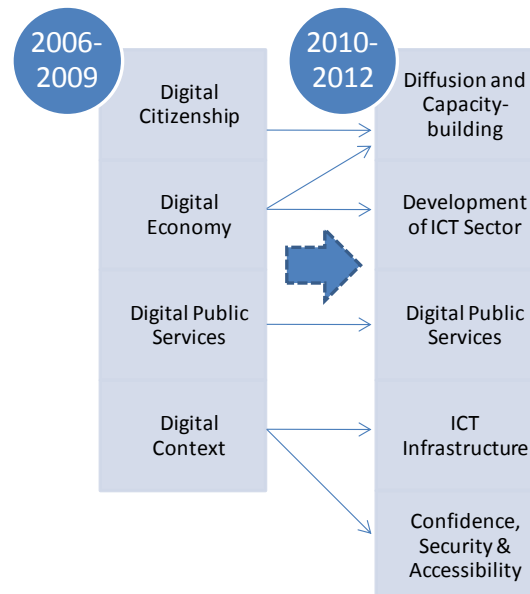
Urbanismo en Red: Local governments in Spain are responsible for most matters pertaining to urban planning and development. This project, which has been granted a budget of about 57 million Euros over four years, aims to roll-out a suite of specialised tools which permit for the digitisation of town plans and the publication of this information for public and private use online. An initiative spurred by the Ministry of Housing, this programme allows each participating municipality to install a ready-made tool kit, after which information can be shared with neighbouring municipalities and the central ministry. Since Plan Avanza is the single provider of the toolkit, inter-operability between the ministry and other administrations is achieved.

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

From Plan Avanza to Plan Avanza 2

24. The first Plan Avanza Action Plan was launched in 2006 with a second version to come into effect in early 2010. While the first plan aimed to create a critical mass of ICT users, services and coverage, Plan Avanza 2 demonstrates some marked shifts in strategic objectives. These changes are not only a reflection of progress made throughout the course of the first action plan, but also exogenous factors such as the current economic climate and changing IS needs in Spain.

Figure 1.6 Evolution of Plan Avanza objectives



Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

25. One evident trend of the proposed Plan Avanza 2 strategy is the growing emphasis that has been placed on the development of the ICT sector. Previously an activity within the Digital Economy objective, this initiative has been promoted to its own strategic pillar. This might reflect the urgency of encouraging structural economic change also in light of the economic crisis. In addition to continue to promote innovation and the digital contents sector, the second action plan will focus on increasing e-commerce and target microenterprises more ambitiously, as they remain behind in adopting ICTs.²⁶ An element of regional/territorial economic development has been introduced with a new programme for the creation and consolidation of ICT clusters in collaboration with universities. Box 1.5 offers a discussion on the potential role of IS strategies in economic recovery.

Box 1.5 Information Society strategies: a digital response to economic recovery?

The recent economic crisis has propelled ICTs onto the centre stage of policies for economic recovery: in this context not only are ICTs regarded as agents of economic growth, but also as catalysts for structural economic change. Specifically, ICTs can play a key role in consolidating the knowledge economy and creating the stronger, cleaner and more innovative economies of the future. The OECD's 2009 Interim Report on the OECD Innovation Strategy²⁷ highlights the role of ICTs "as arguably the most important platforms for innovation today" and recommends integrating ICTs into infrastructure investments and public service delivery models. Likewise the OECD report "*Green Growth: Overcoming the crisis and Beyond*"²⁸, recommends using the crisis as an opportunity to push forward economic structural reform through greater investment in green technologies. The *OECD Green Growth Declaration* encourages governments to include "Green ICT" research and investments as means to spur sustainable economic growth and employment. Additionally, the 2009 World Economic Forum's document "*ICTs for economic growth: a dynamic ecosystem driving the global recovery*" states that ICTs can play a vital role in the pathway to an economic recovery, as they "can leverage and enhance the value of other private and public infrastructure investments and foster innovation throughout the economy."²⁹

The crisis has underscored the relevance and importance of ICTs and strengthened the government's resolve to include these technologies as key ingredients in its strategy to accelerate Spain's economic recovery. Indeed, the second Plan Avanza action plan has been incorporated into Plan E, the Spanish government's strategy for economic recovery and sustainable growth which was launched in September 2008, under the objective for economic modernisation.

Source: OECD.

26. While initial infrastructure priorities have been mobile phone, broadband, and digital terrestrial television, the 2010-2012 Action Plan divides resources from the infrastructure pillar between broadband expansion (especially in rural areas) and digital terrestrial television. Rather than on deployment, emphasis will be placed on improving speed and quality of existing broadband infrastructures. Furthermore, the development of interactive services via digital terrestrial television will become a priority.

27. Under Plan Avanza 2, education and health will continue to receive great focus. Plan Avanza 2 remains committed to supporting the development of digital services through the provision of ICT equipment and training, however there is a trend towards focusing on the take-up of said services by civil servants and citizens. For instance, now that eID cards have been issued, work will focus on increasing the utilisation of their features.

28. As coverage of ICT infrastructures like broadband has increased substantially in the past years, under Plan Avanza 2, greater effort will be invested in boosting take-up of ICTs amongst some demographic groups who are slow adopters (older people, women, disabled persons). Under the next action plan, there will be greater support of initiatives to increase security and privacy. INTECO will hence likely play an increasingly important role in the coming years.

Major Achievements

29. Plan Avanza has indeed contributed towards progress in advancing the country's information society: ICT coverage has expanded; take-up is rising; the ICT sector has grown consistently up until the start of the crisis and has demonstrated potential to become a key economic driver in the future; government is increasingly adopting ICTs for better service delivery; and important progress is being made in improving security and protecting consumers' rights. Perhaps most importantly, there is greater public and political consciousness about the importance of the information society for Spain's future; stakeholders are increasingly active, and more and more regional and local governments are seeking support from the Plan. The following is an overview of some of the major positive results achieved over the last few years.

ICT Infrastructures

- Cellular phone penetration (subscriber per 100 inhabitants) is well above the OECD average, (107.9 against 96.1 in 2007³⁰).
- Broadband coverage includes 99% of the Spanish population, and subscription prices have dropped by 24% between 2005 and 2008.³¹
- The average speed of Internet connection has gone from 256 Kbps to a median of between 4-10 Mbps in 2008.³²
- By September 2009, 77.7% of the population was already connected to the digital terrestrial television signal,³³ and more than 23 million receptors had been sold.
- The number of central government services available online has increased to over 2,000 over the past five years. The online availability of a sample of 20 public services, for instance, was 70% in 2007.³⁴

Figure 1.7³⁵

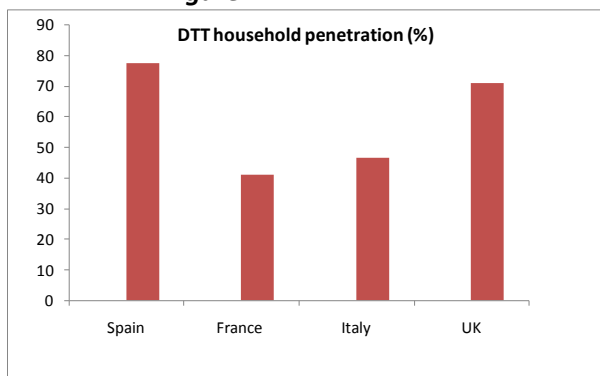
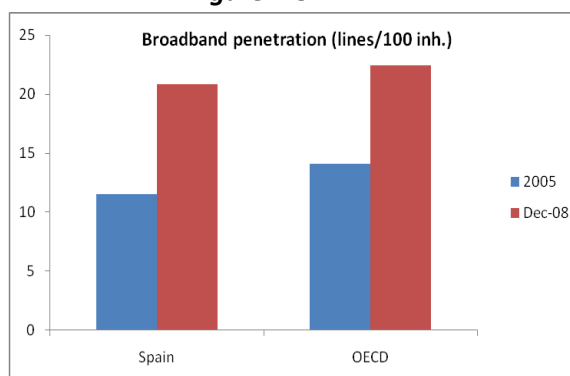


Figure 1.8³⁶



Source: Impulsa TDT Business association, 2009 and OECD Broadband Portal, 2008.

ICT take-up

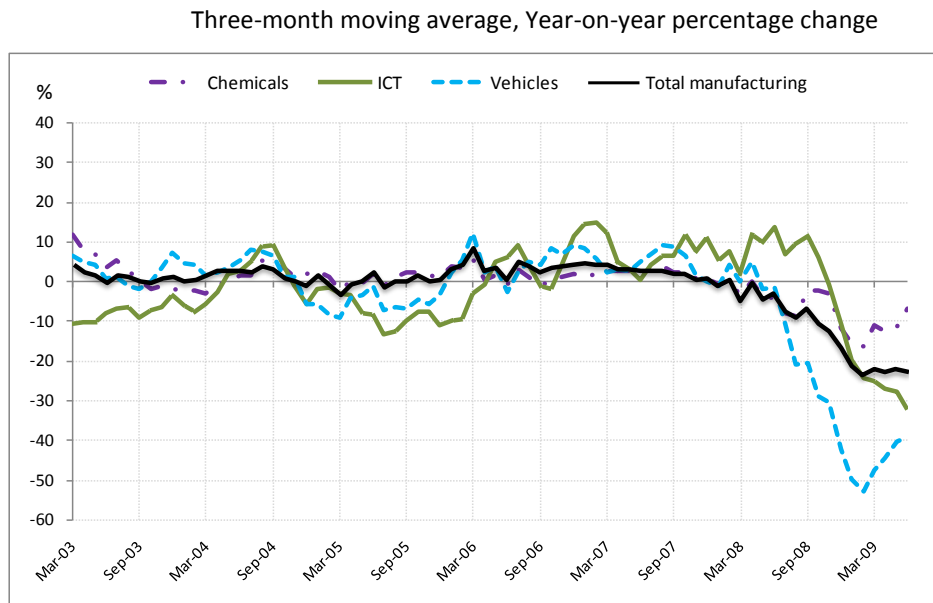
- According to EuroStat data, the percentage of persons who utilise the internet regularly (e.g. at least once per week) has doubled between 2003 and 2008, to 49% of the population.
- 60% of professors in Spain incorporate multimedia in their curriculums and 13 million eID cards have been issued.

- The number of SMEs using CRM and ERM technologies has nearly doubled between 2007 and 2008,³⁷ and the percentage of turnover from e-commerce has increased four-fold between 2003 and 2008.³⁸

ICT Sector

- The ICT sector, in terms of number of total firms, has increased by 27% between 2005 and 2007.³⁹
- The ICT manufacturing sector experienced a marked period of growth between 2006 and 2008.⁴⁰ (Figure 1.15)

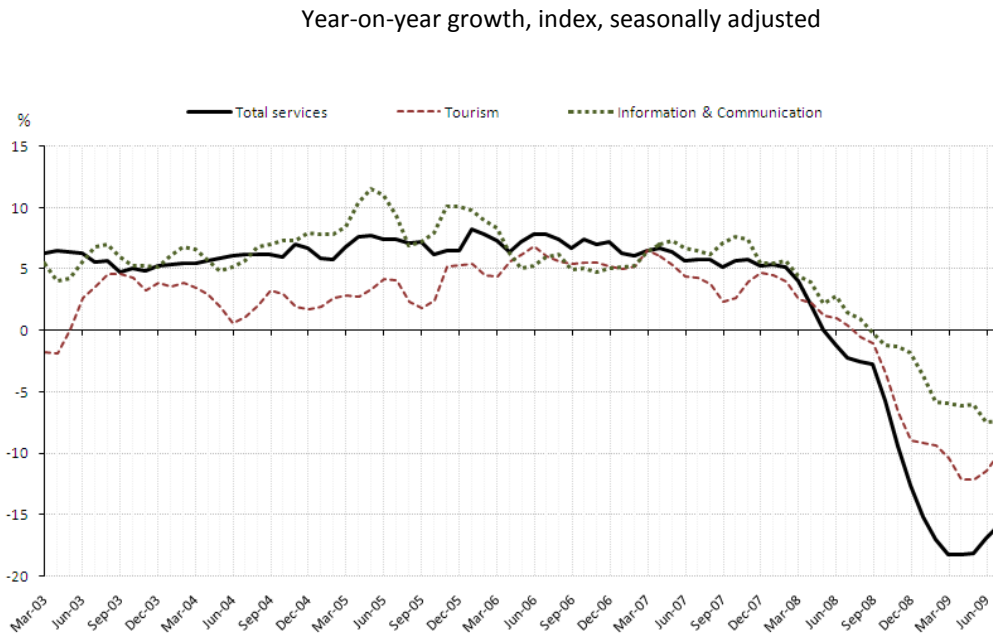
Figure 1.9 Monthly production index in manufacturing sectors, Spain, March 2003 – March 2009



Source: OECD calculations based on data from Spanish National Institute of Statistics, 2009

- The ICT services sector had relatively stable yearly revenue growth rates of around 5-10% between 2003 and the end of 2007 (Figure 1.16). The fall towards the end of 2008 due to the economic crisis is marked, but the sector fares much better than the total of Spain's services sector.
- ICT services employment grew out of decline at the end of 2004 and displayed stable monthly growth rates of between 2 and 3% (year-on-year) until mid-2008.
- The digital contents sector has shown particular promise: the average annual growth rate for this sector in the period from 2003-2007 has been 4%, and in 2007 the industry generated 15.9 billion Euros.

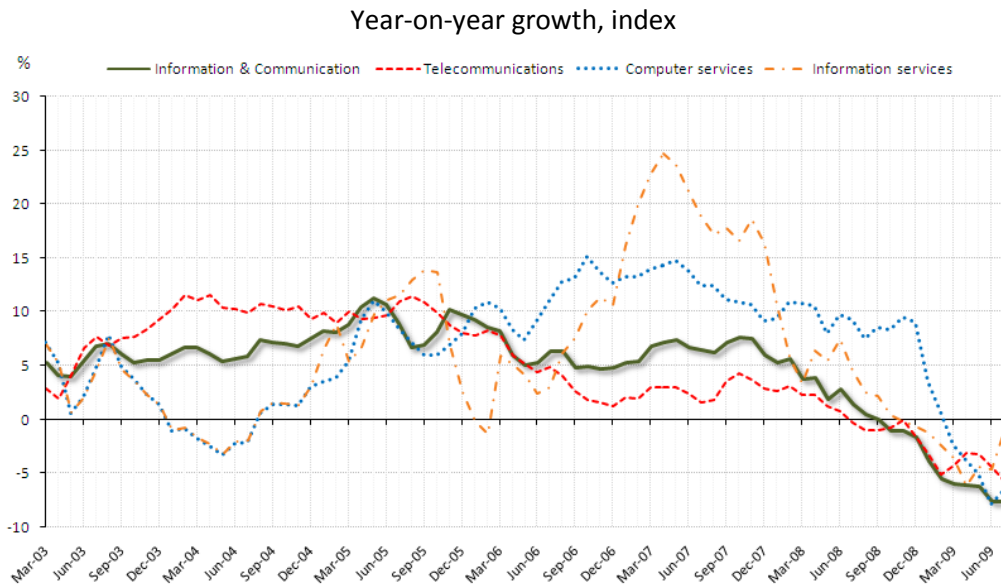
Figure 1.10 Growth in monthly turnover in ICT and selected services, March 2003 - July 2009



Note: The definition of Information and Communication services corresponds to the section J "Information and communication" of the ISIC rev.4 including: Publishing, Motion picture, video and TV programme activities, sound recording, Radio and television programming and broadcast, Telecommunications, Computer services and Information services. This is larger than the OECD definition for ICT services.

Source: OECD calculations based on data from Spanish National Institute of Statistics, 2009

Figure 1.11 Growth in monthly turnover in ICT services, March 2003 - July 2009



Source: OECD calculations based on data from Spanish National Institute of Statistics, 2009

Legislative/Regulatory Framework

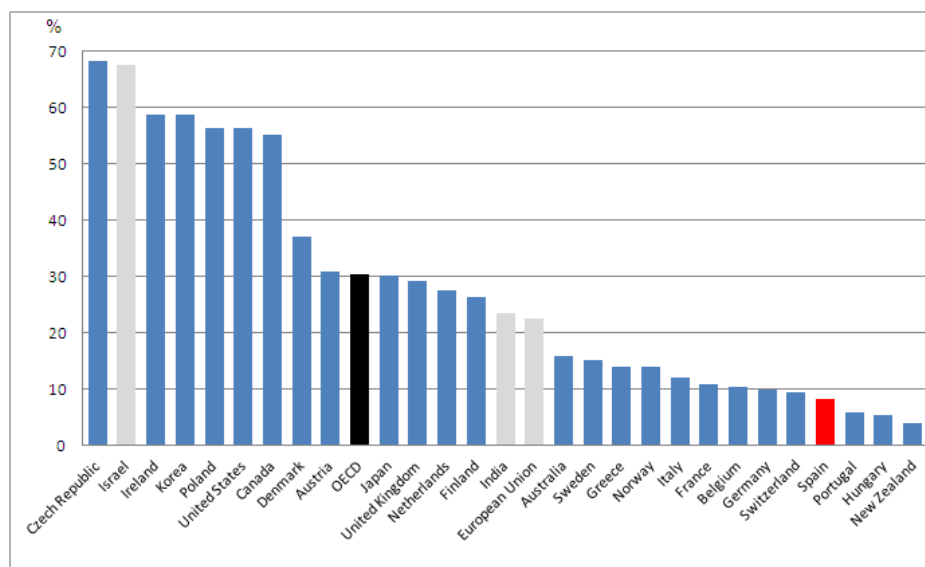
- The Law for the Promotion of the Information Society has been enacted and supported by the SSTIS, creating accessibility standards for government websites.
- Laws strengthening ICT customers' rights and security have been enacted. Procedures for verifying security and the quality of digital content have been put in place.

