

*OECD Information Society Reviews*

*Good Governance for Digital Policies: How to Get the  
Most Out of ICT*

*The Case of Spain's Plan Avanza*



## **FOREWORD**

As the global economy increasingly depends on knowledge-based transactions, and the pervasiveness of technology continues to grow, countries with strong information societies– that is, societies that are good at creating, diffusing, and exploiting information for social and economic gain– will find themselves at the forefront of new market opportunities and pioneering ways of generating welfare for citizens. As a means of leveraging the potential of ICTs (Information and Communication Technologies) to contribute to these important goals, OECD governments are dedicating a growing amount of resources and efforts towards implementing comprehensive and ambitious Information Society strategies. However, these are multi-sectoral and complex initiatives which can be challenging to implement effectively. OECD Information Society Reviews aim to help governments improve the responsiveness and effectiveness of these strategies to increase their impact, identifying strengths and challenges in these policies’ design and implementation.

At the request of the Government of Spain, specifically from the *State Secretariat for Telecommunications and the Information Society (the SSTIS)*, the OECD has conducted a Peer Review of Plan Avanza (“the Plan”), the country’s strategy for the advancement of the Information Society. The objectives of the review were two-fold:

- Examining the main results of Plan Avanza, specifically, with regards to citizens, businesses and the Spanish public administration;
- Assessing the performance of the strategy in terms of its responsiveness to stakeholders’ needs, the effectiveness of the governance tools used for vertical and horizontal co-ordination amongst government actors, and the alignment of policy instruments with high-level objectives and strategic priorities.

Analysis of these issues has been based on (i) desk research and sub-national and international benchmarking of key information society indicators; (ii) interviews with government officials and staff from several ministries, regional and local governments, and civil society, as well as; (iii) a survey of Plan Avanza stakeholders from several sectors and levels of government.

## **ACKNOWLEDGEMENTS**

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## ***Table of Contents***

<b>Chapter 1. Plan Avanza: an Important Step Forward for Information Society Policy in Spain</b> .....	<b>7</b>
- Introduction.....	<b>8</b>
- Information Society Strategies.....	<b>8</b>
- The Plan Avanza Strategy.....	<b>10</b>
- Targeted beneficiaries: addressing Spain’s key IS Challenges.....	<b>13</b>
- Distribution of budget resources: one indicator of priorities.....	<b>18</b>
- From Plan Avanza to Plan Avanza 2.....	<b>23</b>
- Conclusions.....	<b>25</b>
<b>Chapter 2. Governance Matters: Success Factors for the Design and Implementation of IS Strategies</b> .....	<b>27</b>
- Introduction.....	<b>27</b>
- Critical success factors in policy design.....	<b>30</b>
- Establishing an effective implementation model.....	<b>33</b>
- Conclusions.....	<b>44</b>
<b>Chapter 3. Assessing the Effectiveness of Inter-institutional Co-ordination under Plan Avanza: the Importance of Multi-level Governance</b> .....	<b>45</b>
- Introduction.....	<b>46</b>
- Multi-level governance: a daily reality for policy makers.....	<b>46</b>
- Multi-level governance survey framework.....	<b>49</b>
- Assessing the effectiveness of inter-institutional co-ordination under Plan Avanza: survey and interview findings.....	<b>51</b>
- Conclusions.....	<b>70</b>
<b>Chapter 4. Delivering Benefits to Citizens, Businesses and the Spanish Public Administration</b> .....	<b>73</b>
- From measuring ICT diffusion to measuring impact, a bumpy road.....	<b>74</b>
- The S-curve framework and analysis of Plan Avanza.....	<b>76</b>
- Overview of chapter results.....	<b>77</b>
- Plan Avanza and ICT infrastructure: strengthening the foundation of an information society.....	<b>83</b>
- Plan Avanza and Businesses: promoting productivity, competitiveness and innovation.....	<b>95</b>
- Plan Avanza and Citizens: working to close digital divides.....	<b>109</b>
- Plan Avanza and the Public Administration: supporting national agendas for modernisation and e-government.....	<b>117</b>
- Conclusions.....	<b>137</b>
<b>Annex I – List of organisations participating in interviews and roundtables</b> .....	<b>141</b>
<b>Annex II – Survey Methodology</b> .....	<b>142</b>
<b>Bibliography</b> .....	<b>145</b>
<b>Endnotes</b> .....	<b>149</b>



## CHAPTER 1

### PLAN AVANZA: AN IMPORTANT STEP FORWARD FOR INFORMATION SOCIETY POLICY IN SPAIN

#### *Box 1.1 In this Chapter*

The Plan Avanza strategy was launched in 2006 with the overarching goal of advancing Spain's information society (IS) and converging with European and OECD countries in access and usage of ICTs (information and communication technologies). The challenge for policy makers at the time was two-fold: (i) designing and implementing a cross-sectoral strategy of high technological complexity, with policies aimed at reaching citizens, businesses and the public administration; and (ii) making certain that progress was equitable, by promoting digital inclusion and inter-regional convergence amongst Spain's 17 regions and two autonomous cities. This report examines the principal achievements made thus far in the development of Spain's information society, and looks also at the governance apparatus put in place to broach these two important goals. Chapter one in particular provides an overview of the Plan Avanza's main objectives and initiatives.

#### *Key Findings*

- Information Society (IS) strategies encompass a multitude of policies aimed at exploiting the potential of ICTs to contribute to societal and economic-wide objectives for growth, innovation, sustainability, quality of life and equity. These strategies are increasingly regarded by policy makers and stakeholders alike as powerful policy instruments for promoting social and economic change. Indeed, in a globalised world that increasingly depends on knowledge-based transactions, where ICTs facilitate access to new markets and ideas, and where equal access to information can help "level the playing field" for socially excluded groups, governments are understanding that societies that are good at creating, diffusing and exploiting information for social and economic gain will find themselves at the forefront of new economic opportunities and pioneering ways for generating welfare for citizens.
- Plan Avanza ("the Plan") is Spain's Information Society policy which was launched by the Ministry of Industry, Tourism and Trade (MITT) in 2006, and the strategy has formed a key component of national modernisation, e-government and innovation agendas. As a catalyst for innovation and ICT-diffusion across society and the Spanish economy, supporting the development of the ICT sector has also been one area of action for IS policy makers. Additionally, e-government initiatives in the sectors of justice and health, amongst others, have received backing from Plan Avanza programmes. Finally, the Plan has targeted citizens most at risk of digital exclusion, as well as small and medium-sized enterprises (SMEs) - the fibre of the Spanish economy.
- The proposal for Plan Avanza 2, the next phase of the strategy, reflects some changing priorities, with greater emphasis on "demand-side" policies to incentive take-up of ICTs and digital services. However, it remains unclear how the distribution of resources under Plan Avanza 2- if approved by the Government- will be adapted to fit new objectives. At this important turning point for the strategy, this report offers an examination of progress made thus far, and how the next phase of the Plan can best serve Spain's information society goals.

## **Introduction**

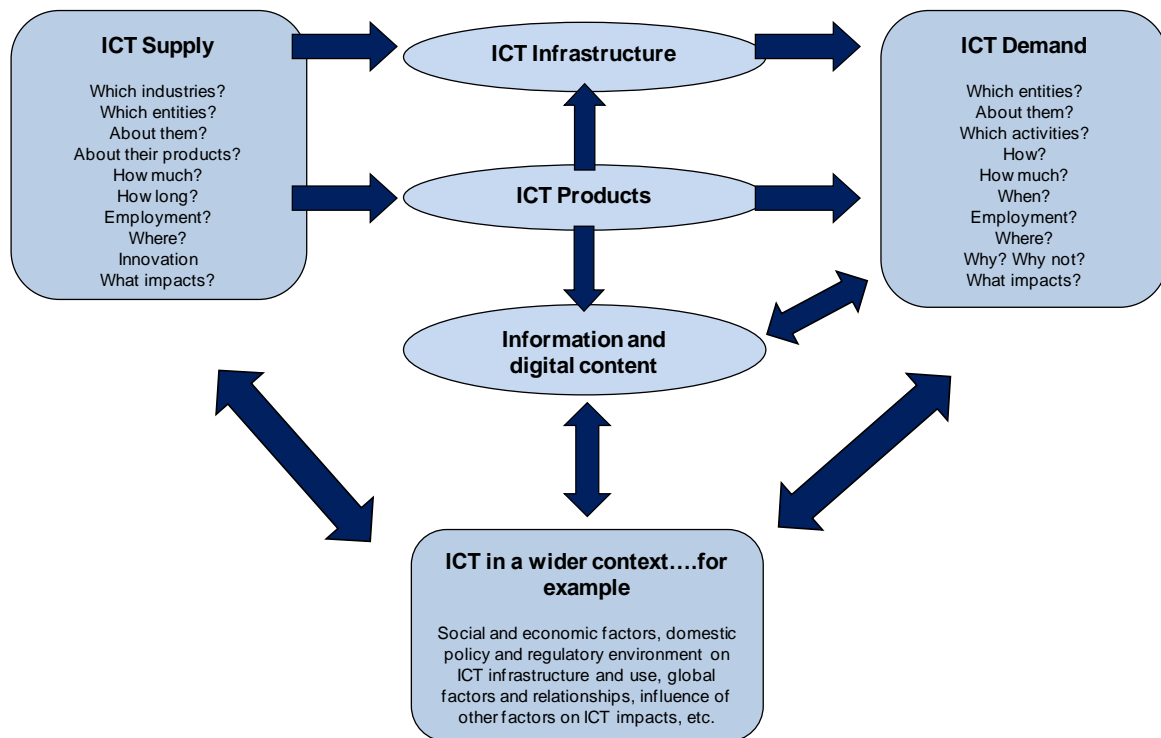
1. This chapter discusses the main characteristics of Information Society strategies and lays out Plan Avanza's ("the Plan's") main objectives and policies, which have been designed to respond to the country's particular challenges in advancing its information society: an aging population, a high percentage of rural territory with either mountainous terrain and/or dispersed populations, traditionally lower levels of economic activity in the ICT (Information and Communications Technology) sector, and a high percentage of SMEs/micro-enterprises which face additional barriers to adopting ICTs. An overview of the Plan's main beneficiaries is provided, along with data on the distribution of resources, reflecting the Plan's priorities over the past four years. Finally, the main tenants of the proposed Plan Avanza 2 strategy are briefly illustrated; this next phase of the Plan, if approved by the Spanish government, will be in effect through to 2015.

### **1.1 Information Society Strategies**

2. While initially focused on the deployment of ICT infrastructure and development of the ICT sector, mandates for ICT policies have progressively broadened to encompass wider social and economic dimensions, with the aim of exploiting the potential of ICTs to contribute to social and economic gain. Specifically, these objectives can now include promoting sustainable economic growth, boosting productivity, providing employment opportunities, encouraging innovation, improving the effectiveness and responsiveness of public services, generating welfare for citizens and promoting social inclusion. In short, many ICT policies have become incorporated into more streamlined and comprehensive *Information Society* (IS) strategies, and are increasingly regarded by policy makers and stakeholders as powerful instruments for societal change, and for the building of competitive, equitable and sustainable knowledge economies.



**Figure 1.1 OECD Information Society Conceptual Model<sup>1</sup>**



Source: OECD, 2009.

3. The OECD provides a conceptual framework in order to define the key components of an information society, which can be viewed in terms of two dimensions:<sup>2</sup>

- **The economic dimension:** ICTs have significant economic implications. Businesses and government utilise ICTs in daily operations, to deliver services, to innovate, to exchange ideas, and to access markets. As a result of ICTs such as mobile phones and the Internet, people are modifying consumption and spending patterns. Additionally, the ICT sector- as a leading sector in innovation and growth in recent years- has directly impacted aggregate growth and productivity.<sup>3</sup>
- **The social dimension:** ICTs are general purpose technologies which now interface with nearly every facet of daily life. Not only have ICTs revolutionised communications, they also have widespread potential for improving quality of life and generating welfare benefits. Additionally, access to information creates opportunities, and can help equalise benefits for socially excluded groups<sup>4</sup>.

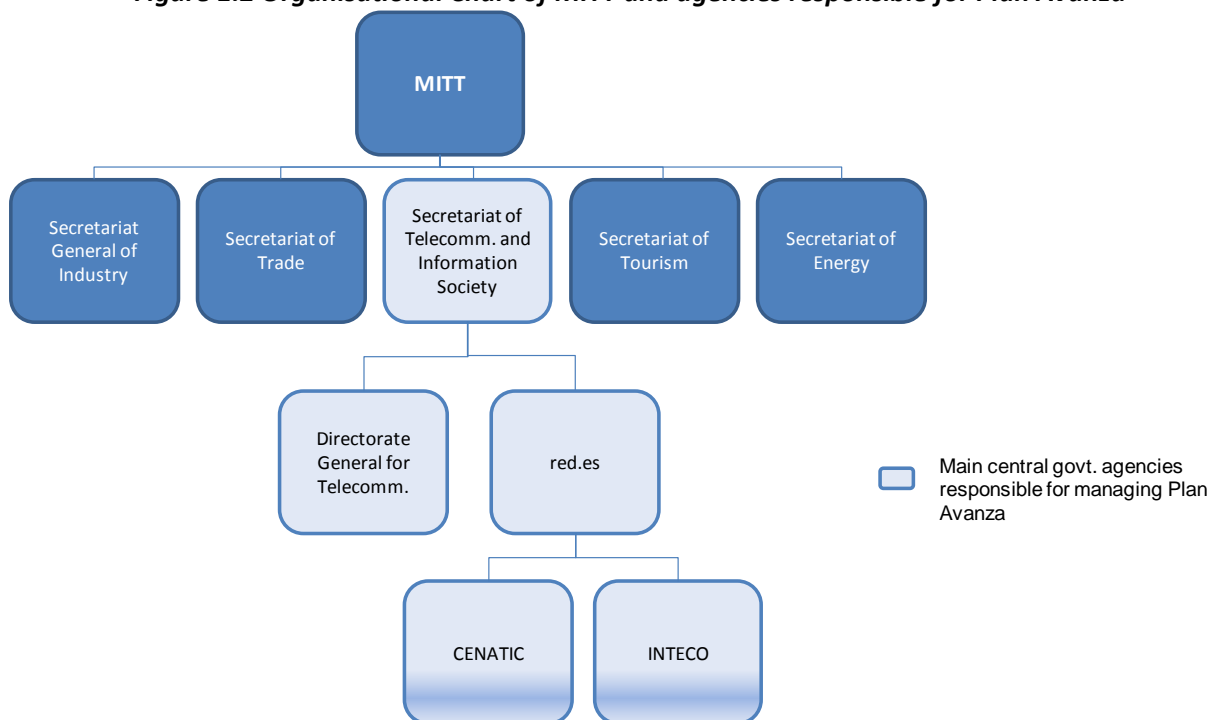
4. Achieving these wider societal and economic benefits requires action to exploit the potential benefits of ICTs. Another relevant feature of IS strategies, then, is that they attempt to bridge technology with their potential outcomes, providing the often intangible "support" factors needed to maximise the value-contribution of ICTs. Indeed, experience in OECD countries has shown that the availability of ICTs does not necessarily translate into positive outcomes; other key catalysts are essential to capitalise on their potential benefits. For instance, recent research suggests that ICT diffusion is only the first step: while ICT capital presents one factor for the "productivity gap" between the US and continental Europe over the period of 1995-2005, a portion of the gap can also be accounted for by differing organisational capacities (e.g. different management practices, in particularly better "people management", and skills).<sup>5</sup> Greater

returns from ICTs then rely on complementing ICTs with the transition to demand-side policies: fostering usage and training, the exchange of practices, supporting organisational changes and procedural adaptation, providing technical support, ensuring interoperability, security and affordability, and increasing communication and awareness, and knowledge-sharing. To cite another example, despite growing availability of public services online, take-up has plateaued in recent years,<sup>6</sup> and some ICT tools have remained under-appreciated and under-used due to a lack of a combination of the aforementioned factors. Plan Avanza, like other OECD IS strategies, pursues these objectives as well.

## 1.2 The Plan Avanza Strategy

5. Plan Avanza is Spain’s umbrella strategy for the advancement of its information society (IS). The Plan was approved in 2005 by the Government and launched early in the following year with its first 2006-2010 Action Plan. The strategy operates under the direct authority of the Ministry of Industry, Tourism and Trade (MITT), specifically under the State Secretariat for 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).

**Figure 1.2 Organisational Chart of MITT and agencies responsible for Plan Avanza<sup>7</sup>**



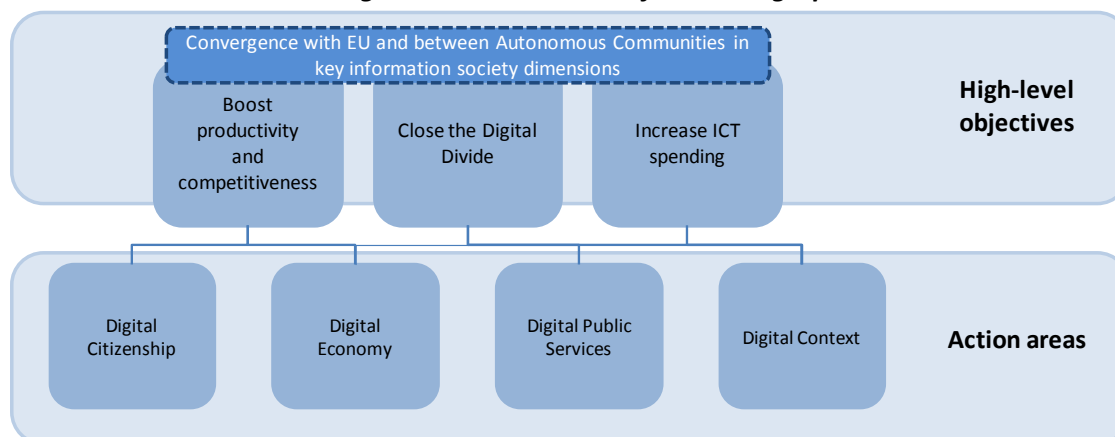
Source: ONTSI, based on interviews with SSTIS.

### **Plan Avanza objectives and activities**

6. While Plan Avanza’s high-level objectives are inherited from those of the European Commission’s *i2010 strategy: A European Information Society for Growth and Employment*, these were adapted to fit the specific challenges and needs of the Spanish context. These aims

in turn have translated into four pillars of activity, or action areas, including:<sup>8</sup>

**Figure 1.3 Plan Avanza's four strategic pillars**



Source: MITT and SSTIS. OECD elaboration.

- **Digital Citizenship:** Policies under this strategic pillar have been designed to increase ICT-adoption by citizens, improve ICT skills (or “eSkills”) in the general 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 for social and economic gain.
- **Digital Economy:** Across the whole of the Spanish economy, this pillar has aimed to promote the incorporation of ICTs in firms’ operations and business models. For instance, it includes programmes designed to increase the use of Enterprise Resource Planning (ERP), Customer Relationship Management (CRM) applications and e-invoicing, among other tools that have been shown to contribute to greater productivity. Additionally, the Plan has worked to encourage firms to create websites and pursue e-commerce. In the ICT sector, policies aim to promote growth and foster innovation by providing support for the development of new ICT products/services and support internationalisation of Spanish ICT firms. 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 has supported the integration of ICTs in the production and delivery of public services across several areas of government (health, justice, education, etc.) as well as in all tiers- from central, to regional and local. The goal has been to contribute to national strategies for the modernisation of the public administration, as well as assist government organisations to increase digital interaction with citizens, thereby improving the responsiveness of services and raising back-office effectiveness and efficiency.
- **Digital Context:** Of the four of Plan Avanza’s 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.

## Strategic alignment with international and national policies

7. Strategically linking the Plan's policy objectives to those of other high-level European and national strategies has played an important role in paving the way for the materialisation of Plan Avanza, as this has helped policy makers to (i) better capture synergies across government in the pursuit of shared objectives; (ii) increase buy-in from the many stakeholders implicated in IS policy; and (iii) avoid duplication of policies across government, reducing costs and policy fragmentation. In particular, tying the Plan to such strategies as *i2010* and the *National Reform Programme* has been key.

**Figure 1.4 Synchronicity between Plan Avanza, European and national Strategies**



Source: SSTIS.

### Plan Avanza and i2010

8. Plan Avanza is modelled after the EC's *i2010* strategy and adapted to fit the particularities of the Spanish context. The presence of a supranational IS strategy has 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 amongst national stakeholders for the need to foster the knowledge economy in the country and increase the competitiveness of the Spanish economy. 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, building consensus and helping the Plan mobilise resources.

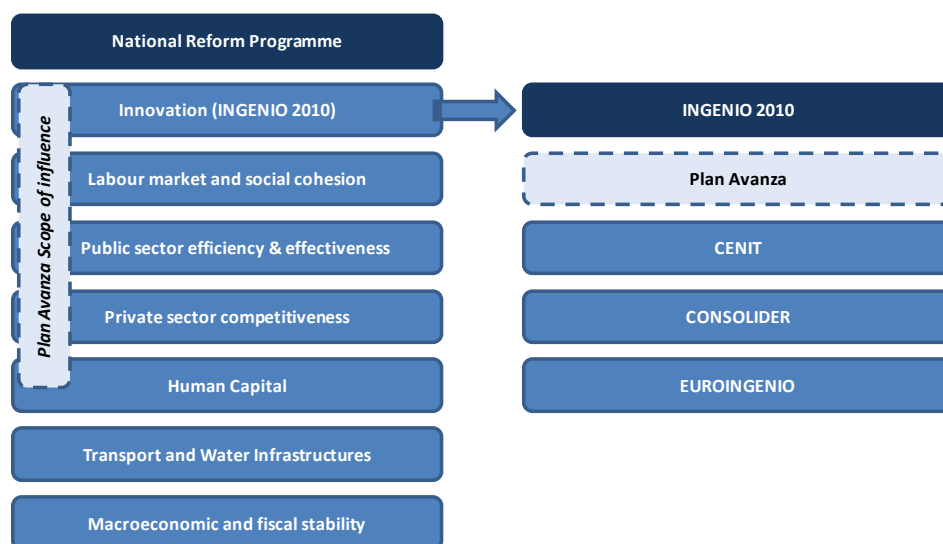
### Plan Avanza and Spain's National Reform Programme (NRP)

9. 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, to 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. Additionally, synergies realised from a "whole-of-government" approach increase impact.

10. One 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. Because of the integral role of ICTs in e-government reforms,

Plan Avanza works closely with the Ministry of the Presidency, the principal government ministry responsible for developing digital public services for the public administration. Under the umbrella of the NRP, policy roles are more clearly defined: the Ministry develops services and is responsible for the accompanying modernisation reforms in procedures and operations, while Plan Avanza provides ICT equipment, in some cases developing and customizing ICT tools and software, as well as training public servants to utilise ICTs effectively. 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.

**Figure 1.5 Interfaces between NRP, INGENIO and Plan Avanza**



Source: SSTIS.

### 1.3 Targeted beneficiaries: addressing Spain's key IS challenges

11. As a large-scale, horizontal strategy, Plan Avanza initiatives target all areas of society including: citizens, businesses, and the public sector. This section discusses the rationales and challenges behind decisions to prioritise certain beneficiaries. The impact of Plan Avanza initiatives on these groups is the subject of chapter 4.

#### **Citizens**

12. Addressing inequalities in ICT access and use is imperative for achieving the Plan's high-level objectives for social inclusion, as "digital divides" are both a form of and a cause of social and economic exclusion,<sup>9</sup> along with the important repercussions this may have. Some of the key linkages between social outcomes and ICTs include:

- *ICTs, skills and employment:* Because of the growing prevalence of ICTs in the workplace, those with low digital literacy risk fewer job opportunities and lower wages.<sup>10</sup>
- *ICTs and citizens' welfare:* the Internet is increasingly becoming an important mode of citizen and government interaction, with more and more public services becoming available through the digital channel. This form of contact with government authorities can not only increase convenience, saving time and money, but also allow citizens greater access to services (e.g. anything from pension information to making medical appointments, etc.) Additionally, ICTs are also being used to enable new modes of service delivery (e.g. assistive living, telemedicine), and supporting efforts to deliver "joined-up" or bundled services better suited to citizens' needs.
- *ICTs, civic participation and transparency:* Web 2.0 and social networking technologies<sup>11</sup> have played roles in increasing the transparency and accountability of governments; helping to

increase citizens' trust in the public sector. Namely, ICTs can play 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.

13. With these issues in mind, Plan Avanza policies aimed at citizens have dedicated efforts to promoting digital inclusion in Spain, and the Plan has sought to address (i) the geographic divide, that is, differences in ICT access use between rural and urban areas; (ii) the age divide, between younger and older persons; as well as (iii) gender divides.

14. **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.<sup>12</sup> 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. Plan Avanza specifically targets these areas recognizing the role that ICTs can play to help increase regional convergence (*e.g.* through facilitating access to information and services, supporting local industries, enhancing long-distance learning; and promoting use of e-commerce in rural SMEs). The National Broadband Extension Plan (Box 1.1) is one example of a programme targeting, specifically, rural regions. Additionally, Plan Avanza has supported a rural telecentres programme. Specifically, the telecentres initiative creates public Internet hubs to reduce the urban-rural digital divide. These centres provide access to computers, printers, broadband and other basic ICT equipment, and 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 EUR 50 million, and has been implemented with support from the Spanish Federation of Local Governments and Municipalities.

15. 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.<sup>13</sup> 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 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 Telefónica and 2 from Telecable). The aim was to ensure broadband affordability and ensure the availability of certain key service requirements without distorting competition:<sup>14</sup>

- 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 EUR 90 million, of which the MITT provided 18 million in zero-interest loans and 8.4 million in grants to ERDF<sup>15</sup> 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 the main outcome, 99% of population has broadband coverage, taking into account all technologies available. 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 (47.2% of the 9.8 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*

**16. Older persons:** Spain has a large and fast-growing aging population. Approximately 17% of the Spanish population is above the age of 65 years, while the OECD average is 14.4%. Plan Avanza specifically targets the elderly as they are those more at risk of digital exclusion, which can in turn limit their access to key public services. Actions targeting this group include increasing awareness of the benefits of ICT and strengthening skills to increase access and use.

**17. 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.<sup>16</sup> 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,<sup>17</sup> 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.

## **Businesses**

18. Because of the roles that ICTs can play in increasing the competitiveness of the Spanish economy, the Plan has prioritised namely SMEs and the ICT sector. Indeed, the ICT sector and ICTs can impact economic performance both directly and indirectly. Directly, the ICT-producing sector can contribute to economic growth as shows resilience in face of the economic crisis and expands at-relatively- higher rates. In OECD countries, it accounts for- on average- 8% of GDP and 6% of employment.<sup>18</sup> 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.

19. **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%<sup>19</sup> 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. Box 1.2 highlights an example of one Plan Avanza programme designed for SMEs.

### **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 EUR 3.5 million. Thus far, 58,000 SMEs have assimilated the web solutions.

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

20. **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. 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.<sup>20</sup>



## Public Sector

21. Over the past four years, the Plan's policies in the public sector have focused primarily on the modernisation of public services with a high potential of impact on the quality of life of citizens. Also, government organisations undergoing large-scale e-government initiatives (such as justice institutions and local governments) have received support from Plan Avanza programmes in the form of ICT equipment, IT solutions, technical assistance and training for staff.

- **Ministries of Education and Health.** The Plan has sought to support efforts to incorporate ICTs into classrooms and universities and help integrate ICTs into teachers' pedagogical methodology. For example, the Internet in the Classroom programme has impacted close to 10,000 schools and 2,700,000 students. eHealth initiatives have sought to modernise hospitals and primary health centres, by implementing programmes for generating and integrating electronic health records and processing prescriptions electronically.
- **Ministries of Justice, the Presidency and the Interior.** These Ministries are undergoing considerable e-government reforms, 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.
- **Local administrations.** Plan Avanza also supports modernisation of local governments, specifically municipalities. The rationale being that 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. For instance, a survey of local administrations in Spain performed by the National Observatory for the Information Society revealed that smaller municipalities spent, on average, less on ICT initiatives and equipment, had less digital content available, and fewer staff (see Table 3.6). Chapter 3's analysis of multi-level governance demonstrates some additional barriers faced by local administrations.

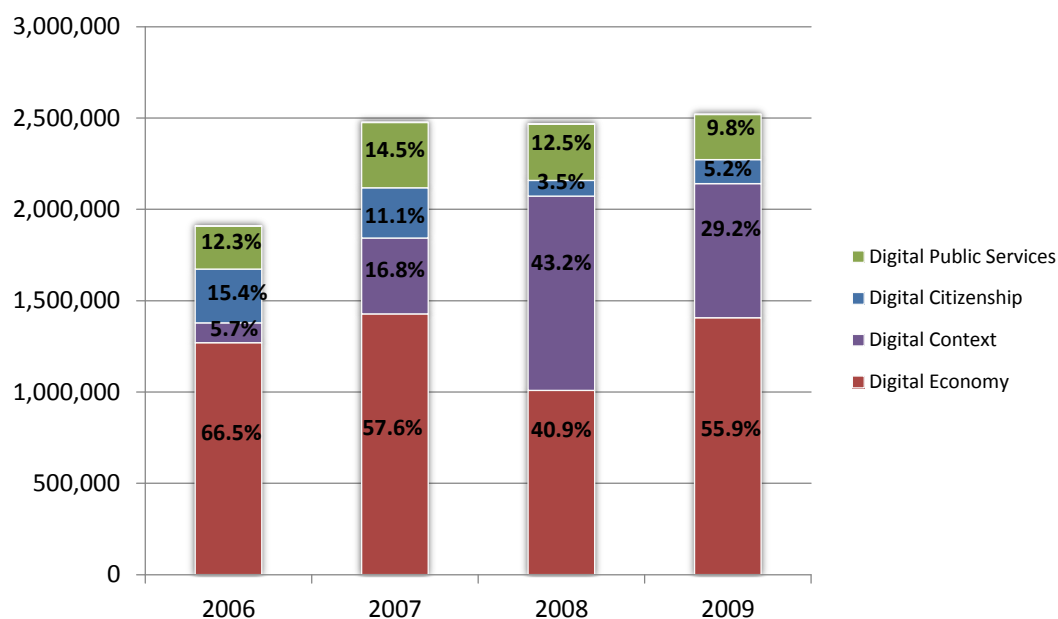
**Table 1.1 Overview of Plan Avanza beneficiaries and specific target groups<sup>21</sup>**

Beneficiaries	Specific Objectives	Specifically targeted groups
Citizens	(i) Increasing inclusion of citizens in the information society through greater accessibility and adoption of ICTs (ii) Increasing awareness and take-up of digital services (iii) Building and improving ICT skills (iv) Building confidence in ICTs (e.g. protection of sensitive data and privacy)	Older people, disabled persons, women, persons living in rural areas, University students in ICT-related areas of study
Businesses	(i) Promoting the adoption of ICTs in business operations (CRMs, ERPs, eInvoicing) and eCommerce (ii) Promoting development and internationalisation of the ICT sector (iii) Building and improving ICT skills, including ICT practitioners skills and e-Business skills (iv) Building confidence in ICTs and raising awareness about their benefits (v) Supporting the development of digital content	Small and medium-sized enterprises, microenterprises, firms in the ICT sector- specifically- the digital contents sector
Public Administration	(i) Supporting the implementation of projects for the development of digital public services (ii) Supporting ICT-enabled modernisation through provision of ICT equipment and training (iii) Support to development of digital public services	Sector of education (schools and Universities); health (hospitals and primary health centres); and justice (civil registries and local courts). Additionally, support to Ministry of Interior for national eID cards programme and local governments (town halls)

## 1.4 Distribution of budget resources, one indicator of Information Society priorities

22. Throughout its first action plan, Plan Avanza has had a relatively stable budget, indicating sustained dedication by national, sub-national and non-government stakeholders to promoting the role of ICTs in Spanish society. The average yearly budget has been EUR 2.3 billion, with a four-year peak of EUR 2.5 billion in 2009. Between 2006-09, the total budget mobilised by all stakeholders has been EUR 9.4 billion.

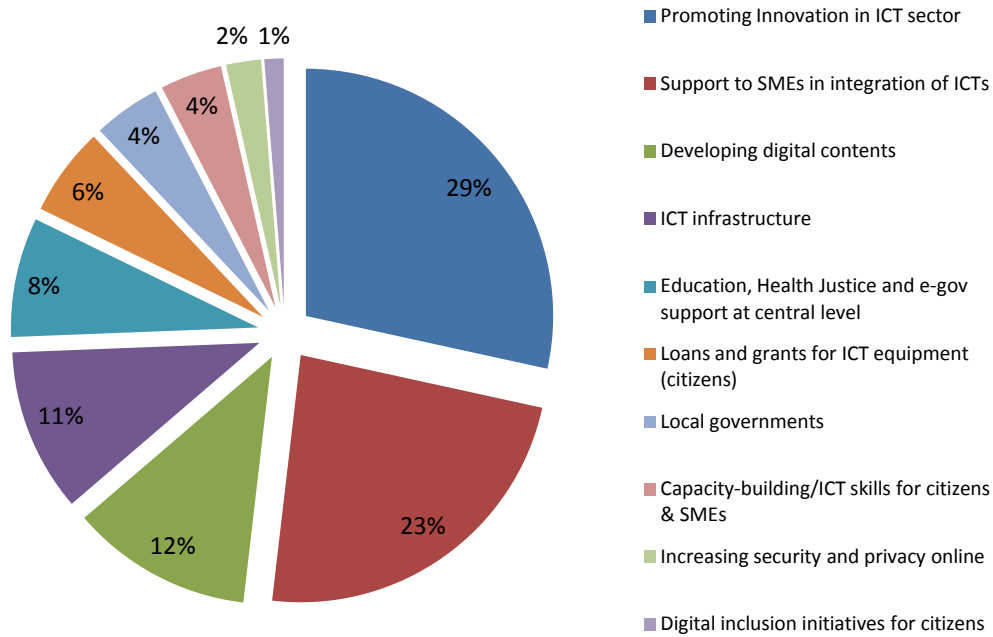
**Figure 1.6 Evolution of Plan Avanza budget allocations per pillar (funds mobilised, thousands of Euros)<sup>22</sup>**



Source: Plan Avanza Technical Office. OECD elaboration.