Remaining Challenges

30. While progress under Plan Avanza has been significant, key challenges for Spain's information society remain. For instance, in light of the current context, other key target groups are emerging (such as the unemployed) who could benefit greatly from ICT competencies and skills in order to increase their employment opportunities in the knowledge economy. Furthermore, "green-collar" jobs will require new kinds of ICT skills and training. Start-ups may emerge as an additional target group that could stand to benefit from Plan Avanza support, as capital is presently a rare commodity.

31. Venture capital may indeed be an area where future priorities could lie, as Spain is currently well below average in share of ICT in total venture capital investments: below 10% whereas OECD average is 30% (EU average is 23%). Spain could consider providing further incentives to promoting innovation in the ICT sector, the priorities so far have not been highest (see Box 1.5)

Figure 1.12 ICT venture capital as a share of all venture capital investment, 2006



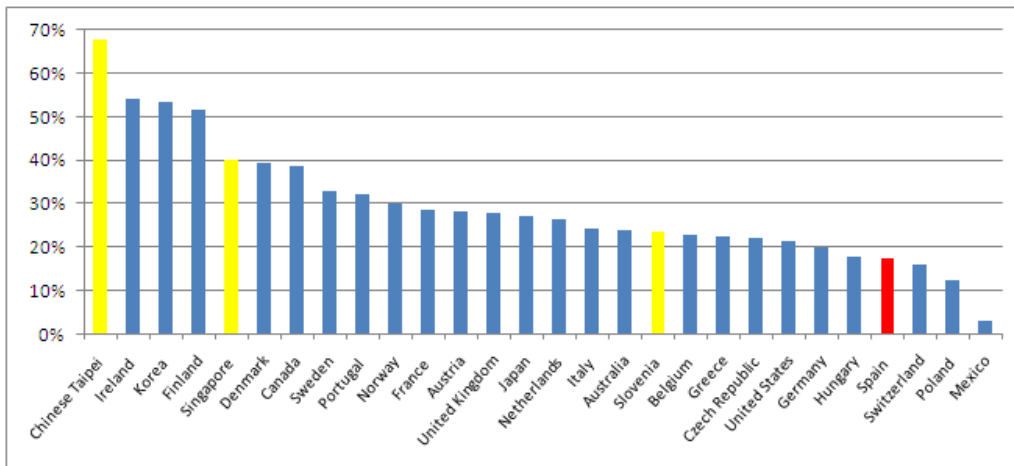
Source: OECD (2008), *Information Technology Outlook*

32. Opportunities for information society policy are also emerging in the area of infrastructures: developing and deploying "green ICTs" such as "smart" electricity grids and meters, intelligent transport and buildings management systems will benefit from support from Plan Avanza. Spain is home to some leading enterprises in the area of sustainable energy and buildings, which can draw on expertise in "Green ICTs" in their respective business divisions, e.g. Abengoa, Acciona. This area is rising in importance internationally and Plan Avanza could support the expanding number of ICT companies active in this area of ICT applications.

33. In the more 'traditional' ICT infrastructures, however, further challenges remain. Although a big effort has been made in order to extend GSM coverage to 1.1 million people, the un-served population (around 1 %) still remains high when compared to selected OECD countries⁴¹. Furthermore, broadband penetration in terms of lines/100 inhabitants has reached 20.8 in Spain in December 2008⁴² (OECD average is 22.4), below the OECD average although the gap is slowly closing. In 2005 it was 11.51 (OECD 14.08).

34. Continued promotion of innovation will be essential in the future, as Spain ranks 12th among OECD countries in ICT sector business R&D expenditures (BERD) in 2005. This is related to Spain's overall low R&D expenditures as a share of GDP (1.2%) compared to the OECD average (2.3%) (2006 values). Additionally, Spain had around 6600 ICT researchers (full-time equivalents) in 2006. With 18%, this is one of the lowest shares of ICT researchers in total domestic researchers across the OECD (leaders are Ireland, Korea and Finland with shares of over 50%). Lastly, ICT patenting activity in Spain is low compared to most OECD countries. With 18% ICT-related patents in the national total in 2003-2005, Spain resided well below the OECD average of 35% (followed only by Czech Republic, Mexico and Turkey).

Figure 2.13 Share of ICT researchers in total researchers, 2006

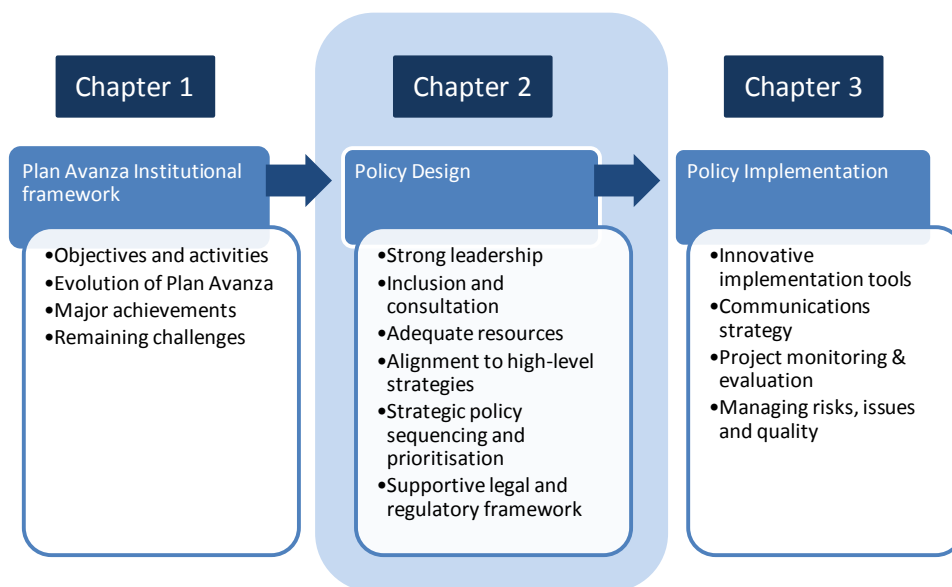


Source: OECD (2008), *Information Technology Outlook*

35. From a governance perspective, the strategy finds itself in a critical transitory state, having to balance remaining convergence issues with some new and more progressive policy challenges. To address this issue, strategic policy design, prioritisation and sequencing will be more important than ever. The following chapter addresses some of the governance factors which have been successful thus far in policy design, as well as areas the Plan could potentially improve to meet these emerging challenges.

CHAPTER 2

POLICY DESIGN: CREATING A CONDUCTIVE GOVERNANCE ENVIRONMENT FOR PLAN AVANZA



Introduction

1. Applying a governance perspective to the analysis of Plan Avanza can offer valuable insight into how the Plan, and other information society (IS) strategies, can overcome important challenges to improve their performance and contribute greater public value. The following two chapters adopt this focus, examining the major governance mechanisms Plan Avanza utilises throughout policy design and implementation to ensure that its objectives manifest into results. Chapter two in particular looks at how improvements in policy design can help create a conducive environment for the Plan to function effectively, the benefits of which can be reaped subsequently during implementation- and ultimately- by society.

2. Information society strategies are complex endeavours requiring careful consideration during the planning and designing phase. As objectives implicate different economic sectors, different end-users, and different tiers of government, frameworks need to be put in place to ensure that the expectations of all stakeholders are taken into account and that the strategy is coherent with individual sectoral policies and other national strategies. The sequencing and prioritisation of objectives is also important to ensure that resources are channelled most appropriately to achieve results. An operating model must be established that mirrors the complexity and fast-paced nature of technological programmes.

3. Specifically, Plan Avanza has stressed the importance of the following factors during policy design: (i) designation of a strong leader to push-forward the strategy and consolidate a shared vision; (ii) providing this figurehead with adequate resources to fulfil complex and ambitious goals; (iii) aligning objectives with other relevant strategies to maximise synergies across government; (iv) actively consulting with

stakeholders to reach consensus and facilitate co-operation; (v) strategically sequencing policies to increase impact; and (vi) establishing a supportive legal and regulatory framework that is conducive to a health information society. Putting these mechanisms in place was certainly not without its challenges, and undoubtedly there is scope for improvement for Plan Avanza in each of these areas. However, as we will see in this Chapter, efforts dedicated to laying a solid groundwork for the Plan during policy design have proven fruitful and contributed to strengthening the capacity of the Plan to achieve its objectives.

Strong leadership for a clear and consolidated IS vision

4. The wide scope and complexity of information society strategies calls for strong co-ordination and collaboration across policies, and clear guidance along implementation. Strong leadership is required to articulate and promote acceptance of the strategy's vision, establish clear priorities and structure implementation efficiently. In the area of e-government, for example another cross-cutting policy area, many OECD countries have found that sustained leadership is important at all levels of the e-government cycle for improving speed, efficiency and consistency.⁴³

5. In the case of Spain, the designation of a single leader responsible for pushing forward the country's IS agenda has been a contributing factor to the successful launch of the Plan. From the Plan's inception, it was determined that the Secretariat for Telecommunications and the Information Society (the SSTIS) would be the central government's focal point for policy design and guidance along implementation. The centralisation of responsibilities within an individual government entity was a contrast to previous approaches which distributed IS obligations amongst different ministries, and which depended on the coordination of inter-ministerial committees. While this new approach has been particularly decisive in the case of Spain, other OECD member countries have chosen different approaches depending on their own administrative and policy contexts (see Box 2.1).

6. While these committees remain useful for purposes of high-level communication, in the case of Plan Avanza, having a clear leader has led to the culmination of one shared vision for the nation's IS policy amongst stakeholders. In its leadership role, the SSTIS has simplified the liaising process with stakeholders and regional governments, as there is now one main interlocutor. For instance, rather than different ministries having to coordinate with each other as well as individually with regional and local governments, the SSTIS performs this coordinative role. In this way, the process of setting objectives, priorities and determining distribution of resources has also been streamlined. Lastly, strong leadership has ensured that the Plan speaks with once single voice, avoiding possible ambiguities. As a result, over the past years, the political and public consciousness regarding the importance of ICTs has increased.

Box 2.1 To centralise or decentralise? Different leadership models in IS strategies

Policy-makers of IS strategies in other OECD countries have chosen different approaches depending on their particular country contexts. While some countries have chosen to centralise leadership, other countries have opted for more decentralised approaches. There are advantages and disadvantages to each: while centralisation can lead to greater coordination, synergies and uniform implementation across sectors, more decentralised leadership could ensure greater ownership of results.

To ensure a better coordination of information society strategy, some countries have set inter-ministerial committees or advisory bodies in charge of providing guidance and co-ordinating implementation. In **Finland**, the Ubiquitous Information Society Board is managed by a high-level advisory board of about 40 members from other ministries and civil society. The board draws on the expertise of six working groups, who provide policy advice on different issues. The main responsibilities of the board are to design the action plan, coordinate implementation amongst the different ministries, and conduct a yearly evaluation.⁴⁴ Likewise, **Germany's** several IS strategies^j are divided amongst ministries, with high-level consultative bodies acting as interlocutors. In **Britain**, the Digital Britain Strategy⁴⁵ proposes joint-ministerial responsibility for the new action plan. In **Italy** the IS strategy is supported at the highest political level by a Committee of Ministers for the Information Society.

Conversely, countries such as Portugal⁴⁶ and Greece⁴⁷ have adopted models similar to Spain, designating responsibilities for their strategies. In **Portugal**, the Knowledge Society Agency operates within the Ministry of Science, Technology and Higher Education, while in **Greece** a Special Secretariat for Digital Planning has been formed in the Ministry of Economy and Planning.

Source: OECD.

Challenges

7. One main challenge that arises as a result of centralising leadership of the Plan is maintaining high-level coordination with other ministries in policy design to ensure ownership of results and that actions are aligned to other sectoral policies. Indeed, in order to create synergies between Plan Avanza and other relevant policy agendas (e.g. e-government, national innovation strategy, economic recovery policies, etc.), establishing channels for inter-ministerial coordination is critically important. Increasing this kind of coordination would not only help strengthen synergies between Plan Avanza and other policies, but also help the Plan's policy-makers achieve a more long-term vision of their objectives.

Consultation for greater consensus

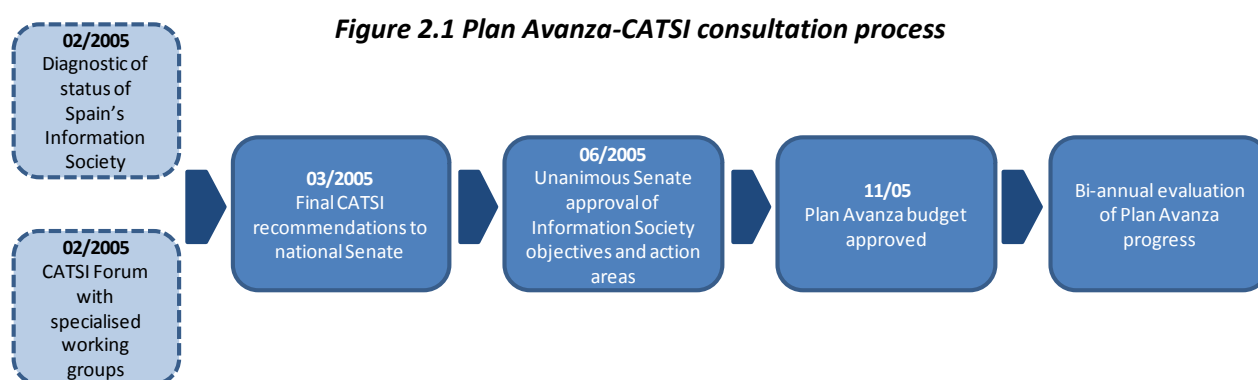
8. Information society strategies can greatly benefit from bottom-up input to ensure that policy objectives and priorities match the needs of direct beneficiaries and take into account the perspectives of different stakeholders. Indeed, an inclusive and participatory process is particularly important for IS strategies given the wide variety of actors and interests involved. Additionally, greater consensus over objectives can facilitate co-operation and help increase the amount of resources available to these strategies. Consultative approaches have been implemented in other OECD member countries during policy design, involving specialised working groups, other ministries, and civil society.

9. A consultative approach has been applied both in the design and evaluation of Plan Avanza objectives. CATSI⁴⁸ (the Spanish acronym for the *Advisory Board for Telecommunications and the Information Society*) had a central role in advising the SSTIS in defining the Plan's primary goals and action areas. The

^j Such as, iD2010, Germany's Broadband strategy, Germany's High-Technology Strategy.

entity is an independent body composed of over one hundred members from different government ministries, business associations from the ICT sector, representatives from trade unions, user associations and consumers' rights groups, members of regional and local governments, think tanks, representatives from radio and television stations, and prominent subject-matter experts. The involvement of the CATSI has allowed for a neutral and objective evaluation of the IS needs of Spain, offering a critical view of where urgent priorities could lie. The inclusion of opinion leaders in the area of IS policy and key private sector actors added weight to the Plan's objectives and course of action.

10. CATSI based its recommendations for the Plan on a diagnostic of Spain's ICT infrastructure and rates of ICT-utilisation in comparison with other European countries. The consortium also held a forum with various specialised working groups who formulated specific recommendations for the proposed Plan. The proposed draft was presented to the national Senate and approved unanimously by the legislature in June of 2005. The second Plan Avanza action plan for 2010-2012 will also be deliberated by CATSI, who must validate the proposed structure and objectives before implementation can begin.



Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

11. As mentioned above, there is also active consultation from CATSI in monitoring and evaluation. Indeed, CATSI was not dissolved after Plan Avanza was approved by the Senate, but rather, the consultative group remains active in the continual re-evaluation of the Plan's activities and priorities. At least two times per year, CATSI evaluates the strategy's progress and has the authority to propose changes as well as seek clarification or further information regarding the status and success of initiatives.

12. Finally, in addition to the CATSI, the consultation process is also open to the general public, albeit via a different route. Since, the membership of the CATSI is determined by law, the Plan's policy-makers also publish draft versions of the action plan online and invite private citizens and firms, as well as civil society to submit feedback and recommendations. While this increases the inclusiveness of the Plan and ensures more voices have an opportunity to be heard, feedback obtained through this method does not have the same binding nature as statements issued by the CATSI. Finally, it is interesting to note that citizens have also been consulted in the development and delivery of Plan Avanza programmes. Box 2.2 highlights such as a case, an innovative application of co-production and co-delivery of government services.

13. Consultative approaches involving citizens have also been implemented in other OECD countries during policy design. In Great Britain, the Digital Britain strategy is an example of actively pursuing consultation through a series of open roundtables, conferences, a Digital Britain Online Forum, an interactive website, a large summit, and several events and smaller meetings with members of civil society. In Portugal, the public has also been invited to provide views on the information society strategy.

Box 2.2 AGREGA: consultation in the design of specific programmes

The importance of consultative approaches in Spain has been marked throughout the implementation of the Plan and some initiatives introduced consultation as an element of innovation of a service or program. One such programme has been AGREGA.

The AGREGA project (Spanish for “accumulation”) has consisted in the development of an interactive online repository which provides access to pedagogical tools for enhancing and complementing both teaching and learning. The development of the concept of the project itself, as well as the portal, was performed in a collaborative and consultative manner with panels of teachers and education professionals. In this way, the needs and considerations of end-users are incorporated from the start, improving the quality of the materials, their reach and their rate of utilisation.

Indeed, educators have for some time recognized the utility of incorporating ICTs into curricula, as they allow for greater visualisation, interaction and student independence. They also have the added benefit of helping students to learn to use ICTs, and become more comfortable utilising computers, software, and the internet from an early age. Animated and interactive digital content has been amongst the most successful and effective of educational tools.

The AGREGA portal allows teachers and families to browse and download animated educational materials according to different subjects, grade-levels and even languages. Indeed, many materials are not only available in the different regional languages (Catalan, Valencian, Gallegan and the Euskara language) but also in English and French. Additionally, for the purposes of professional training, educational simulations have been developed and added to the repository. Various ministries are creating informational materials (for instance, on health habits, safety, gender equality, etc.). Lastly, the AGREGA programme also provides training for teachers on how to best utilise the portal and materials.

While the programme itself is original, perhaps the most innovative aspect of the project is its consultative approach: teachers and users are invited to not only view and download materials, but also to contribute their own materials, classify them and upload them onto the portal. This innovative co-production of services is particularly important in Spain, a country with different languages and diverse regional cultures which affect education curriculums and methods.

Finally, Plan Avanza is also collaborating internationally in order to increase the quantity of materials available and achieve cost-savings. By sharing digital contents from AGREGA with similar IS initiatives in Great Britain for instance, the amount of digital content available in English increases.



Screen shot of “Snowflakes Everywhere”, a children’s English language course from the AGREGA repository.
Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

Challenges

14. The fact that Plan Avanza was unanimously passed in the Senate reveals how high levels of participation from stakeholders in the policy-making process can help increase political consensus and garner the critical support to pursue a large-scale initiative. However, the choice to design the Plan in an open and inclusive manner is accompanied by challenges typical to all consultative approaches: namely, ensuring equitable representation and participation of stakeholders. This challenge partly stems from the legal nature of CATSI which clearly defines the composition of membership.

15. Though the inclusion of membership stipulations was intended to seek a proportional representation of stakeholders, certain groups may have been underrepresented. While key operators from the ICT sector are present on the advisory board, SMEs and other sectors are underrepresented, for example. Other key ministries and members of civil society may also have low levels of participation in CATSI. For instance, according to royal decree 1029/2002, there may only be one representative “from an association representative of disabled ICT users”. It seems this was not deliberate: it is possible that IS initiatives have evolved since the time the law was first drafted, and legislation regarding CATSI may not have been changed to reflect the Plan’s growing mandate

Securing Appropriate Organisational, Human and Financial Resources

16. Though centralised leadership and consultation have been important for Plan Avanza, a figurehead without sufficient and appropriate resources risks losing the capacity to fulfil its role. Given the nature of IS policies, adequate organisational, human and financial resources are essential: ICT deployment is large-scale, the mix of socio-economic and technological dimensions requires specific skill-sets, and complex programmes necessitate significant dedication to coordination and management. Additionally, budgetary and organisational resources must not only be sufficient but also agile, as technological change is fast-paced. A third critical governance factor for Plan Avanza, then, has been the design of an operational framework which provides the Plan with sufficient resources and flexibility.

Organisational resources

17. The SSTIS designed Plan Avanza’s implementation model on the principles of co-management, co-implementation and co-financing. This was a strategic decision that has greatly contributed to the success of the Plan. An example of this is the role played by the public entity “red.es” which was created in 2000 to manage “.es” domains, and is a descendent of *retevision*, also a public corporation. Under the direction of the SSTIS, red.es is responsible for fulfilling three major roles:

- **Motivator:** red.es fulfils the role of organising, approaching and coordinating with other government organisations and stakeholders in the design of specific programmes. This support to other areas in the SSTIS (including the Directorate General for the Development of the Information Society, the Directorate General for Telecommunications and the Secretary of State’s Office) is essential for transforming strategy into action.
- **Manager:** one of the most important resources red.es has to offer the Plan is its managerial role. The typology of projects implemented under Plan Avanza requires a great deal of coordination and oversight to be successful. red.es staff act as project managers for many of the Plan’s programmes. Additionally, under the supervision of the SSTIS, red.es also oversees and manages various institutions which function under the auspices of the plan such as INTECO, CENATIC, FUNDETEC and the National Domain Registry.

- **Multiplier:** as a centralised point of management and technical support for some of the Plan's initiatives, red.es allows for synergies across government such as inter-operability, security and economies of scale. For instance, red.es works with local municipalities to design programmes which can be rolled out simultaneously and universally.

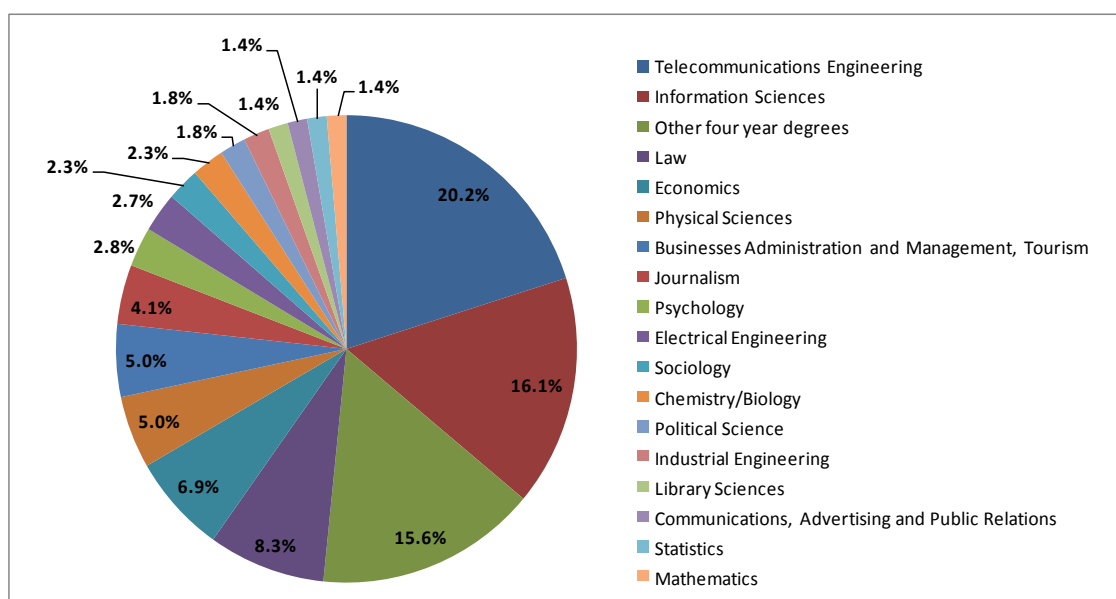
18. The public/private hybrid model under which red.es operates permits for the necessary agility and flexibility that IS interventions need to be most effective. As a public corporation, it is subject to different regulations than other government institutions. For instance, red.es is bound to a different contracting regime that can, at certain times, be less rigid. This has proved to be a great benefit in specific initiatives within the Plan, such as in the deployment of ICT infrastructure and installation of ICT equipment, as it can act, in some specific occasions, more quickly than other areas within the diverse Ministries involved in Plan Avanza.

19. (Perhaps because of such benefits) other IS strategies in OECD countries have adopted similar models. The "Digital Britain" strategy, for instance, proposes the establishment of a public-private hybrid, the *Network Design procurement group*, for implementation of ICT infrastructures. Greece's *Information Society, S.A.*, is also a public enterprise responsible for technology diffusion under the country's plan. Finally, Portugal's "Connecting Portugal" strategy utilises *Society Agency (UMIC)*, which is the Portuguese public agency with the mission of co-ordinating the policies for the information society and mobilizing it through dissemination, qualification and research activities.

Human resources

20. Because of the breadth and depth of programs and activities, information society strategies require qualified human resources drawing from a wide range of expertise and skills. The SSTIS draws from a pool of qualified human resources for the diverse programmes being implemented by Plan Avanza. For instance, it has a cadre of specialists varying from telecommunications engineers, programmers and designers, economists and statisticians, sociologists, business experts, lawyers, education and communication specialists, among others. Staff can move from project to project as needs arise, as internal mobility within the different projects is implemented when needed.

Figure 2.2 Disaggregation of Plan Avanza staff by area of expertise: the example of red.es⁴⁹



Source: red.es OECD elaboration.

Financial resources

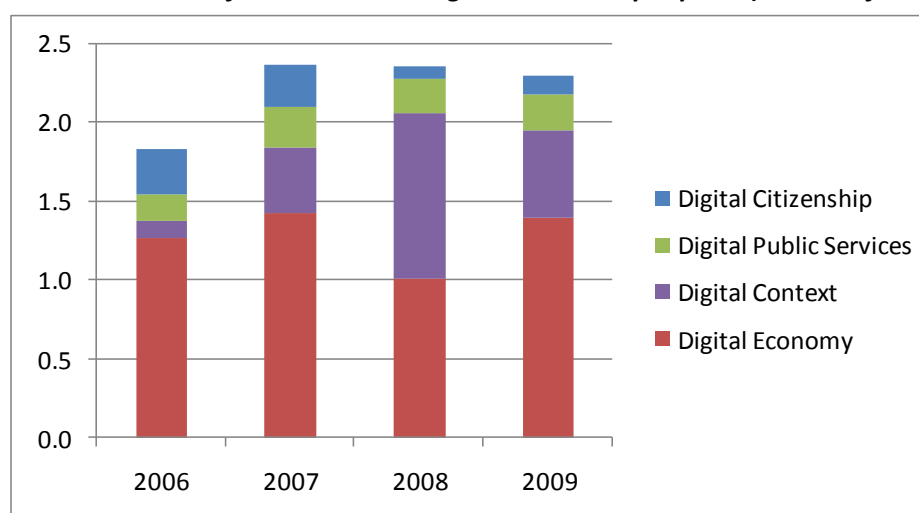
21. In addition to qualified human resources, information society strategies require adequate financial resources. The funding could originate from different individual sources for example national or local budgets, department or ministry budgets, the private sector, regional and international organizations (e.g. EU) or be a combination of these.

22. As opposed to previous national IS strategies which drew funding directly mostly from the different ministries involved, Plan Avanza has introduced a different kind of financial model. Under this model, there are a greater number of sources (such as regional and local governments, non-profit organisations) and, as of 2009, Plan Avanza is included as such in the national budget, which guarantees it a certain allotment each year. Data on the specific breakdown of the Plan's sources is pending.

23. Other OECD countries have also sought additional sources of funding. For example it is proposed that some initiatives of the Digital Britain strategy be funded from national budgets, in-kind contribution from public organisations (national, regional and local), consumers (through the proposed "copper" tax), under-spending from other programmes, and the private sector.

24. Throughout its first action plan, Plan Avanza has enjoyed a relatively stable budget, indicating sustained dedication to promoting the role of ICTs in Spanish society. The average yearly budget has been 2.2 billion Euros, with a four-year peak of 2.37 billion Euros in 2007. Between 2006-09, the total budget has been close to 8.9 billion Euros, and it is estimated that resources for Plan Avanza 2 will continue to demonstrate commitment to the advancement of the country's information society, as it positions itself as a key contributor to economic recovery as part of the country's *Plan E* strategy (see Box 1.5).

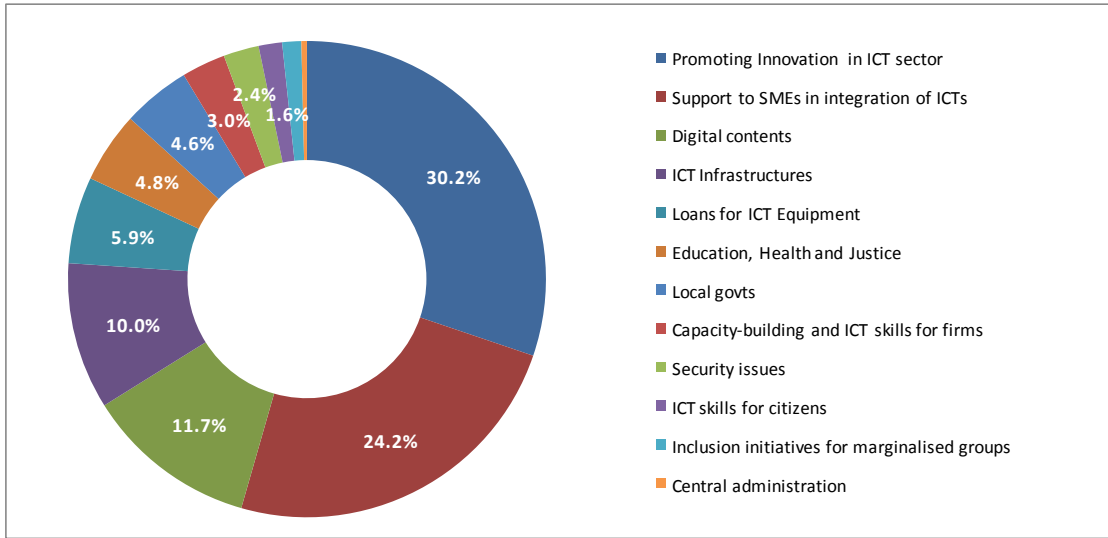
Figure 2.3 Evolution of Plan Avanza budget allocations per pillar (billions of Euros)⁵⁰



Source: Plan Avanza Technical Office. OECD elaboration.

25. In terms of specific activities, initiatives under the digital economy pillar lead in terms of total budget allocations from 2006 to 2009. Promoting innovation in the ICT sector, support to SMEs in the integration of ICTs, and investments in the digital contents sector top the spending list under the first Plan. Spending for capacity-building and ICT skills as well as support of e-government initiatives in central government was lower in comparison.

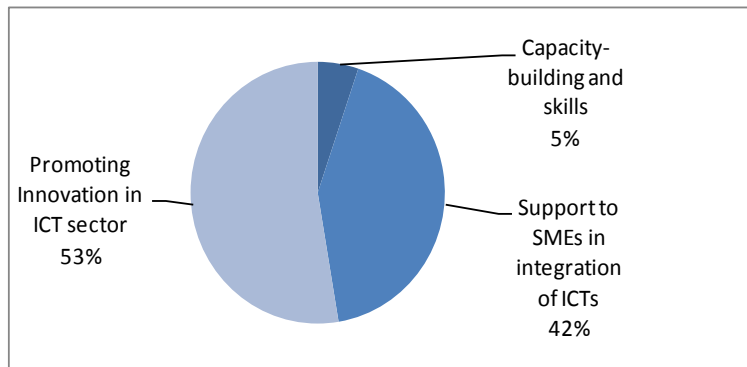
Figure 2.4 Budget distributions per activities (percentage of 2006-09 total)⁵¹



Source: Plan Avanza Technical Office. OECD elaboration.

26. The Digital Economy pillar has accounted for the greatest amount of resources relative to the other three pillars (57.4% of the four-year total). Indeed, the fastest growing investment of the Plan has been in the promotion of innovation in the ICT sector, which has nearly tripled since 2006. However, this has been at the expense of activities aimed at incorporating ICTs in SMEs. Funding for initiatives to incorporate e-commerce and e-billing, for example, have dropped significantly (-54%) between 2006 and 2009. Nevertheless, it has represented nearly half of the total digital economy budget. On the other hand, building ICT skills in SMEs has maintained relatively stable, at around 5% throughout the four years.