23. 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 to digital inclusion initiatives for citizens was lower in comparison.

**Figure 1.7 Budget distributions per activities (percentage of 2006-09 total)<sup>23</sup>**



Source: Plan Avanza Technical Office. OECD elaboration.

24. The Digital Economy pillar has accounted for the greatest amount of resources relative to the other three pillars (55% 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. Activities aimed at incorporating ICTs in SMEs have also received important consideration (23.4% of total budget) however, funding for initiatives to incorporate e-commerce and e-billing, for example, have dropped significantly (50%) between 2006 and 2009. This decrease can be explained to some extent because of the co-financing required by SMEs, and the effects of the crisis. The drop may reflect a need to assess the policy instruments utilised to target SMEs and the need to develop counter-cyclical strategies for specific sub-sectors. This issue is discussed in more detail in Chapter 3. On the other hand, training and building ICT skills in SMEs has maintained relatively stable, yet comparatively low, at nearly 3% of the total budget throughout the four years.

25. The Digital Context pillar follows Digital Economy closely with 25% 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. Infrastructure spending constituted about 32% of the context action area (11% of total), 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 9% of investment in this pillar, including initiatives with the Ministry of Interior to improve the security of national eID cards.

26. Prioritisation of digital services has remained relatively stable throughout the first four years of the Plan, averaging at 13% of total resources each year. Activities in this area have been relatively evenly balanced between supporting local governments, and support for e-government 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. co-implemented with the Ministry of the Presidency) have been varied greatly each year, accounting for less than 1% of the total budget. This area of work in comparison is smaller, and supports already ongoing initiatives such as the 060 portal.

27. While most of the Plan's pillars have experienced relatively stable increases, the exception has been Digital Citizenship, whose allocation was reduced by 56% between 2006 and 2009. Over the four years, the pillar has accounted for- on average- 8.8% 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, but accounts for a small portion (less than 2%) of total budget. Lastly, spending on inclusion initiatives for marginalised groups has also been reduced.

**Table 1.2 Distribution of Plan Avanza resources (thousands of Euros)**

**Total funds mobilised by national, sub-national and non-governmental stakeholders**

Pillar	Scheme	2006	2007	2008	2009	TOTAL
<b>Digital Citizenship</b>	Capacity-building and ICT skills	34,116	45,533	34,410	8,967	123,026
	Digital inclusion initiatives for marginalised groups	28,459	30,683	37,180	21,808	118,130
	ICT equipment and Internet (loans & grants)	231,384	197,849	14,205	99,847	543,285
<b>Digital Economy</b>	Support to SMEs in integration of ICTs	860,895	653,360	246,618	432,956	2,193,829
	Promoting Innovation in ICT sector	338,321	718,231	700,671	905,159	2,662,382
	Capacity-building and ICT skills	70,182	55,530	61,385	68,730	255,827
<b>Digital Public Services</b>	e-government for central administration	19,474	10,115	-	1,023	30,612
	Local governments	82,147	122,568	116,736	91,416	412,867
	Education, Health and Justice	133,867	225,564	190,715	154,194	704,340
<b>New Digital Context</b>	Infrastructures	81,500	60,269	756,402	101,006	999,177
	Security issues	27,936	120,902	53,565	11,382	213,785
	Developing digital contents		235,142	254,432	622,009	1,111,583
<b>TOTAL</b>		1,908,281	2,475,747	2,466,317	2,518,496	9,368,841

Source: Plan Avanza Technical Office.

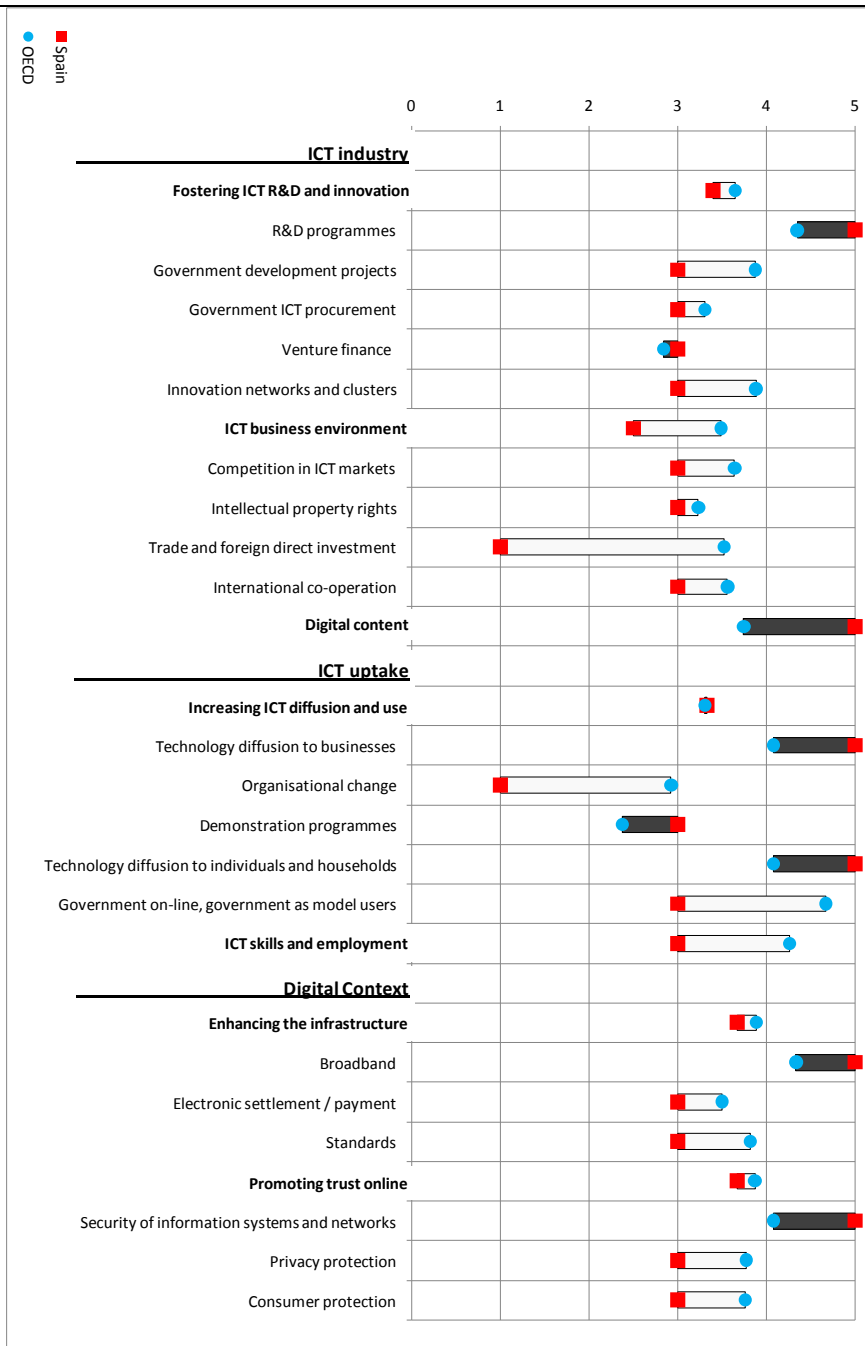
**Box 1.4 Plan Avanza priorities in the context of OECD Information Society strategies**

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](http://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.

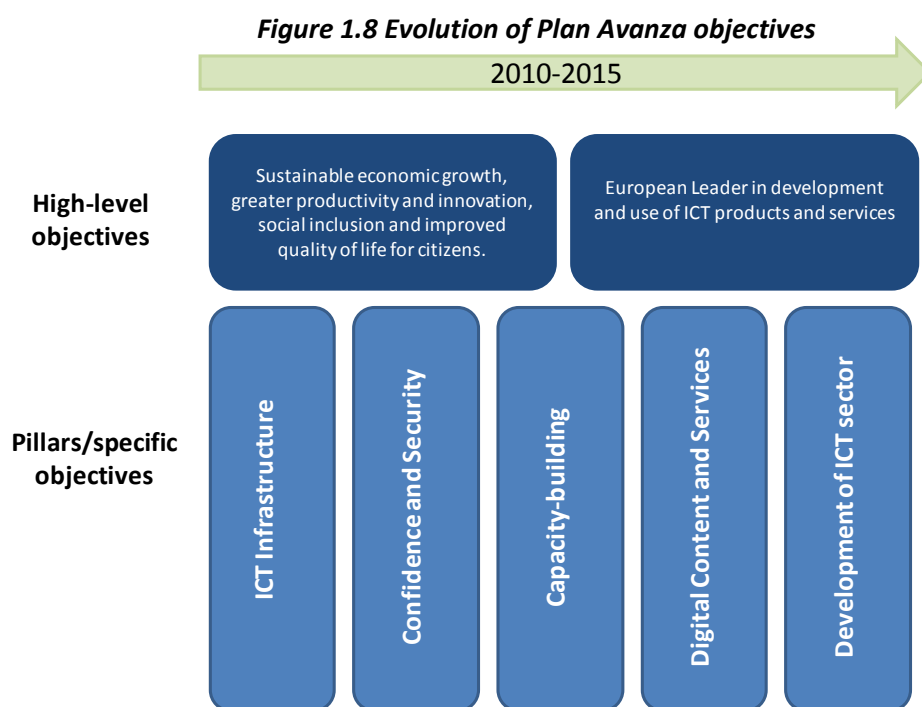


Finally, in the policy domain of ICT diffusion, citizens and business have received preference, while promoting take-up amongst civil servants (“government as model users”) has received lower (although moderate) prioritisation. Indeed, reforms in the public sector have thus far focused on the integration 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.

## 1.5 From Plan Avanza to Plan Avanza 2

28. While Plan Avanza has aimed to create a critical mass of ICT users, services and coverage, the draft proposal for 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.



Source: SSTIS, Proposed draft of Plan Avanza 2.

29. At the time of writing, the draft Plan Avanza 2 proposal had been reviewed by the SSTIS and the national Advisory Board for Telecommunications and the Information Society, and was pending final approval by the Government. Closer inspection of the proposed measures under Plan Avanza 2 reveals an increased emphasis on “demand-side” policies (e.g. initiatives aimed at leveraging accomplishments in ICT diffusion by promoting the adoption and usage of ICTs). For example, there is a singular pillar dedicated to capacity-building and training. Additionally, there are new communications and awareness measures in place to spur the utilisation of features of the national eID cards. It remains unclear, however, how the distribution of resources will be adapted to reflect changing priorities, or how this strategy will be aligned specifically with the new European Digital Agenda.

30. In the public sector, Plan Avanza 2 would seek to continue to support modernisation and e-government initiatives in the sectors of education, health and justice, although in coming years efforts may also be extended to culture and tourism (integrating ICTs in national and local libraries, museums, cultural sites, etc.) One notable change under the proposed strategy is the increased prioritization of local governments, who have been slower to reform service delivery methods and make public services accessible online.

31. While the initial goal of Plan Avanza with regards to critical telecommunications infrastructure (mobile phone, broadband, and digital terrestrial television) has been inter-regional convergence, the next Action Plan proposes a shift to focus on technological convergence: on improving speed and quality

of existing broadband infrastructures, particularly in rural areas. The Universal Broadband initiative is one such programme which will create a minimal service obligation of 1 Mbps broadband access as of 2011. Furthermore, the development of interactive services via digital terrestrial television will become a priority under the next strategy.

32. Finally, in addition to continuing to promote innovation and the digital contents sector, the second phase of the strategy will focus on promoting development e-commerce and target microenterprises more ambitiously, as they remain behind in adopting ICTs.<sup>24</sup> Some new initiatives proposed under the next plan also include R&D for the development of green ICTs, promotion of teleworking, providing venture capital for ICT sector firms, implementation of an 'Open Government' initiative to increase public sector transparency and re-utilisation of public data.

**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. ICTs are now regarded as general purpose technologies, *i.e.* a technologies that can serve as a fundamental input to other technologies and applications, and thus act as a multipliers of innovation. These technologies can have significant spill-over effects and influence the overall catching-up process. Indeed, the OECD's Innovation Strategy highlights how high-speed communication networks can support innovation throughout the economy and recommends that "governments should also foster ICTs, in particular broadband networks, as platforms for innovation by upholding the open, free, decentralised and dynamic nature of the Internet."<sup>25</sup>

Likewise the OECD report "*Green Growth: Overcoming the crisis and Beyond*"<sup>26</sup>, 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 create 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."<sup>27</sup>

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 and the draft Law for the Sustainable Economy, the Spanish government's policies for economic recovery and sustainable growth.



## **Conclusions**

33. Plan Avanza has created a large-scale information society agenda addressing the need for international and inter-regional convergence in ICT access and use, and greater integration of citizens, businesses and the public administration into the information society. In each of these areas, the focus over the past four years has been on “supply-side” initiatives, that is, ICT diffusion and deployment of critical telecommunications infrastructure. Chapter 4 takes a closer look at the specific achievements that have been made in each of these dimensions, while the following chapter examines the governance model used to implement the Plan’s initiatives across the country.

34. The Plan has thus far been aligned with wider national agendas for e-government and modernisation, However, given the current economic climate and the potential for ICTs and the ICT sector to contribute to objectives for “green growth” and social inclusion (see Box 1.5), the strategy has not demonstrated to be as closely aligned with initiatives for economic recovery and innovation as it could be. Additionally, the Plan has addressed several kinds of digital divides; although it is not evident how it has addressed socio-economic divides to assist those with lower than average incomes to join the information society.

35. As we will see throughout this report, the strategy has reached a transitional point, where the need for a greater emphasis on “demand-side” policies is evident. Although it could be argued that initiatives for capacity-building and ICT skills training are less costly to implement, these activities nonetheless represent a relatively smaller portion of the total Plan Avanza budget. This suggests also a shift in focus- from technology, to end-users; from ICT diffusion, to greater emphasis on inclusion, capacity-building and ICT skills, and improving the responsiveness of digital public services.



## CHAPTER 2

# GOVERNANCE MATTERS: SUCCESS FACTORS FOR THE DESIGN AND IMPLEMENTATION OF INFORMATION SOCIETY STRATEGIES

### *Box 2.1 In this Chapter*

As a new initiative, Plan Avanza policy-makers faced the impressive challenge of creating a governance model that responded to the complexities of a large-scale strategy. In a decentralised context, how did the Plan involve stakeholders, mobilising additional resources from regional and local governments when the degree of commitment and spending on Information Society policy had varied considerably amongst them in the past? How did Plan Avanza overcome obstacles such as the lack of the financial and technical capacities in regional and local governments to execute complex programmes? How has the Plan promoted inter-territorial convergence in information society development, especially when regions can contrast considerably in their levels of progress? In a relatively short amount of time, a governance model for the design and implementation of Information Society (IS) policy was put in place to respond to these important issues. This chapter examines the success factors behind this model.

#### *Key Findings*

- Early attention granted to important governance issues during policy design has yielded some positive results which have differentiated the Plan from previous strategies: since Plan Avanza has been centralised under the State Secretariat for Telecommunications (SSTIS) and the Information Society, IS policy in Spain has gained much momentum; the joint-implementation model established in conjunction with regional and local governments has been critical in Spain's decentralised administration structure, and contributed to increasing the scope and responsiveness of Information Society policies; furthermore, the use of an operating agency, red.es, has provided the critical technical support needed to implement complex initiatives, while building the capacities of stakeholders to continue expanding IS and e-government policy in the future independently- or jointly- with the Plan.
- While certainly Plan Avanza has adopted a cross-sectoral and collaborative approach throughout design and implementation, the strategy could better use its position of leadership and strong political mandate to strengthen the "whole-of-government" approach to the IS agenda and further increase the scope of the strategy, including the potential of IS initiatives to contribute more directly to economic recovery and long-term goals for structural reform. Furthermore, findings from interviews suggest the current consultation process may not be as inclusive and proactive as it could be, as some important parties are not participating, and the Plan's communications initiatives have not been integrated into a wider marketing strategy aimed at citizens and firms, with the goal of increasing take-up of digital public services. Furthermore, especially with regards to the pillars for Digital Citizenship and Digital Economy, mechanisms for monitoring and evaluation exist, but may be under-utilised; currently the mechanisms in place focus on monitoring project inputs, rather than on evaluating the cost-effectiveness and impact of policies. The following chapter tests these hypotheses, presenting results from a survey on the effectiveness of initiatives and inter-institutional co-ordination.

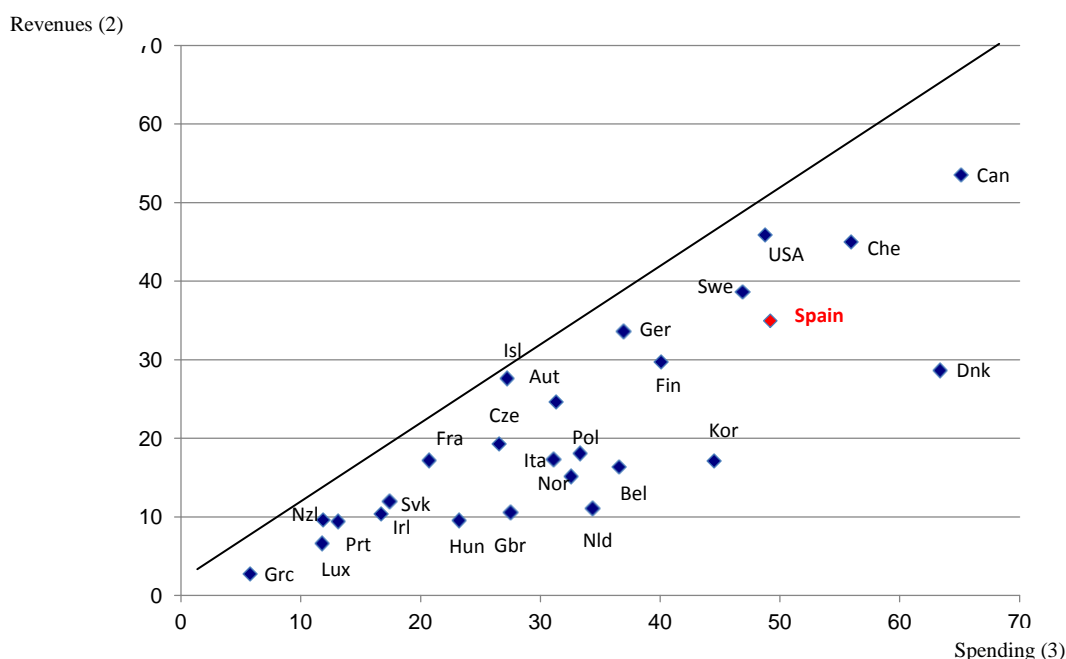
#### **Introduction**

34. Information society strategies are complex endeavours that implicate different economic sectors, different end-users, and different tiers of government. It becomes critically important then to define clear mandates and responsibilities, and ensure that policies are coherent with wider goals including: individual sectoral policies, regional/territorial and other national strategies. An operating model must be established that implicates regional and local stakeholders, and which mirrors the complexity and fast-

paced nature of technological programmes. This chapter applies a governance lens to the design and implementation of Plan Avanza, examining the governance mechanisms utilised throughout the past four years to ensure that IS objectives manifest into results.

35. The Plan’s governance model is also particularly important due to Spain’s highly decentralised administrative structure that devolves significant responsibilities to the country’s regional and local governments (box 2.1 offers a detailed overview of the division of competencies in Spain). In fact, Spain is one of the more decentralised countries of the OECD: in 2009, sub-central (regional and local) governments accounted for 49% of public expenditure, and represented 35% of public revenues. The following graph illustrates (regional and local) governments’ share of general government revenues and expenditure. Spain finds itself in the company of other highly decentralised (or Federal) states such as the United States and Canada.

**Figure 2.1 Decentralisation in OECD countries**  
**Share (of sub-central governments) in general government revenues and expenditure, 2009<sup>a</sup>**



Source: OECD National Accounts database.

<sup>a</sup> Note: Decentralisation is measured by the changes in the share of sub-national governments in total public revenues and spending.

1. Or latest year available: 2008 for Canada, Hungary, New Zealand, Switzerland and the United States; 2007 for Korea.

2. Excluding transfers received from other levels of government.

3. Excluding transfers paid to other levels of government.

Source: OECD National Accounts database, “Mind the Gaps”, (OECD), 2009, & “Regions Matter” (OECD), 2009.

Note: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

### **Box 2.2 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.<sup>28</sup> Beginning from 1978 through to the late 1990's, responsibilities for policy formulation and the provision of many public services have devolved considerably.<sup>29</sup> 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.<sup>30</sup> 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.<sup>31</sup> Some regions in Spain have greater autonomy than others. For instance, Catalonia, the Basque Country and Navarre have the most extensive powers, the former two were the first Autonomous Communities to elect regional assemblies in 1981. The "Foral" regime of Navarre extends its origins centuries ago (based on a law of 1839), and in contrast to other ACs, has kept a certain amount of autonomy including tax levying powers.<sup>32</sup>

Lastly, an important implication of decentralisation for Plan Avanza is that the devolution of some competencies can be fairly recent, or ongoing- for instance the Autonomous Community of Cantabria recently became legally responsible for justice competencies in 2007. This influences Plan Avanza in two ways (i) achieving inter-regional convergence on key IS dimensions can be more difficult to attain when different regions are at different stages; (ii) additionally, the element of capacity-building becomes an increasingly important part of the Plan, as newly devolved responsibilities may be unaccompanied by sufficient sectoral/technical expertise.

36. The implications of relatively high levels of regional and local autonomy for a large-scale and transversal strategy like Plan Avanza are apparent. In a context where regional and local governments have- relatively- high levels of autonomy, the Plan must be able to collaborate strongly 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. Co-operation 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. Additionally, decentralised IS policy means that Plan Avanza must adapt to different sub-national regulations on contracting/procurement, or work around varying sub-national budgeting procedures and legislative calendars in their planning. Conversely, however, regional and local governments rely strongly on the central government for implementing IS policy. In Spain, 40.3% of sub-central government revenues originate from central-level transfers, meaning that most regions (as some regions are more autonomous under Spanish law) cannot implement IS policies with their own capacities and revenues alone.

37. Given these complexities, the Plan has had to design and put in motion a governance framework to overcome some of these challenges. Specifically, Plan Avanza has stressed the importance of the following factors throughout policy design and implementation:

- Strong leadership and active consultation to advance the national IS agenda and consolidate a shared vision amongst a great number of stakeholders;
- Establishment of a supportive legal and regulatory framework that has been conducive to- and promoted- IS goals;
- Application of a joint-implementation model which has increased the "reach" of the Plan, and contributed to building the capacities of regional and local stakeholders;
- A communications strategy that leverages accomplishments in ICT diffusion to promote usage and;
- A three-tiered monitoring and evaluation framework that gathers inputs from project-level to national-level to assess IS progress in Spain.

## 2.1 Critical success factors in policy design

### *Strong leadership for a clear and consolidated IS vision*

38. The wide scope and complexity of information society strategies calls for strong co-ordination and collaboration across policy sectors. Strong leadership is required to articulate and promote acceptance of the strategy's vision, establish clear priorities and structure implementation efficiently. In the case of Spain, the designation of a single leader responsible for pushing forward the country's IS agenda has been decisive for Plan Avanza. 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 co-ordination of inter-ministerial committees.

39. This approach has been important in the case of Plan Avanza, as not only does the Plan tackle the cross-sectoral dimension, but also a territorial one; with 17 autonomous regions, some of which may be more advanced than others in ICT access and usage, a strong leader has been critical to push forward changes where they are needed most. In its leadership role, the SSTIS has simplified the co-ordination process with stakeholders and regional governments, as there is now one main interlocutor. For instance, rather than different ministries having to co-ordinate with each other as well as individually with regional and local governments, the SSTIS performs this co-ordinative 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 awareness regarding the importance of ICTs has increased substantially.

40. While certainly Plan Avanza has adopted a cross-sectoral and collaborative approach throughout design and implementation, the strategy could better use its position of leadership and strong political mandate to strengthen the "whole-of-government" approach to the IS agenda and further increase the scope of the strategy, including the potential of IS initiatives to contribute more directly to economic recovery and long-term goals for innovation/economic policy or initiatives for greater energy efficiency. Indeed, broadening the Information Society vision is important to take into consideration the societal-wide benefits of ICTs.

### **Box 2.3 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 co-ordination, synergies and uniform implementation across sectors, more decentralised leadership could ensure greater ownership of results.

To ensure a better co-ordination 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.<sup>33</sup> Likewise, **Germany's** several IS strategies<sup>b</sup> are divided amongst ministries, with high-level consultative bodies acting as interlocutors. 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 Portugal<sup>34</sup> and Greece<sup>35</sup> 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.*

### **Consultation for greater buy-in and responsiveness**

41. 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.

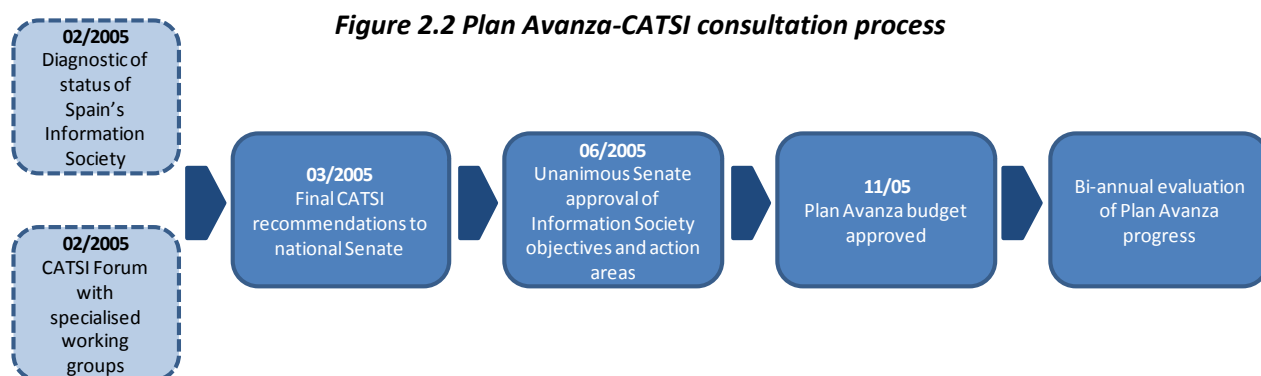
42. A consultative approach has been applied both in the design and evaluation of Plan Avanza objectives. The *Consejo Asesor de Telecomunicaciones y Sociedad de la Información*, or CATSI (the Spanish acronym for the *Advisory Board for Telecommunications and the Information Society*) had a central role in advising the SSTIS in defining the Plan's primary goals and action areas. The 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 more inclusive and comprehensive 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.

43. 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. This entity 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 Government in

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<sup>b</sup> Such as, iD2010, Germany's Broadband strategy, Germany's High-Technology Strategy.

June of 2005. The second Plan Avanza action plan for 2010-2012 was also deliberated by CATSI although it has not yet been approved by the government.



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

44. CATSI offers an important platform for consultation with ministries, sub-national governments, and non-government stakeholders. However, the mechanism may be under-used to the detriment of the Plan: (i) currently local governments are represented by one representative group, making it difficult to raise awareness and buy-in across the country; (ii) membership by non-government stakeholders is dictated by law limiting citizens' engagement in IS policy; and (iii) not all implicated ministries participate in the working groups or deliberations.

#### ***A legal and regulatory framework supportive of IS goals***

45. A strong information society also requires a supportive legal and regulatory framework conducive to IS goals. Plan Avanza has sponsored and helped push forward key pieces of legislation which have encouraged digital inclusion and the creation of digital public services. 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 31, December 2009. The law is declares that online interaction with government is 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:** Effective Dec. 2008, this piece of legislation recognises the rights of citizens to access information through digital channels. The law establishes an eAccessibility obligation on public sector websites, facilitating use by older and disabled persons. Additionally, the law includes measures such as obligatory use of e-invoicing for public contracting, and makes it obligatory for some sectors (banking and utilities, for instance) to make certain information and services available online for consumers.<sup>36</sup>

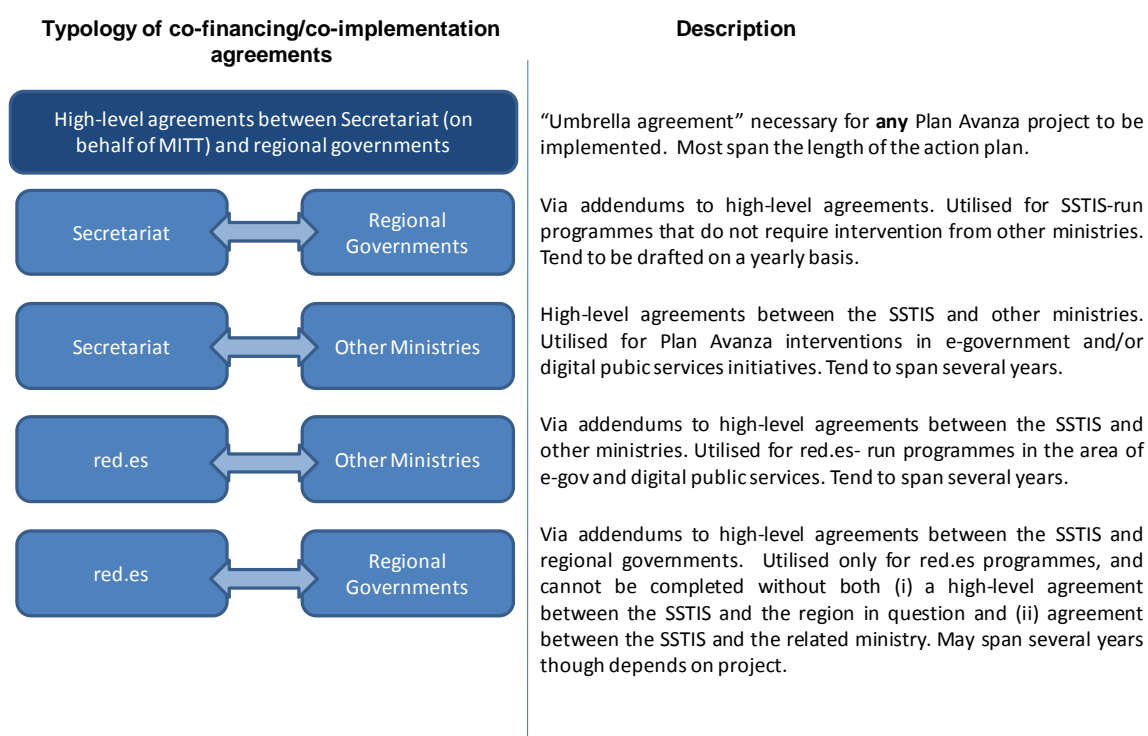


## 2.2 Establishing an effective implementation model

### *Joint-implementation model for enhanced co-ordination and greater reach*

46. Several key 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 (see Box 2.1). Presently, all of Spain’s autonomous regions and cities have signed the *convenios marco* with Plan Avanza.

**Figure 2.3 Types of co-implementation agreements applied under Plan Avanza**



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

47. 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 or bi-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 eHealth programme for instance, its government must co-sign an agreement outlining the distribution of responsibilities and the distribution of 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, according to 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 2.1 Distribution of Plan Avanza funds under the co-financing mechanism**

Regions (according to European Regional Development Fund classifications)	% central/% regional
<b>Convergence regions</b>	60/40
Andalucia	
Castilla La Mancha	
Extremadura	
Galicia	
<b>Phasing-out regions</b>	55/45
Asturias	
Murcia	
Ceuta	
Melilla	
<b>Phasing-in regions</b>	55/45
Castilla and Leon	
Valencia	
Canarias	
<b>Regional Competitiveness &amp; Employment regions</b>	40/60
Aragón	
Baleares	
Cantabria	
Cataluña	
Madrid	
Navarra	
Pais Vasco	
La Rioja	

*Source: OECD. Derived from reports by Plan Avanza Technical Office.*

*Note: not all Plan Avanza programmes are administered through the co-financing mechanism. Some distribution criteria can vary for phasing-out and phasing-in regions depending on projects.*

48. 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 in support of the national eID cards 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 electronic health records (EHRs) in a National Health System's central database, since Plan Avanza has no legal competencies in the area of health.