Figure 2.5 Digital Economy spending (percentage of 2006-09 total)

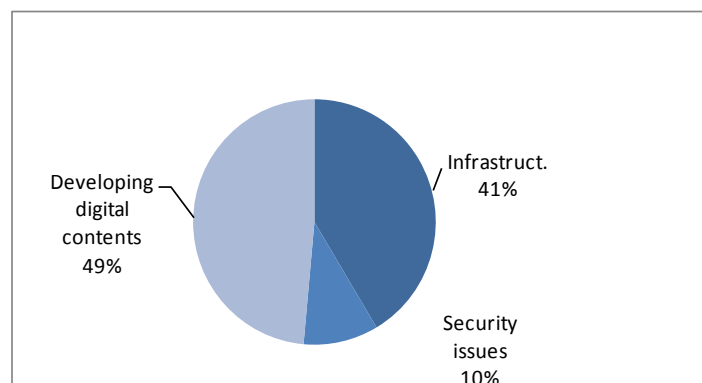


Source: Plan Avanza Technical Office. OECD elaboration.

27. The Digital Context pillar follows Digital Economy closely with 24% of total resources for the length of the first action plan. Within this pillar, funding for the development of digital contents has increased rapidly, more than doubling between 2007 and 2009, and accounting for 49% of total resources of this action area. Infrastructure spending constituted about 41% of the context action area, although between the years 2008 and 2009 there was a marked reduction in spending upon finalisation of key programmes in mobile phone and broadband. Second phases are due to begin under Plan Avanza 2, and spending is

predicted to increase once more. Security issues accounted for approximately 10% of investment in this pillar, including initiatives with the Ministry of Interior to improve the security of national eID cards.

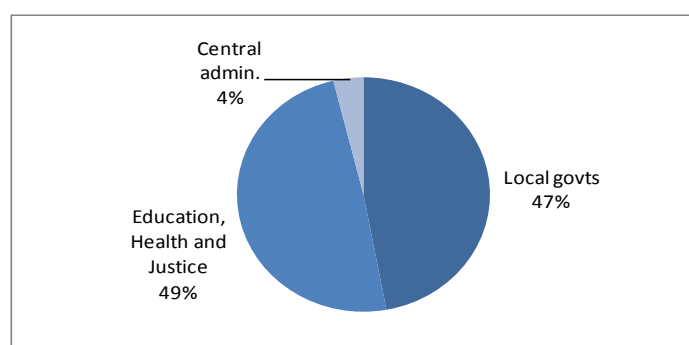
Figure 2.6 Digital Context spending (percentage of 2006-09 total)



Source: Plan Avanza Technical Office. OECD elaboration.

28. Prioritisation of digital services has remained relatively stable throughout the first four years of the Plan, accounting for 9-10% of total resources each year. Activities in this area have been relatively evenly balanced between supporting local governments, and support for e-gov initiatives in the areas of health, education and justice. Growing support for the latter has largely been a result of an increasing number of ministries seeking support from Plan Avanza in the management of e-government reforms. Lastly investments with supporting central government e-government initiatives (e.g. the Ministry of the Presidency) have been varied greatly each year, accounting for 4% of overall resources in this pillar.

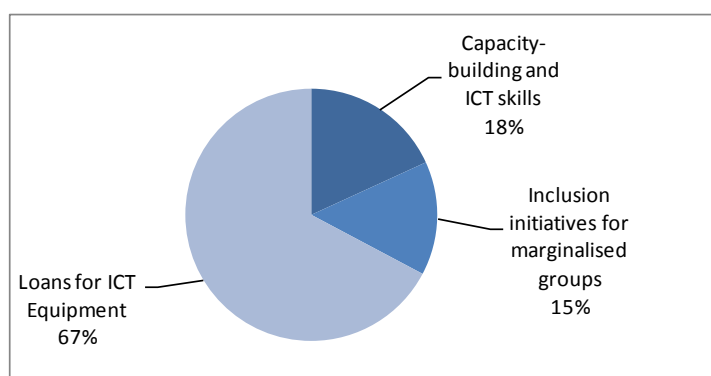
Figure 2.7 Digital Public Services spending (percentage of 2006-09 total)



Source: Plan Avanza Technical Office. OECD elaboration.

29. While most of the Plan's pillars have experienced relatively stable increases, the exception has been Digital Citizenship, whose allocation was reduced by 57% between 2006 and 2009 in order to divert funding to other activities. Over the four years, the pillar has accounted for approximately 8.7% of the Plan's total resources. The largest area of spending has been on providing citizens with loans for the purchase of ICT equipment and services. However, funding for this initiative has decreased substantially towards the end of the first action plan. Spending on capacity-building (awareness and training) has remained stable throughout the four years, with 18% of the pillar's total budget. Lastly, inclusion initiatives for marginalised groups accounts for 15% though, like the ICT loans, spending here has also been reduced.

Figure 2.8 Digital Citizenship spending (percentage of 2006-09 total)



Source: Plan Avanza Technical Office. OECD elaboration.

Table 2.2 Distribution of Plan Avanza resources (thousands of Euros)

Euros	2006	2007	2008	2009*	Total
Digital Economy	1,269,404	1,427,448	1,009,167	1,394,731	5,100,750
<i>Promoting Innovation in ICT sector</i>	342,211	714,341	701,164	926,950	2,684,666
<i>Support to SMEs in integration of ICTs</i>	856,604	657,577	246,618	391,424	2,152,223
<i>Capacity-building and skills</i>	70,589	55,530	61,385	76,357	263,861
Digital Context	109,436	419,161	1,049,683	557,391	2,135,671
<i>Developing digital contents</i>	0	237,990	254,432	544,907	1,037,329
<i>ICT Infrastructures</i>	81,500	60,269	741,686	1,704	885,159
<i>Security issues</i>	27,936	120,902	53,565	10,780	213,183
Digital Citizenship	293,617	274,273	85,795	124,987	778,672
<i>Loans for ICT Equipment</i>	231,385	197,849	14,205	79,847	523,286
<i>Inclusion initiatives for marginalised groups</i>	28,116	30,891	37,180	18,018	114,205
<i>Capacity-building and ICT skills</i>	34,116	45,533	34,410	27,122	141,181
Digital Public Services	167,036	253,630	221,001	229,401	871,068
<i>Education, Health and Justice</i>	64,917	120,937	104,265	137,386	427,505
<i>Local governments</i>	82,645	122,578	116,736	88,215	410,174
<i>Central administration</i>	19,474	10,115	0	3,800	33,389
TOTAL	1,839,493	2,374,512	2,365,646	2,306,510	8,886,161

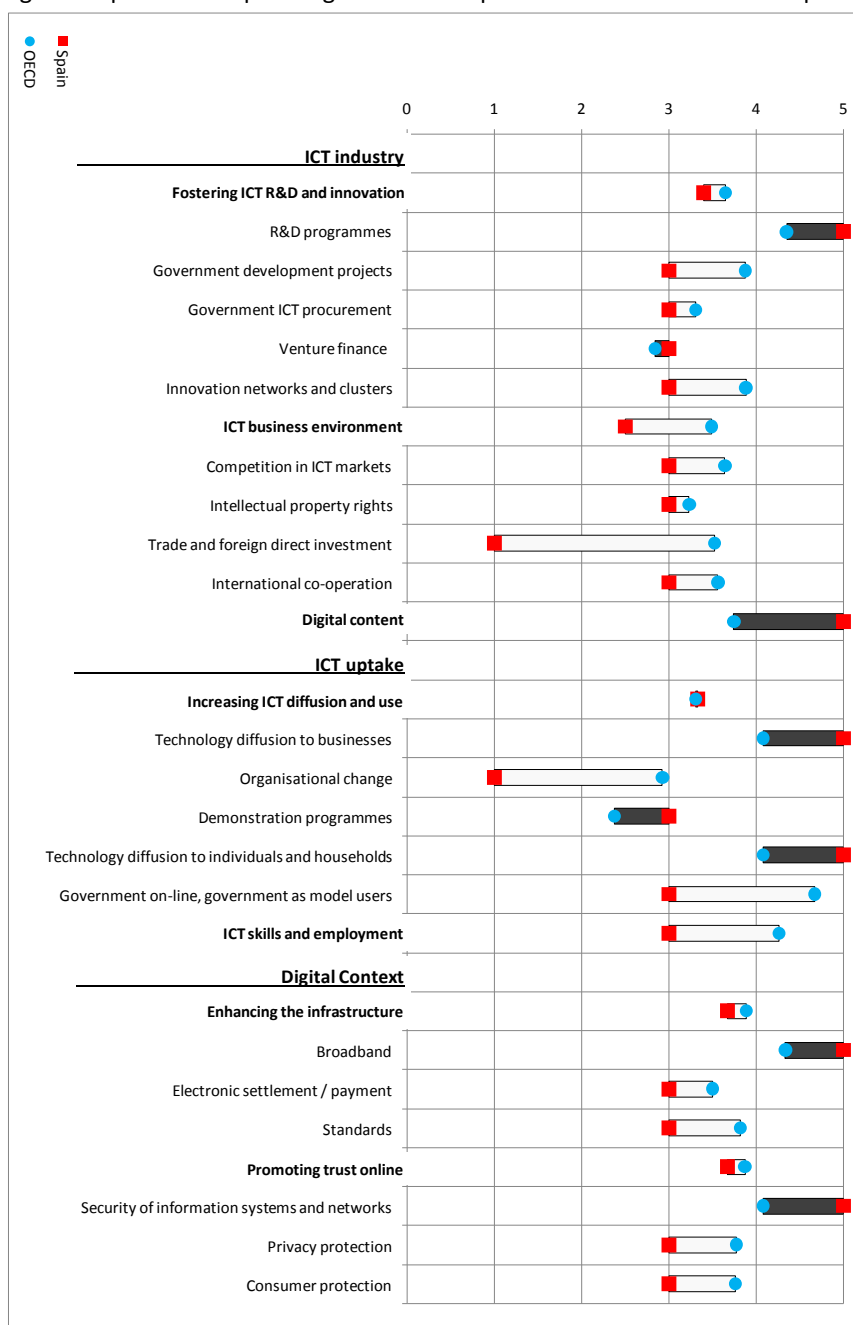
*provisional

Source: Plan Avanza Technical Office.

Box 2.3 Plan Avanza priorities in the context of OECD Information Society strategies

Resource distribution can be one useful way of assessing the prioritisation of information society objectives. However, budget allocations are not a perfect reflection since differences in the costs and investments needed to achieve goals are not taken into consideration. Therefore, qualitative surveys such as those performed for the OECD Information Technology Outlook, can complement budgetary information for a more comprehensive perspective of strategic preferences. The following figure maps out the Spanish government's prioritisation of different ICT policy areas in 2008 and compares this mix to the average prioritisation by OECD countries on a spectrum of 0 to 5 (low to high).

The survey generally validates earlier observations based on the distribution of financial resources. It also shows that Spain's ICT priorities are broadly in line with those of the OECD and other European countries with a growing focus on striking a balance between supply- and demand-oriented policies and infrastructure development. Support for ICT R&D and digital content aim to advance national ICT firms and focus on particular strengths in the services sector (software development, audio-visual sector) and with spill over effects in telecom. To spur demand, the government prioritised ICT uptake in businesses (especially SMEs) and households. Of top priority also to spur demand, priorities include increasing security and promoting accessible pricing of broadband. This in turn should stimulate broadband uptake which remains below OECD averages (see chapter 1 and cf. www.oecd.org/sti/ict/broadband). Plan Avanza aims to catch up with OECD countries in spurring innovation across industry sectors and follow-up programmes target unserved or underserved areas.



Moreover, comparison of Spanish results with OECD averages reveals interesting insights into where future areas of work may focus. With regards to policies aimed at fostering ICT R&D and innovation, Spain prioritises the preliminary inputs to innovation: R&D investment and venture capital, placing higher emphasis on these initiatives compared to OECD averages. Converting these investments into marketable and profitable products and services however, may require greater

prioritisation of innovation networks and clusters in order to facilitate knowledge-sharing and co-creation. Moreover, support for innovation in the ICT sector may be targeted to promote “green” infrastructures, and Spain could possibly draw on similar existing national initiatives (“Green ICT” policies) in OECD countries such as Korea, Japan, Germany, Denmark, and United Kingdom.

Likewise, future priorities may include improving the business environment for ICT development and increasing competitiveness of this sector, where lower relative prioritisation has been recorded. Spanish ICT firms may also benefit from initiatives designed to attract foreign investments and reduce the present trade deficit in ICT goods.

Finally, in the policy domain of ICT diffusion, citizens and business have received preference, while promoting take-up amongst civil servants (“government as model users”) has received lower (although moderate) prioritisation. Indeed, reforms in the public sector have thus far focused on the integration of ICTs as part of e-government reforms, rather than on the later stages of capacity-building for government employees. Since it has been shown that organisational changes must go hand-in-hand with the incorporation of ICTs, however, future initiatives may also consider pursuing such initiatives in SMEs and in the public administration.

Source: OECD. 2008 Technology Outlook responses.

Challenges

30. The design of Plan Avanza’s operating model has proven successful in terms of providing greater amounts of resources, expertise, flexibility and potential for cost-savings. However, there are also challenges that accompany this approach.

31. As a public organization, the SSTIS does not offer the same compensation to employees as a fully private corporation, and lack of competitiveness in the labour market can risk “brain drain” in the organisation. Indeed, interviews with officials indicated that there is a high rate of turn-over since, after a few years of experience, personnel become increasingly attractive to private firms who recruit them. Furthermore, as a public organization, the SSTIS faces hiring restrictions in terms of the number of new staff that can be recruited. This can act as a bottleneck and restrict its flexibility.

32. Another challenge of this model is achieving greater financial stability, which is essential for effective strategic planning and decision-making. Although the current framework offers more consistency than previous approaches, there is still a challenge of securing long-term resources since the Plan hinges on other public entities’ financial contributions. Agreements with other ministries for example, can be one-off in nature and resource allocations for programmes can vary greatly by year (for instance in 2008 the budget for central administration projects was null). Furthermore, as many Spanish regions lose eligibility to qualify for European funds in the coming Operational Programme, it is unclear what sources will be tapped to compensate for these losses.

Strategic alignment with international and national policies

33. The definition of the Plan’s objectives is not only influenced by stakeholders but also by the information society agenda of the European Commission and other national policies. Indeed, strategically linking the Plan’s policy objectives to those of other high-level European and national strategies played an important role in paving the way for the materialisation of Plan Avanza, and was a strategic choice made by policy-makers during design. Specifically, this alignment has permitted the strategy to (i) better capture synergies from shared objectives; and (ii) avoid duplication of policies across government.

Figure 2.9 Synchronicity between Plan Avanza, European and national Strategies



Source: OECD.

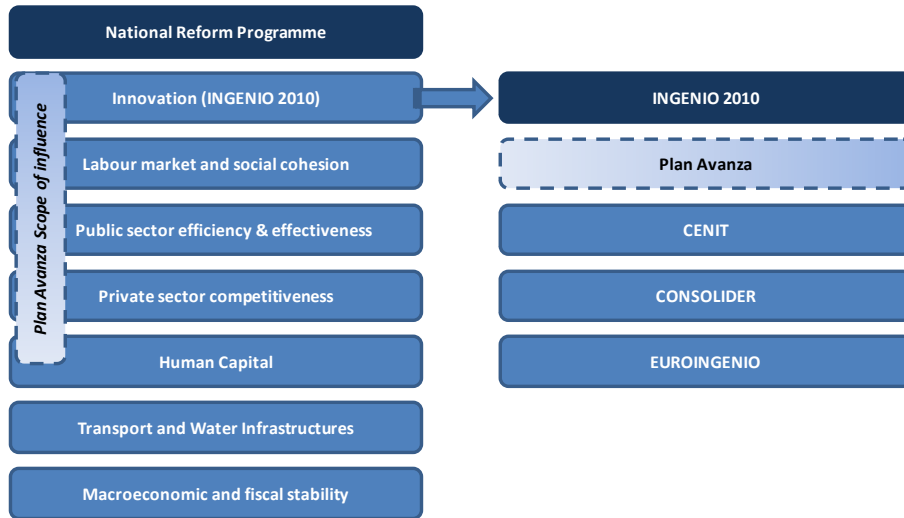
Plan Avanza and i2010

34. As discussed in the previous Chapter, Plan Avanza objectives are modelled after those of the EC's *i2010* strategy and adapted to fit the particularities of the Spanish context. The presence of a supranational IS strategy helped substantiate the structure and objectives proposed by CATSI, helping to build consensus around its objectives, priorities and main beneficiaries. Furthermore, directives from *i2010* exerted top-down pressure for Spain to converge with other European countries in key IS dimensions, validating the rationale for the strategy and instilling a sense of urgency for the need to foster the knowledge economy in the country. Additionally, the synchronicity between *i2010* and Plan Avanza (both were designed and launched in the same years) helped increase awareness amongst Spanish policymakers and stakeholders of the importance of building a strong information society.

Plan Avanza and Spain's National Reform Programme (NRP)

35. As we have seen, Plan Avanza is a transversal strategy with objectives spanning multiple policy domains, beneficiaries and levels of government. It is important for the strategy, then, to be well-aligned with relevant national strategies in order to maximise its contribution in the areas where implicated. As a component of both INGENiO and the National Reform Programme (NRP), Plan Avanza is expected to contribute to objectives ranging from boosting innovation and competitiveness, creating employment opportunities, increasing human capital, and modernising the public sector. As is the case with *i2010*, alignment to INGENiO and the NRP's high-profile reforms in the areas of modernisation, e-government, innovation and economic development works in the Plan's favour in terms of acquiring the resources to carry out its mandate and boosting awareness among policy-makers for the role of ICTs in each of these areas.

Figure 2.10 Interface between NRP, INGENIO and Plan Avanza



Source: SSTIS.

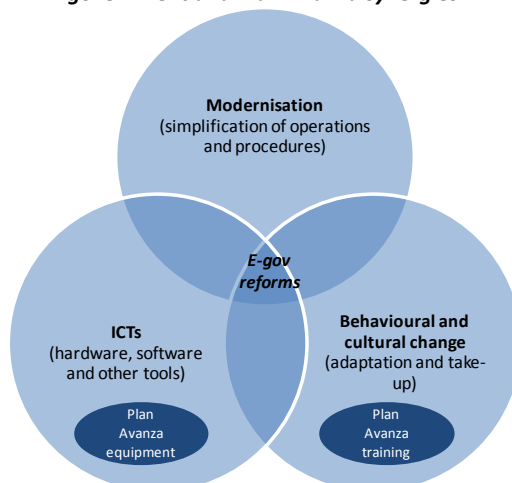
36. Furthermore, complementarities with the NRP and INGENIO have allowed the Plan to better define its programmes and areas of intervention, thereby maximising synergies across government. Indeed, the Plan ensures that ICTs play a prominent role in a wide array of policy domains, adapting its initiatives to fit the ongoing objectives of other strategies. Additionally, alignment with other high-level national policies reduces duplication of ICT initiatives across government, avoiding waste of resources. One excellent example of how this has been accomplished in Spain is with the case of e-government strategy, a key pillar of the NRP's modernisation plan (See Box 2.4).

Box 2.4 Better strategy alignment for the creation of synergies across government

Because of the integral role of ICTs in e-government reforms, Plan Avanza works closely with the Ministry of the Presidency, one of the key government ministries responsible for developing digital public services for central government. Under the umbrella of the NRP, policy roles are clearly defined: the Ministry develops services and is responsible for the accompanying modernisation reforms in procedures and operations, while Plan Avanza provides support by providing ICT equipment, in some cases developing and customizing ICT tools and software, as well as training public servants to utilise ICTs efficiently.

Therefore initiatives are not duplicated but rather, through better alignment, they are designed to complement each other and address both the demand and supply dimensions needed for value creation. Indeed, Plan Avanza provides the critical training necessary for the behavioural and cultural changes needed to make e-government reforms successful, while the Ministry is responsible for the corresponding modernisation reforms that accompany e-government policies. As a centralised supporter of e-government initiatives, Plan Avanza helps improve interoperability and security. Likewise, the Plan benefits as e-government reforms are the ideal setting for introducing ICTs and ICT training into the public administration.

E-government and Plan Avanza synergies



One such example of the synergies achieved between Plan Avanza and the Ministry of the Presidency is with the *060 portal*, an online one-stop stop for government services bundled according to customer profiles and life events (paying taxes, getting married, retirement, etc.). Plan Avanza and the Ministry have an agreement in which red.es provides training to citizens to promote take-up of the portal via its rural tele-centres. Another example is the case of Plan Avanza's SIR programme, which works with local registrar offices to help integrate them into the SARA network, a public sector intranet linking central, regional and local administrations. Plan Avanza provides training to staff and support in the development of a secure and authenticated platform that links these registrars to the central node. This programme is also co-financed by the Ministry of the Presidency.

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

Challenges

37. Clarifying the mandate of information society strategy vis a vis other national policies is crucial in the design phase. While the Plan has been successful in defining its mandate with regards to Spain's e-government agenda (see box 2.3), in the policy domain of innovation, the designation of responsibilities is less clear. This happens despite the fact that Plan Avanza forms part of the INGENIO strategy which is implemented by the Ministry of Science and Innovation.

38. Indeed, as economic policy and innovation policy are ever more intertwined in the knowledge economy, alignment of Plan Avanza with the Spanish INGENIO strategy will become increasingly important. Indeed, both the Ministry for Science and Innovation and Plan Avanza have been active in the following fields:

- **Development of technological platforms for information-sharing and innovation.** Plan Avanza has created platforms for educational contents as well as for information-sharing between universities pursuing innovative projects in the audiovisual sector. To similar ends, the Ministry of Science and Innovation has financed the construction of technological platforms in several sectors- from transport, technology, agriculture, energy, security and defence, amongst others. The ministry also works with science and technology parks in building instruments for information-sharing.
- **Support for development of the ICT sector.** Both Plan Avanza and the Ministry of Science and Innovation support the development of new ICT products and services. The Ministry of Science and Innovation provides R&D funds, supports development of prototypes and provides venture capital to firms. Plan Avanza provides support to the ICT sector through some similar instruments.

39. A second challenge of aligning ICT objectives to other national objectives arises during evaluation, as objectives become interdependent and initiatives are increasingly run in parallel. It is difficult, for example, to pinpoint the contribution of Plan Avanza in terms of improving public sector efficiency, when initiatives are designed to complement each other and are often implemented in conjunction. For instance, what is the Plan's contribution to greater productivity in civil registries? Are efficiency gains realised from new ICT equipment or procedural reforms that streamlined operations?

Strategic policy sequencing and prioritisation

40. A fifth critical factor of the Plan's governance approach has been strategic sequencing of initiatives. Plan Avanza was able to prioritise and plan activities in such a way that was conducive to greater impact. This foresight and strategic thinking during policy design was important and consisted in the following decisions:

- Within the digital public services pillar, Plan Avanza policy-makers chose to focus initially on the deployment of ICT equipment, before directing efforts towards the development of services. The aim was to focus first on creating a critical mass of demand in order to incentivise the private sector and government to respond. This approach was successful, since it was difficult to predict beforehand which services would be most utilised, and what the rate of take-up would be. For instance, the Plan provided the ICT equipment necessary for the Ministry of Interior to issue 13 million eID cards. Efforts on the development of services for these cards are now ongoing. Since

the profile of users with eID cards is better understood, the development of services is likely to be more beneficial with greater impact.

- The first Plan Avanza action plan stressed large-scale deployment of ICT infrastructure- namely, mobile phone, broadband and digital television. The Plan also supported integration of ICTs directly in households and schools- financing computers and internet access. The second action plan, in turn, has shifted emphasis on utilisation and take-up of services and development of digital content, particularly in the private sector. Indeed, unlike previous plans which took on both challenges simultaneously with limited resources, Plan Avanza concentrated a large portion of its budget in the initial phase in technology, later shifting that budget towards more socio-economic objectives. This indicates the intention a greater balance between infrastructure development and take-up in the next steps of implementation.

Challenges

41. Strategic policy sequencing and prioritisation requires, by nature, a long-term perspective. However, the way in which Plan Avanza's operating model is designed does not always permit this kind of long-term thinking. For instance, because Plan Avanza must work in conjunction with other government agencies and stakeholders in implementation, often times the Plan's policy-makers are unaware in advance which areas of government will choose to collaborate or require assistance from the Plan. Closer collaboration is needed to establish a long-term perspective on shared goals like economic development, e-government, and capacity-building.

Supportive Legal and Regulatory Framework

42. A strong information society also requires legal and regulatory intervention in order to support ongoing and future initiatives. As has done the Digital Austria strategy, Plan Avanza has sponsored and pushed forward key pieces of legislation which have improved the ability of the Plan to intervene in the public sector and to improve accessibility. Furthermore, INTECO continues to work on increasing security online and protecting consumers' privacy. Some of the key pieces of legislation supported by Plan Avanza include:

- **Law on Citizens' Electronic Access to Public Services** ("Law on eAdministration" 11/2007): this law states that citizens should be able to access services of the central government (*administración general del estado; A.G.E.*) electronically by December 31, 2009. The law is interesting in that it declares that online interaction with government should be a citizen's legal right. While it is the Ministry of the Presidency who is responsible for upholding this law, Plan Avanza has a strong role in assisting government in being able to comply.
- **Law 56/2007 on Measures to promote the Information Society:** this legislation establishes an eAccessibility obligation on public sector organisations. Effective Dec. 2008, the web pages of public administrations must satisfy a minimum set of accessibility criteria developed with older people and persons with disabilities in mind.
- **Law 15/1999 on the Protection of Personal Data:** This law grants citizens the right to access and correct their personal information in the records held by private/public entities. Personal information may only be used or disclosed to a third party with consent from the individual.

Challenges

43. Copyright law is an area where Plan Avanza has yet to become involved in. France's Numerique 2012 strategy highlights this policy area, and countries such as Finland and Britain are also increasingly active in this field. For example, Finland's National Copyright Strategy will define measures to develop copyright and industrial property rights legislation and provide support to stakeholders in this field. Indeed, protection of copyright and intellectual property on the Internet is a key to ensuring strong incentives for the creation of digital content continues.

Conclusions

44. Early attention granted to important governance issues during policy design has yielded some positive results which have differentiated the Plan from previous strategies. Some challenges remain, however, for Plan Avanza 2. These may include increasing the flexibility of the consultation process in order to increase inclusion, strengthening mediums for communicating with stakeholders outside of CATSI, and considering ways by which the SSTIS and Plan Avanza can overcome bottlenecks to growth. In particular, the human resource management is an important issue, as it is expected that policies to be pursued under Plan Avanza 2 will increase in complexity and diversity. Furthermore, sustaining financial stability despite some regions' loss of eligibility to receive EU funding will remain important. Measures to mitigate this have already been taken (e.g. red.es incorporated into the national budget), however, in the future this could continue to be a challenge for the Plan.

45. Furthermore, since Plan Avanza has been centralised under the SSTIS, momentum of the strategy has surely improved; however the trade-off may have been relatively less high-level co-ordination in policy design. A greater degree of collaboration with other ministries could be achieved in order to extract greater more synergies from policies. Certainly, having a better idea of what ministries will require from Plan Avanza in the future may help policy-makers make better decisions about how to incorporate ICTs into these initiatives and improve planning. These aspects will be further examined in a later stage of the project following interviews with other central government stakeholders.

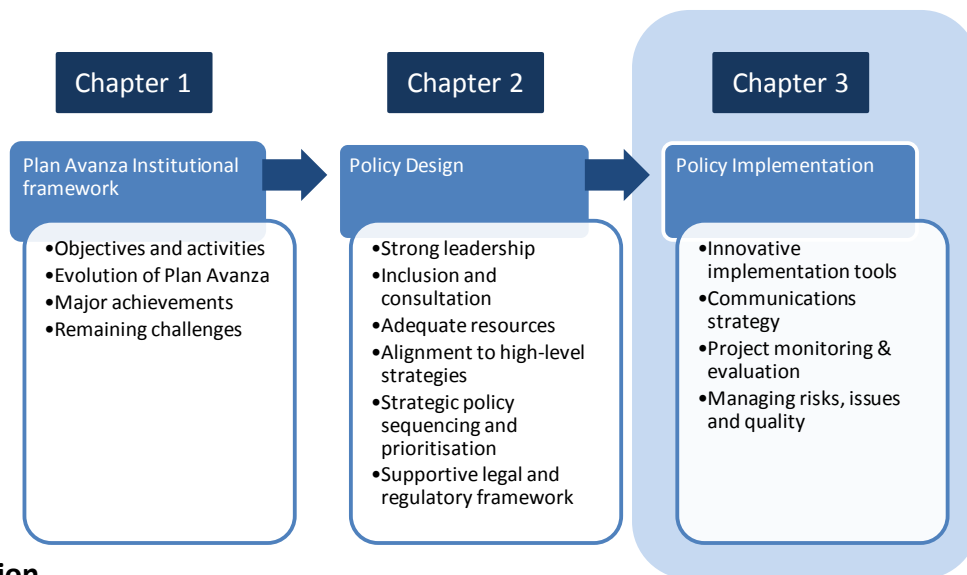
46. In the context of economic recovery, for instance, it is important that the Plan clarify its lines of action regarding the promotion of the ICT sector, in order to avoid gaps and duplication in this policy domain. Better co-ordination with the Ministry of Science and Innovation could increase collaboration and delineate specific responsibilities. Indeed, greater prioritisation of the development of the ICT sector under the next action Plan may require greater alignment. Other ministries may become more prevalent under the context of economic recovery, for instance, the Ministry of Work and Immigration. Lastly, though Plan Avanza is well-aligned with the NRP and INGENIO, linkages to Plan E could be made more clearly.

47. Additionally, working strategically with regional governments to better tailor economic policy will be key, as a "one-size-fits-all" approach will be less effective in a global economy which is increasingly based on territorial specialisation. Finland's Ubiquitous IS strategy, for instance, has established an Economic and Industrial policy working group to integrate ICT strategy into the national innovation policy as well as develop specific proposals for this pillar on the development of the ICT sector (entitled "Innovation Environment and Market"). The u-Japan strategy has also recently taken a "regionalised" perspective, assessing ways to "revitalise regional economies through ICTs" in its 2008 white paper and Survey on regional economic growth brought by the development of a ubiquitous network".

48. Good governance in policy design can contribute to improved outcomes; however, these efforts must be extended also into policy implementation in order for citizens, businesses and the public sector to ultimately benefit. The following chapter will discuss the critical factors that have contributed to the Plan's implementation.

CHAPTER 3

POLICY IMPLEMENTATION: COMBINING CENTRALISED MANAGEMENT WITH JOINT-IMPLEMENTATION



Introduction

1. Information Society strategies require adequate implementation frameworks and tools to ensure concerted action and cost-effectiveness. The Plan Avanza implementation framework includes a series of instruments and tools designed to fit the particular implementation challenges faced by the Plan (e.g. a decentralised administrative structure and an array of diverse stakeholders with different IS needs). These include: (i) formal mechanisms for collaboration; (ii) a supportive communications strategy; and (iii) mechanisms for oversight and quality management. Some remaining obstacles for the implementation of such tools are also highlighted.

Implementation tools for enhancing co-operation

2. Information Society strategies work across different entities and administrative boundaries, and require instruments allowing the joint contribution of actors in different sectors and levels of government. Many of the implementation tools adopted by the Plan have been in response to the decentralised administrative context in which it operates. (Box 3.1 offers a brief overview of regional and local competencies).

Box 3.1 Overview of administrative structure in Spain

Spain has three tiers of government (central, regional and local) with 17 Autonomous Communities, two Autonomous Cities and 8,112 municipalities.⁵² Beginning from 1978 through to the late 1990's, responsibilities for policy formulation and the provision of many public services have devolved considerably.⁵³ As such, Autonomous Communities have large roles in the delivery of health and education services, as well in social policy, economic and regional development policy, agriculture policy, environmental policy, tourism, transport and infrastructures.⁵⁴ Local governments (municipalities), on the other hand, are mainly responsible for urban planning, maintaining local infrastructures and public spaces, local tourism, management of city public transport, traffic and roads, and local security.⁵⁵

The implications of this administrative structure for a large-scale and transversal strategy like Plan Avanza are apparent. In the context of devolved competencies and fiscal federalism, the Plan is set to collaborate with regional and local governments, who are key players in all policy domains implicated in IS initiatives: from ICT infrastructures, to regulation, to socio-economic policy. Collaboration with the private sector and civil society may also be performed vis-à-vis regional and local entities, such was the case with the mobile telephony plan where operators negotiate directly with local municipalities to deploy infrastructures. Collaboration with multiple stakeholders can be a challenge given significant inter-regional variations within Spain along many lines including terrain, demographics, economic composition, levels of innovation and competitiveness and, of course, in levels of ICT-use and coverage.

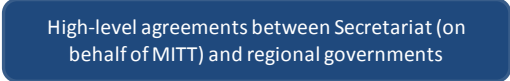
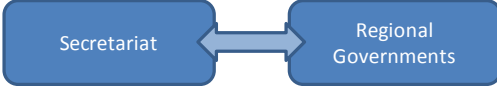
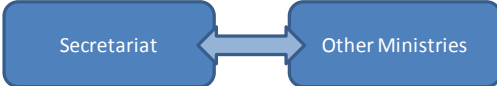
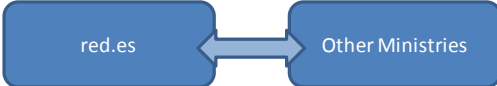
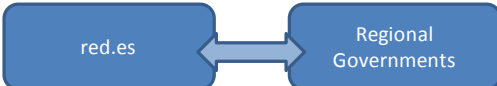
Source: OECD.