49. Plan Avanza's co-implementation regime has brought 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 mutually beneficial 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 can foster stronger co-operation by providing incentives to align regional policies to the national IS strategy. 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.
- **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. It is regional and local governments that are most familiar with their territories' economic landscape, socio-economic and demographic characteristics, state of public sector organisations in terms of modernisation, etc. 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.

## Additional Policy Instruments

50. Outside of the co-financing mechanism, 77% of the Plan Avanza budget is distributed by the SSTIS in the form of subsidies, grants and/or no-interest loans. Regional and local governments can include these programmes within their contract agreements.

51. **Grants/Subsidies:** 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, which are funded by two streams: *Digital Citizenship and Digital Economy*. For instance, under the Digital Citizenship financing stream, the SSTIS seeks to target citizens at high risk for digital exclusion. The SSTIS transfers funds directly to persons or NGOs who design programmes that best meet the Plan's objectives and who demonstrate adequate managerial capacity. Grants are also provided, under the *Digital Economy* stream, to firms to promote innovation and software development, and to local governments to incorporate ICTs into their front and back-office activities.

52. **Loans:** In addition to grants, the SSTIS also provides 0% interest loans ("*préstamos 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 EUR 87.1 million for citizens and EUR 397.4 million 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 Crédito*"), who in turn distribute these loans in banks throughout the country.

**Table 2.2 Main loan programmes in Plan Avanza**

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

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

53. **Licenses:** The SSTIS also uses its authority 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 2.4 License conditionalities in the Mobile Telephony Extension Plan (E-GSM)***

In July of 2005, three spectrum licenses were awarded<sup>37</sup> by the MITT for the provision of GSM mobile telephony services. Telefónica 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.*

#### ***Use of an operating agency for capacity-building, flexibility and agility***

54. The use of the operating agency, red.es, in the implementation of key Plan Avanza initiatives has been critical to providing the much-needed technical and sectoral capacities to execute programmes. Regional and local governments in particular have benefited from this approach, which has allowed them to “learn-by-doing” with the guidance of central government, while being prepared to take over ownership at a later date.

55. red.es 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 co-ordinating 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.

- **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.
- **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 co-ordination 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.

**Figure 2.4 Plan Avanza Project Lifecycle**



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

56. The red.es project lifecycle (displayed above) 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.

57. 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.

58. Other IS strategies in OECD countries have adopted similar models. 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.

### **Managing quality to sustain results**

59. 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.

60. 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 (“no enterprise without a web”) 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.

**Table 2.3 Overview of implementation stakeholders, roles and tools**

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

### **Communications Strategy to leverage ICT investments**

61. A critical component of Plan Avanza’s implementation has been its communications strategy, which allows the Plan to leverage its investments in ICT diffusion with initiatives to promote usage. The Plan’s Communications strategy is devised by SSTISS and then managed by red.es, and seeks to raise awareness about the benefits of ICTs and Plan Avanza programmes. Communication tools include various websites, a Plan Avanza 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 over 15,000 people in 2009.

#### **Box 2.5 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.

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

62. The challenge for future communications initiatives implemented under the Plan is to provide greater support to strategies for promoting the take-up of digital public services, targeting- in particular- citizens and firms. As we will see in chapter 4, citizens' and businesses' take-up of government services remains lower than European averages, and it is necessary to raise awareness about the (i) availability of such services and (ii) the benefits of using the "digital channel" as means for interacting with government. Until now, the communications strategy has centred about raising awareness of available programmes and upcoming changes (e.g. the transition to DTT), however, while important, the communications strategy has not been integrated strongly with e-government and channel management strategies to promote take-up of digital services.

### **Monitoring and Evaluation to Improve Performance**

63. 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 (see discussion on measuring impact of Plan Avanza in chapter 4).

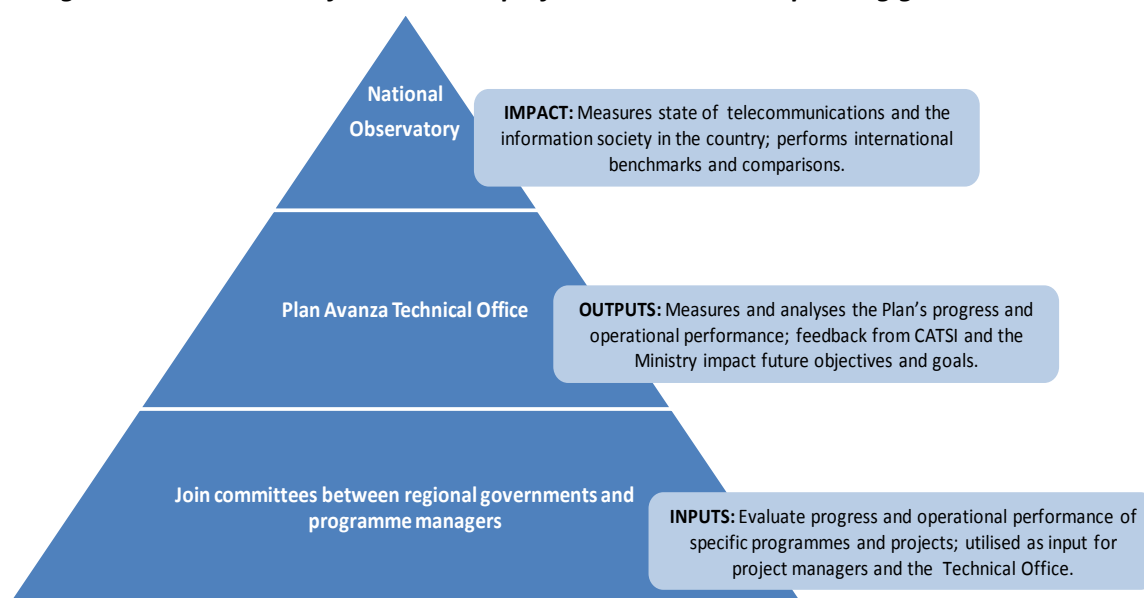
64. The Plan's governance approach to addressing evaluation, then, is a three-tier framework consisting of Project Committees, the Plan's Technical Office, and the National Observatory for Telecommunications and the Information Society.

65. 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.

66. Joint committees and the SSTIS Directorates report information on budget execution to Plan Avanza's Technical Office, which is managed by the SSTIS. 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.

67. Finally, the highest tier of the monitoring and evaluation framework is the National Observatory for Telecommunications and the Information Society (ONTSI), 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.

**Figure 2.5 Dimensions of Plan Avanza performance and corresponding governance mechanisms<sup>38</sup>**



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

68. Plan Avanza has instituted a systematic monitoring and evaluation framework which- for some programmes- sets forward a set of indicators and measures for use across regions. However, this framework could be increasingly utilised for measuring performance and cost-effectiveness (e.g. linking inputs, outputs and outcomes). Especially with regards to the pillars for Digital Citizenship and Digital Economy, these mechanisms may be under-utilised, and indicators should be developed that assess whether these funds are having greatest impact in regions/beneficiaries that are considered strategic by the Plan. Red.es acts as one factor in standardising indicators in regions, but gaps remain. The entity could work closer with regions to collect the same information. Additionally, ONTSI could work with regional governments and the National Institute of Statistics to create a "toolkit" for measuring PA programmes.

## **Conclusions**

68. Early attention granted to important governance issues during policy design has yielded some positive results which have differentiated the Plan from previous strategies: since Plan Avanza has been centralised under the State Secretariat for Telecommunications (SSTIS) and the Information Society, IS policy in Spain has gained much momentum; the joint-implementation model established in conjunction with regional and local governments has been critical in Spain's decentralised administration structure, and contributed to increasing the scope and responsiveness of Information Society policies; furthermore, the use of an operating agency, red.es, has provided the critical technical support needed to implement complex initiatives, while building the capacities of stakeholders to continue expanding IS and e-government policy in the future independently- or jointly- with the Plan.

69. While certainly Plan Avanza has adopted a cross-sectoral and collaborative approach throughout design and implementation, the strategy could better use its position of leadership and strong political mandate to strengthen the "whole-of-government" approach to the IS agenda and further increase the scope of the strategy, including the potential of IS initiatives to contribute more directly to economic recovery and long-term goals for innovation/economic policy or initiatives for greater energy efficiency. Indeed, broadening the Information Society vision is important to take into consideration the societal-wide benefits of ICTs. Furthermore, findings from interviews suggest the current consultation process may not be as inclusive and proactive as it could be, as some important parties are not participating, and the Plan's communications initiatives have not been integrated into a wider marketing strategy aimed at citizens and firms, with the goal of increasing take-up of digital public services. Furthermore, especially with regards to the pillars for Digital Citizenship and Digital Economy, mechanisms for monitoring and evaluation exist, but may be under-utilised; currently the mechanisms in place focus on monitoring project inputs, rather than on evaluating the cost-effectiveness and impact of policies. The following chapter tests these hypotheses, presenting results from a survey on the effectiveness of initiatives and inter-institutional co-ordination.



## CHAPTER 3

# ASSESSING THE EFFECTIVENESS OF INTER-INSTITUTIONAL CO-ORDINATION UNDER PLAN AVANZA: THE IMPORTANCE OF MULTI-LEVEL GOVERNANCE

### **Box 3.1 In this Chapter**

As seen thus far, building a strong policy and governance framework is key for the success of Information Society policy. Increasing the impact of Information Society strategies however, particularly in times of fiscal consolidation, requires that policy-makers continuously look for ways to improve the performance of these frameworks; this can include identifying potential co-ordination gaps between stakeholders and leveraging existing institutions and policy instruments to maximise results. Using Plan Avanza as a case study, chapter 3 highlights the importance of inter-institutional co-ordination in the implementation of IS policies in Spain, and assesses the effectiveness of the principal governance tools described in the previous chapter: the public enterprise red.es, CATSI (the National Advisory Board for Telecommunications and the Information Society), bilateral contracts and the co-financing mechanism. In particular, readers will discover:

- The common obstacles to effective multi-level governance and why is it important for Information Society strategies to overcome them.
- What Plan Avanza stakeholders have said about the effectiveness of co-ordination in implementing Information Society policy in Spain.
- The key strengths and weaknesses of the co-ordination tools utilised by Plan Avanza and what the next phase of the strategy could do to improve performance of the strategy.

#### **Key Findings**

- Applying a multi-level governance framework to the analysis of the Plan Avanza allows for a better understanding of the mutual dependencies that exist between stakeholders in the design and implementation of Information Society policy in Spain. Furthermore, effective multi-level governance will become increasingly important as Plan Avanza 2 starts to place greater priority on “demand-side” policies (e.g. those that leverage existing investments in ICT infrastructure by spurring the take-up/usage of ICTs and digital services). Efforts to increase ICT skills, incentivise take-up, and improve the responsiveness of digital public services- for example- will hinge on the effectiveness of partnerships between stakeholders since sub-national governments in Spain possess high levels of autonomy in the delivery of key public services (education, health and social services, justice, etc.).
- Findings from the survey confirm observations from interviews and roundtables with stakeholders: indeed, Plan Avanza has been successful in elevating IS policy onto the national and sub-national agenda. Survey results also identified a series of additional policy, information, capacity and financial “gaps” which could negatively impact the performance of the Plan. Regional and local governments are particularly affected and report facing, relatively, a greater number of obstacles to implementing Information Society policy.
- Lastly, some effective governance tools have been established but, especially in times of fiscal tightening, more could be done to optimise resources while maximising the impact of Plan Avanza 2. Some challenges include (i) strengthening monitoring and evaluation mechanisms; (ii) adapting the redistributive strategy of Plan Avanza funds to help yield better results and contribute to inter-regional convergence; and (iii) further leveraging existing institutions for better horizontal and vertical co-ordination.

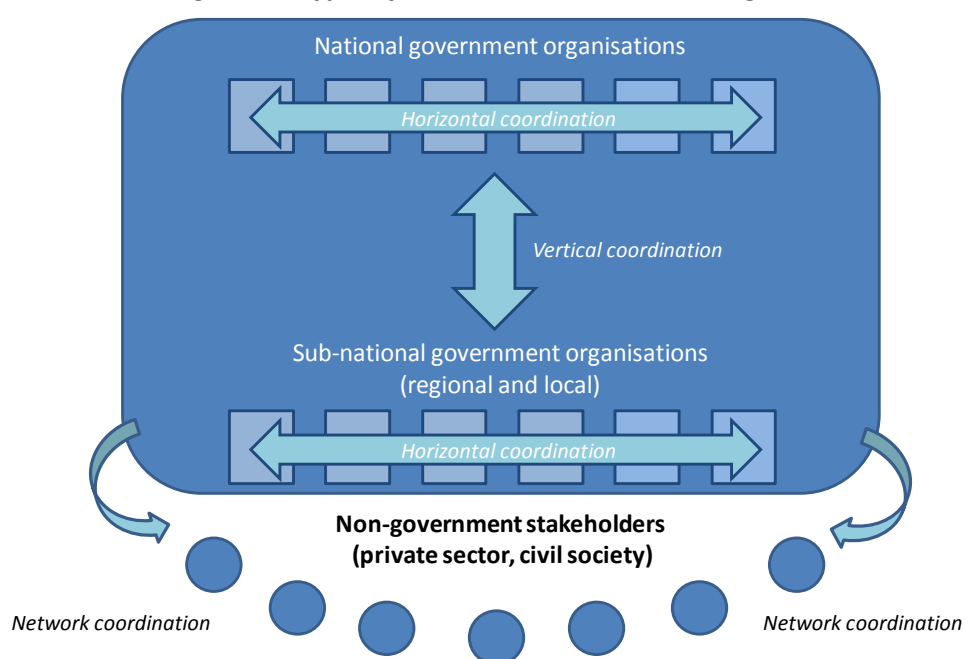
## Introduction

65. Fostering effective co-ordination between different levels and areas of government, as well as with non-government actors, is the essence of good **multi-level governance**, and it is integral for the success of information society (IS) strategies for various reasons. This chapter outlines the principal drivers necessitating strong multi-level governance and highlights the key benefits that can be derived from getting this important governance element right. With a view to improving IS results, findings from a survey of 99 Plan Avanza stakeholders assessing the effectiveness of co-ordination mechanisms under the Plan are also presented along with findings from interviews and field visits.

### 3.1 Multi-level governance: a daily reality for policy-makers

*What is Multi-level governance?*

**Figure 3.1 Types of co-ordination in multi-level governance<sup>39</sup>**



Source: OECD, 2009.

66. Multi-level governance (MLG) refers to (i) the vertical co-ordination between central and sub-central government stakeholders; (ii) the horizontal co-ordination amongst government agencies of the same tier of government; and includes also (iii) the notion of “networked co-ordination,” which refers to the collaborative relationships between government and non-government stakeholders. The need for these kinds of *vertical, horizontal and networked co-ordination* stem from the inherent **mutual dependencies** that exist between stakeholders in a complex policy environment.<sup>40</sup> That is, different stakeholders’ *reliance* on each other to effectively and efficiently design and implement policies. Examples of mutual dependence throughout the design and implementation of Plan Avanza are plentiful: on the one hand, sub-national stakeholders depend strongly on the central government for leadership as well as the transfer of sufficient resources to meet their assigned obligations (see Figure 2.1). Conversely, because of the Plan’s co-implementation approach, central governments rely on sub-national organisations to fulfil key implementation responsibilities as well as for crucial information to guide policy-making.

67. It is clear that mutual dependencies call for close collaboration between stakeholders, but what kinds of co-operation specifically? In the OECD multi-level governance framework, co-operation can be

conceptualised in terms of the extent to which stakeholders engage in essential consensus-building, capacity-building and communication, as well as the degrees to which they work together to monitor compliance and evaluate progress. Firstly, co-operation must embody consensus-building; as the harmonisation and alignment of different stakeholders' IS objectives and priorities requires strong co-ordination to establish a common framework for concerted action. Likewise, co-ordination also takes the form of communication and information-sharing, since it is only through the fluid exchange of information that large-scale, multi-sectoral programmes can be effectively implemented. This aspect includes not only the exchange of information, but also the building of common knowledge or a common point of reference on which to build upon. Thirdly, and particularly important in a technological complex policy such as Plan Avanza, co-ordination includes capacity-building in order to ensure that high-level policy directives are accompanied by the means (financial and otherwise) to help stakeholders achieve them. Indeed, this has been one of the principal responsibilities of red.es, which has played an enormous role in supplying ICT equipment, training, or providing the technical expertise and assistance. Finally, in the context of MLG, joint monitoring and evaluation is a core tenant of co-operation. Establishing linkages between inputs such as ICT spending or equipment and the outputs, or evaluating the effectiveness of a policy, cannot be accomplished without the co-operation of all tiers of government.

### *Drivers of MLG*

68. Some of the key drivers necessitating strong inter-institutional co-ordination in the design and implementation of Plan Avanza include (i) Spain's decentralised administrative structure; (ii) the strong technical component of the Plan and the growing reliance of ICTs for improving public service delivery; as well as (iii) the large quantity and diversity of stakeholders implicated in IS policy in Spain.

69. As seen in the previous chapter, Spain is one of the more decentralised countries of the OECD, signifying that regional and local governments have higher levels of autonomy in the design and delivery of critical public services. While all OECD countries confront this challenge to a certain extent, there are important implications for the design and implementation of IS policies like Plan Avanza. For example, decentralisation can intensify mutual dependencies between tiers of government. Furthermore, decentralisation can blur the lines between tiers of government with regards to stakeholders' specific roles and responsibilities, opening the door for co-ordination issues such as fragmented or duplicated policies.

70. The transversal nature of technology enables growth and competitiveness, and further necessitates strong co-ordination in IS policy. Certainly, Plan Avanza must mirror the ubiquity of ICTs themselves; just as ICTs have a wide breadth of applications in sectors such as energy, transport, health, and education, among others, different areas of government must harmonise efforts in order to create synergies and maximise these technologies' potential for social and economic gain. It is through this cross-fertilisation of information, resources and technological solutions that new opportunities arise for greater efficiency and innovation. The development of green ICTs, for example, has implications ranging from environment to transport to housing. If real energy efficiencies are to be realised at an aggregate level, relevant ministries must work together on cross-cutting issues.

71. What's more, the need for horizontal and vertical co-ordination is likely to increase in the future under the vision of holistic government through e-government. Across OECD countries, there is a growing trend towards a "whole-of-government" approach to service delivery, with the aim of delivering a more personalised interaction with citizens through more efficient means. This model relies heavily on integrated back-office operations, joined-up or bundled services and shared resources, all of which are enabled by ICTs. ICTs and technological advances are further fuelling this trend: growing digital convergence, for example, creates new opportunities for linking public services, and platforms such as cloud computing can be used to support shared services architecture. For ICTs to be fully exploited in the

delivery of public services then, co-ordination between different government agencies will need to take on a different, more ambitious, form.

72. Lastly, the number of non-government stakeholders implicated in IS policy require strong relationships with these in order to achieve objectives. Indeed, a large number of non-governmental stakeholders are strongly implicated in Plan Avanza, a trademark of other IS strategies in OECD countries which increases the scope of complexity of co-ordination. Both the telecommunications operators and ICT sectors have prominent roles in extending broadband, DTT or mobile phone coverage. Additionally, initiatives designed to promote digital inclusion rely strongly on civil society with close relationships with target end-users. Seen in this light, implementing IS strategies can be viewed as requiring the support of an expansive system, or network, of stakeholders. Co-ordination efforts must be extended to all entities in the network to be most effective.

### ***Box 3.2 Importance of inter-institutional co-ordination in eHealth***

The eHealth programme is one such initiative in which different levels of co-ordination are key, and which requires strong partnerships with government and non-government actors.

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 (NHS) central node, as well as interconnect regional health services' information systems via this node, thereby allowing citizens and physicians to be able to access medical records and prescriptions throughout the country. Plan Avanza's role includes work on the central node itself, the deployment of necessary equipment to hospitals, primary health centres and the data centres or the synchronisation of the regional health cards to create a reliable user identification system throughout the National Health System, while addressing the security and privacy issues at stake. Additionally, the programme provides training for nurses, doctors and hospital staff in new applications.

The importance of inter-institutional co-ordination becomes evident in the complexity of the health sector. One of the main challenges for the Plan was establishing high levels of co-operation from the stakeholders involved, in particular, regional health services. Indeed, 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 would limit the potential for system-wide innovation (e.g. joined services, new modes of care such as telemedicine, etc.) Additionally, working with health professionals associations is critical for training, developing applications and promoting take-up.

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

### ***Benefits of effective MLG***

73. Certainly, there are important benefits for IS policy makers to getting this important element right. Namely, successful multi-level governance (MLG) tools and strategies can contribute to the following outcomes:

- **Effective MLG can improve governments' performance, and therefore potentially increase the impact of IS policies:** Strong MLG can help avoid the fragmentation or duplication of policies, improve the capacities of implementers, raise consensus and political will, reduce confusion, increase incentives for participation, and help determine which initiatives work best. These "performance enhancers" ultimately contribute to more responsive strategies; they reduce unnecessary delays, and can increase the sheer scope/size of initiatives. Not only do stakeholders themselves benefit from 'leaner' and more effective IS policies, but ultimately end-users do so as well.



- **Effective MLG can help optimise resources in times of fiscal tightening:** Measures for fiscal consolidation place additional pressure on government organisations at both national and local levels to optimise resources and maximise results. The challenge lies in reducing costs without sacrificing impact. Improved MLG supports this goal by reducing the unnecessary waste and duplication, maximising limited resources, and allowing for organisations to better exploit economies of scale. It is mainly by horizontal co-ordination, for example, that municipalities and regions pool resources to attain better value for money in the procurement and maintenance of ICT infrastructure and equipment. (See box 1.4 for a case of horizontal co-operation amongst municipalities involved in Plan Avanza).
- **Effective MLG can help promote equity and inter-regional convergence:** Effective MLG can contribute to equity goals as well, such as inter-regional convergence (as indicated in Chapter 1, one of the overarching objectives of Plan Avanza). Decentralised IS policy allows regions to differentiate their activities, tailoring them to specific regions needs; however this creates the risk that, over time, pre-existing disparities will be reinforced rather than reduced. After all, not all regions embark on IS initiatives with the same capacities, resources, or preconditions in place (e.g. a developed ICT sector, for instance). Effective MLG can help equalise these essential factors. For example, sub-national governments who co-operate freely in the exchange of best practices or technological solutions, for instance, can learn from each other and help laggards “catch-up”. Likewise, governance tools such as contracts and operating agencies can be utilised to equalise differences in capacities (financial and otherwise).
- **Effective MLG is key in the transition to “demand-side” policies:** As we have seen in the first chapter, Plan Avanza 2 begins to mark a shift in that the strategy places growing emphasis on “demand-side” policies that is, initiatives aimed at leveraging ICT investments by promoting their usage and take-up; the following chapter provides further support for the need to strike this balance. Effective MLG is key in these policies since, relative to measures for ICT diffusion, initiatives aimed at promoting take-up of digital public services require stronger collaboration between stakeholders: in Spain, regional and local governments have the majority of competencies in the management of education and health systems; and backing from non-government stakeholders (such as teacher and parent organisations, or professionals associations) is required to increase awareness amongst users’ about the benefits of ICTs, increase provide training, and help better adapt ICT applications to their needs.

### 3.2 MLG and Survey Framework

74. The OECD’s work on MLG, along with findings from interviews and roundtables with key Plan stakeholders, have served as the basis for the design of a survey used to assess the effectiveness of inter-institutional co-ordination under the Plan. The survey’s aim has been to (i) examine how different levels of government perceive co-ordination under the Plan; (ii) identify any potential obstacles to co-ordination between and amongst levels of government; and (iii) assess the co-ordination tools applied by the Plan and described in the previous chapter. Box 3.3 highlights some common “gaps” in multi-level governance in OECD member countries, whose experiences have served to help develop the survey and evaluate the Plan. Stakeholders were also asked to judge the effectiveness of key Plan Avanza initiatives on citizens, businesses and the public sector; these are presented in the following chapter.

**Box 3.3 “Mind the Gaps”: common obstacles to inter-institutional co-ordination between and across levels of government**

Challenges in multi-level governance are certainly not unique to Spain, and the hypotheses of potential co-ordination issues tested in the survey were based on case studies of MLG in other OECD member countries across several public management domains including: fiscal and regulation policy, e-government, human resources management, water management, and innovation policy. Findings of these case studies were published in 2009 in the report “Mind the Gaps: Managing mutual dependence in relations among levels of government.” Some of the main obstacles commonly faced by governments included:

**The information gap:** The information gap is characterised by information asymmetry between the national and the sub-national level when designing, implementing, and delivering public policy. National and even sub-national strategies for achieving public policy objectives might face an information deficit if sub-national authorities and actors do not actively share their knowledge of what is happening “on the ground.” Sub-national governments’ views however, are only ‘partial’ – limited to its own area or territory. Thus the central government plays an indispensable role in managing the information in such a way as to support a broader vision that can link to accomplishing public policy objectives.

**The capacity gap:** Capacity gaps occur when there is a lack of human, knowledge (skill-based), operational or infrastructural resources. Capacity-development needs can vary with the pre-existing levels of public administration infrastructure. Long standing sub-national governments with well-developed institutions may require little in terms of capacity-building to assume new responsibilities. But, where sub-national governments or related institutions must be created or have historically a limited role, capacity-building needs will be greater. The capacity gap is not restricted to the sub-national level, however; it also applies to the national level in terms of managing multi-level relations, allocating responsibilities and funds, and ensuring co-ordinated, coherent policy approaches among central level actors.

**The fiscal/financial gap:** The existence of a fiscal gap between the revenues and required expenditures of sub-national governments results in financial dependence by the sub-national level on the central level. Thus, the sub-national level remains dependant on the national level for funding and for a fiscal capacity to meet its policy obligations. Meanwhile, the central government depends on the sub-national level to deliver more and increasingly costly public services and meet both national and sub-national policy priorities.

**The administrative gap:** An administrative gap arises when administrative borders and functional economic areas at the sub-national level do not correspond to one another. This is clearly evidenced in metropolitan areas where there is an agglomeration effect arising from a set of municipalities that alone are much smaller than the metropolitan whole. Individually their influence may be limited, but as a group, they can be a strong player in the relationship among levels of government. The administrative gap is an excellent example of multi-level governance relationships based on horizontal mutual dependence, as this gap often generates the need for co-operation among sub-national governments.

**The policy gap:** Policy gaps result from incoherence between sub-national policy needs and national level policy initiatives. Neglecting to consider a sub-national logic can reduce the possibility for successful cross-sector policy development and implementation at the sub-national level. Additionally, these gaps can also occur when ministries take a purely vertical approach to policy issues that are inherently cross-sectoral (e.g., water, energy, youth, investment, etc). If individual ministries apply their individual logic to cross-sectoral initiatives that impact or are implemented at the sub-national level, then the opportunity for “joined-up” or “whole-of-government” approaches is minimised.

*Source: “Mind the Gaps: Managing mutual dependence in relations among levels of government”(2009), OECD.*

75. The survey was administered to regional and local governments, implementation stakeholders (including non-government organisations), as well as ministries having been involved in Plan Avanza at least at one point since 2006. All participating ministries and regions were invited to complete the survey, while- due to the large number of local governments in Spain- a smaller sample of these received questionnaires. This sub-sample of local governments was selected on the basis of population to ensure

the views and IS needs of small, medium and large territories were represented. Additionally, representatives on the IS commission of the Spanish Federation of Provinces and Municipalities (FEMP) participated in the survey. In total, 99 responses were analysed, representing an overall response rate was 55%, although local and external stakeholders were less inclined to participate (response rates were 44.7% and 41.9% respectively).

**Table 3.1 Organisations that participated in Survey**

Respondents by Tier	Description
<b>Central</b>	Ministries of Education, Health, Justice, Presidency, Interior, Culture and Infrastructures.
<b>Regional Governments</b>	
Regional co-signers for high-level regional contracts (Convenios Marco)	Consejerias of Science and Innovation or Telecommunications and the Information Society. In exceptional cases, regional governments at the highest level (e.g. elected regional representative).
Regional co-signers for addendums to contracts for specific projects	Consejerias of Education, Justice and Health.
<b>Local Governments</b>	Municipalities
<b>Non-government stakeholders</b>	ICT sector and ICT-users associations, IS academics and subject matter experts involved in the Plan.
<b>Total</b>	<b>99</b>

### 3.3 Assessing the effectiveness of inter-institutional co-ordination under Plan Avanza: Survey and Interview findings

76. What do Plan Avanza stakeholders report regarding the effectiveness of co-ordination in the design and implementation of IS policies? What co-ordination tools are most effective in “bridging” potential co-ordination gaps between levels of government? The following section presents the main findings of the survey and interviews, namely:

- 1. Plan Avanza has created a strong consensus amongst stakeholders about the importance of a strong information society for the country's future.** The Plan has elevated IS policy onto the national political agenda; a significant ascent when considering the comparatively lower resources and weight dedicated to IS objectives prior to 2005. Achieving this consensus amongst the great number of stakeholder (across ministries, regional governments, local governments, and non-government organisations) has been perhaps one of the more important achievements of the Plan.
- 2. Nevertheless, some “gaps” remain in multi-level co-ordination; sub-national governments, and especially local governments, are the most adversely affected.** At the national level, the principal policy gap identified by stakeholders in interviews was the need to align Plan Avanza 2 with nation-wide initiatives for economic recovery. Additionally, regional and local governments report facing greater obstacles to implementing IS policy and call for greater support from the Plan to overcome “gaps” in capacities- financial and in terms of know-how.
- 3. The Plan has established some effective MLG tools, but these could be further leveraged in the future to help bridge the (aforementioned) co-ordination gaps and increase impact.** Survey results confirm findings from interviews that red.es is an effective implementation tool which works to equalize different regions’ level of IS development. Contracts between levels of government could be improved, especially with regards to strengthening monitoring and evaluation mechanisms and being extended to facilitate planning. Additionally, policy

instruments could be used to better promote inter-regional convergence and better reach those groups most in need. This will be critical in the shift to from demand to supply-side policies.

**4. Horizontal co-ordination is under-utilised; and yet the potential for such collaboration to increase cost-effectiveness and create synergies is great.** Compared to other tools for horizontal co-ordination, pooled procurement, information and resource-sharing and joint monitoring and evaluation are under-used. However, these are tools which could help regional and local governments maximise economies of scale and scope and increase the sustainability of programmes once ownership is transferred to them from the national level.

77. It is useful at this point to review the main institutions and governance tools utilised by Plan Avanza and described in the previous chapter, as the following section will make reference to these important co-ordination mechanisms.

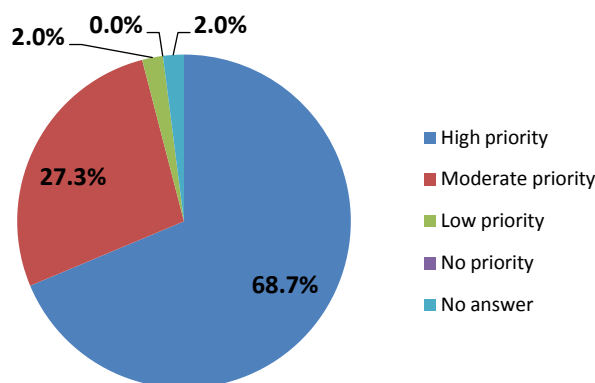
**Table 3.2 Main institutions and governance tools of Plan Avanza**

Institution/tool	Roles
<b>Secretariat for Telecommunications and the Information Society</b>	The Directorate within the Ministry of Tourism, Industry and Trade responsible for implementing and managing Plan Avanza.
<b>CATSI (Spanish acronym for Advisory Board on Telecommunications and the Information Society)</b>	An advisory board composed of various working groups centred around specific information society issues; it is composed of several ministries, regional governments, and representatives of local governments (via FEMP). Additionally, various ICT sector and user associations are invited to participate as members.
<b>Public enterprise, red.es</b>	The public enterprise is responsible for managing some key Plan Avanza programmes in co-ordination with regional governments, most notably sectoral initiatives in education, health and justice. The organisation offers critical technical expertise and guidance to stakeholders.
<b>FEMP (Spanish acronym for the Spanish Federation for Municipalities and Provinces)</b>	An organisation responsible for representing local governments (municipalities and provinces) at the national level. FEMP has a working commission specifically for information society and technology policy which liaises with the SSTIS and participates in CATSI.
<b>Contracts</b>	Plan Avanza is implemented in autonomous communities and cities via contracts between central government agencies and sub-national governments.. There are two kinds: high-level agreements with regional governments which last several years; and programme-level agreements which can span the length of the projects entailed. These contracts stipulate roles and responsibilities and detail how funding will be distributed.
<b>Co-financing mechanism</b>	Some Plan Avanza initiatives are jointly funded by the central government and stakeholders. eHealth, education and justice programmes for instance are co-financed between the regions and the different ministries implicated. Red.es and the SSTIS may also provide funds. Furthermore, to participate in the Avanza Local programme, local governments must also contribute funding.
<b>Monitoring Commissions</b>	When a contract is signed, a monitoring commission is established and charged with overseeing that its conditions are met. According to interviews, these tend to meet once a year.

**3.3.1 Plan Avanza has created a strong consensus amongst stakeholders about the importance of a strong information society for the country’s future.**

78. Survey results indicate that the Plan has contributed to strengthening consensus amongst stakeholders about the importance of the information society for the country’s future, and IS policies rank high relative to other organisations’ initiatives. Sixty-nine percent of stakeholders rated the policy agenda a high priority for their organisation while only 2% believed it was a low priority.