3. In response to the decentralised administrative structure, Plan Avanza has applied a series of implementation instruments such as joint-implementation frameworks which foster co-operation. These will be presented and discussed in the following section along with other tools used by the Plan: loans, grants, licenses, independent direct action, project management, and high-impact communication campaigns. What is interesting in these instruments is their innovative use or adaptation to meet specific objectives or meet specific needs (e.g. attaching certain conditionalities to licenses in order to target certain IS objectives; a project management model which incorporates both technological and social dimensions; ICT loans available from local banks; grants and high-impact communication campaigns).

Joint-implementation agreements

4. Many Plan Avanza programmes are implemented via bilateral co-implementation agreements. Indeed, in order for many programmes to be executed in each of the autonomous communities and cities, high-level pacts (or "*convenios marco*") must first be established between the Ministry of Industry, Tourism and Trade and each regional government. The SSTIS acts as interlocutor on behalf of the ministry in these pacts, which declare the regions' acceptance to participate in Avanza for the length of the entire action plan (in the case of Plan Avanza, 2006-2010). Without these formal "umbrella" agreements, most Plan Avanza interventions would not be possible, as it is regional governments who are granted the bulk of competencies for the provision of many public services according to Spanish law. Presently, all of Spain's autonomous regions and cities have signed the *convenios marco* with Plan Avanza.

Figure 3.2 Types of co-implementation agreements applied under Plan Avanza

Typology of co-financing/co-implementation agreements	Description
	<p>“Umbrella agreement” necessary for any Plan Avanza project to be implemented. Most span the length of the action plan.</p>
	<p>Via addendums to high-level agreements. Utilised for SSTIS-run programmes that do not require intervention from other ministries. Tend to be drafted on a yearly basis.</p>
	<p>High-level agreements between the SSTIS and other ministries. Utilised for Plan Avanza interventions in e-government and/or digital public services initiatives. Tend to span several years.</p>
	<p>Via addendums to high-level agreements between the SSTIS and other ministries. Utilised for red.es- run programmes in the area of e-gov and digital public services. Tend to span several years.</p>
	<p>Via addendums to high-level agreements between the SSTIS and regional governments. Utilised only for red.es programmes, and cannot be completed without both (i) a high-level agreement between the SSTIS and the region in question and (ii) agreement between the SSTIS and the related ministry. May span several years though depends on project.</p>

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials.

5. Once a high-level agreement has been established with a region, addendums are supplemented on a programme-by-programme basis. Unlike the high-level agreements, these addendums tend to be annual in nature, outlining the management and/or financing framework between the SSTIS and the regional government for the specific programme in question. In order for a region to participate in the SSTIS’s ICT loan scheme, for instance, its government must co-sign an agreement outlining the distribution of responsibilities and, depending on the programme, funding between parties. In cases of co-financing, the amounts provided by the SSTIS in these kinds of agreements vary by region and programme, as these allotments are determined by criteria established by the SSTIS, such as the status of the region with regards to EU criteria (convergence and phasing-out regions can receive more funding from Plan Avanza). For more prosperous communities like Madrid and Cataluña, criteria for the Plan’s contribution include regional GDP per capita, population, number of students, number of SMEs, etc.

Table 3.1 Classification of European Regional Development Fund 2007-2011

Convergence regions
Andalucia
Castilla La Mancha
Extremadura
Galicia
Phasing-out regions
Asturias
Murcia
Ceuta
Melilla
Phasing-in regions
Castilla and Leon
Valencia
Canarias
Regional Competitiveness & Employment regions
Aragón
Baleares
Cantabria
Cataluña
Madrid
Navarra
Pais Vasco
La Rioja

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials.

6. For some projects, an addendum must be created between the public enterprise and the regional government in question. The nature of these addenda tends to be quite detailed: indeed, project milestones, deadlines and technology solutions are included in these pacts in addition to budgetary stipulations.

7. Lastly, in cases where a Plan Avanza programme is an e-government initiative or requires an ICT intervention in the development or delivery of a public service, additional co-implementation agreements are necessary between the SSTIS and the other ministry implicated. For example, the eHealth programme is co-financed by the SSTIS, regional governments and the Ministry of Health. Similarly, projects for the distribution of eID cards in the different regions require co-financing by the Ministry of Interior. The participation of the Ministry in the agreement is necessary to ensure projects are rolled out across the country. Otherwise, there would be no obligation on part of the regional governments to collaborate. For example, the Ministry of Health must take the initiative to establish one high-level programme for the integration of clinical records in a central database, since Plan Avanza has no legal competencies in the area of health.

8. The co-implementation regime has brought the Plan several advantages, allowing the SSTIS to act strategically in furthering the Plan's goals. The main benefits experienced are:

- **Provides a formal mechanism for vertical and horizontal co-ordination.** Plan Avanza does not have legal competencies in policy-domains such as health, security, education or justice. The co-implementation regime strengthens the Plan's ability to promote the information society both horizontally and vertically across government by formalising co-operation with binding agreements.
- **Reduces implementation burden on Plan Avanza and increases its reach.** The sheer quantity of stakeholders implicated in the information society is extensive, and the task of rolling out Plan Avanza initiatives across the country is an ambitious undertaking for any government agency. Co-financing is a tool that increases resources available for common projects.
- **Creates powerful incentives for greater participation and co-operation.** Many regional governments pursue their own information society initiatives independently, and co-financing on behalf of SSTIS acts as a powerful incentive to participate and align regional policies to the national IS strategy, since this in turn fortifies their own resources. For example, a regional innovation programme for the ICT sector can align objectives to Plan Avanza (by promoting development of the same kinds of ICT products or services, for instance) and combine national funds with its own to pursue this objective. The regime also creates a sense of positive competition between regions. If one region is receiving funds for a particular IS programme, other regions are eager to seek support in order not to be left behind. Finally, the co-implementation creates incentives for improved performance and management on the part of regional and local governments, since these have a vested interest in ensuring their invested resources yield valuable results. These aspects will be further examined in the second part of the project where aspects of the implementation of the Plan at local level will be examined in more detail. Box 3.2 offers an example of how positive incentives can boost co-operation.

Box 3.2 eHealth: how positive incentives promote collaboration

The eHealth programme is one such programme in which different levels of co-ordination are key, and which requires strong incentive mechanisms for participation and better outcomes. These incentives have been built into the implementation framework of the programme, and proved to be successful in attaining greater and more active participation from stakeholders.

The eHealth initiative, implemented by Plan Avanza and the Ministry of Health and Social Policy alongside regional governments, seeks to increase the capacity of the national health service central node, as well as interconnect hospitals and pharmacies via this node, thereby allowing citizens to be able to access medical records and prescriptions throughout the country. This initiative is a massive undertaking, both technologically and in terms of the number of stakeholders involved. Plan Avanza's role includes work on the central node itself, the deployment of necessary equipment to hospitals and pharmacies, the digitisation and integration of information, while addressing the security and privacy issues at stake. Additionally, extensive training for nurses, doctors, hospital staff and pharmacists are provided if technological changes were to take hold.

One of the main challenges for the Plan was establishing high levels of co-operation from the stakeholders involved: in particular, regional governments, hospitals and pharmacies. Regional governments in Spain are responsible for many of the competencies regarding the delivery of health services, and a central node without the synchronisation of the majority, if not all, of the 17 autonomous regions could be risky and lead to poor results. Indeed, it defeats the purpose of centralising patient information if information is incomplete or inaccessible from certain regions. Though there are significant efficiency gains and cost-savings for regions who participate in the programme, the costs of implementing the project are high in terms of resources and time. It requires significant managerial oversight on behalf of the regional governments to help monitor hospitals and pharmacies.

Incentives to overcome these challenges were built into the governance structure of the implementation plan. Plan Avanza's co-financing tool has acted as a mechanism for creating positive incentives for regional governments. Out of the total budget of 252 million Euros (for the first phase of 5 years), about 60% is covered by the SSTIS through red.es. The remaining 40% is funded by the Ministry of Health and Social Policy and the regional governments themselves. By having a vested interest in the success of the program, regional governments are more likely to monitor and evaluate hospitals and pharmacies in their region, as well as participate actively with red.es in the implementation of the programme.

Phase 2 of the project is underway; this time, with greater financing on the part of the regional governments, as the SSTIS only funds 28% of the programme. By 2009, all 17 regions had their health cards synchronised to the national node, and pilot projects to test the exchange of information are beginning.

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials.

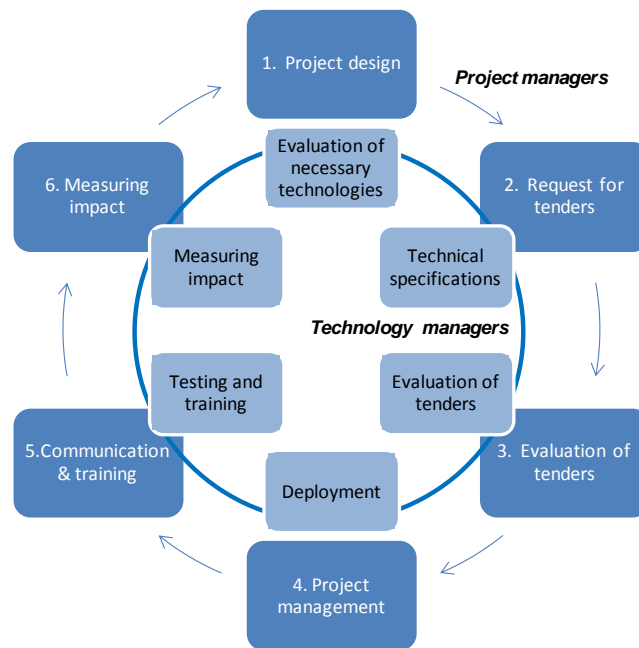
- **Capitalises on local knowledge.** The information society needs in Spain vary significantly from region to region, and local players are often the most knowledgeable about the particular context of local citizens and firms. The Plan's implementation model, then, combines central resources and strategic direction with local knowledge and expertise. This can not only improve effectiveness during implementation, but also increases the responsiveness of projects to localised demands.
- **Allows for a demand-driven approach.** Each region's specific information society needs are considered when creating the co-financing agreements. In essence, the implementation regime creates the potential for tailoring the Plan Avanza strategy to different regions, rather than rolling out "one-size-fits-all" policies. As such, the regime allows regional governments to choose from a "menu" of initiatives to append to their high-level *convenios marco*. Regions

that require greater intervention in the area of ICT infrastructures may choose to seek Plan Avanza support in this area, while others may choose to focus on training and innovation. For instance, the region of Extremadura received greater funding for building technology networks, while the government of La Rioja was allocated greater funding for the extension of broadband.

Other implementation instruments

9. **Project management:** One of the SSTIS's principle implementation tools is direct project management of initiatives. When a regional government establishes an addendum agreement with the enterprise, the SSTIS becomes responsible for overseeing the implementation of a project from inception to the final evaluation. The red.es project lifecycle approach consists in implementing the technological and high-level project management dimensions of the programme in parallel. Project and technology managers partner to maximise synergies and work more efficiently together. For example, project managers can better plan activities knowing the nature of ICT deployment involved and tenders can be more specific with regards to the technology solutions required.

Figure 3.3 Plan Avanza Project Lifecycle



Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials.

10. **Grants:** The SSTIS is responsible for distributing grants through Plan Avanza. The SSTIS releases calls for proposals outlining eligibility criteria for funding. Firms, NGOs and even local governments are then able to submit requests for specific projects. For instance, under the pillar for Digital Citizenship, the SSTIS seeks to target women for ICT training and awareness. The SSTIS transfers funds to NGOs who design programmes that best meet the Plan's objectives and who demonstrate adequate managerial capacity. Grants are also provided to firms to promote innovation and software development, and to local governments to incorporate ICTs into their front and back-office activities.

Table 3.2 Main loan programmes in Plan Avanza

Name of loan programme	Targeted beneficiaries	Conditions
Technology loan/ICT loan	Firms and associations of firms	0% interest for 36 months. Min 6.000 € (though this may be removed) and annual maximum 200,000 Euros
Innovation loan	Firms or firm associations in the audiovisual sector	Amounts vary. Priority given to firms working on technology for the development of new services via digital TV and radio, mobile television, and multimedia home platform
Connected homes loan (ended 2007, then substituted by Digital Citizenship loans)	Households with school-aged children receive a “connectivity package” for computer, broad band access and training. More than 24,000 families have benefitted since 2006.	Up to 1,000 Euros per family/household (amt increases for large families). 0%, 36 months
Digital citizenship loans	Any Spanish citizen who resides in Spain. Over 233.571 families have benefitted since June, 2007.	Maximum of 3,000 Euros for ICT equipment. 36 months.
Young people and University students on line	Persons between the ages of 18 and 35 years, and/or university students. Over 28.129 loans issued.	Max of 3,000 Euros, returned by 60 months.
Online Training loans	Young people and firms. Close to 3,000 persons.	Amounts vary. 0% interest. Approximately 24 months to return. Programme budget of 25 million Euros

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials.

11. **Loans:** In addition to grants, the SSTIS also provides 0% interest loans (“*prestamos 0*”) for citizens and firms looking to gain access to Internet or to purchase ICT equipment such as computers, laptops, printers, and scanners. Amounts granted in 2008 reach 87.1 million Euros for citizens and 397.4 million Euros for SMEs (aggregated amounts for 2006-2009 reach €281.5 million for citizens and €1.47 billion for SMEs). While the SSTIS and regional governments contribute the funds, the loans are administered via Spain’s Official Institute of Credit (“*Instituto Oficial de Credito*”). This is indeed an innovative tool for greater digital inclusion, as citizens and businesses can go to any participating bank to apply for and receive the loan. The reach of Plan Avanza is truly increased through this method of administering the loans.

12. **Independent direct action:** In some cases, the SSTIS may, through red.es, independently finance and manage a project if it provides the full budget. These projects tend to be those which target SMEs and the ICT sector. Though no formal governance framework for co-financing is utilised in such cases, co-operation with regional institutions remains high. For instance, the NEW programme which helps SMEs build homepages is fully funded and implemented on this scheme. The programme receives support from regional communities and business associations to raise awareness about the programme amongst firms.

13. **Licenses:** The SSTIS also wields its power to grant licenses as an implementation tool. Conditionalities may be attached to licenses in order to ensure that the private sector complies with certain key objectives of the Plan. The Mobile Telephony Extension Plan (Box 3.3), for instance, has applied such an approach in order to target rural and sparsely populated areas.

Box 3.3 License conditionalities in the Mobile Telephony Extension Plan (E-GSM)

In July of 2005, three spectrum licenses were awarded⁵⁶ by the MTIC for the provision of GSM mobile telephony services. Telefonica obtained one 4 MHz portion and France Telecom two 3 MHz portions. Licenses were awarded with specific selection conditionalities attached, and included obligations to extend mobile telephony infrastructure and services to “general interest” areas such as:

- Rural areas (Population centres of 1000 inhabitants or less, with no existing or insufficient coverage): EUR 440 million
- Strategic areas (nuclear power plants, oil refineries and chemical industries, and areas within 30 km reach): EUR 26.8 million
- Newly built highways and high capacity railways, or existing ones with no or insufficient coverage: EUR 65 million

The E-GSM Plan lasted three years until terminating in December of 2008, and was implemented via direct commercial negotiation between operators and municipalities. If commercial negotiation failed or administrative barriers were found, operators were free to change and try another population centre included in the list of general interest areas drawn up by the SSTIS.

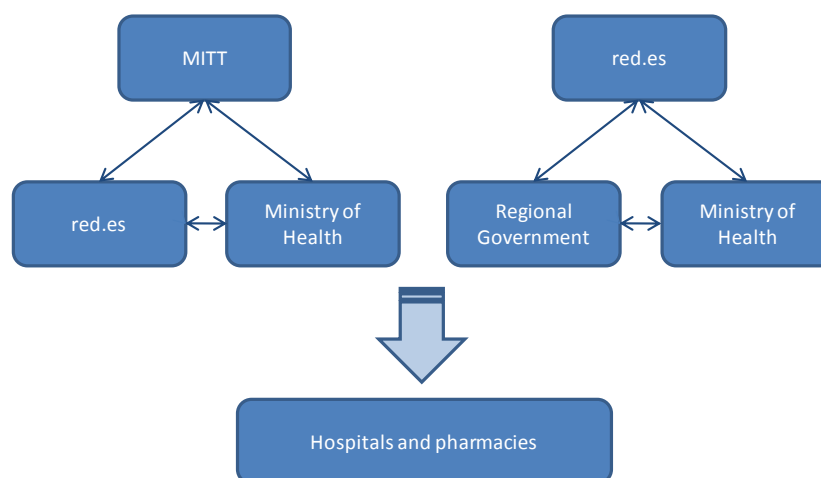
While private operators managed day-to-day implementation, the SSTIS monitored the programme through a follow-up commission formed by the SSTIS and the operators. Through this commission, the SSTIS mitigated implementation issues between operators and stakeholders in the granting of permits, speeding the process of deployment. By 2008 around 5,300 population centres and every nuclear plant and oil refinery and their 30-km radius area had been covered (where 1.1 million people reside). The estimated uncovered population still reaches around 1% of the Spanish population, a target area for Plan Avanza 2.

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials.

Challenges

14. One potential challenge of the co-financing/implementation model is the complexity that may arise from the participation of multiple stakeholders. Since establishing these contracts requires time, administrative effort and negotiations between the implicated parties, efficiencies could be realised from adding stipulations in high-level agreements which create flexibility in implementation⁵⁷.

Figure 3.4 Example of current co-implementation model for the eHealth programme



Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials.

15. A third challenge for the Plan is optimising the co-implementation agreements, for example, to push for inter-regional convergence. By determining criteria for their portion of the financing, the SSTIS can allocate greater amounts of resources to regions that lag farther behind in certain key ICT indicators. The co-financing agreements, then, can be utilised strategically to further the Plan's overarching aims.

16. Another important challenge arising from co-implementation is differences in regional legislative and budgetary calendars. It is important to consider discrepancies between the national calendar and those of the regions when drawing up the programme addendums, as the distribution of funds greatly affects projects' scopes, milestones, and planning. Indeed, the Plan's own resources originate from other ministries, the national budget, and European Structural funds are accompanied by time conditionalities of their own. Delays resulting from such discrepancies could increase the risk of inefficiencies and wasted resources.

17. While the Plan has various kinds of co-financing/managing agreements with regional governments, most local government initiatives are implemented via grants and public tenders. This means that the incentives for participating and improving operational performance, on the part of local municipalities, may be weaker than in their regional counterparts. Indeed, as we have seen in the first chapter, the costs for local governments to pursue e-government and IS initiatives may be higher due to lack of capacities and economies of scale. After all, the "costs" of participation are high for local governments: back-office reforms require significant efforts and many governments, especially in rural areas, may lack the technical knowledge and expertise required. In sparsely populated areas, if few citizens utilise the services, an incentive to participate in the Plan may not exist. As a result, local governments may simply choose not to participate if the amount of the grants is insufficient to compensate the costs of implementation and maintenance.

18. Lastly, a significant bottleneck could stem from the contracting regime governing the Plan. Rigidities remain, for example, with regards to technical specifications. Once a contract has been granted, for instance, Spanish contracting law makes it difficult and time-consuming to change or substitute the originally-approved terms of the contract. This is particularly troublesome in an area where technologies change so rapidly. For instance, SSTIS may contract a firm to produce ICT equipment tailored to the needs of disabled or older persons. If an improvement in the technology available occurs during the course of

implementation, the process for incorporating this new technology is cumbersome, costly and time-consuming.

Table 3.3 Overview of implementation stakeholders, roles and tools

Stakeholder	Plan Avanza responsibilities	Tools and activities
Ministry of Industry, Tourism and Commerce	<ul style="list-style-type: none"> • A main source of funding for Plan Avanza; • Acts as an interlocutor for inter-Ministerial issues and co-operation; • Monitors the Plan's progress and impact. 	Budget transfers, co-financing/implementation agreements.
Secretariat for Telecommunications and the Information Society	<ul style="list-style-type: none"> • Establishes Plan Avanza strategies with CATSI; • Designs and carries out policies • Monitors the Plan's progress and impact; • Oversees and co-finances red.es; • Implements some IS programmes; • Implements large-scale ICT infrastructure programmes. 	Co-financing/implementation agreements, loans, grants, licenses.
red.es	<ul style="list-style-type: none"> • Under the supervision of SSTIS, red.es implements some Plan Avanza programmes; • M&E of red.es programmes; • Oversees INTECO, CENATIC and other institutions. 	Co-financing/implementation agreements, project management, and communication.
Regional governments and local municipalities	<ul style="list-style-type: none"> • Co-manage Plan Avanza programmes being implemented in their regions; • Provide funding and other resources. 	Participate in project management, monitoring and evaluation.
NGOs	<ul style="list-style-type: none"> • Design specific programmes according to predefined criteria; • Implement programmes selected for funding. 	Independent project management.
Businesses/ICT sector/technology centres	<ul style="list-style-type: none"> • Design specific programmes according to predefined criteria; • Implement programmes selected for funding. 	Depending on the programme, may be fully responsible for project management, or may share oversight with SSTIS.
Suppliers/private sector	<ul style="list-style-type: none"> • Develop/adapt ICT services and products to technical specifications and programme requirements; • ICT deployment. 	ICT development and deployment, participate in project management and testing.

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

Communications Strategy

19. A critical component of Plan Avanza's implementation has been its communication initiatives. The Plan's Communications strategy is devised by SSTISS and then managed by red.es, and includes three main pillars: (i) raising awareness about the benefits of ICTs; (ii) promoting take-up of ICTs and digital services; and (iii) providing one, strong single "voice" for Plan Avanza to all different audiences. Innovative communication tools include various websites, a Plan Avanza twitter feed and blog, advertising campaigns, press conferences, newsletters and other publications, demonstrative events, and hosting networking events like the International Forum for Digital contents. FICOD, for instance, gathers each year professionals from across the globe in industries such as television, advertising, cinema, music, video games, digital publications, online education, and digital journalism. The Forum forms part of the

strategy to develop links between Spanish and international markets, and hosted 7,600 people in 2008. The communications and marketing element of the Plan has certainly proved beneficial in supporting implementation: without awareness of existing programmes and the benefits of ICTs, demand for Plan Avanza support would be diminished.

Box 3.3 Grab the bull by the horns: awareness and communication are key in IS initiatives

Plan Avanza policy-makers recognized early on that, as is typical of information society initiatives, the challenge of the DTT programme was two-fold: not only were technological and infrastructure changes necessary to carry out the conversion from analogue to digital signals and reception, but also behavioural changes would be crucial for the adoption of the new technology. In order then to raise awareness about the transition itself, convey the benefits of digital television to stakeholders and inform citizens about the measures they had to take, a strong communications strategy was implemented alongside the technical component of the programme. Failing to couple these two dimensions would have greatly increased the risk of a large numbers of households being left without television reception as well as high levels of dissatisfaction with government.

Plan Avanza's Digital Television Transition programme (DTT) is an ambitious scheme consisting of three roll-out phases of 90 smaller projects. The objective of the programme is to equal DTT coverage to analogue before the slated "switch-over" in early April of 2010.

Plan Avanza's specific response to building awareness was the launch of a communications campaign under the slogan: Don't let the bull get you ("*que no te pille el toro*"). This is a popular Spanish catch-phrase referring to the ills of procrastination, in essence, urging citizens not to wait until the last minute to purchase the necessary equipment to receive digital signals. With a budget of six million Euros, the communications strategy created television, internet, radio, and newspaper advertisements that ran for one month during the holiday season. The Plan strategically chose this season, despite the additional expense, to encourage citizens to purchase the DTT equipment as gifts for family and friends.

As of May, 2009, more than 23 million de-codifiers had been sold and 98.1% of citizens were aware of the transition to digital television. The same philosophy of addressing the technological and social aspects of the ICT initiatives in parallel has been extended to many other Plan Avanza programmes with proven success. Indeed, it has been demonstrated that, in IS strategies, behavioural changes can be just as important as technological ones, and the strategy's governance approach must reflect this.

The making of the television advertisement "*que no te pille el toro!*" can be found at:

<http://www.tvenred.es/estuvimos-en/articulos/id/2998/making-spot-tdt-que-te-pille-toro.html>



Screenshot of campaign poster

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

Challenges

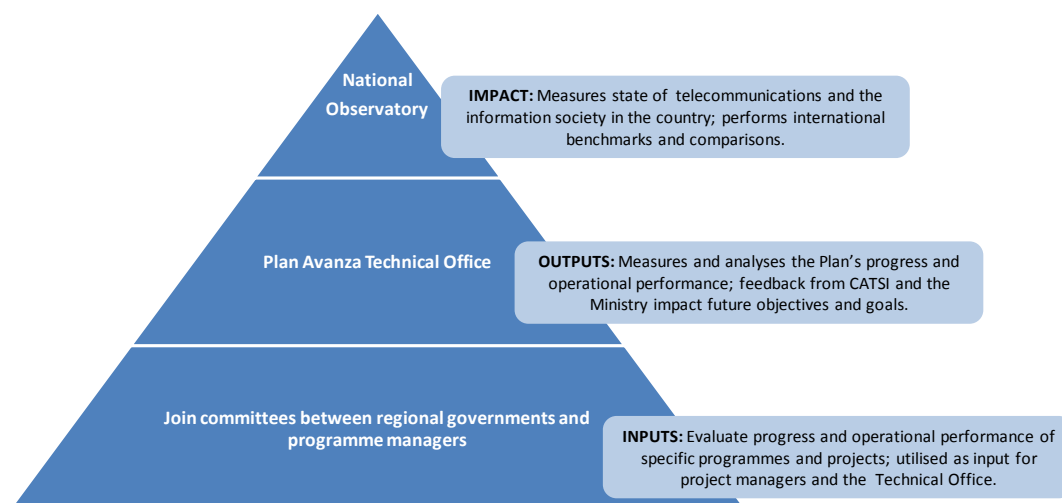
20. Because the majority of programmes are co-financed/implemented, ownership must be shared between at least two parties, and this means that, often times, Plan Avanza can lose visibility with end-users. As a result, the Plan could run the risk of becoming under-valued by the Spanish government and civil society. In turn, this may lead to the allocation of fewer resources. For instance, because banks administer the 0% interest loans, many citizens are unaware that these funds originate from Plan Avanza. Additionally, citizens and firms benefitting from faster and more efficient public services may be unaware of the role of the Plan in supporting their development. The more the Plan's resources become diluted with other sources of funding and other co-implementers, the more important it becomes for the communication strategy to raise awareness about the activities and benefits of the Plan.

Monitoring and Evaluation

21. A third factor that has contributed towards improving implementation is the Plan's framework for monitoring and evaluation (M&E). Establishing an effective and powerful oversight mechanism is important in order to incentivise better performance from managers and stakeholders, evaluate how the Plan affects targeted beneficiaries, determine resource allocations and improve planning, and to provide input for decisions regarding the strategic direction of the Plan. This is a challenging undertaking, however, given that defining and measuring performance in information society strategies is notoriously difficult: there are many actors involved, policies are implemented in parallel with other strategies, and there are many contextual factors which make it difficult to link progress on IS indicators to the Plan's interventions. Drawing causal links between the Plan's performance and overall impact on the information society can seem, at times, tenuous.

22. The Plan's governance approach to addressing evaluation, then, is a three-tier framework consisting of Project Committees, the Plan's Technical Office, and the National Observatory for Telecommunications and the Information Society. Though the challenge of establishing robust causalities between Plan Avanza programmes and national IS indicators remains, when taken as a whole, this 'big picture' approach yields a powerful perspective, which qualitatively helps Plan Avanza policy-makers determine if they are contributing value and where "gaps" in performance may lie- whether they are operational or contextual in nature.

Figure 3.5 Dimensions of Plan Avanza performance and corresponding governance mechanisms⁵⁸



Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

23. The most basic level of the M&E framework consists of the joint project committees between regional governments and Plan Avanza managers. When an autonomous region or city forges a high-level agreement with Plan Avanza, a joint committee is formed between the Plan's managers and regional delegates to monitor progress of initiatives in that region. At project level, smaller joint committees between project managers also monitor execution. The key performance indicators (KPIs) utilised are designed to capture both the operational dimensions of the project and the potential immediate impact. For instance, KPIs for a programme which holds demonstrative sessions for SMEs regarding software include not only the number of participating SMEs, the percentage of budget utilised and the number of sectors represented, but also the percentage of firms who adopt the technologies and the satisfaction rates of attendees from the sessions. Since measuring the socio-economic impact of information society strategies is challenging, joint committee data on satisfaction and adoption rates can reveal much about the value contributed by the strategy.

24. Joint committees, the SSTIS Directorates and red.es report information on execution to Plan Avanza's Technical Office, which is managed by the SSTIS. Unlike the joint committees, the Technical Office's unit of analysis is not so much the project-level, but rather entire programmes, pillars and regions. Ad-hoc reports are then published up to three times per year. Additionally, an annual report is produced which evaluates the entirety of Plan Avanza's progress. Lastly, the Office maintains an online balanced scorecard application (accessible only to Plan Avanza staff) designed to help link project inputs (percentage of budget utilised, for instance) with project outputs (number of milestones and targets reached). This allows policy-makers and managers not only to evaluate operations, but also to flag any risks and issues that may hinder the Plan (serious delays, resource shortages, etc.)

25. Finally, the highest tier of the monitoring and evaluation framework is the National Observatory for Telecommunications and the Information Society, depending and reporting to the Secretary of State and organically run and managed by red.es. The Observatory is responsible for assessing the progress of key information society indicators at the country level. Information is drawn from the Technical Office but also international sources, the private sector, think tanks, the National Institute of Statistics, and academics. The Observatory also has at its disposal its own raw data, as it conducts its own household's survey which includes a panel of over 3,000 households and close to 7,000 individuals. The Observatory's outputs include 'topical' reports, such as: the state of the information society in Spanish municipalities, ICT sectoral reports, and the demographics of ICT users, broadband speed and quality, and the status of the digital economy. In these reports, international comparisons and benchmarks are often made in order to present Spanish results in a wider context. While the Technical Office and Joint Committees provide input into the question of whether Plan Avanza is operating effectively and efficiently, these kinds of reports and analysis yield valuable information regarding how the Plan contributes to high-level national objectives. Other OECD member countries have also formed national Observatories to monitor key IS indicators and run continual diagnostics on areas to be improved. Portugal's Information and Knowledge Society Observatory performs similar functions to the Plan's national Observatory, and Italy's Observatory provides an interactive map with IS initiatives and indicators.

Challenges

26. The Plan's M&E framework has proved useful as a tool for measuring operational performance during implementation. However, some gaps in oversight remain. For instance, while joint project committees are generally effective in compiling project KPIs, programmes in which a third party is involved often lack the same degree of supervision. In particular, programmes implemented via grants often transfer funds and implementation responsibilities to local municipalities, businesses, NGOs and other actors, and these programmes have fewer associated KPIs and oversight and evaluation mechanisms. Grants given to NGOs to design training programmes for women or develop better ICT equipment for disabled people are monitored according to the percentage of funds distributed by the SSTIS, however reporting the operational and impact results of the projects is not required as a condition of funding. A second important challenge is consolidation of information from different stakeholders by the Technical Office, and introducing common reporting methodologies.

27. Finally, while this framework is useful for evaluating operational performance, one challenge for Plan Avanza is strengthening the M&E framework as a tool for assessing the value of the strategy to end-users and targeted beneficiaries. Indeed, while information on operational progress is important, further emphasis should be placed on the satisfaction of end-users who participated in the Plan. Pre and post-project comparisons of adoption rates, ICT utilisation and ICT skills, greater follow-up of Plan Avanza beneficiaries (for example, in the labour market, wages, in revenues, etc.) could yield considerable insight into the role of ICTs for social cohesion and economic development. Though this slight shift in focus is certainly a costly exercise, it would better help evaluate the contribution of the Plan. The final peer review report will further explore the results of surveys of citizens, businesses and the public administrations directly influenced by the Plan.

Managing quality to sustain results

28. Plan Avanza has recognized that successful implementation does not end with deployment of ICTs. A critical ingredient to successful implementation, particularly for information society strategies, is ongoing issue and quality management to ensure that investments in infrastructures continue to yield positive results in the long-term. In IS societies, ensuring sustainability and quality often translates into the provision of technical support. Indeed, because of the technical nature of many IS initiatives, stakeholders often require ongoing assistance with issues such as security, incidents, maintenance, testing, and hosting. To this end, the Plan has established an integrated management services centre, currently managed by red.es.

29. This centre is headquartered in Madrid and includes a centralised help desk, a specialised technical support team, a security management service and a quality management team. Additionally, the office produces reports tracking incidents and incident resolutions across different programmes. Smaller centres are located throughout the country and lend their services to many Plan Avanza programmes including the eID cards programme, Internet in schools and universities, telecentres in rural areas, the .es domain registry, the NEW programme for SMEs, among others. Providing regional and local governments with this kind of support sustains the positive impacts of ICT initiatives, since many stakeholders lack the technical resources or expertise to maintain the programmes independently. Greece's IS strategy also adopts this approach, with a horizontal technical support office which provides assistance across initiatives.