**Figure 3.2 What priority does IS policy have in your organisation relative to other policies?**



Source: OECD, Plan Avanza survey.

79. However, surprisingly, only 45% of local-level stakeholders regarded IS policy of high priority, compared with nearly double that amount in the central government. This suggests future efforts to gain support for the IS agenda should be targeted at local governments, as they are often first point of contact with citizens and SMEs and their involvement has the potential to yield positive and-often more immediate- impacts “on the ground” with citizens and end-users. By sector, justice practitioners place the highest priority on IS policy, a timely result as the Ministry of Justice launches a large-scale modernisation plan which relies heavily on Plan Avanza support. It is interesting to note that regional representatives responsible for Science & Technology (S&T) policies prioritise IS policy less than justice and education stakeholders, despite the strong linkages between ICTs and innovation policy and the potential for synergies between these two areas that could be further exploited.

Table 3.3 Pct of respondents answering that IS policy is of “High Priority” for their organisation			
Central	83.3%	Justice	100.0%
Regional	80.0%	Education	77.8%
Non-govt	75.0%	S&T	75.0%
Local	44.8%	Health	73.7%

Source: OECD, Plan Avanza survey.

### ***3.3.2 Some “gaps” exist in multi-level co-ordination, sub-national governments- and especially local governments- are the most adversely affected.***

80. Survey results have identified potential areas for improvement in vertical and horizontal co-ordination which may be affecting the impact of the Plan by limiting its scope and responsiveness to IS needs, as well as the capacities (human, financial and organisational) of regional and local governments to effectively executive IS policies and participate in their design.

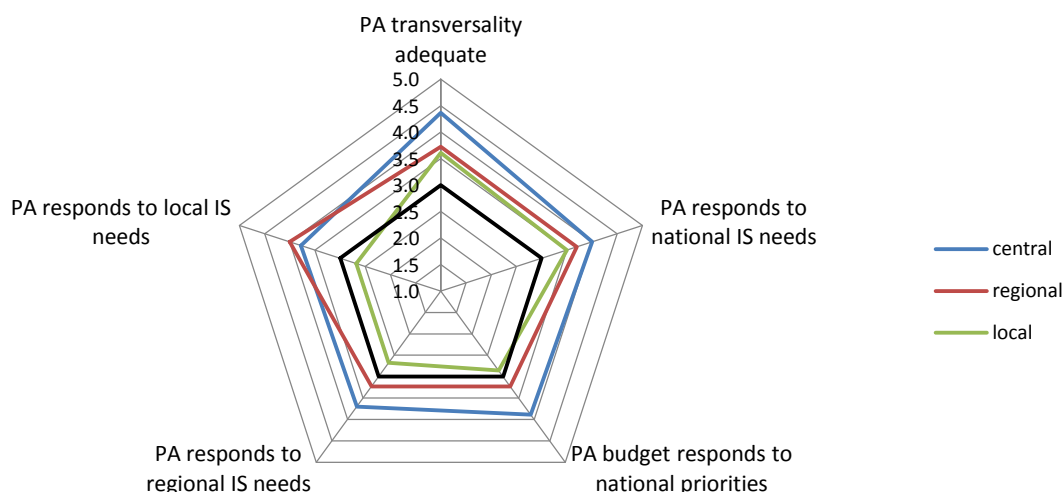
#### **Policy Gaps**

81. Chapter one described the main objectives and targeted beneficiaries of IS policy in Spain. One way of establishing what policy gaps, if any, exist in this policy agenda is to ascertain the views of stakeholders on: (i) whether the right target groups have been identified by the strategy (*e.g.* ICT sector, SMEs, marginalised- or socially excluded- citizens); (ii) whether the Plan’s initiatives are faithful to the spirit of its objectives; (iii) whether the distribution of resources reflect the priorities of national IS needs; and (iv) whether sub-national governments perceive that the Plan is addressing the most prominent needs of the public administration in terms of advancing ICTs and supporting e-government initiatives.

82. The majority of respondents across tiers and sectors agree that the Plan’s budget appropriately reflects national priorities, and that the Plan’s degree of transversality is adequate. Though in the minority, the greatest area of contention is with regards to how well the Plan is adapted to different sub-national needs, 23.1% and 20.8% of respondents perceive that the strategy does not respond well to their regional and local governments’ specific IS priorities, respectively. This is an interesting result since these two questions also received the largest percentage of “strongly agree” responses, suggesting inter-territorial discrepancies remain. Additionally, nearly 23.3% of respondents would like to see greater strategic prioritisation given to the distribution of resources amongst the Plan’s different areas of action. As it stands, the majority of funds have been destined to supply-side initiatives, and this response may indicate a readiness to begin prioritising more demand-side policies. The next chapter demonstrates readiness to make this shift in some sectors.

83. The differences between the views of central and sub-central governments become clearer when disaggregating results by tiers. Sub-national governments, in general, perceive the most barriers. Furthermore, while regional and central governments may differ, their responses are, on average, positive (that is, 3 or over, which is represented by the black line). Local governments however generally view that the Plan’s responsiveness to local and regional IS needs could be improved.

**Figure 3.3 Average responses by tier (5= strongly agree, 1= strongly disagree)**



Source: OECD, Plan Avanza survey.

84. Despite an overall satisfaction with the nature of the Plan’s goals however, a large majority of respondents (84,1%) perceived the need for continued action, responding “yes” to whether their organisations perceived an important policy gap in Spain’s IS agenda. In short, the demand for continued intervention and action on IS policy remains strong. The effect is most apparent amongst justice sector institutions, all of which responded that there was more work to be done in their sector. Plan Avanza 2 seems to have already begun to address this sector’s strong demand for further action, as there is greater focus on justice in this second incarnation of the strategy. Indeed, over EUR 76 million will be destined to the Lus+Red programme which will continue to work with civil registries and the courts to digitise records, install kiosks, and diffuse audio-visual technologies to courts. Furthermore, it is local governments who expressed a greatest need for further support from the Plan, the vast majority (92%) recognize there is scope for greater action for IS policy in municipalities, provinces and deputations. The resounding message from these stakeholders seems to be for continued action on IS initiatives.

**Table 3.4 Policy Gaps by Tier/Sector**

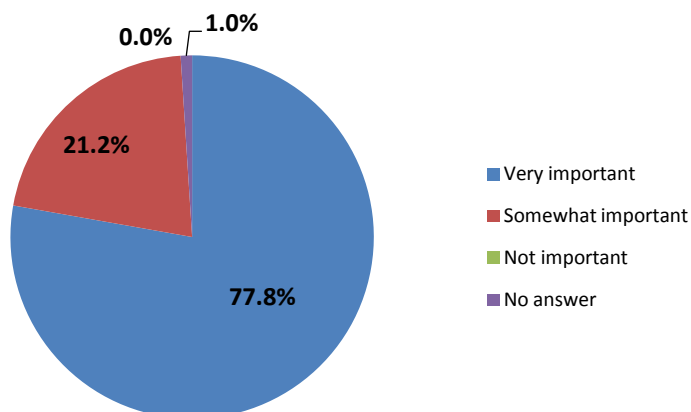
Does your organisation perceive an important policy gap in Spain’s IS agenda? Respondents answering “yes”.			
Justice	100.0%	Local	92.0%
Health	72.2%	Regional	81.6%
Education	66.7%	Central	63.6%

Source: OECD, Plan Avanza survey.

85. One of the most prominent policy gaps identified in interviews with stakeholders was with regards to Plan Avanza’s contribution to economic recovery. Indeed, there is a strong mandate amongst IS policy makers to link Plan Avanza 2 more closely to goals for economic recovery; indeed all sectors and tiers of government perceive a strong relationship between strong information societies, citizens’ welfare and future economic competitiveness. Although the Plan’s work in IS policy has contributed in the past to economic and social objectives, Plan Avanza 2 could build on this strong consensus to forge closer linkages with new high-level reforms such as the draft Law for the Sustainable Economy, for example, to contribute to both short-term recovery efforts and long-term strategies to promote economic structural

change. For example, initiatives to increase eSkills in unemployed workers tie into immediate needs to re-train persons from such sectors as construction. Additionally spurring the development and application of green ICTs or strengthening the ICT sector are aligned with long-term goals of promoting innovation and increasing value-added of the Spanish economy; initiatives for development of green ICTs could be tied to programmes such as RENOVE for raising energy efficiency of buildings; and the national Plan for Climate Change and Clean Energy would further benefit from support from the Plan. Greater inter-ministerial co-ordination lies at the heart of promoting such synergies. The assessments and proposed areas of action highlight additional areas where Plan Avanza 2 could support these goals.

**Figure 3.4 How important is IS policy for the country's economic recovery?**



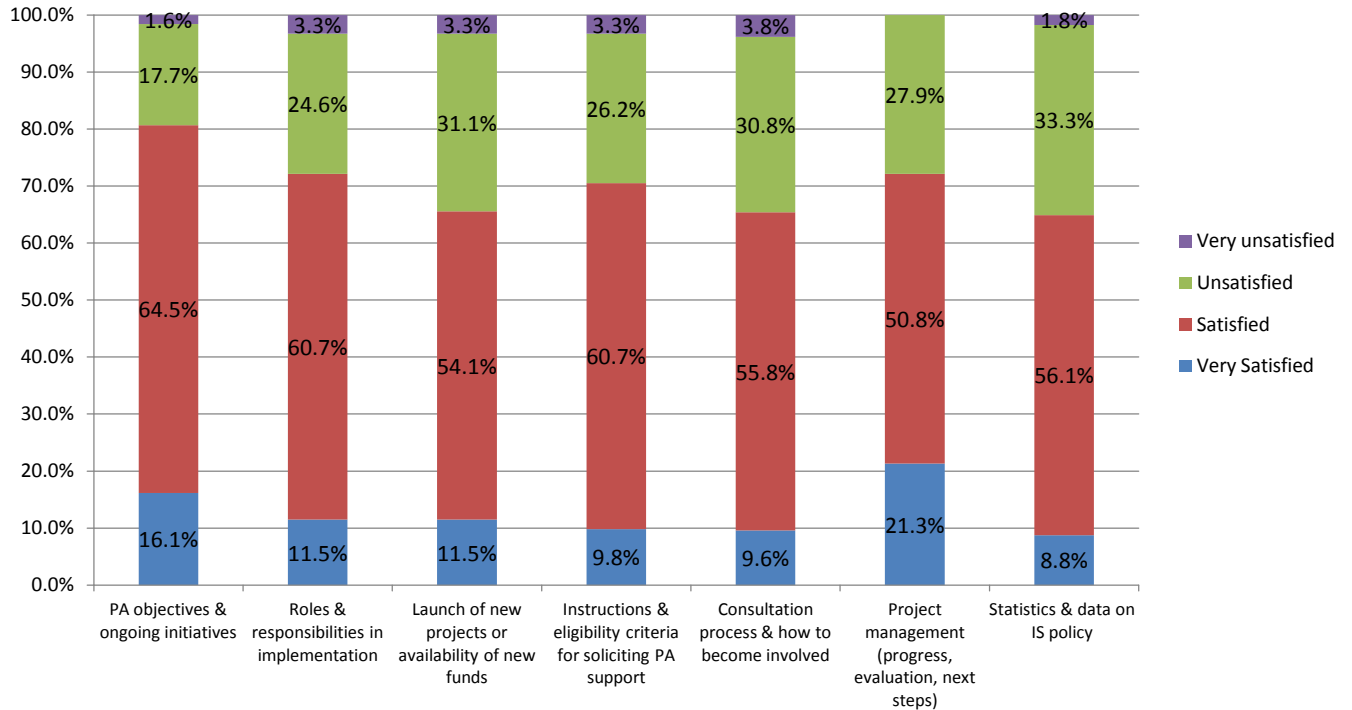
Source: OECD, Plan Avanza survey.

### Information Gaps

86. Overall, participating organisations are satisfied with the flow of information between them, the SSTIS and red.es. The most prominent areas of improvement are regarding the dissemination of statistics and data on IS policy which, as we will see in this chapter, reflects the presence of another kind of important information gap (*e.g.* monitoring and evaluation). Stakeholders also would like greater information about the launch of new projects or availability of new funds, and nearly 30% are unsatisfied with information about how to solicit Plan Avanza support. Indeed, in interviews, non-government organisations expressed the difficulties for SMEs, ICT sector firms, etc. to solicit funding, as the administrative procedures are complex. Additionally, survey results point to the fact that stakeholders would like further information about the consultation process and how to become involved, as 31% of respondents are unsatisfied with information-sharing on this issue. This result is not surprising with the low awareness of CATSI and its role in the policy-design process (about 46% of respondents are unaware of the existence of this institution).



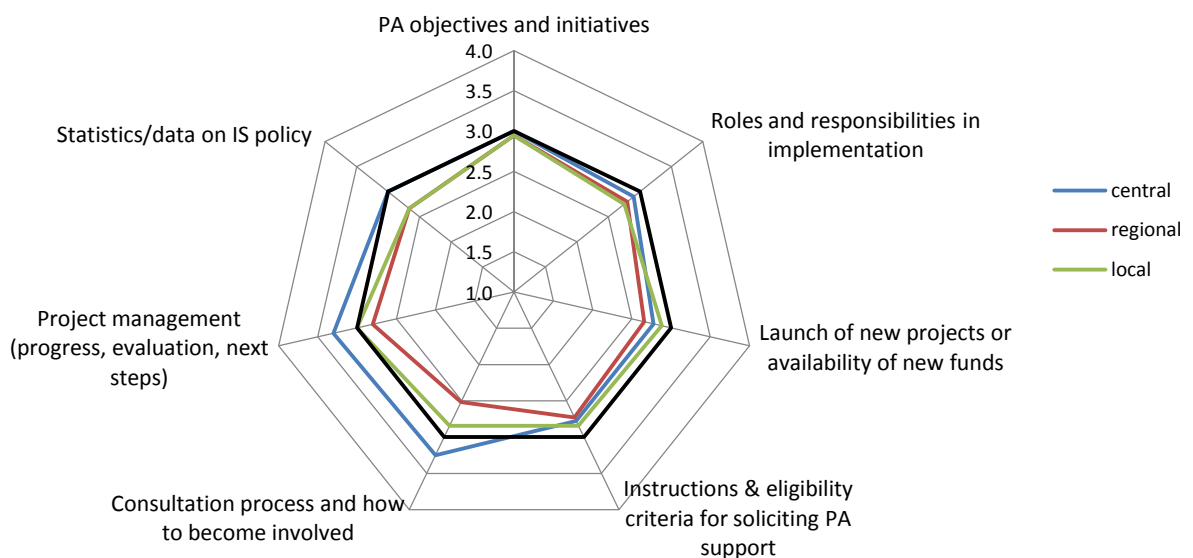
**Figure 3.5 Kinds of Information Gaps (aggregate results)**



Source: OECD, Plan Avanza survey.

87. As evident in the (below) figure, local and regional governments were most likely to perceive information gaps, with the black line representing the threshold for stakeholders being “satisfied” with each dimension. This is not surprising due to the difficulties in co-ordinating with such a large number of municipalities in Spain. Furthermore, the implementing agency red.es interacts mainly with regional governments and offers (financial) but little technical/managerial support at the local level. Plan Avanza could consider communications initiatives targeted at the local level either through greater co-ordination with FEMP or, for example, through Web 2.0 tools.

**Figure 3.6 Kinds of Information Gaps (4= very satisfied; 1= very unsatisfied)**



Source: OECD, Plan Avanza survey.

88. Information gaps are also affecting stakeholders' participation in policy design. 34.6% of respondents are unsatisfied with information about how to participate in the consultation process, and 60% percent of responding organisations reported experiencing obstacles to participating in the design of Plan Avanza 2. The most common obstacles to the communication being: (i) information not being transmitted often enough; (ii) information not reaching the correct stakeholders; and (iii) information not being sufficiently clear. The majority of organisations those who did not report obstacles were ministries, while regional and local were more apt to encounter potential issues. The common obstacles identified are highlighted in the table below. The most commonly cited were "not invited" or "unaware of the possibility to participate". Efforts to raise inclusion in the consultation process could be targeted above all to sub-national levels. Organisations like CATSI, red.es, and FEMP may want to strengthen vertical co-ordination between the central government and their members.

**Table 3.5 Common obstacles to participating in consultation process**

<b>Most common obstacles to participating in consultation process (ranking)</b>			
	Aggregate sample (central and sub-central)	Regional	Local
<b>Not invited to participate</b>	1	2	1
<b>Unaware it was possible to participate</b>	2	1	3
<b>Unaware how to participate</b>	3	3	2
<b>Other</b>	4	4	5
<b>Lack resources to participate</b>	5	5	4
<b>Perceive input would not be valued</b>	6	6	6
<b>No interest in participating</b>	7	7	7

Source: OECD, Plan Avanza survey.

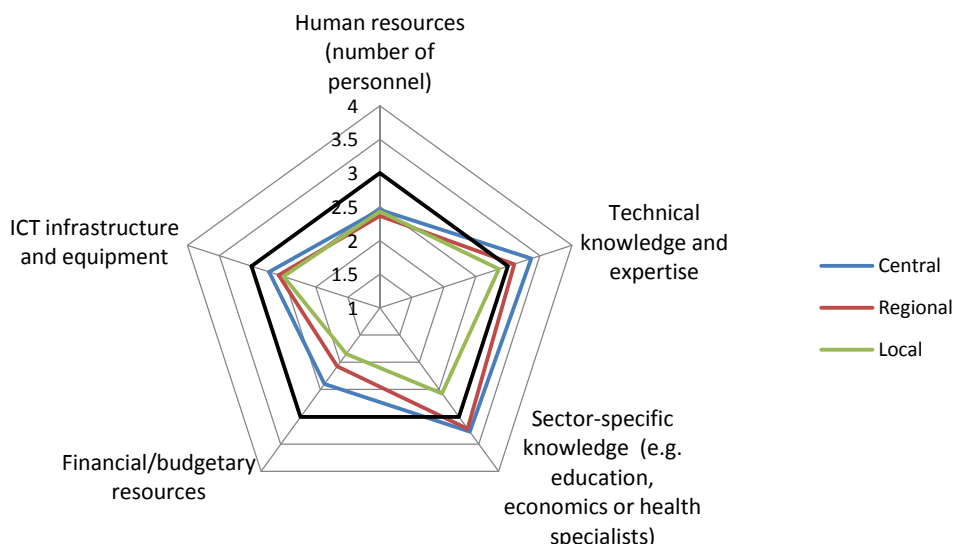
89. What suggestions do stakeholders have to increase awareness about IS policy and Plan Avanza in particular? One of the most common responses has been that the Plan should disseminate best practices and the results of programmes, not only among public sector stakeholders but amongst non-government as well. Additionally, local governments in particular are asking leadership on behalf of the Plan in helping to co-ordinate with other entities of their same tier. Web 2.0 tools such as forums/blogs/social networking which have been used successful in education initiatives could be extended to other sectors and could support sector committees' activities (oversight, information sharing, etc.). Currently, according to results, these tools are not being utilised extensively by stakeholders, and they could be promoted if this 'demanded' content were available. Finally, stakeholders have noted the need to reach end-users; proposing communications initiatives that promote take-up of services. Just as the national DTT transition programme had large visibility, other programmes for 060, *on line* health appointments, e-prescriptions etc could benefit from raising awareness of their availability.

### **Capacity and Fiscal Gaps**

90. As a basic definition, sub-national capacity relates to the ability of a sub-national government to fulfil their mandate. In the case of Plan Avanza, stakeholders- including regional and local governments- were asked whether they had sufficient resources to implement IS policy.<sup>41</sup> At the aggregate level, the most scarce resources in the design and implementation of Plan Avanza are financial/budgetary resources and staff and personnel: 71.3% and 52.6%; of respondents cited very insufficient or insufficient resources in

these categories, respectively. In the (below) graph, the black line signifies “sufficient” amount of resources, all elements with the exception of sectoral and technical expertise are found below this threshold. As red.es has led the technological aspects during project management (see Figure 3.8), stakeholders perceive gaps elsewhere.

**Figure 3.7 (1= highly insufficient, 4= highly sufficient)**



Source: OECD, Plan Avanza survey.

91. There are large differences in needs however, according to tier of government, as evident in the (above) figure. Local and regional governments are, relatively, more in need of support. Local governments in particular are not included in the Plan’s regional contracts, and must apply for co-financing of Avanza Local programmes individually. These are competitive rounds of funding where not all municipalities will receive co-financing support from the central governments. Local governments are also have less technical and sectoral expertise. The support of red.es in municipalities and deputations takes on greater significance in terms of increasing the impact of these initiatives. Especially when (as visible in Table 3.6) local governments have fewer resources available.

**Table 3.6 Number of surveyed municipalities according to size and ICT staff available<sup>42</sup>**

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).

**3.3.3 The Plan has established some effective MLG tools, but these could be further leveraged in the future to increase impact.**

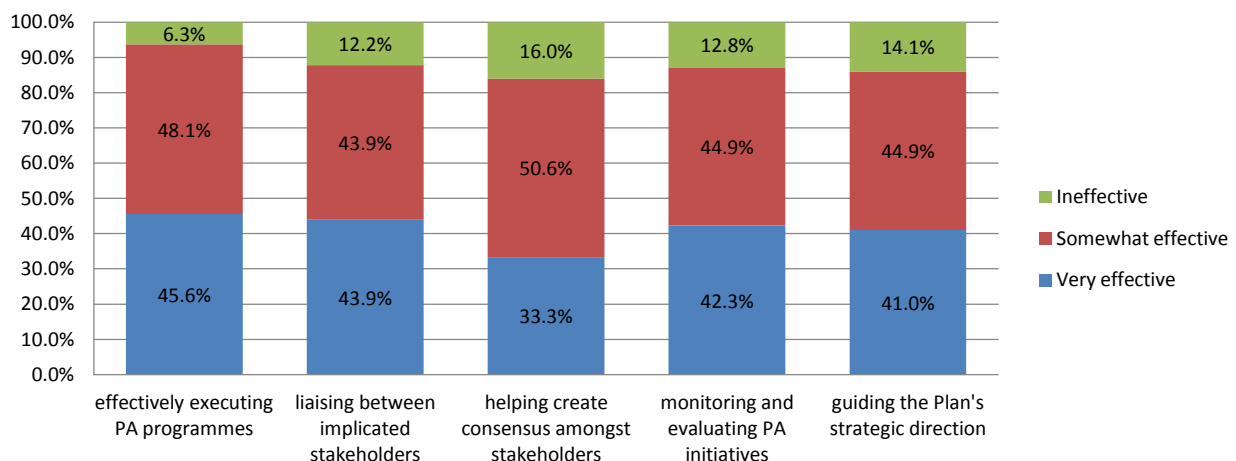
92. The principal governance tools of the Plan- red.es, CATSI, the contracts and co-financing mechanism, have the potential to help address some of the co-ordination issues raised above. For this, however, these institutions need to be effective and contribute to improving co-ordination between stakeholders. This section discusses the effectiveness of the tools presented in the previous chapter.

**Red.es**

93. As noted in the previous chapter, one of the Plan’s initial decisions was to conscript the public enterprise red.es as one of the main implementing tools, acting as a manager, motivator, and multiplier in the implementation of programmes across the country. The public/private hybrid, more agile in terms of purchasing and hiring due to its less rigid contracting regime, is the “executing arm” of Plan Avanza, translating policy directives into action in schools, hospitals, and registries across the country as well as working with local governments in the telecentres and Avanza Local programmes. The organisation draws from a cadre of technical and subject-matter experts. Has this institution been effective then in executing key Plan Avanza programmes, liaising between stakeholders, consolidating consensus and monitoring performance?

94. Survey results confirm findings from field visits and interviews that red.es is judged by stakeholders as being a generally effective governance tool in a variety of the aforementioned dimensions, most notably in effectively executing Plan Avanza programmes, and it was regarded as one of the more effective tools of the Plan. Stakeholders also view that the organisation effectively liaises between the many stakeholders involved in the Plan, helps create consensus, monitors and evaluates initiatives, and guides the Plan’s strategic direction.

**Figure 3.8 To what extent is red.es effective in the following dimensions?**



Source: OECD, Plan Avanza survey.

95. As will be discussed in the following chapter, red.es is also supporting the Plan’s overarching goal of promoting inter-regional convergence. Sectoral interviews with stakeholders in the areas of education, health and justice with regional and local governments highlighted how the agency helps to equalise the progress made across regions by providing critical capacity-building to sub national governments farther behind in the implementation of key programmes. Because different regions find themselves at different levels of development across projects, the enterprise can use its experiences from managing programmes in leading regions to those just commencing. The “know-how” and experiences of other regions can be more effectively transferred to others, helping to make programmes less costly and more effective.

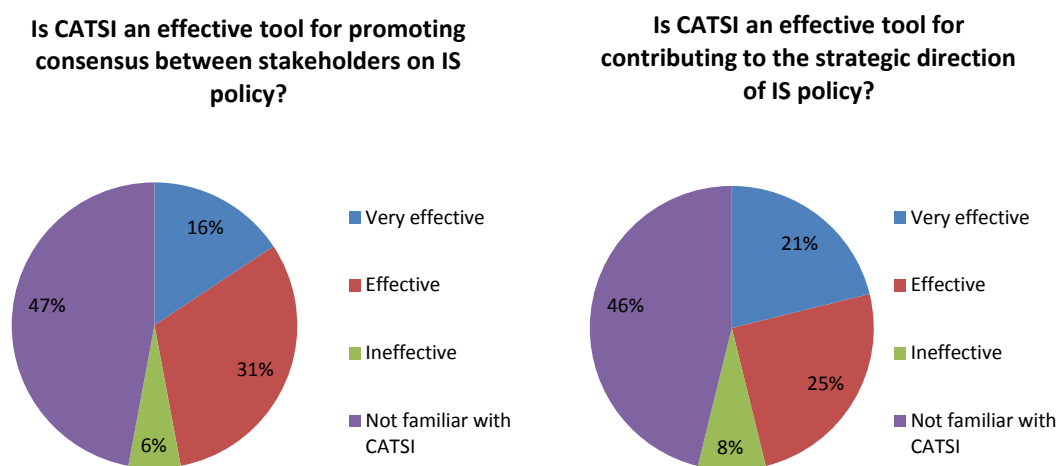
96. The principal challenges for red.es is with regards to implementing more concrete change management strategies; as regions and local governments have noted the need to facilitate the transfer of ownership between the public enterprise and their own governments. In interviews and roundtables, these noted that the sustainability of projects and red.es’ investments were endangered when, after termination of projects, many regions were unprepared for the new financial and technological (maintenance) obligations that would ensue. The following options could be considered under the next Plan to help overcome this challenge: red.es could work with regions to integrate, within the Plan Avanza contracts, measures to “phase-out” their involvement; red.es could help foster horizontal co-ordination between regions to help them pool/share resources and maximize economies of scale; or red.es could consider contracting out their services, also allowing this entity to generate some revenue.

**CATSI**

97. CATSI, the Spanish acronym for the Advisory Board for Telecommunications and the Information Society, has a potentially essential role in determining the strategic vision of the Plan and building consensus through its thematic working groups who recommend policy lines along with the SSTIS and the Senate Commission. It was hypothesized however that, because membership and functions are determined by law (e.g. Royal Decree 1029/2002), that there were potential issues of organisational rigidity that could be hindering its contribution to the Plan: for example some citizens’ association are not included as members, and central government organisations that could potentially participate further in the Plan (e.g. Ministries of Science and Innovation, Environment, Housing, or Secretariats of Industry and Energy) and which could add significant value in terms of creating greater synergies across sectors, were not actively participating.

98. Survey results point to the fact that CATSI, as a tool for consultation, may be under-utilised. In theory all stakeholders invited to participate in the survey are eligible also to participate in CATSI, either directly (as members), or indirectly via a representative group. However, of this sample, about 46% of respondents (excluding local governments as they participate via FEMP) were not aware of the existence of this high-level advisory board.

**Figure 3.9 Effectiveness of CATSI**



Source: OECD, Plan Avanza survey.

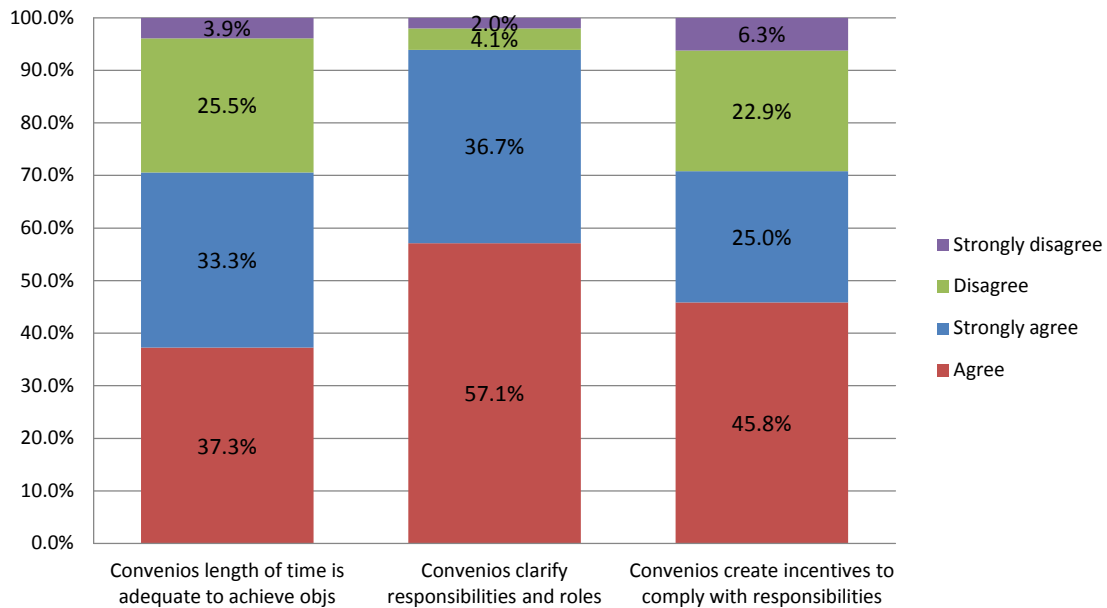
99. It seems the potential of this body to further promote IS goals (especially amongst local governments who, as we have seen, deem IS policy as less important) is under-exploited. Spain could look into further leveraging this organisation, opening membership in its working parties, convening more often, contributing more to forecasting and strategy exercises, including other ministries. Additionally more informal governance mechanisms could be adopted to complement CATSI's work: in Denmark, the Government IT Council acts as a constant "think tank" available to policy makers for continual benchmarking of policies. Japan's ICT Policy Task Force serves a similar function, and Germany holds an annual ICT summit with ministries and regions. Finally, Spain could leverage other entities like the National Observatory for Telecommunications and the Information Society (ONTSI) and the Plan Avanza Technical Office to help support the policy-making process, conducting benchmarks or feasibility studies. ONTSI and the Technical Office could consider working more closely with Spanish Universities to support CATSI working groups in developing specific strategies (for instance, in assessing the territorial dimension to ICT sector development to help guide Plan Avanza investments).

### **Contracts**

100. Contracts are common governance tools in OECD countries, as they allow for the management of interdependencies in policy implementation. Indeed, the joint-implementation model adopted by the Plan has relied heavily on contracts, which have been essential to (i) increasing the scope and reach of IS policy in Spain (ii) promoting inter-regional convergence and (iii) tailoring Plan Avanza policies to specific regional needs. As seen in the last chapter, this model is based on two kinds of contracts between central and regional governments including: (i) high-level "umbrella" agreements with regions which are extended annually and (ii) multi-year agreements (or addendums to high-level contracts) utilized to execute specific programmes. The latter often include red.es as an additional stakeholder to the agreements.

101. Over all, the majority of stakeholders are satisfied with the effectiveness of contracts as tools for assigning roles and clarifying responsibilities. That said however, 29.4% of respondents did not believe the contracts' length of time was adequate to fulfil their responsibilities in implementing programmes, and 29.2% disagreed that the contracts helped ensure compliance with implementation responsibilities. This confirms findings from interviews where it was noted that programme-level contracts were often for one/two-year periods, and it had been necessary in some regions, to extend contracts to allow programmes to be completed. Additionally, while contracts make mention of working commissions to monitor progress, agreements do not act as structures for incentivising compliance: they do not formally set targets nor do they establish performance indicators for evaluating progress or impact.<sup>43</sup> As we have seen earlier in this chapter, the lack of monitoring and evaluation could be improved, perhaps, through the Plan's contracts by integrating measures for oversight, monitoring and evaluation.

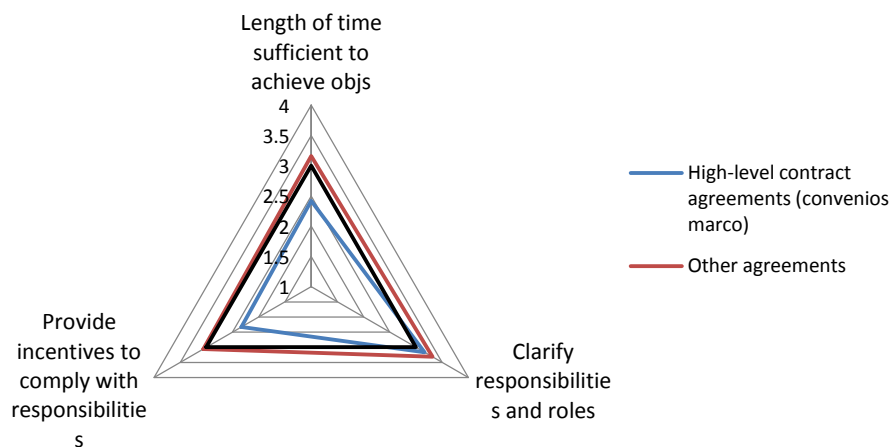
**Figure 3.10 Note your organisation's view regarding the following statements on convenio (contract) agreements**



Source: OECD, Plan Avanza survey.

102. Furthermore, differences were found in the perceived effectiveness of contracts according to type of contract agreement. High-level (*convenio marco*) agreements are signed with each regional government prior to any additional sectoral initiatives. These are *relational* contracts, meant to establish commitment from parties to co-operate. Survey responses suggest that these high-level agreements are less effective than those bilateral agreements (addendums) used in education, justice and health. Once more, the black line signifying the threshold of “satisfaction” with the contracts- the greatest difference being in their ability to promote compliance. 58% of respondents from Science and Innovation (responsible for high-level agreements) disagreed or strongly disagreed that the contracts’ length of time was adequate for fulfilling responsibilities; the same percentage disagreed or strongly disagreed about their being tools for complying and monitoring; however all agreed or strongly agreed that these clarified roles and responsibilities.

**Figure 3.11 Effectiveness of Contracts (1= strongly disagree, 4= strongly agree)**



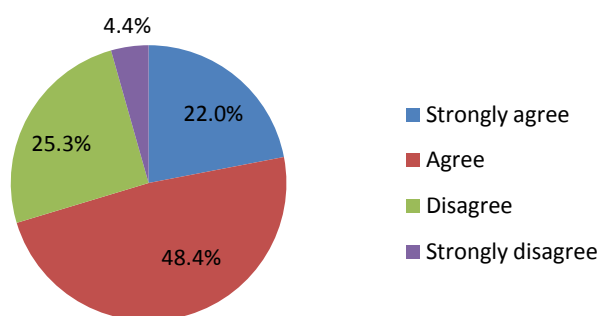
Source: OECD, Plan Avanza survey.

103. Spain could look to other OECD countries for ways to improve these co-ordination tools, and tailoring the nature of contracts to the objectives of specific programmes. For example, in ICT infrastructure deployment, other decentralised states such as Australia have used more “streamlined” contracts: the country has developed joint-implementation frameworks between central and sub-national governments which are applied at the programme level; one single framework can be forged for a particular line of work. These agreements ensure to include all tiers of government (central, regional and local), assigning and clarifying roles and responsibilities amongst them, as well as outlining distribution of funding from all parties involved. This is in contrast to the approach used in Spain where, currently, Plan Avanza creates individual high-level agreements (convenios marco) which exclude local governments. Streamlining this process, or “bundling” initiatives for the three tiers of government under the same contract, could be useful in Spain for at least some programmes such as infrastructure deployment. This could help include local stakeholders more proactively, as well as reduce confusion, delays, help promote better monitoring and evaluation and build consensus. In the case of ICT deployment this could prove useful as stakeholders in Spain have reported co-ordination issues with local governments in attaining licenses and permits. Additionally, in Australia, implementation frameworks have also been extended to programmes executed in co-operation with NGOs. This is a concept that Spain could consider in an effort to strengthen oversight and evaluation mechanisms with third parties.

#### *Co-financing mechanism*

104. In the case of Plan Avanza the primary purpose of the contracts then is to outline roles and responsibilities and formally set out stakeholders’ financial contributions to the programme. However, while in other dimensions the mechanism was perceived favourably (the majority agreed that it provided incentives to pursue IS policy and comply with IS objectives) the greatest area of disagreement with regards to the Plan’s co-financing mechanism is whether the model provides financial support to those sub-national governments who need it most, supporting over all goals for inter-regional convergence: In the below figure, 29.7% of responding organisations do not believe this to be the case. Contention over this issue may stem from assessing only absolute amounts of Plan Avanza funding per region, since the percentage of central government contributions out of total Plan Avanza funds mobilised do seem to reflect the IS needs of regions farther behind in national and European averages in key IS dimensions according to criteria discussed on pg. 31 of this report.

**Figure 3.12 The co-financing mechanisms provides financial assistance to those regional and local governments who need it most:**



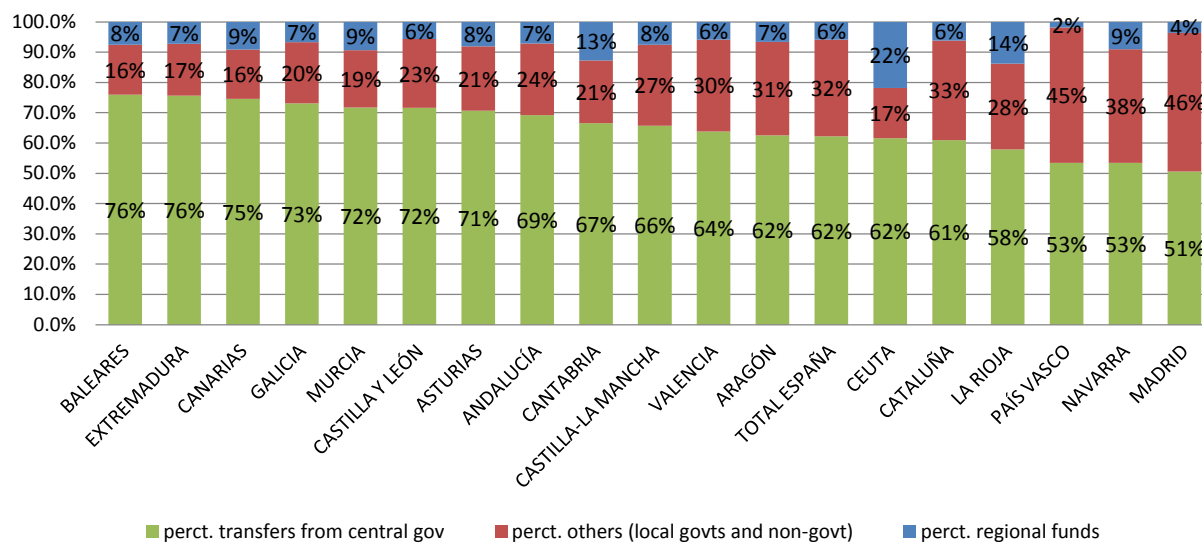
Source: OECD, Plan Avanza survey.

105. Indeed, when examining the distribution of funds (both including and excluding infrastructures), central government transfers represent a higher percentage of total funds in regions that are arguably more in need of assistance: e.g. regions with a high percentage of rural areas with mountainous terrain, dispersed populations and lower ICT access and usage. As seen in the previous chapter, about 10% of

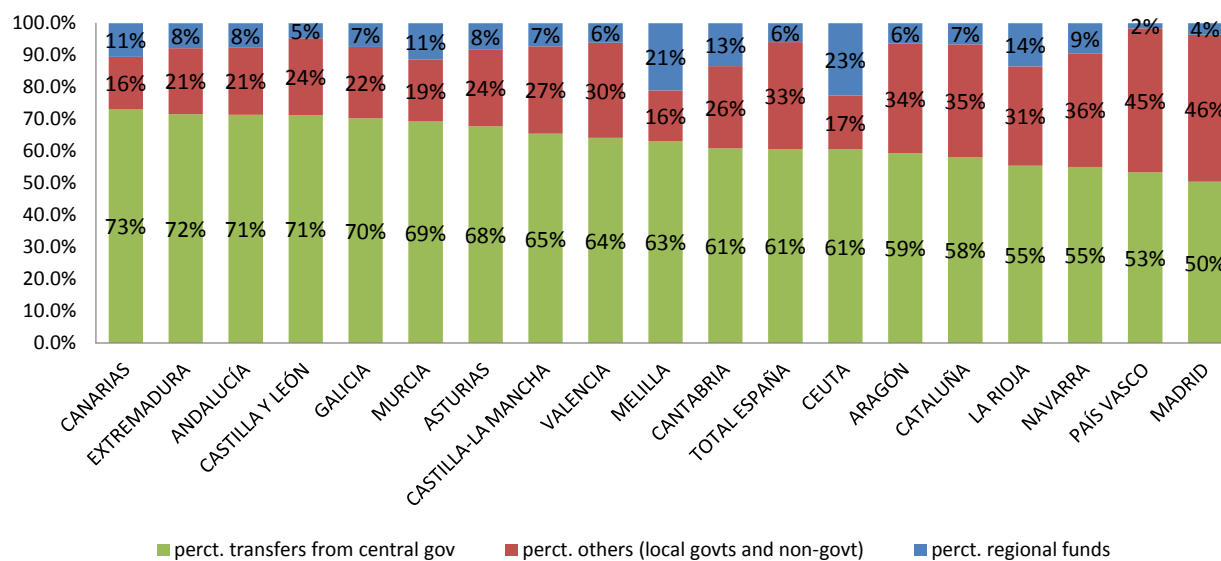


Plan Avanza funds have been destined to infrastructures; 99% of this spending originates from the central government, while regions contribute the remaining 1%. The below three graphs depict the distribution of Plan Avanza funding (by source) in each of the regions, and finally in absolute terms through the co-financing mechanism.

**Figure 3.13 Sources of Plan Avanza funds mobilised (total 2006-2009)with infrastructures**

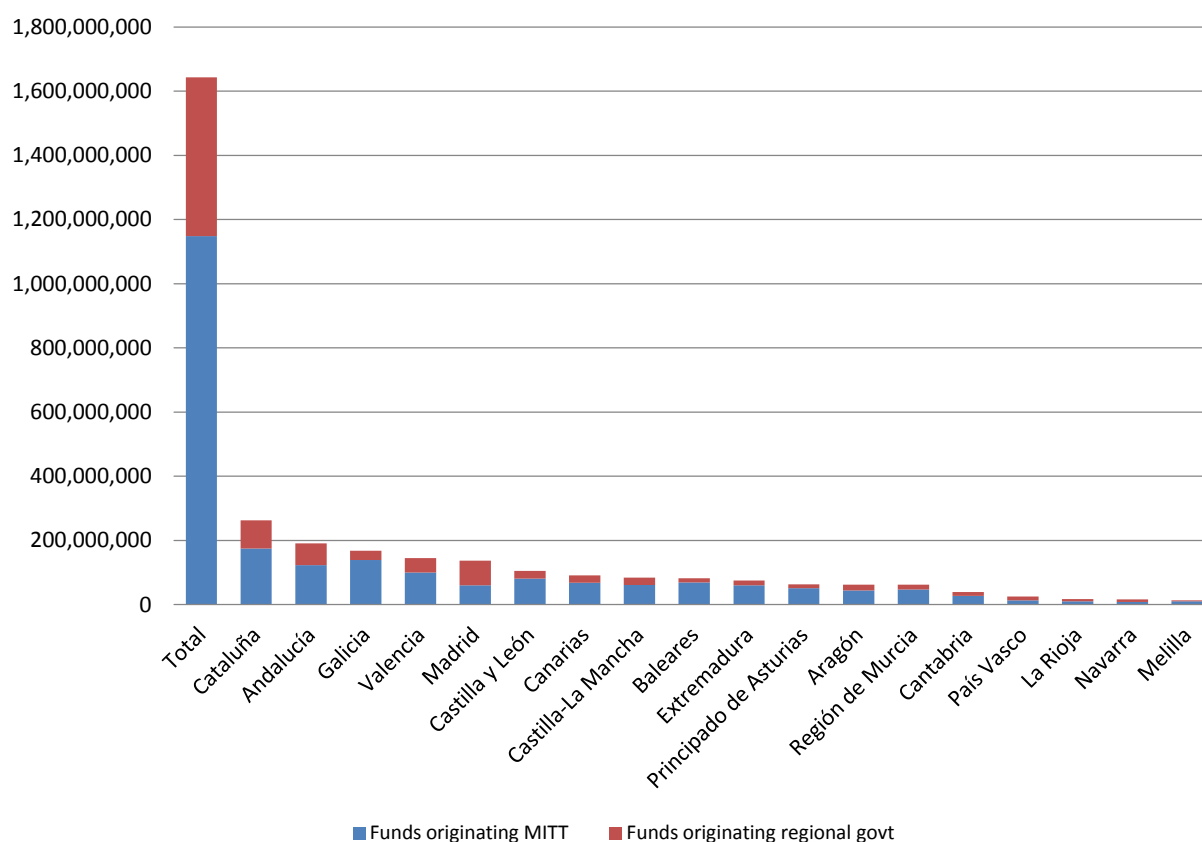


**Figure 3.14 Distribution of funds mobilised, excluding infrastructures (total 2006-2009)**



Source: Plan Avanza Technical Office.

**Figure 3.15 Distribution of Plan Avanza funds by region through co-financing mechanism (total 2006-2009)**



106. A closer look at the way in which total funding is distributed (that is, both through co-financing mechanisms and the remainder), however, may support the case that- with regards to *some* programmes (e.g. those targeting citizens meant to promote digital inclusion) - the Plan's financing schemes could be improved to contribute further to inter-regional convergence and close digital divides. This is due to the fact that approximately 77% of the Plan's funds are not co-financed by subnational governments and are solicited directly by recipients. Therefore, regions having larger populations, a greater number of SMEs or stronger ICT sectors, are likely to receive a greater amount of total financing. Indeed, as a result, these two factors can cause some differences between regions in the total support they receive from the Plan.

107. The question then for policy makers then is not whether the co-financing mechanism is effective, but rather, whether a greater percentage of the Plan's funds should be subject to some of the same distribution mechanisms offered by this regime. For digital citizenship and digital economy funds, the answer to this question will vary by the objectives of specific Plan Avanza programmes, and should consider several factors:

- *Whether funds should be distributed to beneficiaries/regions where they would be most productive:* in the case of Plan Avanza, this approach may apply to programmes supporting innovation, the ICT sector, and to a lesser extent, SMEs. Funds for these purposes may not need to be territorialised since they are likely to be more productive in areas with greater absorptive capacity (e.g. with the existing capital- human and financial, stronger presence of ICT sector, greater market opportunities, etc.) that can yield greater results from public investments.

- *Whether funds should be distributed to beneficiaries/regions most in need:* on the other hand, funds may yield greater impact where they are most in need. This approach may be more applicable to funds for digital inclusion; that is, funding targeting marginalised citizens and NGOs, and to some extent SMEs. Raising the capacity of lesser developed regions can contribute to national goals.

108. It is important to note that these conditions are not mutually exclusive and apply to both streams of funding (digital citizenship and digital economy), and that the objectives (*e.g.* inclusion or economic productivity) need to be aligned with the financing strategy. As discussed in the assessments and proposals for action, revisiting the distribution of funds could mean considering several options:

- A more redistributive funding formula: Through the co-financing regime Plan Avanza could contribute a higher percentage of financial support to regions most in need of support for furthering IS goals. With respect to programmes targeting citizens and SMEs, this approach could be extended to a wider range of initiatives to continue to support inter-regional convergence.
- Co-developing Plan Avanza financing strategies with regional governments: Plan Avanza could work closer with regional governments (*e.g.* co-signers of high-level convenio marco agreements) to ensure that, within regions, a higher share of funds are directed towards the most relevant issues and needs. Plan Avanza policy makers could also work more closely with the most prioritised regions in the development of project proposals, and territorialised strategies for IS development.
- Improving access to funding for prioritised beneficiaries. The Plan could consider revisiting its distribution channels to ensure that those (citizens) most in need of Plan Avanza support have access.

### ***3.3.4 Horizontal co-ordination is under-utilised; and yet the potential for such collaboration to increase cost-effectiveness and create synergies is great.***

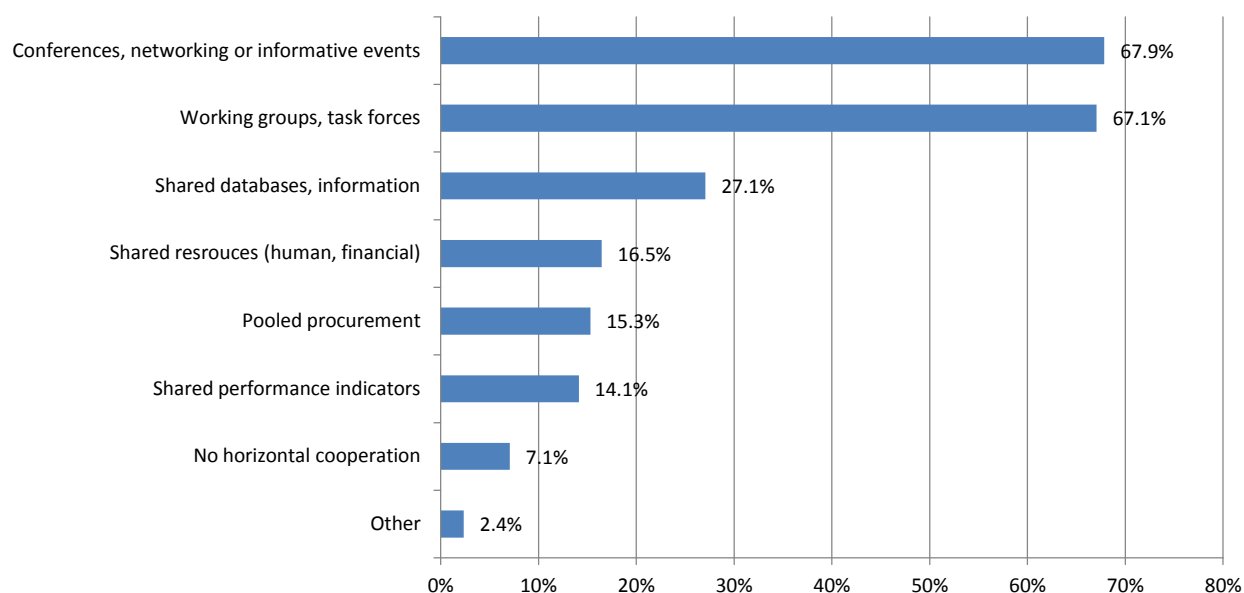
109. There are substantial benefits to be gained from horizontal co-ordination, both at the central and sub-central levels of government. For instance, at the ministerial level, further co-operation could help exploit synergies and avoid policy gaps. The realisation of energy efficiencies from the development of green ICTs depends highly on inter-ministerial co-ordination between the ICT sector and housing, secretariats of energy and industry etc. Increasing eSkills of unemployed workers may require further co-operation with Ministry of Labour, and further co-ordination with the Secretariat of Industry can help the Plan better target SMEs.

110. In particular, collaboration with Ministry of Science and Innovation is critical in supporting the development of the ICT sector and technology-based innovation in SMEs. For instance, there is potential for overlap in objectives with the Ministry of Science and Innovation (MSI), via, specifically entities like CDTI (Centro de Desarrollo Tecnológico Industrial or, the *Center for Industrial Technological Development*). Although recipients are not eligible to received funding from both the MITT and the MSI, and the two agencies meet annually as part of a monitoring and evaluation exercise SISE (*Sistema Integral de Seguimiento y Evaluación*, or Integral System for Monitoring and Evaluation), it is possible that potential synergies are not exploited at the strategic policy-level.

111. At the sub-national level, horizontal co-ordination can be more pragmatic, but just as beneficial. Significant cost-savings can be attained from pooled procurement of ICTs and support services. Regions farther along in implementing eHealth or e-government reforms could share technical solutions and experiences with those regions that are just commencing.

112. Promoting horizontal co-ordination can be particularly important in times of fiscal consolidation; as this report is drafted, Spain is implementing strict public sector austerity measures to reduce public debt in face of the crisis. However, stakeholders reported low levels of horizontal co-ordination that could potentially bring about cost-savings such as shared resources or pooled procurement.

**Figure 3.16 Tools used for horizontal co-ordination (percentage of respondents who utilise tools for horizontal co-ordination with same tier of government)**



Source: OECD, Plan Avanza survey.

113. Stakeholders were also asked to report the main barriers to horizontal co-ordination. At the central level, the main obstacles cited are the lack of political commitment and leadership as well as lack of strategic planning. In these cases, high-level policies like the Plan E or the draft Law for the Sustainable Economy, or even the new EU2020 strategy could serve as parting points for discussions on shared goals. Sub-national government on the other hand, cite additionally the absence of information of a common framework for co-operation. Formal and informal mechanisms for horizontal co-ordination could be introduced to close this gap and facilitate greater cost-savings. Red.es and FEMP may be well placed to act as interlocutor between regions and facilitate inter-regional action on IS policy.

**Table 3.8 Obstacles reported for horizontal co-ordination**

Obstacles to horizontal co-ordination			
Sub national governments	Rank	Central government	Rank
Lack of political commitment/leadership	1	Lack of political commitment/leadership	1
Absence of information or common framework	2	Lack of strategic planning and sequencing of decisions	2
Lack of strategic planning and sequencing of decisions	2	Absence of information or common framework	3
Lack of incentives to cooperate	2	Lack of incentives to cooperate	3
Lack of technical capacity	5	Lack of technical capacity	5

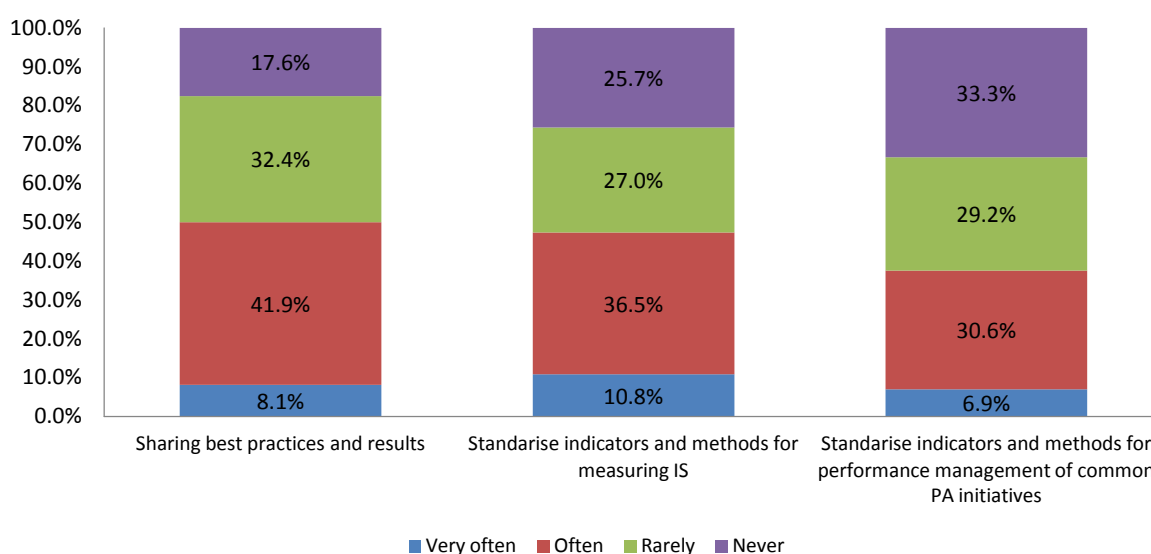
Competition for funds	6	Competition for funds	6
Lack of dialogue	7	Lack of dialogue	7
Fragmented policies	8	Fragmented policies	8
No clear designation of roles/responsibilities	9	Duplicated policies	9
Duplicated policies	10	No clear designation of roles/responsibilities	9
Contradicting policies	11	Contradicting policies	11

Source: OECD, Plan Avanza survey.

### Monitoring and Evaluation

114. The results indicate that co-operation among stakeholders in defining measures for joint monitoring and evaluation is still limited: 33% have never co-operated to standardise indicators and methods for measuring the outcomes/results of common Plan Avanza initiatives; and 26% have never participated in attempts to standardise indicators and methods. The latter is surprising given that 86% of sub-national stakeholders reported pursuing IS initiatives outside of the scope of Plan Avanza. For the sake of comparability and benchmarking, joint-exercises in monitoring and evaluation will be needed much more in the future. Red.es and the National Observatory for Telecommunications and the Information Society could act as liaisons between sub-national governments to align reporting/evaluating methods. Large differences between levels of government were not found on this dimension, suggesting this is an issue that could be improved across all tiers.

**Figure 3.17 How often do you engage in the following activities for monitoring and evaluating Plan Avanza initiatives?**



Source: OECD, Plan Avanza survey.

## **Conclusions: improving the performance of Plan Avanza to maximise results**

115. Survey results confirm observations from interviews and roundtables with Plan Avanza stakeholders; indeed, the Plan has been successful in elevating IS policy onto the national agenda, and it is considered an important initiative for the country's future. However, in the current economic and fiscal climate, co-ordination and governance are more important than ever. Effective multi-level governance can help policy makers optimise existing resources; use funds effectively and target beneficiaries/regions where they are needed most; and act more efficiently to reduce delays and duplications. This is critical as given the potential for the Plan to contribute to recovery goals. The survey has already identified some potential areas for possible improvement:

- **Survey and interview results have identified a series of co-ordination “gaps” which could negatively impact the performance of the Plan, especially as IS policy places greater emphasis on “demand-side” initiatives:**
  - Strengthening mechanisms for monitoring and evaluation is an issue of importance for all tiers of government. At the national level, it was found that Plan Avanza's reach could be extended to policies aligned with economic recovery.
  - Regional and local governments report, relatively, a greater number of obstacles to implementing IS policy: information, capacity and fiscal gaps could be overcome to strengthen their capabilities and reinforce their participation in IS development in times of fiscal consolidation. Local governments in particular face additional barriers resulting from capacity gaps- this includes both human and financial resources.
  - At the regional level, information gaps related to implementation are an issue. This is not surprising since regional governments possess considerable responsibilities for implementation of key initiatives. Additional co-ordination mechanisms- both formal and informal- could be considered at this level, and co-signers of high-level contracts could play larger roles in co-ordinating Plan Avanza activities within their regions. Lastly, it was noted during interviews that the lack of a strategy for transitioning ownership from central to sub-national levels was threatening sustainability of results, as entities lacked the capacity to carry out new responsibilities once contracts had terminated.
- **Existing co-ordination tools are under-utilised:** Over all, the Plan's principal governance tools have been perceived as effective by key stakeholders; however, they could be further exploited to help bridge co-ordination gaps and improve impact:
  - The co-financing mechanism is viewed as effective in incentivising participation in IS policy however, funds which are not included under this regime could be distributed more effectively in order to (i) reach beneficiaries/regions most in need and/or (ii) ensure funds are allocated where there is absorptive capacity and where they would have greater impact.
  - Co-ordination and implementation tools such as red.es, CATSI, monitoring commissions and FEMP could be further leveraged to foster or facilitate horizontal co-ordination, play a larger role in change management, and expand the consultation process. Spain could look to how other IS strategies in OECD countries use additional- formal and informal- mechanisms to improve co-ordination. The working commissions, for instance, are not heavily utilised other than to validate contracts between tiers of government. These institutions and mechanisms already exist, and are critical for bridging some of the co-ordination gaps identified.
  - Contract agreements could do more to incorporate mechanisms for performance management and evaluation; high-level contracts in particular are seen as less effective in terms of promoting compliance with objectives and allowing sufficient time for

planning and programme implementation. Furthermore, they could also be adapted to allow for easier transition of ownership between parties.

- Examples of co-ordinating bodies are plentiful in other IS strategies of OECD countries which demonstrate the importance of establishing informal co-ordination tools. Germany's Annual IT Summit between ministries, sub-national governments; Denmark's Government IT Forum; or annual meetings in Korea between ministers and local governments are all platforms that- though not binding mechanisms- can greatly facilitate vertical and horizontal co-ordination and improve the exchange of information. Territorial representatives, *e.g.* co-signers of high-level agreements, could play larger roles in co-ordinating Plan Avanza initiatives being implemented in their territories. In Spain, there is a commission named the "Conferencia Sectorial de Telecomunicaciones y de la Sociedad de la Información" which could be leveraged further.
- **Horizontal co-ordination is under-exploited:** increasing horizontal co-ordination at both central and sub-national levels could help optimise resources and avoid policy gaps. In interviews with regional and local governments, stakeholders recognized the need for greater horizontal co-ordination but called for greater leadership and support to carry out such measures. In addition to regional governments themselves, the SSTIS, red.es and the Spanish Federation of Provinces and Municipalities are possible candidates for facilitating these exchanges.
  - Amongst central government organisations: the lack of inter-ministerial co-ordination can endanger the momentum that IS policy has gained thus far. Co-ordination gaps between Plan Avanza policy makers and those of Science, Technology and Innovation policy are noted despite close ties between their objectives. The same is true with co-ordination with the Secretariat of Industry on issues related to development of SMEs. Lastly, lack of inter-ministerial co-ordination on energy, green growth, and housing is also noted in interviews, although a new inter-ministerial commission was recently launched.
  - Amongst sub-national governments: horizontal co-ordination at the sub-national level has the potential to help maximise economies of scale and reduce costs, especially after red.es transfers ownership of projects/programmes. As it stands, MLG tools that could be used to optimise resources (*e.g.* pooled or joint procurement) are under-utilised.

116. Effective multi-level governance is not only important for optimising resources but also it will become increasingly essential as Plan Avanza 2 places greater priority on "demand-side" policies (*e.g.* those that leverage existing investments in ICT infrastructure by spurring the take-up/usage of ICTs and digital services). Efforts to increase ICT skills, incentivise usage, and improve the responsiveness of digital public services- for example- will hinge on the effectiveness of partnerships between stakeholders, since sub-national governments have considerable competencies in each of these dimensions. The following chapter discusses the impacts of the Plan thus far on citizens, businesses and the public administration, demonstrating how the movement to policies for ICT take-up and usage are expected to gain priority.





## **CHAPTER 4**

### **DELIVERING BENEFITS TO CITIZENS, BUSINESSES, AND THE SPANISH PUBLIC ADMINISTRATION**

#### **Box 4.1 In this Chapter**

Plan Avanza has created a strong momentum for furthering Information Society (IS) policy in Spain, mobilising close to EUR 9 billion over four years from national, sub-national and non-government stakeholders. But what have these important investments contributed to wider societal goals: public sector modernisation and increasing citizens' trust in government; creating job opportunities and preparing a future work force for a competitive, globalised economy; supporting economic reform; improving citizens' welfare and promoting equity? Chapter 4 takes inventory of the Plan's main achievements thus far and its remaining challenges for the future, reflecting on how this next phase of the Plan can best serve society through to 2015. Some topics discussed in include:

- The difficulties of measuring the impact of IS policies, and how the S-curve framework can provide policy makers with a more comprehensive perspective in the analysis of results.
- What the Plan's stakeholders report about the effectiveness of Plan Avanza's main initiatives to date, and whether IS indicators reflect these perceptions from "on the ground", and the key achievements and remaining gaps of the Plan Avanza strategy with regards to end-users: citizens, businesses and the public administration.

#### **Key Findings**

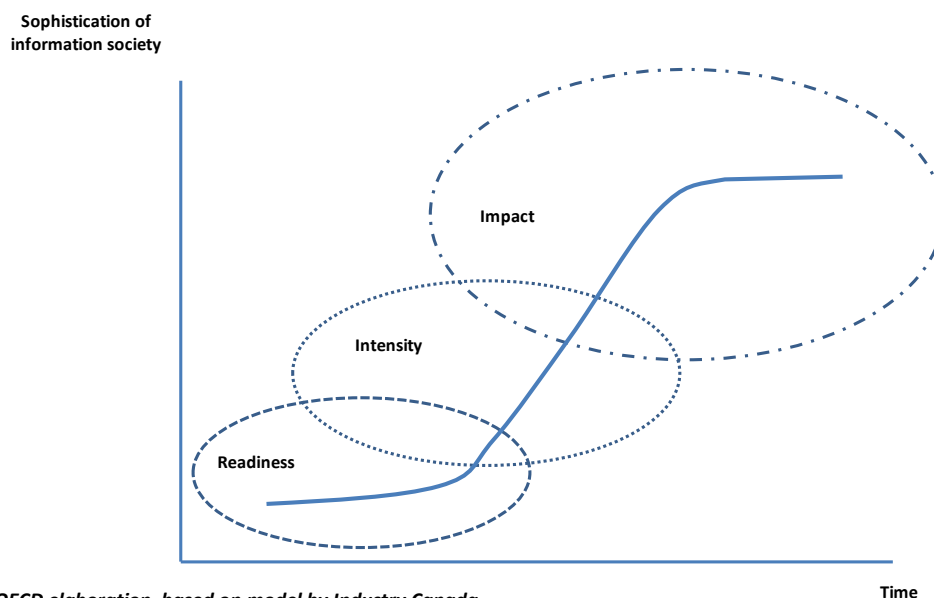
- It is evident that since its launch in 2006, Spain's information society has made considerable progress in increasing its state of "e-readiness" (e.g. the availability of key ICT infrastructure on which the continued development of ICT goods and digital services depends): access to online public services, broadband, and the diffusion of ICTs have increased substantially. Some sectors like Education- and to a lesser extent Health- have reached a tipping point, signalling that measures to increase usage and take-up could begin to receive greater priority (e.g. "e-intensity"). Furthermore, the Spanish ICT sector, though not immune to the crisis, has demonstrated resilience relative to other segments of the economy, and shows promise as a driver of future growth and innovation. It is difficult to ascertain, quantitatively, the extent to which Plan Avanza has contributed to these achievements; the chapter therefore complements data on Spanish information society evolution with perceptive data from key stakeholders regarding the influence of the Plan on key information society objectives.
- Considerable progress has been made however, if Plan Avanza 2 is to achieve its goal of consolidating Spain as a leading European knowledge economy, strong e-readiness is necessary but, alone, insufficient. It is clear that Plan Avanza 2, if approved, marks the start of a shift in the national IS agenda- a more challenging, transitional phase awaits. The next phase of the Plan faces the difficult challenge of striking a greater balance between e-readiness and e-intensity measures, as leveraging existing accomplishments in ICT diffusion relies on whether policy makers can achieve greater equilibrium between these two dimensions.
- What's more, at this point of information society development, especially with regards to citizens and SMEs, existing e-readiness objectives could be refined. In order to increase aggregate levels of progress, continued efforts centred on ICT diffusion should be more precise, targeted to specific sub-groups of those currently prioritised by the Plan. This approach not only has implications for what policies are prioritised under the next Plan (e.g. what regions, socio-economic/demographic groups or sectors), but also for the choice of policy instruments used.