Box 3.4 The Telecentres Programme for Rural Areas

The telecentres programme is one such initiative that has benefited greatly from the Plan's technical support, as the centres received assistance from the Plan for up to five years after opening. Without this critical support, there was a risk that the centres would be unsustainable, as many local governments- particularly in rural areas- lack the resources to maintain these infrastructures.

Specifically, the telecentres program creates public Internet hubs to reduce the urban-rural digital divide. These centres not only provide access to computers, printers, broadband and other basic ICT equipment, but are also centres for ICT training and informative sessions. The project was co-financed by red.es, and the Ministry of Agriculture and Municipalities for a total of 50 million Euros, and has been implemented with support from the Spanish Federation of Local Governments and Municipalities.

Upon termination of the programme in 2008, close to 3,000 telecentres had been installed, along with 19,324 workstations. The telecentre network covers a population of 6.3 million people.

Source: OECD. Derived from interviews with MITT, SSTIS, and red.es officials

Challenges

30. One main challenge for the Plan with regards to quality management is rolling the service out to other key Avanza programmes, as presently not all projects are covered by this degree of technical support. Local governments, for example, could benefit greatly from a centralised point of assistance and incident resolution for the instalment of the Avanza Local software packages.

Conclusions

31. The last three chapters have laid out Plan Avanza's strategic objectives and priorities, the institutional structure on which the strategy is designed and implemented, and the governance factors which have distinguished the strategy from previous policies and helped make the Plan more responsive and efficient. But how has the application of policy tools and strategic design translated into results for citizens, businesses and government? What value has Plan Avanza contributed to its primary beneficiaries and stakeholders? As we have seen in this chapter, defining "public value" in the context of information society strategies is no simple task: the concept of *information society* is broad and many endogenous and exogenous factors come into play when measuring the impact of IS programmes. The second phase of the peer review will attempt to address these questions, and draw information from direct beneficiaries- citizens, businesses, and the public administration- to assess the impact of the Plan thus far, and identify strengths and weaknesses that could be taken into consideration.

ANNEX 1

List of interviewees OECD Mission to Madrid, 15-17 July, 2009

SECRETARY OF STATE OF TELECOMMUNICATIONS AND INFORMATION SOCIETY:

- David Cierco, General Director of the Development of the Information Society
- Juan Junquera. Director of Cabinet (Secretary of State)
- Marta Cimas Hernando. Head of International Affairs
- Cristobal Gúzman. Chief Adviser of Cabinet. Directorate Information Society
- Ángeles Barragán Zorrilla. Deputy Director for Digital Society
- Luis Prieto Cuerdo. Deputy Director for Digital Economy
- Salvador Soriano Maldonado. Deputy Director for Information Society Services
- José Antonio Quintela. Head of DTT Transition Plan
- Angel León. Head of Telecoms Operators Office
- Lorenzo Avello López. Deputy Director in Telecommunications Regulation

MINISTRY OF INTERIOR

- José Luis Díez. Technical director. DNle Project

MINISTRY OF THE PRESIDENCY

Fernando de Pablo Martín. Director for the Promotion of Electronic Government.

RED.ES

- Sebastián Muriel Herrero. General Manager
- Carlos Romero. Secretary General
- Luis Palomo. Deputy Director of Economy and Finance
- Gonzalo Díe. Director of Planning and External Relations
- Carlos Cano. Director of Operations
- Rafael Pérez. Deputy Director of Communication
- Francisco Javier García Vieira. Director of Planning and programs
- Ignacio Sánchez Valdenebro. Deputy Director of Digital Public Services
- Pilar Polo. Head of eHealth

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- María Fernández Rancano. Head of e Justice
 - Silvia Nunez. Head of Communication strategy
 - María Dolores Gonzalo. Head of Education
 - Almudena García. Head of e Citizens
 - Miguel Ángel Urbez. Broadband
 - Juan Gutiérrez. Public Services Operations
 - Eduardo Peral. Responsible of Engineering and Operations
 - Rafael Chávarri. Communication.
 - Elena González. Head of Digital Economy.
 - Jaime Castellano. Digital Economy
 - Luisa Pérez. Communication.
 - Antonio Saravia. Director of New Digital Context
 - Raúl Ballesta. DTT/DNle
 - Yolanda Echarte. eContent
 - Alberto Pérez. Deputy Director for RedIris
 - Jesús García Tello. Deputy Director Services.
 - Daniel Torres Mancera. Director of Project in Spain. Director national Observatory for Telecommunications and Information Society. ONTSI.
 - Luís Munoz López. Head of IS Indicators. ONTSI.
 - Alberto Urueña. Head of SI studies. ONTSI
 - Ricardo Vázquez. Head of Assessment ant Evaluation. ONTSI
 - Juan Miguel Márquez. Responsible of External Relations. ONTSI

COORDINATION AND SUPPORT TEAM

- Elena Navascués. International Affairs. SSTIS.
- Menchu Maira. Coordination and International Affairs. ONTSI
- Nelia Roldán. Coordination and International Affairs. ONTSI
- Verónica del Hoyo. Coordination and International Affairs. ONTSI
- Silvia Escobosa. Coordination and International Affairs. ONTSI

BIBLIOGRAPHY

- Austrian Federal Ministry of Transport, Innovation and Technology (bmvit) (2007) *IT Outlook Austria 2008: Recent Development in Austrian Information Technology Policies*, Vienna.
- Austrian Federal Chancellory (2008), *Digital Austria: Administration on the Net The ABC guide of eGovernment in Austria*, Vienna.
- Cullen, J., Hadjivassiliou, K., Junge, K., Fisher, T., Tavistock Institute (2007), *e-Inclusion Handbook Version 2.0: Status of e-Inclusion measurement, analysis and approaches for improvement*.
- Comision del Mercado de las Telecomunicaciones (Spanish Commission for the Telecommunications Market, 2008), *2008 Annual Report*, Madrid.
- Communities and Local Government (2008), *Delivering Digital Inclusion: An Action Plan for Consultation*, London.
- Department for Business, Innovation and Skills & Department for Culture, Media and Sport (2009), *Digital Britain Implementation Plan*.
- Department for Business, Innovation and Skills & Department for Culture, Media and Sport (2009), *Digital Britain Final Report*.
- European Commission (2005), *i2010 – A European Information Society for growth and employment*, Brussels.
- European Commission (2006), *Ministerial Riga Declaration*, Brussels.
- European Commission/Zinnbauer, D. (2007), *What can Social Capital and ICT do for Inclusion?*, Luxembourg.
- European Commission (2008), *Addressing the challenges of energy efficiency through ICTs*, Brussels.
- Finish Ministry of Transport and Communications (2008), *Ubiquitous Information Society: 2008-2011 Action Programme (English version)*.
- French Prime Minister's Office (2008), *France Numérique 2012: Plan de développement de l'économie numérique*, Paris.
- FreshMinds Research (2008), *Economic benefits of digital inclusion*, London.

- German Federal Ministry of Economics and Technology (2006), *Information Society Germany 2010 (English version)*, Berlin.
- German Federal Ministry of Economics and Technology (2008), *Germany: Green IT Pioneer (news release, summary, English version)*, Berlin.
- German Federal Ministry of Economics and Technology (2009), *The Federal Government's Broadband Strategy (English version)*, Berlin.
- German Federal Ministry of Education and Research (2009), *High Tech Strategy (English version)*, Berlin.
- Government of Spain (2007), *Ley de Acceso Electrónico de los Ciudadanos a los Servicios Públicos: Plan de Actuación*, Madrid.
- Impulsa TDT (2008), *2008 Annual Report*.
- Japanese Ministry of Internal Affairs and Communications (2006), English summaries available: http://www.soumu.go.jp/menu_seisaku/ict/u-japan_en/index.html
- London School of Economics and Political Science Enterprise/Technology Innovation Foundation (2009), *The UK's Digital Road to Recovery*, London.
- Ministry of Enterprise, Energy and Communications, Government Offices of Sweden/SCF Associates Ltd (2009), *A Green Knowledge Society: An ICT policy agenda to 2015 for Europe's future knowledge society*, Bucks.
- OECD (2000), *OECD Review of Regulatory Reform in Spain*, Paris.
- OECD (2006), *Governance of Innovation Systems: Case Studies in Cross-sectoral Policy*, Paris.
- OECD (2007), *Linking Regions and Central Governments: Contracts for Regional Development*, Paris.
- OECD (2008), *Information Technology Outlook*, Paris.
- OECD (2009), *Re-thinking e-Government Services: user-centred approaches*, Paris.
- OECD (2009), *OECD Interim Report on the OECD Innovation Strategy: an Agenda for Policy Action and Innovation*, Paris.
- OECD (2009), *Green Growth: Overcoming the Crisis and Beyond*, Paris.
- OECD (2009), *Guide to Measuring the Information Society*, Paris.
- OECD (2009), *OECD Rural Policy Reviews: Spain*, Paris.
- OECD (2009), *Communications Outlook*, Paris.

-
- OECD (2009), *Towards Green ICT Strategies: Assessing Policies and Programmes on ICT and the Environment*, Paris.
- OECD (2009), *Participative Web and User-Created Content: Web 2.0, Wikis and Social Networking*, Paris.
- Portuguese Ministry of Science, Technology and Higher Education (2005), *Connecting Portugal- A program of action in the Portuguese Government Technological Plan: Mobilizing the Information and Knowledge Society*, Lisbon.
- red.es Public Enterprise and Spanish National Observatory of Telecommunications and the Information Society (2007), *Information and Communication Technologies in Education. Report on the Presence and Use of ICT in primary and secondary Schools (academic year 2005-2006)*, Madrid.
- Spanish Ministry of Industry, Tourism and Trade (2005), *Plan Avanza Action Plan for Convergence and the Development of the Information Society*, Madrid.
- Spanish Ministry of Industry, Tourism and Trade (2009), *Plan Avanza. The Information Society, a Reality in Spain*, Madrid.
- Spanish National Observatory of Telecommunications and the Information Society (2008), *White Paper on Digital Contents (Libro Blanco de Contenidos Digitales)*, Madrid.
- Spanish National Observatory of Telecommunications and the Information Society (2008), *2008 Annual Report on the Information Society (La sociedad en red)*, Madrid.
- Spanish National Observatory of Telecommunications and the Information Society (2008), *Study of B2C Electronic Commerce in Spain*, Madrid.
- Spanish National Observatory of Telecommunications and the Information Society (2008), *CATSI Annual Report (Políticas de Fomento de la Sociedad de la Información)*, Madrid.
- Spanish Ministry of Industry, Tourism and Trade (2009), *Annual SME Report (Informe sobre la PYME)*, Madrid.
- Spanish National Observatory of Telecommunications and the Information Society (2009), *Status of ICTs in Local Administrations (Las TIC en la Administración Local)*, Madrid.
- World Economic Forum/INSEAD (2009), *2008-2009 Global Information Technology report: Mobility in a Networked World*, Geneva.
- World Economic Forum (2009), *ICTs for Economic Growth: a Dynamic Ecosystem Driving the World Economy*, Geneva.

ENDNOTES

¹ OECD (2009), *Re-thinking e-government services, user centred approaches*, OECD (Paris).

² Ministry of Industry, Tourism and Trade (2005), *Plan Avanza action plan 2006-2010 for convergence and the development of the information society* (MTIC, Madrid).

³ Enterprise Resource planning and Customer Relationship Management applications.

⁴ OECD (2008), *Information Technology Outlook* OECD (Paris).

⁵ Tavistock Institute (2007), *Status of eInclusion measurement, analysis and approaches for improvement*.

⁶ FreshMinds (2008), *“Economic benefits of eInclusion”* (London).

⁷ OECD (2009), *Towards Green ICT Strategies*, OECD (Paris).

⁸ OECD (2009), *Re-thinking e-government services, user centred approaches*, OECD (Paris).

⁹ European commission (2008), *“Addressing the challenge of energy efficiency through ICTs”* (Brussels).

¹⁰ OECD (2009), *Participative Web and User-Created Content: Web 2.0, Wikis and Social Networking*, OECD (Paris).

¹¹ *OECD elaboration from WEF/INSEAD*, WEF (2009) *Global Information Technology Report 2008-2009: Mobility in a Networked World*, (WEF, Geneva).

¹² Information gathered from interviews with Plan Avanza senior officials and project managers.

¹³ OECD (2008), *Rural Policy Review of Spain* (OECD, Paris).

¹⁴ EuroStat Information Society database, 2008.

¹⁵ OECD (2008), *Rural Policy Review of Spain*, pg. 40. (OECD, Paris)

¹⁶ <http://www.boe.es/boe/dias/2005/03/22/pdfs/A10067-10076.pdf>

¹⁷ European Regional Development Fund

¹⁸ Spanish National Institute of Statistics (INE), *“Encuesta de Equipamiento y uso de Tecnologías de la Información y la Comunicación”*, 2009.

¹⁹ Source: Spanish National Institute of Statistics (INE), *“Encuesta de Equipamiento y uso de Tecnologías de la Información y la Comunicación,”* 2009.

-
- ²⁰ Eurostat, 2007 data.
- ²¹ Directorate General of SMEs (DGPYME, 2009 with INE statistics), Annual report on SMEs in Spain, Madrid.
- ²² National Observatory of Telecommunications and the Information Society (ONTSI) *La sociedad en red, informe annual 2008* (Madrid).
- ²³ OECD Information Technology Outlook 2008, Chapter “Digital Content in Transition”.
- ²⁴ National Observatory of Telecommunications and the Information Society (ONTSI), 2008, “*Digital contents report*” (Madrid, 2008).
- ²⁵ National Observatory of Telecommunications and the Information Society (ONTSI), 2008, “*Survey of Local governments*” (Madrid, 2008).
- ²⁶ National Institute of Statistics, 2008.
- ²⁷ OECD (2009), “*Interim report on the OECD Innovation Strategy: an agenda for policy action and innovation*” (OECD, Paris).
- ²⁸ OECD (2009), “*Green Growth: Overcoming the Crisis and Beyond*”, (OECD, Paris).
- ²⁹ WEF (2009), “*ICTs for economic growth: a dynamic ecosystem driving the global recovery*” pg.7 (WEF, Geneva).
- ³⁰ OECD Communications Outlook 2009
- ³¹ OECD broadband data base, evolution of price over time from one large service provider.
- ³² 2008 CMT (Spanish Commission for the Telecommunications Market), 2008 Annual Report, pg. 288 (Madrid).
- ³³ July 2009 progress report from “*Impulsa TDT*”, DTT business association.
- ³⁴ EuroStat Information Society database, 2008.
- ³⁵ *Impulsa TDT*, DTT business association.
- ³⁶ OECD Broadband Portal.
- ³⁷ National Observatory of Telecommunications and the Information Society (ONTSI), 2008, “*Annual Report on the Information Society*,” (Madrid, 2008).
- ³⁸ EuroStat Information Society database, 2008.
- ³⁹ ONSTI 2008 Annual report.
- ⁴⁰ OECD calculations based on data from National Institute of Statistics (INE), August, 2009.
- ⁴¹ Selected countries are France, the UK and the US. US coverage estimate is based on % of US population living in census blocks with 1 or more mobile providers, UK estimate has been made from <http://www.ofcom.org.uk/research/cm/cmnr08/telecoms/>, that shows the percentage of postcode districts where at least one operator had at least 75% 2G area coverage. Thus, these data might not be fully comparable to each other.
- ⁴² <http://www.oecd.org/dataoecd/21/35/39574709.xls>

⁴³ OECD (2003), “Policy brief, Checklist for e-gov leaders”, OECD (Paris).

⁴⁴ Ubiquitous Information Society, Action Plan for 2008-2011 (English version).

⁴⁵ Digital Britain Implementation Plan, August 2009.

⁴⁶ Connecting Portugal Action Plan.

⁴⁷ Operational Programme for the Information Society 2007-2013

⁴⁸ *Consejo Asesor de Telecomunicaciones y Sociedad de la Información*.

⁴⁹ Source: red.es

⁵⁰ Source: Plan Avanza Technical Office, budgetary information.

⁵¹ Source: Plan Avanza Technical Office, budgetary information.

⁵² There are also 52 provinces in Spain, considered intermediary territorial units between autonomous communities and municipalities. However, these have fewer competencies than either regional or municipal governments and are not highlighted here.

⁵³ 1978 Constitution, Article 148.

⁵⁴ OECD (2000), “*OECD Review of Regulatory Reform in Spain*”, OECD (Paris).

⁵⁵ Law 7/1985 of the 2nd of April. Law for the Regulation of Local Regimes.

⁵⁶ <http://www.boe.es/boe/dias/2005/06/14/pdfs/A20515-20515.pdf>

⁵⁷ OECD (2007), “*Linking regions and central governments. Chapter 5, the case of Spain*”, OECD (Paris).

⁵⁸ AUS Guideline (2005), “*Logical Framework Approach (LFA)*”.



www.oecd.org