#### 4.1. Introduction: From measuring ICT diffusion to measuring impact, a bumpy road

118. After four years in effect, there is little doubt that Plan Avanza has left a mark on Spain's information society: there is greater public and political consciousness about the importance a strong knowledge economy for the country's future, stakeholders are increasingly active in IS policy, and a growing number of sub-national governments and NGOs are participating more ambitiously in the Plan. While these accomplishments have established an impressive momentum in furthering the IS agenda in Spain, the challenge for policy makers remains in establishing what benefits have been achieved for targeted beneficiaries. This chapter contributes to this goal, taking a closer look at how the Plan's initiatives have affected citizens, businesses and the public administration. As the backbone to these achievements, progress in the deployment of key ICT infrastructures are also examined.

119. But, what constitutes a successful IS strategy? How is impact on society defined in the context of IS policy? One way of examining the results of IS strategies is by utilising the S-curve framework,<sup>44</sup> which establishes three phases of IS development: e-readiness, e-intensity and e-impact.

**Figure 4.1 Assessing Information Society Development: the S-curve model<sup>45</sup>**



Source: OECD elaboration, based on model by Industry Canada.

- **E-Readiness:** E-readiness refers to the extent to which the technological, commercial and social infrastructures necessary to support a competitive information society have been established. The definition also extends to the quality of these infrastructures. Because ICT infrastructures serve as platforms for the development of ICT goods and ICT-supported services, e-readiness indicators allow policy makers to construct a statistical picture of whether an information society is capable of supporting the development and use of these additional applications.
- **E-Intensity:** E-intensity indicators, on the other hand, assess the extent to which ICTs and ICT-supported services are exploited by users. Indicators on ICT-usage, the frequency and purpose of their use, as well as the quality of services provided can help establish a benchmark for whether the ICT infrastructure developed in the e-readiness stage has the *potential* to provide added worth to society, the next stage of the S-curve.
- **E-Impact:** The ultimate goal of IS policies is to maximise the potential of ICTs to contribute to social and economic outcomes. In this context, E-impact refers to the value that is created by the usage of ICT platforms and ICT-supported services. Measuring the impact of IS policies, then,

involves determining whether- and to what extent- ICTs have contributed to increasing efficiency and cost-effectiveness, produced savings, created new sources of wealth, or generated welfare for citizens.

120. What are some indications that a “tipping-point” has been reached between one phase of the S-curve and another? In addition to monitoring data representing the progression of ICT access, usage and/or value-creation, an additional signal that suggest policy makers should begin to consider shifting priorities is the decreasing cost-effectiveness of current policies. Indeed, broad-based policies aimed at all the whole of society or economy become less effective over time due to diminishing returns. For example initiatives to increase broadband adoption in rural households will (eventually, with progress) mean that adoption rates slow, and investments/efforts made in communications, subsidies, etc. to extend will be less cost-effective with time. This requires that, in transitional phases of the S-curve, policies become more targeted and precise: seeking to impact specific socio-economic or demographic groups or specific sectors. It is through reaching the specific groups that are farther behind in IS development that, at an aggregate level, greater progress can be made.

121. Relative to measuring states of readiness or intensity, measuring the impact of IS policies can be more problematic. Indeed, measuring ICT-supported value creation in terms of such factors as the amount of revenues generated from e-commerce, growth of ICT sector, trust in government, satisfaction with public services, or perceived quality of life- and linking these to the investments and efforts of IS policies is a challenge for policy makers due to three issues:

- *The magnitude of the impact of ICTs on socio-economic outcomes varies and can be difficult to quantify. In some instances, underlying causality mechanisms remain the subject of ongoing research.* Although a general consensus exists among policy makers and researchers about the positive role that ICTs can play in pursuing socio-economic objectives, research is ongoing to measure the scale of these effects.
- *A multitude of externalities can affect IS targets.* IS strategy objectives are broad, and such outcomes depend on a host of externalities and macroeconomic conditions. Isolating the influence of ICTs from that of other factors can complicate policy makers’ assessments.
- *The development of outcome-based- or impact- indicators for IS strategies is ongoing:* until recently, the evaluation of IS policy has focused on (i) access/coverage of ICT goods and services, and (ii) take-up/usage of services supported by ICTs or the Internet. Efforts are underway to complement such indicators with those that assess the outcomes, and international stakeholders are co-operating to reach a consensus on standardised definitions and methodologies for comparison.

#### **Box 4.2 The challenges of measuring e-impact: the productivity paradox in education**

In the sector of Education, the productivity paradox presents one example of some of the aforementioned challenges of measuring e-impact. For instance, what is expected to follow the adoption of a new technology and justify the corresponding investment is the expectation of an increase in productivity. But, as the productivity paradox states, what actually happens is that if a new technology is adopted in a context in which processes are not changed, technology may be found to be useless, if not obtrusive, and in many cases may even lead to a decrease in productivity.

In education, technology is a tool that can be used for a variety of purposes. Whether the adoption of technology leads to improvements in educational performance will depend on whether its introduction contributes to changes in the learning process or in the educational system which will produce measurably better outcomes. Without such changes, and when technology is used merely to maintain an existing pedagogical process or structure, the positive results may be limited, especially over the longer term. Additionally, improvements associated with changes in methodology which require appropriate technical and pedagogical support.

The right question, therefore, is not which new technology leads to increased productivity, but which new technology-supported methodologies improve student performance over traditional ones and what other factors intervene. The almost infinite array of methodological possibilities makes this kind of investigation extremely difficult, but it is not impossible provided that sufficient effort is devoted to the accumulation and dissemination of the resulting knowledge base.

Some of the pieces already available of such a knowledge base are well known, but the resulting landscape is still fragmentary. For instance, two examples of existing research-based knowledge are that the adoption of technology in the classroom increases the motivation and level of engagement of students in the classroom, and, as the most recent OECD report on technology use and educational performance using PISA data shows, there is sustained evidence that home use of technology by 15-year-olds is linked to educational performance. Yet, such a link cannot easily be made in respect to school use of technology, partly because of the productivity paradox (using technology to teach the same way), and partly because of the threshold effect (insignificant levels of technology use in the classroom that can hardly be compared with the engagement of today's learners with technology at home).

*Source: OECD (2010), Are the New Millennium Learners Making the Grade? Technology Use and Educational Performance in PISA, OECD Publishing, Paris.*

#### **4.2 The S-curve framework and analysis of Plan Avanza**

122. Conceptualising the progress made under Plan Avanza in the context of the S-curve framework has implications for the appraisal of the Plan. First, while policy makers should always strive for ICTs to create value for end-users (*e.g.* the e-impact phase), to be useful for purposes of planning next steps and the design of future policies, assessments must also reflect current states of IS development. For example, it may be less pragmatic to conclude that Plan Avanza policies have had little influence on increasing the productivity or competitiveness of the Spanish economy- goals corresponding to an information society in the e-impact stage of development- if the initial goal of the Plan has been to diffuse ICTs amongst SMEs and public sector organisations. This is not to say that such conclusions are not valid, but rather that they can be considered also in the context of original objectives. The S-curve framework offers this more comprehensive perspective, which can give policy makers information about the feasibility of pursuing more ambitious strategies, and whether they are likely to be successful given current points of IS development. In the case of Plan Avanza, this holds especially true. As the first major national strategy in IS policy, the Plan's activities have largely focused on the e-readiness related dimension; additional, but fewer, of the Plan's resources were dedicated to activities to promote e-intensity. Assessment of the strategy in this chapter therefore reflects these initial priorities, drawing largely from indicators corresponding to ICT diffusion and accessibility. Indicators corresponding to e-intensity (*e.g.* usage, take-up) are presented with a view to establishing and prioritising areas for future work.

123. Second, because of its stratified, path-dependent, perspective to IS development (*e.g.* e-impact cannot be achieved without first achieving readiness, and intensity), the S-curve framework takes into account different countries' starting points when assessing current states of IS development. In this context, convergence with international IS leaders remains important however, the rate of convergence is an additional element of interest brought to the forefront by the framework. In evaluating Plan Avanza (where data is available), this chapter focuses strongly on examining improvements over time (comparing latest data with that of 2004/2005, when the Plan was first launched). Certainly, these evolutions are assessed relative to the IS developments of other EU and OECD countries, as they are in the section concerning the ICT sector and ICT-use by citizens.

124. Lastly, the model's three distinct phases implies that objectives, priorities and barriers of IS strategies change over time, according to the evolution of an information society along the curve. To be responsive to IS needs, policy makers must be able to successfully tailor objectives and priorities to those needs. Additionally, it is difficult to ascertain, quantitatively, the extent to which Plan Avanza has contributed to information society achievements. For these two reasons, the chapter therefore complements data on Spanish information society evolution with perceptive data from key stakeholders regarding the influence of the Plan on key information society objectives, and stakeholders' satisfaction with the Plan Avanza initiative itself. As a first step in advancing the IS in Spain, stakeholders have been asked to reflect on whether the right objectives been pursued, and whether they been satisfied with the contribution of the Plan thus far to IS objectives in their fields.

125. Considering these three elements, this chapter evaluates the Plan's progress since 2006 according to: i) perception of stakeholders regarding the objectives and initiatives pursued; (ii) progress over time in comparison to other countries and; (iii) e-readiness indicators as the main means of evaluating achievements, with usage/intensity indicators analysed with the purpose of judging whether the Plan has reached the "tipping point" between readiness and intensity.

126. The remainder of the chapter then, is divided as follows: (i) a brief overview of this chapter's key results; (ii) stakeholders' perceptions of the effectiveness of the Plan; (iii) evolution of progress in terms of ICT infrastructures, (iv) the ICT sector and SMEs, (v) citizens and finally, (vi) results of the Plan in the public sector- modernisation of education, health and justice sectors. Stakeholders' appreciations of specific programmes are included throughout to complement data.

### **4.3 Overview of chapter results**

127. Prior to detailing progress of IS development in citizens, businesses and the public sector, this section provides an overview of the results presented throughout the chapter. The principal conclusion of the chapter is that Plan Avanza has contributed considerably to increasing the e-readiness of the Spanish information society (*e.g.* the availability of key ICT infrastructure on which the continued development of ICT goods and digital services depends). To maximise the potential of ICTs to create value for society however, and to leverage the investments made thus far in ICT diffusion and deployment, future efforts under Plan Avanza 2 may require greater balance of e-readiness and e-intensity measures. This shift implies a greater focus on ICT skills and end-users in order to promote take-up and usage, and may require greater co-ordination with sub-national governments since they have high levels of autonomy in delivering public services where the Plan has been active (*e.g.* local governments and the sectors of health, education and justice). What's more, at this point of development- especially with regards to citizens and SMEs- policy makers could consider refining e-readiness objectives: continued efforts to increase ICT diffusion may need to be more targeted and precise if they are to increase aggregate levels of progress. This approach not only has implications for what policies are prioritised under the next Plan (*e.g.* what regions, socio-economic/demographic groups or sectors), but also for the policy instruments used. This may require a

change from broad-based initiatives to more precise policy instruments, with criteria that are conducive to new e-readiness goals.

128. In terms of increasing the availability of Spain's core telecommunications infrastructure- important achievements have been made in increasing broadband and mobile phone coverage. Additionally, Spain is amongst the first of the European countries to have already made the transition to digital terrestrial television. While progress over the past four years has enabled a multitude of initiatives in other sectors (education, health, justice, e-government, etc.) and contributed to closing digital divides in society, connectivity issues remain for some rural regions. New programmes under Plan Avanza 2 such as the Universal Broadband initiative and measures to promote next generation ICTs promise to consolidate accomplishments in boosting e-readiness and create a slew of opportunities for the immediate future such as the development of DTT-enabled services. Reducing broadband prices and promoting competition in the telecommunications market through stronger regulatory measures could also contribute to increasing broadband access and contribute to addressing socio-economic "digital divides" in Spain, which up until now have not received prioritisation by the Plan.

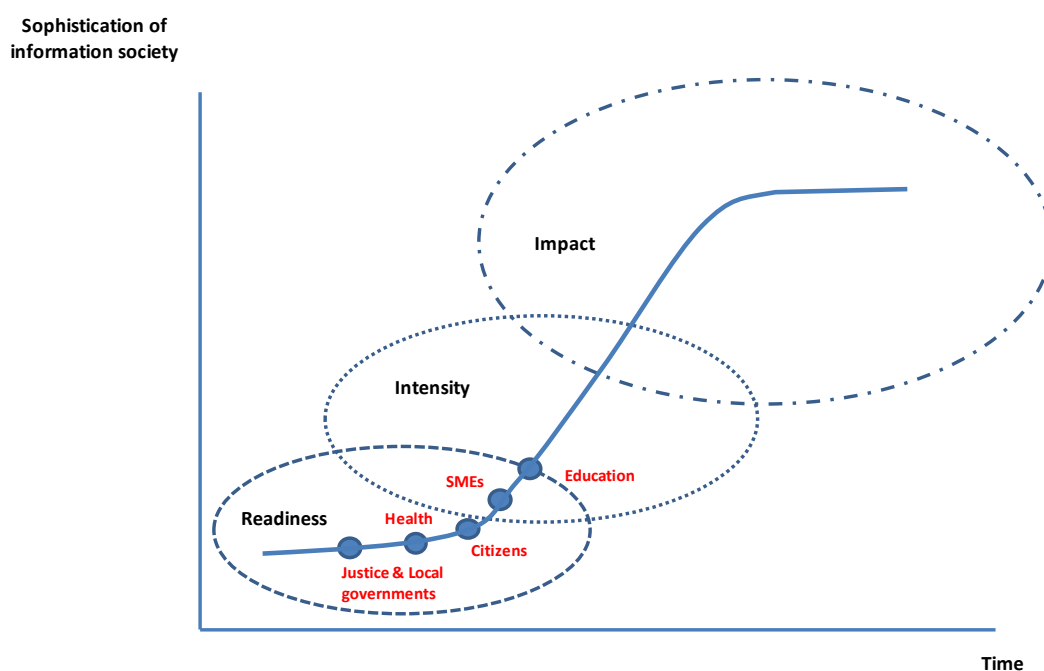
129. An additional challenge for Plan Avanza 2 is ensuring citizens benefit from the strategy's successes in improving telecommunications infrastructure by increasing broadband adoption in households and internet-use amongst citizens, particularly those at higher risk of digital exclusion. Rates of progress have been positive over the past four years: in some regions and demographic groups these exceed average national convergence rates while, in others, further efforts may be needed. To be successful in closing digital divides, Plan Avanza 2 could address inter-regional variations in the advancement of IS policy more ambitiously since, without promoting inter-regional convergence within the country, international convergence in certain IS dimensions will remain difficult. Policy instruments then, could be better aligned to these goals in mind. For example, many subsidies for promoting e-inclusion are not territorialised nor are criteria particularly aligned with those most in need of intervention.

130. Furthermore, the Spanish ICT sector, though not immune to the crisis, has demonstrated resilience relative to other segments of the economy, and shows promise as a driver of future growth and innovation. It is important that the Plan's interventions to support the continued development and competitiveness of this sector be closely tied to wider national initiatives for economic recovery and promoting structural change. For example, development and application of green ICTs could contribute to efforts to increase sustainability and increase energy efficiency, key goals of the draft Law for the Sustainable Economy. Additionally, furtherer efforts may be needed to promote diffusion and take-up of ICTs in SMEs and to grasp opportunities for internationalisation of Spanish ICT sector abroad.

131. In the areas of education, health and justice, the picture is also mixed. Education, and to a lesser extent health, have made large strides in ICT diffusion in the education and health system, but data and survey results suggest that generating impacts for end-users (*e.g.* students, teachers, parents, patients, physicians, etc.) will require greater focus on increasing intensity, *e.g.* usage. In the case of education, barriers to take-up include lack of eSkills and awareness amongst educators about the benefits of ICTs for teaching and learning. In the health sector, there are a slew of opportunities for telemedicine and efficiency/cost reduction gains that have yet to be exploited. In the case of justice, where integration of ICTs is fairly nascent, the focus should remain on modernisation efforts to digitise records and incorporate ICTs in courts.

132. The below graph represents, based on the data and survey results presented in this chapter, a subjective positioning of different sectors/target groups along the S-curve.

**Figure 4.2 Current states of IS development (chapter overview)**



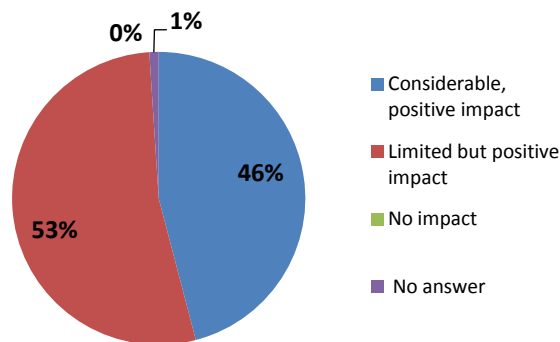
Source: OECD elaboration, based on model by Industry Canada.

133. It is clear that Plan Avanza 2 marks the start of a shift in the national IS agenda- a much more challenging, transitional phase awaits. IS policy makers must be prepared to optimise resources under budget constraints, without sacrificing social and economic impacts of IS policies which are critical for economic recovery. This will mean prioritisation (e.g. more precise e-readiness objectives), choosing the right policy instruments, and distributing resources strategically.

**Stakeholders general perceptions of Plan Avanza: survey results**

134. Over all, stakeholders are pleased with the effect of the Plan in furthering IS goals in Spain: the majority of those surveyed, 53%, report that Plan Avanza has had a limited, but positive effect on the country’s information society. Meanwhile, a very large percentage- 46%- perceive a considerable, positive impact. Perhaps the most telling result, however, is that no organisation responded that the Plan had had “no impact”, surprising in a sample of 99. This level of support reflects perhaps the largest achievement of the Plan: mobilising stakeholders and elevating IS policy onto the national agenda. Indeed, as will be demonstrated throughout the chapter, clear progress has been made in strengthening the building blocks of Spain’s information society; it seems stakeholders are also recognizing these important steps forward.

**Figure 4.3** Since its launch in 2006, overall, what contribution has Plan Avanza made in advancing Spain's information society?

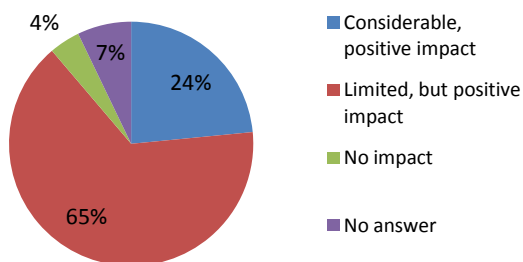


Source: OECD, Plan Avanza survey.

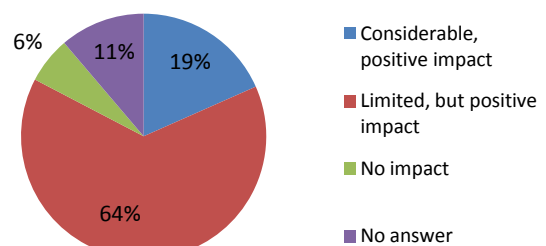
135. With regards to targeted end-users, the Plan is also viewed in a generally positive light. Once more, the majority of respondents perceive the impact thus far to have been limited, but positive. The exception has been the perceived impact of the Plan on the public administration- where 46% of respondents consider that the Plan's initiatives in the public sector have had a considerable, positive impact. Indeed, as we will see this chapter, initiatives aimed at supporting modernisation and e-government efforts across the administration have been amongst the most marked achievements of the Plan.

**Figure 4.4** Plan Avanza contributions to citizens', businesses and public sector IS goals

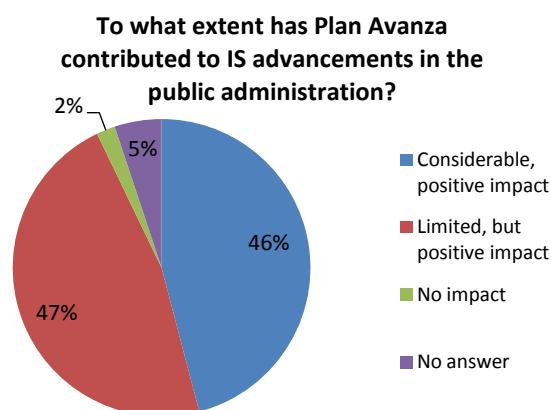
To what extent has Plan Avanza contributed to citizens' IS advancements?



To what extent has Plan Avanza contributed to businesses' IS advancements?



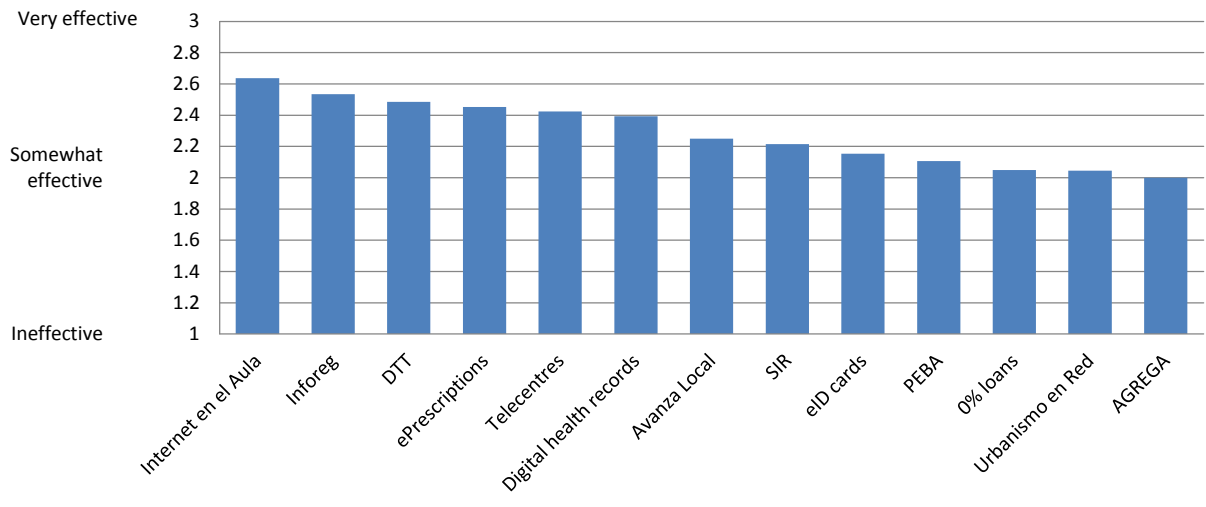




*Source: OECD, Plan Avanza survey.*

136. Plan Avanza stakeholders were also asked to reflect on the effectiveness of specific programmes and all were rated as being, in the least, “somewhat effective” in achieving their objectives. Internet en el Aula, the programme working to integrate ICTs in schools was rated as the most effective programme, and- as will be shown in the chapter- this result is in line with data which demonstrates considerable progress in this sector. Certainly, education sector is perhaps the most advanced in terms of its e-readiness. Programmes such as the PEBA initiative, the 0% interest loans for ICT equipment and internet service, Urbanismo en red (e-government application for municipalities) and AGREGA (the digital learning resources repository) were rated less effective in comparison. Certainly, these results may be warranted: broadband extension to rural areas has increased but connectivity and access issues remain in these regions. Additionally, the 0% loans may not be having clear effects on closing digital divides as they may not be reaching the those most at risk of digital exclusion. Local government stakeholders have noted in interviews that they lack the capacities to implement such programmes as Urbanismo en red, which form part of the wider Avanza Local programme to promote e-government in local governments. Finally, education stakeholders have reported that AGREGA, though an important step forward in increasing the use of digital content in schools, suffers from lack of use since educators are not yet adopting this tool in great numbers. It is necessary to note however, that AGREGA is a relatively new initiative. These results point to the existence of important barriers that will need to be addressed to increase the impact of the Plan, and will be discussed in further detail in this chapter.

**Figure 4.6 Perceived effectiveness of PA programmes (averages)**



Source: OECD, Plan Avanza survey.

## **Section 4.4**

### **Plan Avanza and ICT Infrastructure: strengthening the foundation of an information society**

#### 4.4 Plan Avanza and ICT Infrastructure: strengthening the foundation of an information society

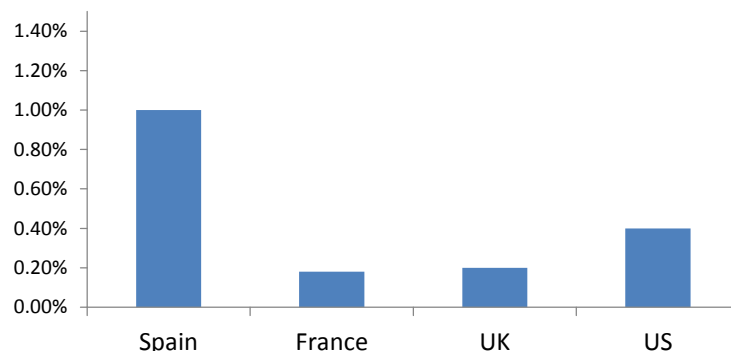
137. Telecommunications infrastructure deployments within the Plan Avanza Framework have been largely relying on three main infrastructure deployment plans: the Mobile Telephony Extension Plan (E-GSM), the National Broadband Extension Plan<sup>46</sup> (PEBA) and the Strategy towards DTT (Digital Terrestrial TV) Transition<sup>47</sup>. A summary of impacts will be provided in this section in order to highlight the main results and position Spain among OECD countries in terms of infrastructure deployment.

##### The Mobile Telephony Extension Plan (E-GSM)

138. As Box 2.3 points out, Spain used the spectrum licensing process that took place in 2005 to attach specific selection conditions, and included obligations to extend mobile telephony to “general interest” areas, *i.e.* rural areas, strategic areas (nuclear power plants, oil refineries and chemical industries), and newly built highways and high capacity railways, or existing ones with insufficient coverage. 1.1 million people were provided with mobile telephony availability for the first time (around 2.3 % of the population), as a result of the commitments made by the operators, who invested EUR 552 million in these “general interest” areas.

139. At that point, the innovative approach towards spectrum licensing was that it included obligations to extend mobile telephony infrastructure and services. Unlike other countries that have prioritized public revenues when awarding spectrum licenses, Spain’s focus has been coverage extension, by attaching coverage and deployment obligation to the licenses. Whether the right choice was made by using this instrument depends on a number of factors, such as the operators’ expected deployment plans, the outcome of a potential auction (where in principle much higher public revenues are expected), and the geographical characteristics of a given country (as some countries may be entirely covered by the market without the need of public action).

**Figure 4.7 2G mobile telephony - % of un-served population<sup>48</sup>**



Note: data derived from various sources  
US: FCC; UK: OFCOM; France: ARCEP; Spain: MITT.

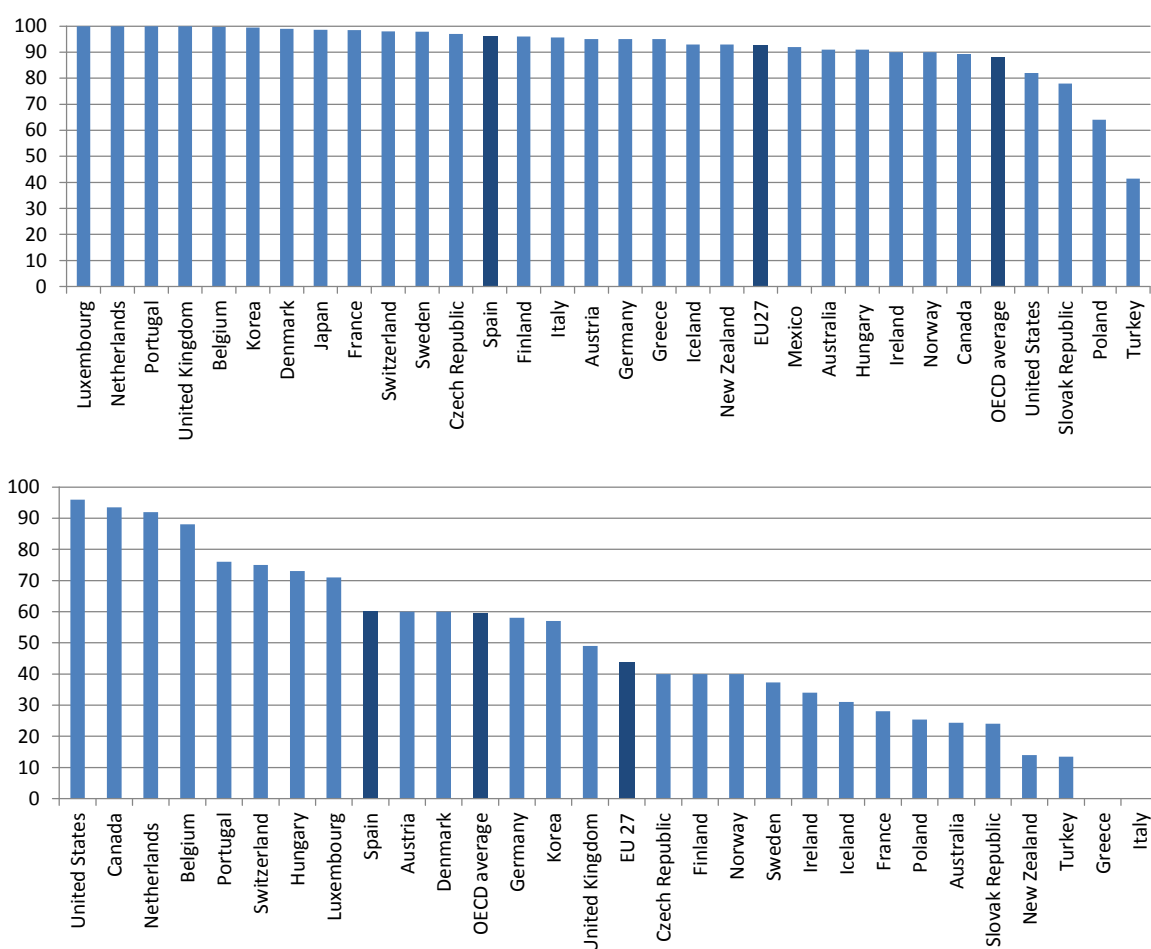
140. Major efforts were made to increase mobile telephony coverage. However, the share of un-served population still remains high, when compared to selected countries (France, the United Kingdom or the United States), and is estimated at less than half a million people (see figure 4.7). Mobile penetration (107.9 lines/100 inh.) remains high in relation to OECD average (96.1),<sup>49</sup> although the compound average growth rate (CAGR) was only half (4.7% against 9.7%) during the 2005-2007 period.

## Broadband availability, penetration and pricing

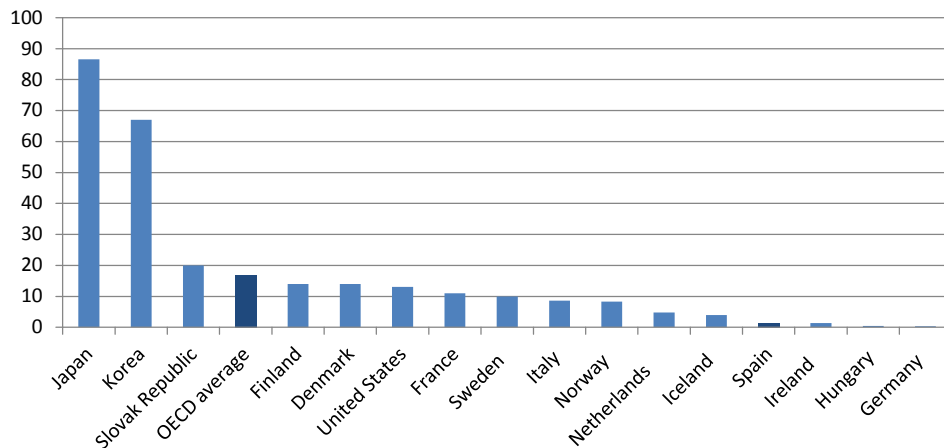
### Broadband availability and speeds

141. Availability may in broad terms be qualified as in line with OECD average. A considerable effort has been made by the PEBA and other regional broadband schemes. Even though broadband coverage indicators are far from being harmonised and countries still have to find ways to produce more comparable indicators, some work has been done on the issue, namely in the recent OECD report *“Indicators of Broadband Coverage”*.<sup>50</sup> While comparisons should be made with caution, as the charts represent heterogeneous indicators and averages are made across them, Spain’s DSL and cable modem availability are slightly above the OECD average, with roughly 96% of the population with DSL availability and 60% of households having cable modem coverage (see figure 4.8).

Figure 4.8 DSL<sup>51</sup> (top) and cable modem<sup>52</sup> (bottom) coverage



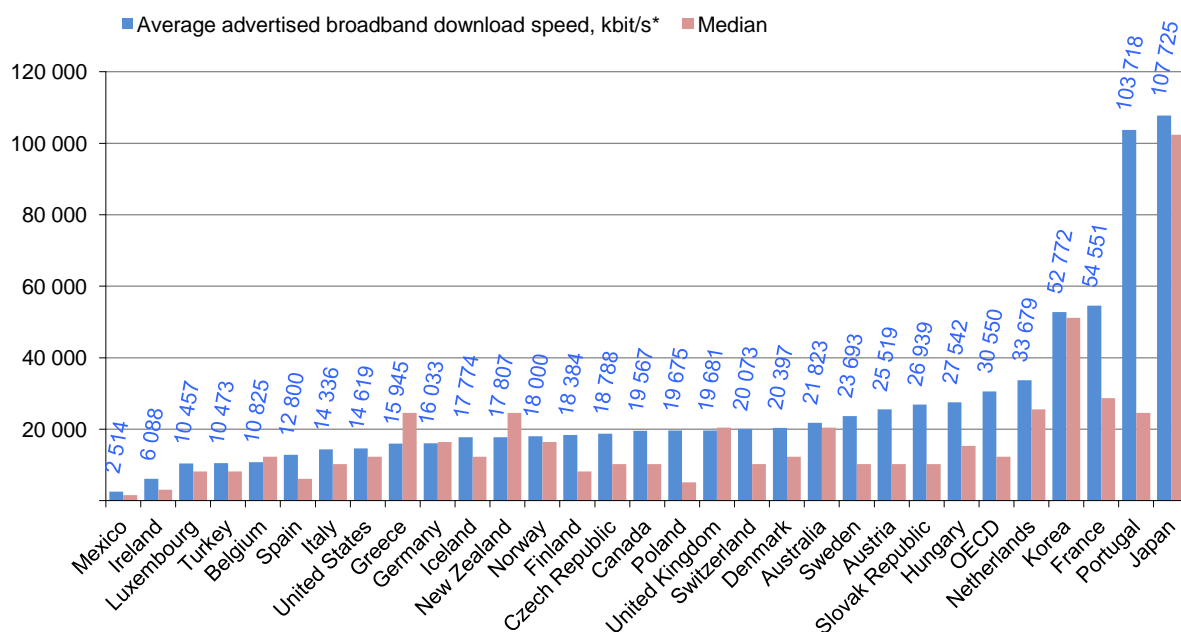
**Figure 4.9 FTTH/B coverage**



142. However, Fibre-To-The-Home and Fibre-To-The-Building (FTTH/B) deployments have hardly started yet, with the exception of limited deployments in some big cities.<sup>53</sup> While around ten OECD countries have FTTH/B availability near or above 10%, Spanish operators have frozen their fibre investments and coverage lies between 1 and 2 % of households (see figure 4.9). As a result of low investments in infrastructure, particularly in fibre, Spain's average advertised broadband download speed is 12.8 Mbps (median speed in Spain is 6.1 Mbps), being the 6th lowest among OECD countries, while OECD average reaches 30.55 Mbps (OECD median speed is 12.28 Mbps).<sup>54</sup> Figure 4.10 shows broadband advertised speeds, as compared by the OECD Broadband Portal. While not representing actual download speeds, it provides an overview of available broadband offers in terms of advertised download capability.

143. When compared to EU average speeds<sup>55</sup> (in terms of advertised speeds of lines, not of offers), 70% of reported fixed broadband lines are in the range 2-10 Mbps (EU average is 60%), whereas 19% of the lines are above 10 Mbps (EU average 23%). Only 11% of the lines are below 2 Mbps (EU average, 17%). Although these figures do not include some EU countries that did not report data, they point out at Spain having fewer lines in higher and lower speeds, while more lines in the medium speed segment.

**Figure 4.10 Average advertised broadband download speed, by country, kbit/s, October 2009**



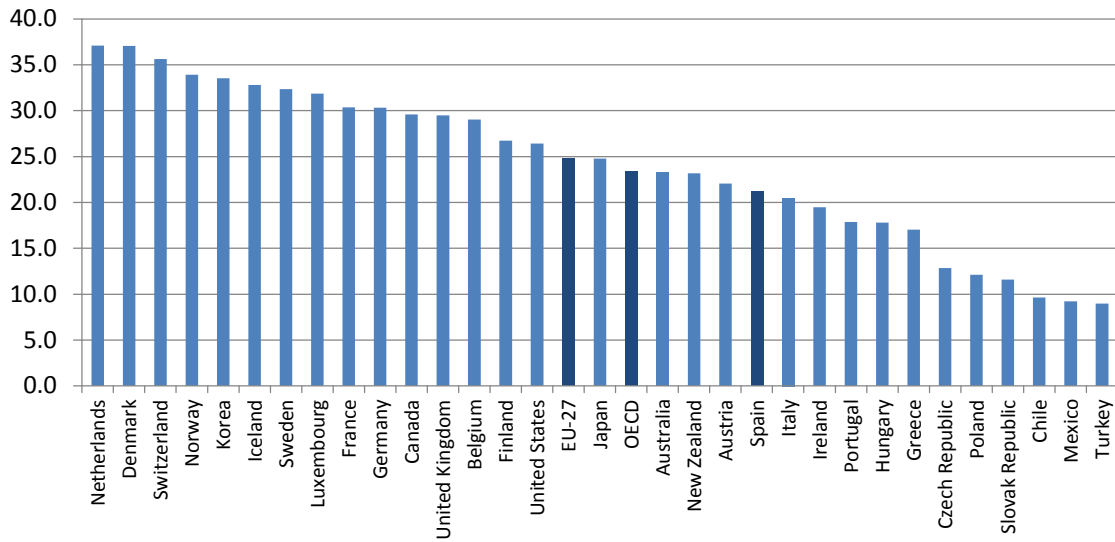
144. As announced by the Minister of Industry, Tourism and Trade,<sup>56</sup> as from 1 January 2011, broadband services at 1 Mbps will be included under universal service obligations (USOs). That is, broadband access at 1 Mbps will be included in the set of communications services that any citizen is entitled to, with certain levels of quality and affordability, with some exceptions. The implementation conditions of this change have not been disclosed yet, although it has been included in the Draft Law on Sustainable Economy<sup>57</sup> and additional budget (EUR 200 million) will be allocated for loans to extend broadband access to remaining un-served areas (around 450,000 people).<sup>58</sup> The inclusion of broadband in USOs represents a major milestone in terms of improving citizens and businesses' connectivity rights.

#### *Broadband penetration*

145. PEBA and other regional broadband strategies have been targeting areas where market dynamics have not been sufficient to provide broadband availability, due to the lack of commercial incentives or expected return on investments. They have focused on white zones, that is, those not covered by providers without some sort of state-aid. Both broadband penetration and availability are heavily dependent on market dynamics and on competition in the broadband market. As we are dealing with regulated markets, where significant market power has been found by the regulator (CMT), market definition, analysis and the imposition of remedies play a prominent role in bringing down prices, fostering investments and promoting consumer choice.

146. The following graphs chart broadband penetration in OECD countries (in terms of lines/100 inhabitants): Spain's penetration by December 2009 was 21.3 lines, while OECD average was 23.3 lines and the European Union's, 24.8 lines, which means that Spain remains below OECD average (see figure 4.11).

**Figure 4.11: Broadband penetration (lines/100 inh.) – December 2009<sup>59</sup>**



147. While the expected trend would be that Spain's figures converge towards OECD and EU numbers, actual market figures are far from this conclusion. From 2006 on, Spain's penetration has remained stable in relation to the OECD's at around 90%, while diverging from the EU average (see figure 4.12). It is also noteworthy that the EU penetration lied around 20% below the OECD's in 2004, while it now stands at 106%. This can be explained by the presence of some non-EU countries such as Japan, Korea, Canada and the US, who were early broadband adopters. These countries experienced a high rate of broadband growth in early years, while growth in Europe started at a later stage.

**Figure 4.12: Spain's and EU27/25 broadband penetration as a % of OECD average<sup>60</sup>**





148. As the Spanish regulator pointed out in a recently released report,<sup>61</sup> the competitive segment of the broadband market (where at least three alternative operators with network infrastructure that enables unbundling are present) only reaches 41.4% of the lines (despite increasing 4% year-on-year). The incumbent's market share is very high in non-competitive areas and is increasing. This may be one of the reasons why the incumbent's broadband market share remains high (55% of lines, while EU average is 45%)<sup>62</sup> and so do prices.

*Broadband pricing: affordability*

149. While Plan Avanza focuses on extending broadband availability and does not target broadband pricing or regulatory policy, broadband affordability and competition remain key aspects involved in the goal of providing access to businesses and citizens. The OECD has developed a set of methodologies for comparing retail prices of telecommunication services provided to consumers and businesses. Some pricing elements may not be taken into account, as they are sometimes not disclosed by operators or are difficult to compare across countries. Data are collected according to some established criteria.<sup>63</sup>

150. Nonetheless, Spain has been often ranked as having expensive broadband prices, relative to OECD countries. To illustrate this statement and according to the most recent data published in the OECD Broadband Portal relative to October 2009<sup>64</sup>, Spain was ranked the 7th most expensive country (out of 24) for very low-speed offers (256 Kbps-2Mbps), the 4th most expensive country (out of 30) for medium-speed offers (2-12 Mbps), and the 8th most expensive (out of 21) for very-high-speed offers (over 35 Mbps). Nevertheless, Spain ranks better for medium speeds (between 12 and 35 Mbps), being the 15th least expensive of 29 countries. This benchmark addresses stand-alone broadband and does not cover bundled offers.

151. The characteristics of the Spanish market, where customers typically purchase broadband bundled with fixed telephone services and unlimited national calls, with no data limitation attached to the broadband connections, may have an influence on these results. However, quoting the CMT report cited above<sup>65</sup>, market competitive forces are uneven across the Spanish territory. While roughly 40% of the lines are situated in an area where three competitors have deployed their own infrastructure (cable operators and/or alternative operators using unbundling), some 60% of the lines are not, resulting in higher market shares of the incumbent, and higher prices (both from the incumbent and from alternative operators), as offers based on unbundling are not available.

152. Another example<sup>66</sup> of price benchmark that takes into account bundled offers (broadband and voice), shows that the best available offer for broadband at medium speeds<sup>67</sup> bundled with voice turned out to be 6.3% above EU average (considering all operators) and 69.7% above EU average (considering only the countries' incumbents), thus confirming the appreciation of high broadband prices in Spain. Van Dijk Management Consultants elaborated a report for the European Commission (January 2010), where they show bundled broadband prices.<sup>68</sup> For some bundles (2-play, 3-play), Spain was relatively well-ranked, even though a significantly high number of speed ranges was chosen, and as a result in many countries there were no offers available in certain ranges.

153. The provision of affordable broadband will only be possible when alternative operators extend their footprints (and do not have to rely on indirect access), and thus increase the competitive pressure on the incumbent, as is already happening in some areas. The below figure demonstrates the distribution of market shares according to retail services revenues for internet services, but also for fixed and mobile phone and businesses communications across the main operators. In 2008, alternative operators accounted for 37.8% of market share for internet services. Therefore, regulatory instruments should aim at encouraging the presence of alternative operators (either DSL-, cable- or fibre-based) in most of the

country (not only in big cities), as well as enabling competitive offers through indirect access, outside alternative operators' footprints.

Percentage Market Share of Retail Services Revenues, 2008				
Enterprise	Fixed Phone	Mobile Phone	Internet Services	Business Comms
<b>Telefónica de España</b>	78.6%	-	62.2%	59.0%
<b>Movistar (Telefónica subsidiary)</b>	-	48.9%	-	-
<b>Vodafone</b>	2.0%	33.1%	3.1%	1.1%
<b>Orange</b>	2.6%	16.6%	9.4%	2.5%
<b>Ono</b>	8.6%	0.0%	11.5%	8.0%
<b>Others</b>	8.3%	1.4%	13.8%	29.3%
<b>Total</b>	100.0%	100.0%	100.0%	100.0%

*Source: Spanish Telecommunications Market Commission, 2008 Annual Report. Industry Statistics.*

### *Mobile broadband*

154. While playing an increasingly important role, mobile broadband is used as a complementary service to fixed broadband by most subscribers. OECD countries have just agreed on a methodology to develop a mobile broadband indicator.<sup>69</sup> The European Union is also collecting data on mobile broadband users, although not every country reports data. In Spain, nearly 14.7 million<sup>70</sup> customers are active users of mobile broadband. 3G broadband availability is in line with OECD average and covers 83% of the Spanish population.

## Digital Terrestrial Television (DTT)

155. Spain has successfully completed the “digital switch-over” and “analogue switch-off” on April 3rd 2010. Being a critical challenge of the Spanish ICT agenda, analogue TV emissions were discontinued nationally. It was the final phase of the DTT Transition Plan, whose first regional switch-off project was completed in Soria in July 2008. The DTT incorporates some advantages over analogue technology, such as increased selection of channels, better image and sound quality, higher spectrum efficiency and new services (VOS, interactive services, Electronic Programming Guides, etc.).

156. Among OECD countries, only the Netherlands and Luxemburg (2006), Finland and Sweden (2007), Germany and Switzerland (2008), the United States, Norway and Denmark (2009), have already concluded the analogue switch-off, while most OECD countries will cease analogue broadcast emissions between 2011 and 2012.<sup>71</sup> In 2005, the European Commission proposed the beginning of 2012 as deadline to complete the digital switch-off.<sup>72</sup> Nonetheless, Spain’s switch-off experience is unique, as countries having already ceased analogue emissions (especially in Europe) had more favourable factors: Spain’s difficult terrain needs more broadcasting sites and the share of households connected to analogue terrestrial TV is among the highest in the OECD<sup>73</sup>.

**Table 4.1: Analogue TV switch-off dates**

Analogue TV switch-off dates (completed or expected)					
Until 2007	2008	2009	2010	2011	2012 and after
Finland Luxemburg Netherlands Sweden	Germany Switzerland	United States Denmark Norway	Austria Belgium Spain	Canada France Hungary Japan	Australia, Chile, Czech Republic, Greece, Hungary, Ireland, Italy, Korea, Mexico, New Zealand, Poland, Slovak Republic, Turkey, United Kingdom

Source: OECD and European Commission

157. There are national, regional and local channels. In April 2010, 99% of the Spanish population had DTT coverage of public (commercial) channels. While 93.5% of households had already access to digital channels on the DTT platform by May 2010 (see table 5.3), DTT TV-share was 76% in April 2010. Around 32 million decoders had been sold until February 2010. The stakeholders’ commitments consisted of ensuring a comparable DTT coverage to analogue TV. In addition, the MITT has invested EUR 220 million in co-financing DTT deployments, to ensure coverage beyond the operators’ obligations, and EUR 68 million in DTT knowledge diffusion. The economic impact of the DTT transition is estimated to reach EUR 12 billion in investments, and 40,000 jobs.<sup>74</sup>

**Table 4.2: DTT household penetration (%)**<sup>75</sup>

Country	DTT household penetration	Source
Spain	93,5%	MITT (/May 2010)
Italy	48.3%	DGTVi (Jan. 2010)
France	56.6%	CSA (Oct. 2009)
United Kingdom	71.2%	Ofcom (Sep. 2009)

Note: data may not be comparable due to the use of different methodologies

158. One of the potential benefits of the digital switch-over is that spectrum corresponding to former analogue channels is freed, and may be used for other services, such as advanced data services (mobile broadband). The European Commission strongly supports the use of the 790-862 MHz band (currently used for broadcasting in most EU Member States), for electronic communications services and wants EU countries to act quickly, as co-ordinated management of this spectrum could give an economic boost of EUR 44 billion to the EU economy and help to achieve the EU 2020 Strategy target of high-speed

broadband for all by the end of 2013,<sup>76</sup> and has laid down harmonised technical rules to avoid harmful interference.<sup>77</sup>

159. As a result of being among the first countries undertaking the digital switch-over, Spain is in a position to reap off the benefits of the newly freed spectrum resources. As an example, Germany has already held the auction to award spectrum resources in this band,<sup>78</sup> raising EUR 4.4 billion. It should be borne in mind that Germany's existing spectrum allocations have favoured the release of the band. The 790-862 MHz band is especially adapted to provide sparsely populated areas with innovative mobile applications and broadband Internet access. In Spain, the MITT has set the criteria to release the 790-862 MHz band before January 1st 2015,<sup>79</sup> and provide advanced electronic communications services, especially wireless services. Even though the process of allocating these spectrum resources for these new services, and start providing commercial services is complex. For example, the new DTT channels were allocated in the digital dividend band, unlike other countries. However, Spain should take advantage of having undertaken the digital switch-off to accelerate reaping off the benefits of the digital dividend.

### **Conclusions**

160. It is clear that the foundation of Spain's information society- the critical telecommunications infrastructure- has been strengthened by Plan Avanza: broadband availability and mobile phone coverage have increased, although the quality of broadband connectivity could continue to be improved, especially in rural areas. While the inclusion of 1 Mbps broadband access in universal service obligations is a step forward in ensuring universal access, there is still a gap in terms of speeds in relation to OECD countries. Additionally, the DTT programme has been one of the major successes of the Plan, as Spain is among the first of the EU countries having undertaken a process of this size and scope to cease analogue emissions. To summarize the main achievements:

- E-GSM has provided an interesting example of using conditionalities in spectrum licenses to encourage operators to extend GSM coverage. While 1.1 million citizens have gained access to mobile telephony as a result of the Plan, the remaining 1% of the population is still uncovered. This is high compared to selected OECD countries, even though a high proportion of rural population and difficult terrains pose considerable challenges to mobile telephony deployment.
- The PEBA has been successful in extending broadband availability to most rural and remote regions in Spain, resulting in broadband availability in line with OECD countries, even though infrastructure needs to be further improved and extended in rural areas, which is a target for Plan Avanza 2. DSL population coverage is 96.1 %, above OECD average (88%), and cable modem reaches 60%, although these averages have been obtained across indicators and may not be always comparable. The inclusion of 1 Mbps broadband access in universal service obligation as from 2011 will reinforce consumers' rights.
- Broadband penetration in terms of lines/100 inh. has reached 21.3 in Spain in December 2009, below OECD average of 23.8. It has remained around 90% of the OECD penetration for the last four years, while diverging from the European Union's average. Further policies and actions are needed to achieve convergence. Available advertised speeds remain low when compared to OECD countries.
- Broadband prices are high when in relation to OECD countries. It may be due to the limited competition in the broadband market, at least in some geographic areas. Stronger regulatory action is needed, as current policies have not been successful in achieving a higher degree of competition. Providing alternative operators with the necessary tools to deploy infrastructure,

and enhanced regulatory remedies in the wholesale broadband markets are needed in order to unleash competitive forces.

- Competition and investment incentives are also key to improve broadband speeds, both in rural and urban areas, the latter focusing on fibre deployments. Operators in countries with extensive fibre deployments achieve higher data transmission speeds. Therefore, regulators and policy makers should aim at enabling the deployment of ultra-high speed networks, as the proposal for Plan Avanza 2 acknowledges.
- The switch-over to Digital Terrestrial Television has finalised in April 2010, as one of the first countries to undertake a similar process in terms of complexity and Impact. Analogue TV emissions have been switched-off and a comparable coverage to former analogue TV has been achieved (higher than 98%). The benefits of this early transition, especially the spectrum that will be released as a result, should be made available to the society as soon as possible. This “*digital dividend*” will provide a unique opportunity to meet the huge demand for new wireless communications services and help bridge the “digital divide”.

161. Though there is scope for continued work, these achievements have laid the critical groundwork for the evolution of Spain’s information society, and created important social and economic opportunities for the next phase of Plan Avanza. As we will see in the remaining sections, the implications of the Plan’s investments in strengthening the country’s telecommunications infrastructure are far-reaching, and fruits of these efforts are already showing results- in homes, businesses, schools, hospitals, and the public administration. The following sections continue to highlight the progress made in these areas over the past four years as a result of the investments made in boosting e-readiness.



## **Section 4.5**

### **Plan Avanza and Businesses: promoting productivity, competitiveness and innovation**

#### **4.5. Plan Avanza and Businesses: promoting productivity, competitiveness and innovation**

162. This section assesses the impact of Plan Avanza on the position and performance of Spain's ICT industry compared to other OECD countries; and it assesses the impacts of the programme on fostering economy-wide innovation through ICTs. The main focus is on Plan Avanza impacts up to 2008 in order to exclude the impacts of the economic crisis. To a large degree, developments in 2009 and 2010 are independent of the Plan Avanza and therefore create difficulties in evaluating the Plan's achievements. Box 4.2 discusses some impacts of the crisis in more detail.

##### **Fostering an innovative domestic ICT sector**

163. Plan Avanza aimed to further develop a strong ICT industry, which is generally acknowledged to be an important source of innovation and growth. ICT firms (manufacturing and services) in the OECD make up one third of all private-sector expenditures on research and development (R&D), they contribute one third of patenting activity and are recipients of one third of venture capital. On average, ICT firms in the OECD contribute 8% to national GDP and 6% to employment.<sup>80</sup> Recent years have seen a shift of ICT manufacturing activities towards non-member countries, in particular Asian. As a result, the relative contribution of ICT services companies in most OECD countries has increased. This includes software, IT services, creative content development and telecommunications services.

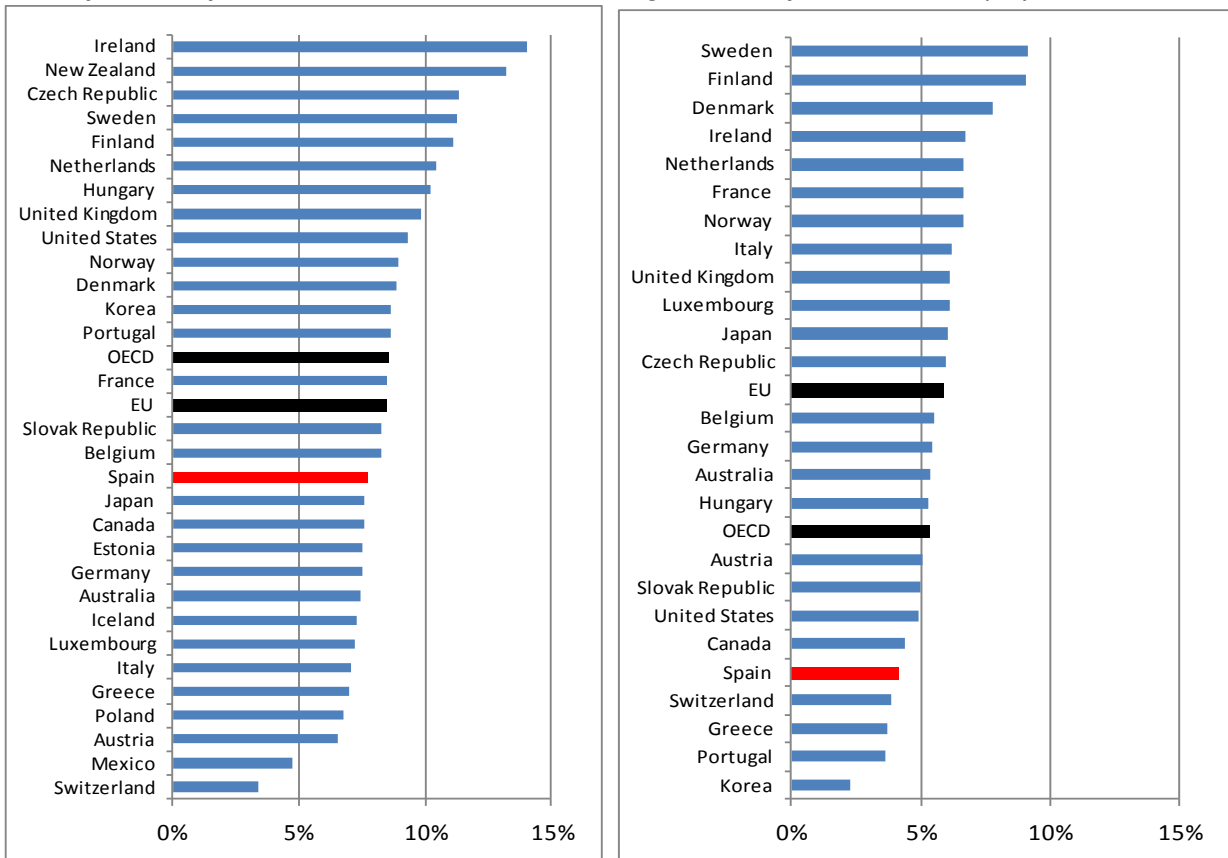
##### *Positioning Spain's ICT sector in the OECD context*

164. Spain follows the trend of OECD countries as it has traditionally had a stronger focus on ICT services than on ICT manufacturing. Spanish **ICT services** firms contributed USD 53 billion to domestic value-added (7.6% of total services) and employed around 340.000 people in 2008 (4%) (Figure 4.13). The sector is largely focussed on computer and IT services, telecommunications services (including broadband and mobile), software and digital content development. Labour productivity (*i.e.* value-added per persons employed) in Spanish ICT services firms is close to the OECD average.<sup>81</sup> Spain is among OECD top exporters of ICT services, exporting close to USD 8 billion worth of ICT services and showing a trade surplus of over USD 2.7 billion in 2009.



**Figure 4.13: ICT services value-added and employment, OECD, 2008**

Left: Share of ICT services value-added in total; Right: Share of ICT services employment in total.



Note: OECD average of reporting countries; EU average refers to EU-15. For further notes, see source.  
Source: OECD Information Technology Outlook 2010.

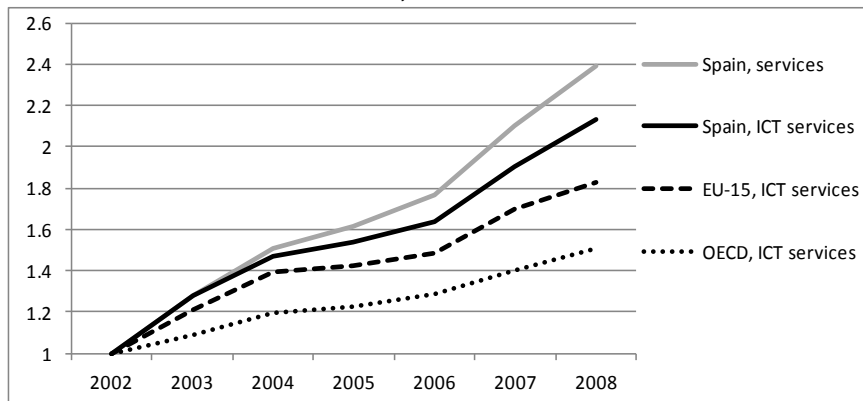
165. Spain's **ICT manufacturing** sector is small in domestic and international comparison, contributing around USD 5 billion to national value-added (2.3% of total manufacturing) and employing around 70.000 people (2.3%). It has the lowest contribution to manufacturing value-added of any OECD country, in turn obliging the country to import a high share of ICT goods and components. Consequently, Spain has one of the highest trade deficits in manufactured ICT goods across OECD countries.

#### *Evaluating Plan Avanza's performance*

166. During the implementation of Plan Avanza (since 2005), Spain's ICT services industry has made considerable progress (impacts of the economic crisis are discussed separately, see Box 4.2).<sup>c</sup> Especially since 2006, value-added from Spanish ICT services has increased faster than in the EU and the OECD on average (Figure 4.14). Employment impacts have been marked too (Figure 4.15). Spanish ICT services companies have greatly increased their headcount compared to firms in EU or OECD countries on average. These trends were also helped by strong overall growth in Spanish services, which stimulated demand for ICT services.

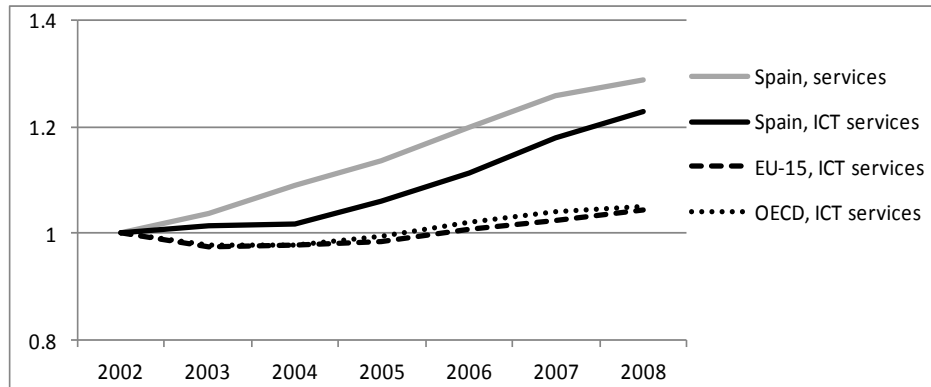
<sup>c</sup> Although Plan Avanza targets the ICT industry overall (manufacturing and services), the remainder of this section will discuss the performance of the larger ICT services sector. This sector is around 10 times larger in terms of value-added and employment and therefore a stronger factor in domestic economic development.

**Figure 4.14. Value-added growth in overall and ICT services sectors**  
Index, 2002 = 1.0



Source: OECD estimates, based on national sources; STAN and National Accounts databases, February 2010.

**Figure 4.15 Employment growth in overall and ICT services sectors**  
Index, 2002 = 1.0

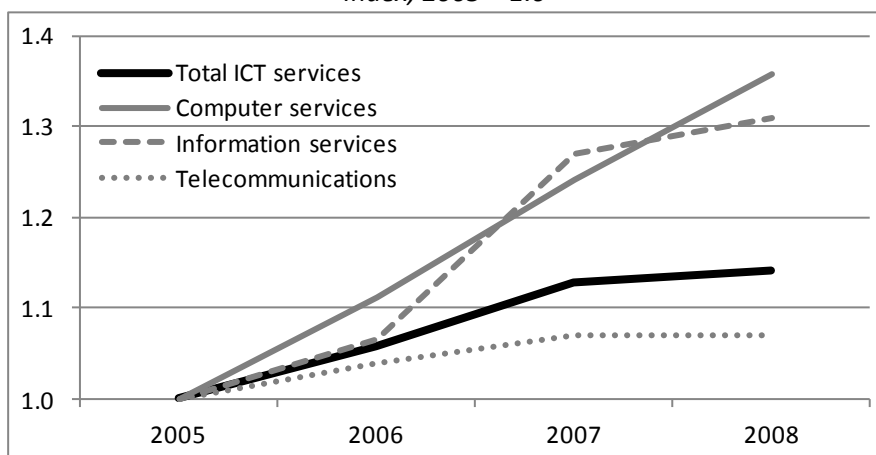


Notes: OECD (average of 25 countries: Iceland, Mexico, New Zealand, and Poland not available).

Source: OECD estimates, based on national sources; STAN and National Accounts databases, February 2010.

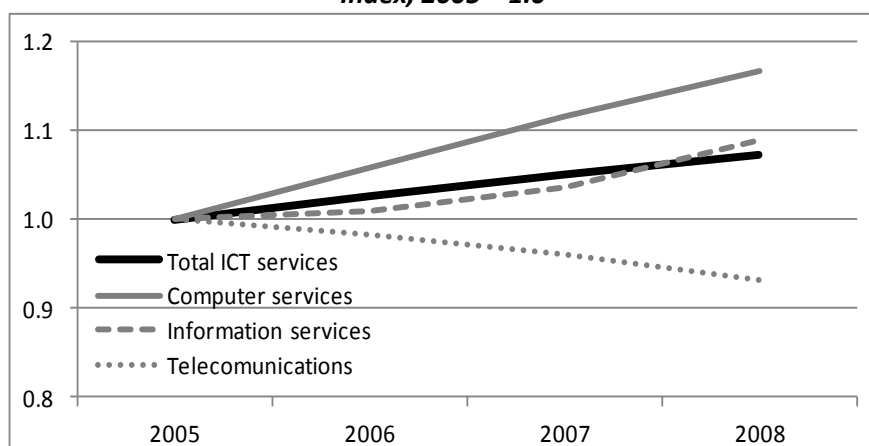
167. The sub-sector of computer and information services has grown strongest since 2005, especially when compared to telecommunications (Figures 4.16 and 4.17). The computer services sector includes software developers, consultancies and related IT services. It has increased its turnover by 35% and its workforce by 16%. In contrast, revenues of telecommunications firms grew much slower during that period and the sub-sector continued pre-2005 trends of cutting employment.

**Figure 4.16 Revenues growth in ICT services sub-sectors, Spain**  
*Index, 2005 = 1.0*



Source: OECD calculations based on INE, May 2010.

**Figure 4.17 Employment growth in ICT services sub-sectors, Spain**  
*Index, 2005 = 1.0*

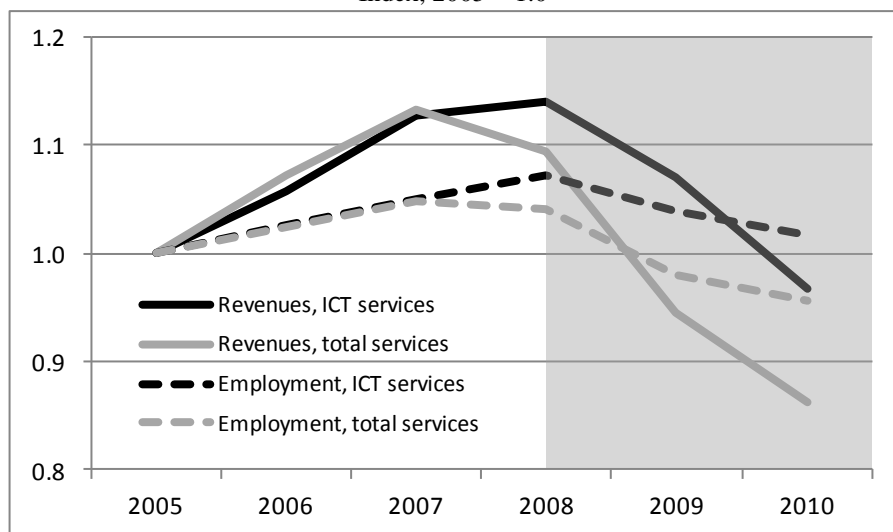


Source: OECD calculations based on INE, May 2010.

*Box 4.3: ICT services sector performance during the economic crisis*

Spain, as most OECD countries, has been hit hard during the economic crisis with falling GDP, high unemployment and increasing indebtedness.<sup>82</sup> In response, the government has formulated a recovery package, which also refers to the ICT sector as a source of growth and innovation (*Plan E* and draft *Ley de la Economía Sostenible*). The ICT sector has indeed performed relatively well in most OECD countries.<sup>83</sup> As in many OECD countries, turnover and employment in ICT firms have seen a dip in Spain, but the impacts were not as dramatic as in the remaining business services sectors (e.g. banking). However, full impacts on employment might not yet be visible and are likely to aggravate in some industry sectors.<sup>84</sup>

**Overall and ICT services sector performances during the economic crisis, Spain**  
Index, 2005 = 1.0



Note: 2010 index only for January and February.  
Source: OECD calculations based on INE, May 2010.

As governments set increasing focus on sustainable economic development (“Green Growth”), this will create impetus for the ICT sector. The industry is highly innovative in areas that are relevant to climate change and the environment. Demand for technologies such as the “smart” electricity grid is expected to generate new employment opportunities. In the OECD ICT policy survey, governments indicated higher focus for the recovery on broadband diffusion, e-government and ICTs for green growth.<sup>85</sup> Policy signals can stimulate private sector investments for green innovation<sup>86</sup> and Spanish ICT services firms can benefit from this trend, e.g. software and services to manage environmental data. Other ICT services growth areas include IT outsourcing services provision and cloud computing services.

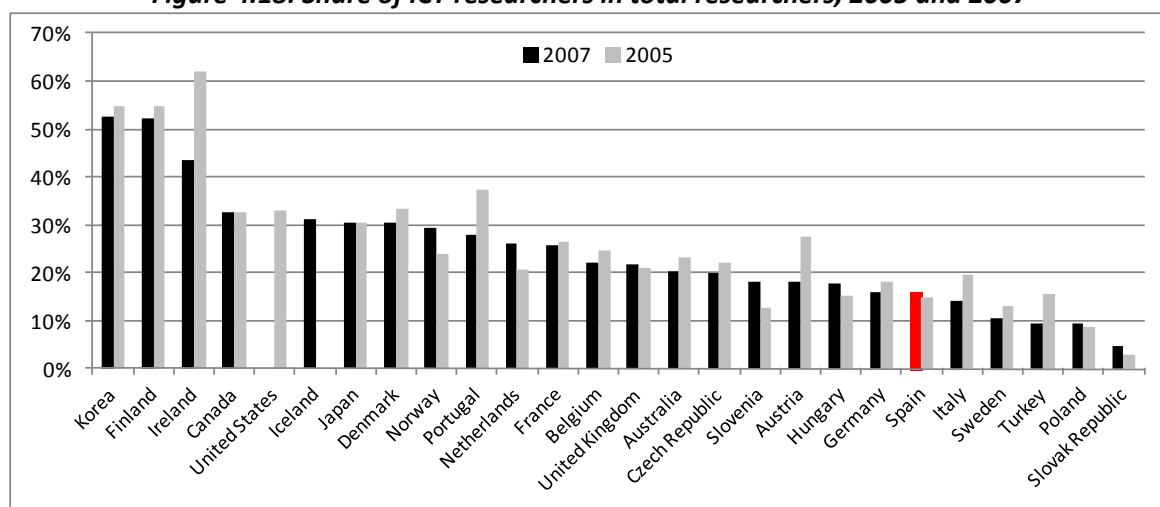
*Innovation*

168. The ICT sector is an important contributor to innovation across economic sectors and socio-economic application areas. Spain’s ICT sector has typically been in the lower tier of OECD countries in some traditional innovation indicators such as R&D spending, patenting, venture capital and ICT research personnel (cf. OECD ITO 2008, Chapter 3). This is partly a structural challenge, related to Spain’s overall low R&D expenditures per GDP (1.2%, 2006) compared to the OECD average (2.3%, 2006). However,

Spain is in the top tier of OECD countries when considering solely ICT services firms' R&D expenses as a share of GDP (2006 data).<sup>d</sup>

169. Spain is in the lower tier of OECD countries when it comes to **researchers in the ICT business sector**. Spanish ICT firms (goods and services industries, without telecommunications) employ around 7 500 researchers.<sup>e</sup> Compared to 42 000 researchers employed across the entire economy, this makes a share of only 16% working in the ICT industry. At the same time, Spain has slightly increased this share since 2005, contrary to the decrease witnessed in most OECD countries (Figure 4.18).

**Figure 4.18: Share of ICT researchers in total researchers, 2005 and 2007**



Note: 2006 data used instead of 2007 for Australia, France and Italy. 2006 data used instead of 2005 for Austria. No 2007 or 2006 data available for United States.

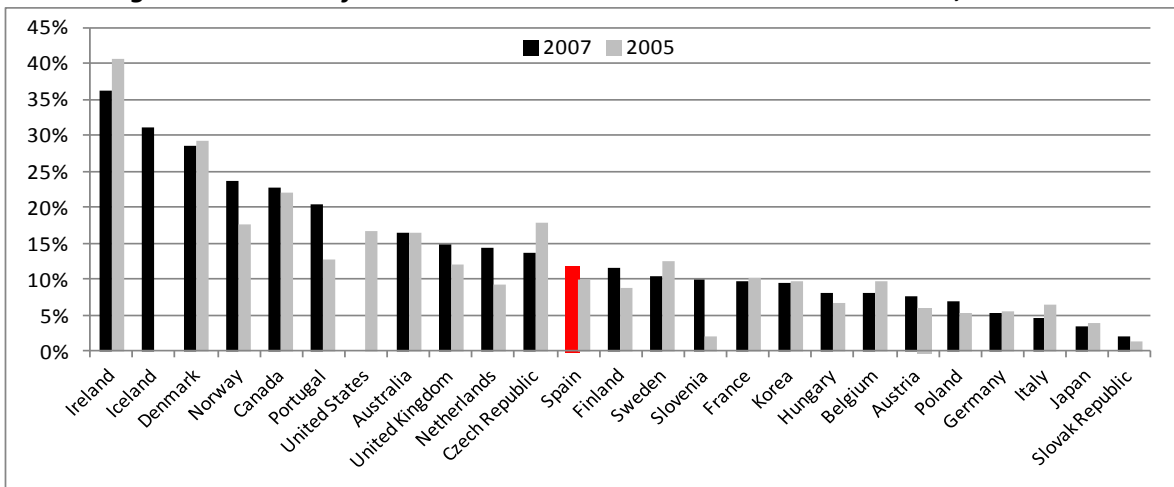
Source: OECD calculations based on OECD R&D Statistics, May 2010.

170. Spain compares much better internationally when looking only at **ICT services sector researchers**. With 12% of domestic researchers employed in ICT services firms, Spain resides in the mid-field of OECD countries and has increased this share since the inception of Plan Avanza in 2005 (Figure 4.19). The ICT services sector (computer and related activities, without telecommunications) employs almost 5 000 researchers – two thirds (65%) of domestic ICT researchers –, underlining the importance of this industry segment for domestic innovation.

<sup>d</sup> Timely data on innovation is hard to obtain by detailed industry sectors. Internationally comparable data on ICT-related R&D was only available for 2006 at the time of writing. For further discussion of existing and new innovation indicators, see [Please use bibliography entry for this publication here: [http://www.oecd.org/document/22/0,3343,en\\_41462537\\_41454856\\_44979734\\_1\\_1\\_1\\_1,00.html#foreword](http://www.oecd.org/document/22/0,3343,en_41462537_41454856_44979734_1_1_1_1,00.html#foreword) ]

<sup>e</sup> The telecommunications sector employs around 12% of Spain's ICT researchers. International comparisons are difficult because data on telecommunications sector R&D personnel is only available for a few countries, mainly due to confidentiality issues.

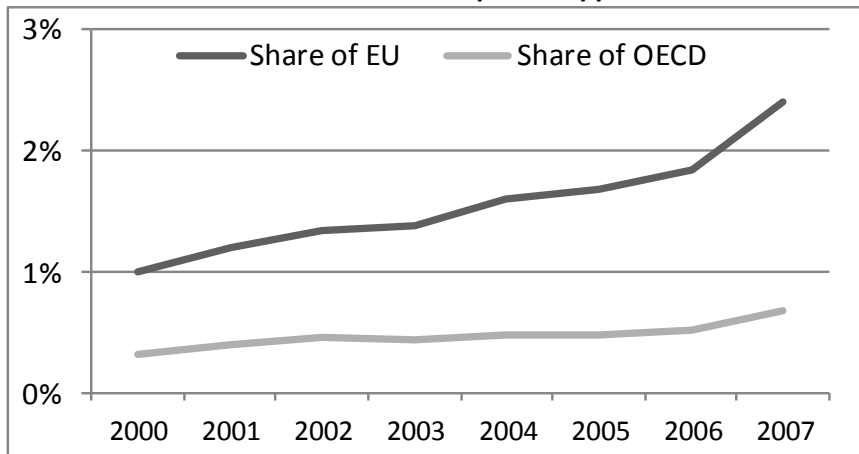
**Figure 4.19 Share of ICT service sector researchers in total researchers, 2005 and 2007**



Note: ICT services refers to the industry sector “computer and related activities”. For other notes see Figure 4.18.  
 Source: OECD calculations based on OECD R&D Statistics, May 2010.

171. Spain’s ICT sector is in the mid-field of OECD countries regarding patenting activity. Looking at ICT patent applications under the Patent Co-operation Treaty (PCT), Spain comes 15<sup>th</sup> in 2007.<sup>87</sup> In recent years, Spain has increased its share in EU and OECD ICT patent applications (Figure 4.20). A marked increase happened during 2007, when Spain accounted for 2.4% of the ICT patent applications from EU countries.

**Figure 4.20 Spanish ICT patent applications filed under the PCT, 2000-2007**  
 Share in EU and OECD ICT patent applications



Source: OECD Patents database, May 2010.

172. Timely data on innovation is hard to obtain. Governments are aware of the lack of more timely and accurate indicators and the OECD has developed a comprehensive compendium of existing innovation indicators, gaps in measurement and next steps for the development of new indicators.<sup>88</sup> ICT infrastructure indicators feature amongst traditional indicators and Spain’s position and progress are discussed in the previous section.

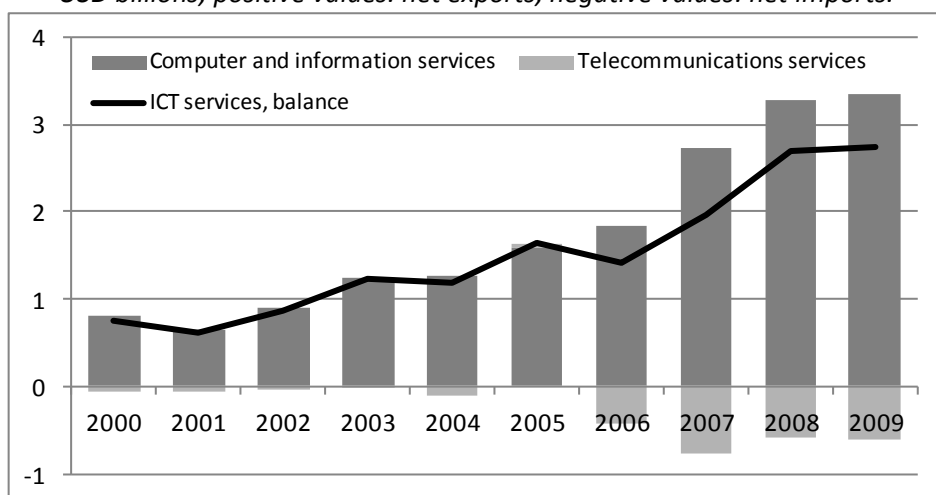
## International trade

173. Spain has traditionally had trade surpluses in ICT services, mainly driven by strong exports of computer and information services (e.g. consultancy, digital content and software development, IT system and database services, data processing and hosting). Since Plan Avanza started in 2005 two new trends for ICT services trade can be discerned – pulling in different directions (Figure 4.21, shaded bars):

- The first is a **strong acceleration of net exports of computer and information services**. The sub-sector doubled its trade surplus by 2008, to reach an unprecedented high of over USD 3 billion. This growth can be attributed to domestic firms increasingly exploiting business opportunities for ICT services in global markets, particular the Spanish-speaking. The 2009 figures underline the resilience of the computer and information services sector, which maintained strong net exports of over USD 3 billion.
- At the same time, Spain has witnessed a **sudden and steep increase of net imports of telecommunications services**. Although interpretation of ICT services trade data is complex because of different activities covered<sup>89</sup>, the Spanish case of rising communications services imports is a likely result of two factors: *i*) computer and information services firms increasing the volume of foreign business activities (see above), which leads to increased communication with overseas clients. Termination and other charges by foreign telecommunications operators are billed as imports; *ii*) Telefónica's USD 30 billion-worth acquisition of UK-based O<sub>2</sub> in 2005, which added large foreign affiliates in European countries to the group. Certain types of intra-group cross-border payments are accounted for as communications imports, adding to Spain's deficit in this area.

174. Strong growth of computer and information services exports is compensating high net telecommunications imports. As a result, Spain has managed to increase its trade surplus in ICT services by almost 70% between 2005 and 2009, , to reach a total of USD 2.7 billion (Figure 4.21, straight line). As outlined in other areas of this section, Spanish IT services firms showed relatively resilient to the economic crisis and are likely to continue expanding on the domestic and international markets.

**Figure 4.21 ICT services trade balance, including sub-sectors, Spain**  
USD billions; positive values: net exports, negative values: net imports.



Note: The straight line represents the trade balance of the two ICT services sub-sectors, which are displayed as bars: computer and information services, telecommunications services.

Source: OECD calculations based on International Monetary Fund, BOPS, December 2009.

## **Fostering economy-wide innovation through ICTs**

175. Plan Avanza placed great focus on diffusing ICTs and the Internet to the wider economy. This included objectives regarding the connectivity of enterprises, use of ICTs for business operations and improving the skills base of the Spanish workforce.

176. Plan Avanza has particularly focused on **small and medium-sized enterprises** (SMEs), given their importance in the Spanish economy. In the EU, SMEs (up to 250 employees) are a principal source of economic growth. They represent over 99% of all enterprises, employ around two thirds of the total workforce and generate over half of EU-wide value-added in the private sector, excluding financial businesses.<sup>90</sup> SMEs are most active in the construction, trade, hotels and restaurants sectors.

177. Spain somewhat stands out from the European context due to more dominant small to very small (less than 50 employees) enterprises. These firms employed over 60% of the Spanish workforce and generated over 50% of domestic value-added (2003 data, but distribution has not significantly changed since). In fact, very small enterprises (less than 10 employees) employ close to 40% of the domestic workforce and contribute over one quarter of value-added. In the European context this importance of very small firms is topped only by Italy. As smaller enterprises tend to have lower uptake of Internet, ICTs and e-commerce, Spain's particular distribution of firm sizes can be expected to result in lower overall rates when compared to other countries. This is a general note as well as a particular challenge to Plan Avanza.

### *Access to Internet and broadband*

178. Connectivity of enterprises across the Spanish economy has greatly increased since Plan Avanza started. In 2009, Spanish companies top the EU average in terms of Internet access, also with regards to SMEs. The lead is even higher with broadband Internet access. The reason is that Spanish companies, lagging EU averages of Internet access 2005, jumped the step of narrow-band connections to immediately establish broadband connectivity. Approximately 94% of Spanish enterprises with over 10 employees report having broadband Internet access in 2009.<sup>91</sup>

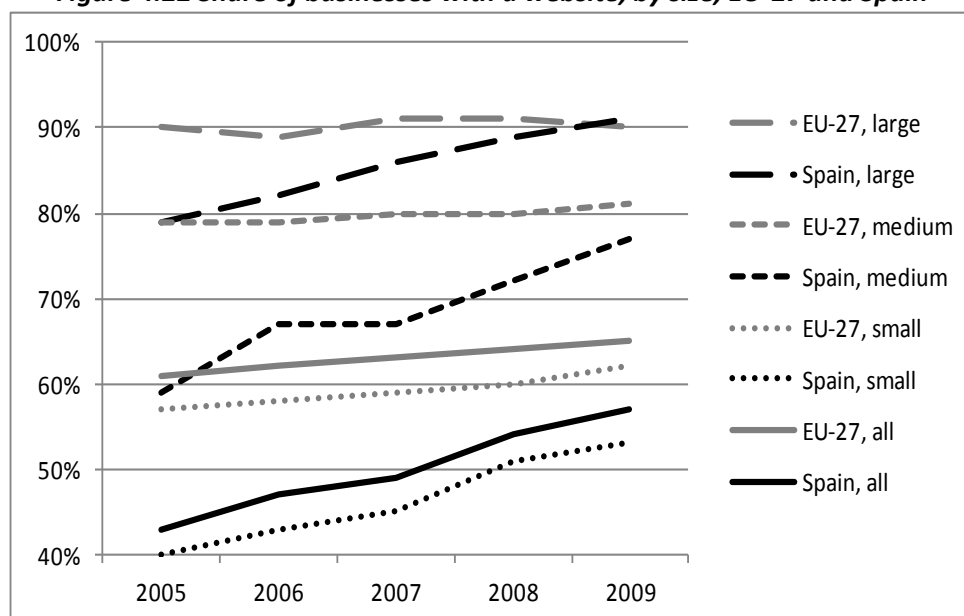
179. Spain's relatively high share of very small enterprises makes this an important category for (broadband) Internet access. As can be expected, shares of Internet access are lower than with large firms: only 68% of very small firms had Internet access and only 63% had broadband access in 2009. These shares fall somewhat short of Plan Avanza objectives for 2010 – 79% and 68%, respectively – and points to further efforts required.

### *Using ICTs and the Internet for business operations*

180. Spanish companies have used their improved connectivity to promote and optimise business operations. Close to 60% of Spanish companies now have a website and the gap to the EU-27 average has narrowed considerably since 2005 (Figure 4.22). Shares of large and medium-sized enterprises have practically converged with EU averages during the period. Further efforts are needed in the area of small and very small enterprises where only 53% and 20% of firms, respectively, have a website. Plan Avanza set out to achieve a share of 39% for the latter by 2010.



**Figure 4.22 Share of businesses with a website, by size, EU-27 and Spain**



Source: Eurostat, Survey on computers and the Internet in households and enterprises, May 2010.

181. Using ICTs to optimise business operations and sales activities in Spain has largely converged with EU averages, although at overall relatively low levels. Integrated software systems to manage business processes (Enterprise Resource Planning, ERP) are used by less than one in five firms: 17% of EU and 19% of Spanish businesses; software to manage client operations (Customer Relationship Management, CRM) is used by one quarter of firms in both cases. Uptake is expectedly high with large firms: over 60% use ERP and close to 50% use CRM (in the EU and in Spain). Very small firms have low uptake rates, mainly due to high fixed purchase and maintenance costs and uncertainty about the cost savings that companies in this size class can achieve. The promotion of non-commercial or open-source applications could provide alternative options to increase the uptake of enterprise software in smaller firms.

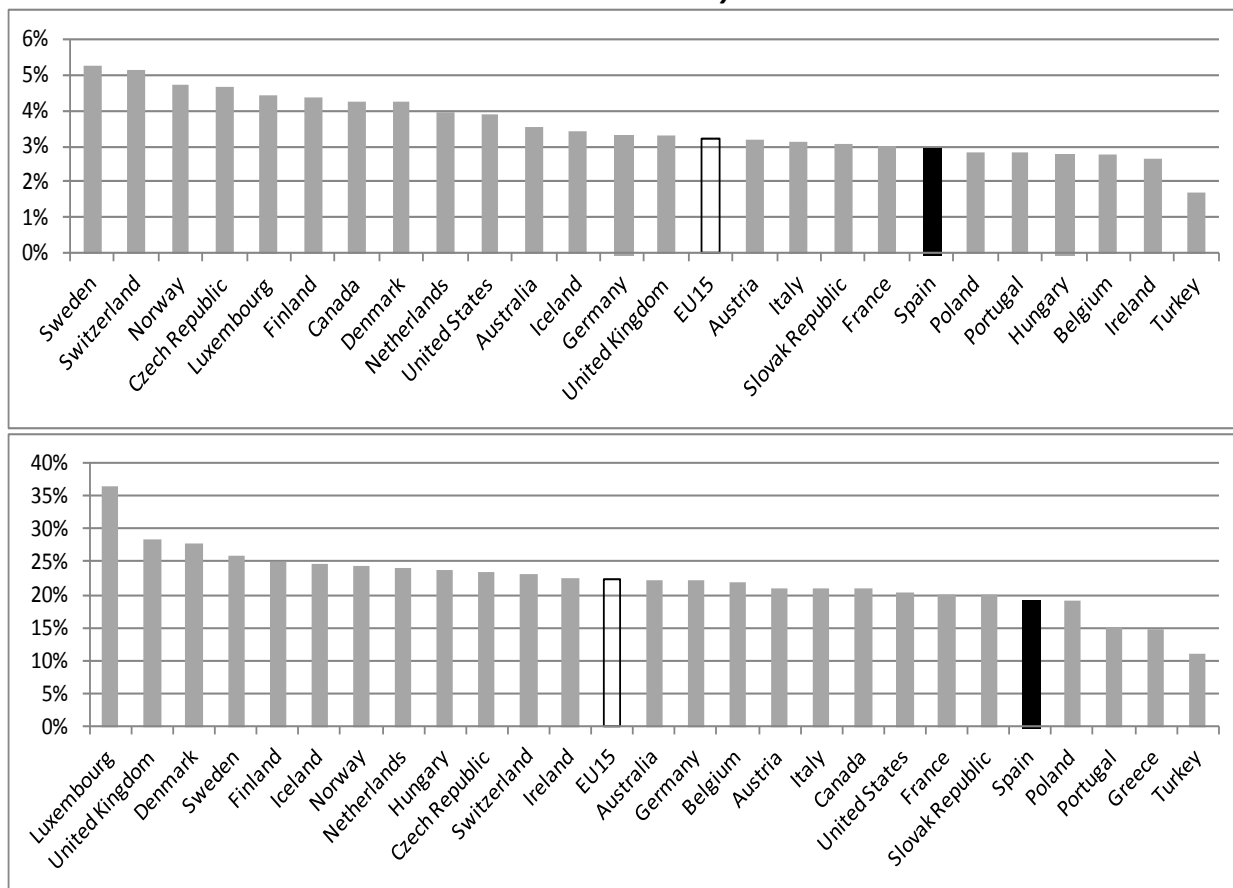
182. Electronic commerce activities of Spanish companies have greatly increased since 2005. Previously existing gaps to the EU average are almost closed in the shares of firms that receive **on line orders** and the related **shares of on line revenues** (although at relatively low levels): in 2009, 10% of Spanish firms received orders over the Internet, compared to 12% in the EU-27. Around 10% of revenues were generated from *on line* sales in Spain, compared to 13% across EU countries. The progress is marked, given that both indicators stood at 3% in 2005. Shares are lower with smaller firms, which is partly a structural phenomenon: a high number of small enterprises are in sectors where immediate benefits from *on line* commerce are not obvious, *e.g.* construction. The use of **e-invoicing** across Spanish companies has almost doubled between 2007 and 2009, to reach 17%. This still falls short of the EU average of 23%, but the gap has significantly lowered during the period for which data is available.

### Developing an ICT-skilled workforce

183. There remain gaps to be filled regarding the development of a broad ICT-skilled Spanish workforce. These refers to both ICT specialists (*e.g.* software developers) and occupations that depend on intensive use of ICTs (*e.g.* administrators using PC and Internet). These trends are not limited to Spain as other OECD countries too increasingly report difficulties, *e.g.* in attracting young people into computing and engineering graduate programmes.<sup>92</sup> Although gaps have narrowed since 2006, the share of ICT

specialists and ICT-using occupations in Spain remains slightly below EU averages and in the lower tier of OECD countries (Figure 4.23). ICT specialists in Spain represent 2.9% of the total workforce, compared to 3.2% in the EU-15; ICT-using occupations represent 19.3%, compared to 22.3% in the EU-15.

**Figure 4.23 Share of ICT specialists (up) and ICT-using (down) occupations in the total labour force, 2009 or latest available year**



Notes: see notes under source  
Source: OECD, ITO 2010.

184. Employing ICT specialists and skilled users is important for companies' competitiveness and there is room for improvement among Spanish firms. According to Eurostat data, only 12% of Spanish firms employed ICT specialists, which is well below the EU average of 17%. Spanish firms also lag EU averages in the provision of general ICT skills training to employees. Only 9% of Spanish firms provide opportunities for employees to enhance ICT skills - less than half on average across the EU (21%) (Eurostat data).

### Remaining challenges

185. Summary of findings:

- The ICT industry has benefited from Plan Avanza, in particular the IT services sector. The sector has increased revenues and employment and held up relatively well during the economic crisis. Innovation indicators for Spanish ICT firms remain relatively low overall, but are more positive when the ICT services sector is singled out.

- Plan Avanza has set great focus on SMEs. Available data points to improvements in connectivity and ICT use indicators, but further challenges remain as Spain has a large base of very small enterprises, some of which are in structurally disadvantaged sectors such as construction.
- Plan Avanza has helped Spanish ICT services firms to further explore international markets. Here again, ICT services firms provide a solid foundation for increasing future export orientation.
- The economic crisis is affecting the ICT industry and ICT uptake across the economy as IT investments have slowed down in some areas. Legislation such as the Draft Law for Sustainable Economy make reference to broadband deployment as a stimulating element for economic recovery. Other OECD countries have put even stronger focus on ICTs as enabling technology for Green Growth, *e.g.* in the areas of smart energy, transport and buildings.
- ICT services employment has grown strongly and has held up relatively well during the economic crisis. Nevertheless, the share of ICT specialists in the Spanish economy remains low compared to other OECD countries. Challenges remain with regards to matching skills with existing jobs, especially since the telecommunications sector has released many employees in recent years. Professional and on-the-job training programmes might need to be strengthened in order to match potential employers' skills needs, especially in the IT services sectors (without telecommunications).



## **Section 4.6**

### **Plan Avanza and Citizens: working to close digital divides**

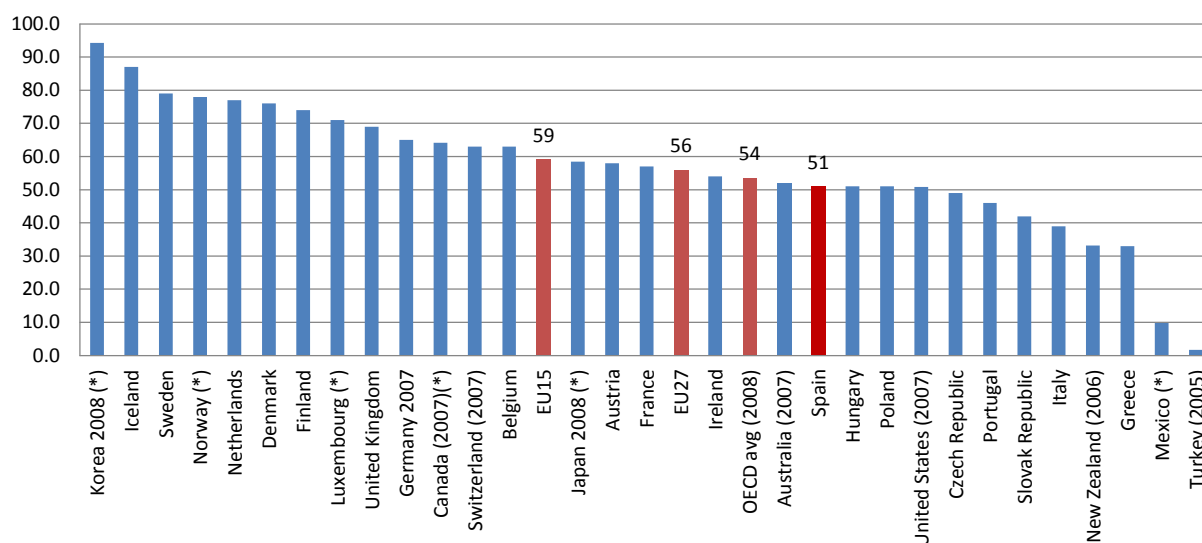
#### 4.6. Plan Avanza and Citizens: working to close digital divides

186. This section discusses some of the key results of Plan Avanza initiatives aimed at increasing digital inclusion, focusing on broadband adoption and internet-use amongst citizens. As mentioned in the first chapter, these policies have consisted principally in 0% loans for citizens and capacity-building initiatives in collaboration with NGOs and sub-national governments. Specifically, programmes have sought to target those most at risk of digital inclusion: older people, persons living in rural areas, school-aged children, and women. Additionally, since the education system is a powerful ally in strengthening the information society, achievements of some key programmes in the education sector will be discussed. Indeed, integrating ICTs into education promotes e-inclusion by exposing students to ICTs at an early age and teaching critical eSkills to the future workforce. Where data is available, disaggregations are made by regions in order to highlight the important territorial dimension to IS development in Spain.

##### Broadband Adoption

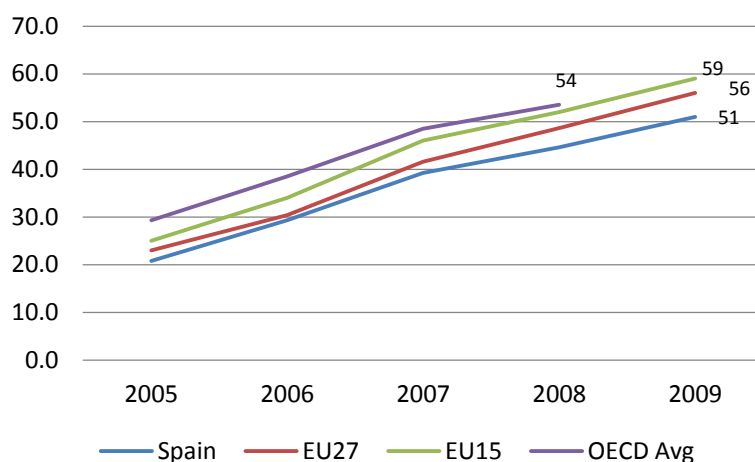
187. As described in section 4.3, the Plan’s PEBA initiative has helped increase broadband accessibility in Spain (particularly in rural areas), to 99% of the population. However, according to the most recent data, currently 51.3% of households in Spain use a broadband connection, a figure below OECD and EU averages. Nevertheless, the progression of this indicator over time has been positive, and the Plan has exceeded its original target of 45% for 2010.

**Figure 4.24 Percentage of Households using a broadband connection, 2009 or latest available year<sup>93</sup>**



188. Indeed in 2005, when the Plan was launched, only 21% of households were utilising a broadband connection, less than half the amount of what is found today. However, the relative growth of broadband adoption, with a compound annual growth rate from 2005-2009 of 25%, is similar to that of EU-15 and EU-27 average rates. If Spain aims to converge with its European counterparts further efforts may be needed to increase adoption rates including- reducing broadband prices, improving speeds, and awareness and capacity-building efforts for citizens.

**Figure 4.25 Households using a broadband connection 2005-2009<sup>94</sup>**



	2005	2006	2007	2008	2009	CAGR
<b>Spain</b>	20.8	29.3	39.2	44.6	51.0	25.2%
<b>EU27</b>	23.0	30.4	41.6	48.6	56.0	24.9%
<b>EU15</b>	25.0	34.0	46.0	52.0	59.0	23.9%
<b>OECD Avg</b>	29.3	38.5	48.5	53.5	..	16.3%

189. Furthermore, there is a strong territorial dimension to IS development in Spain that must be considered in the goal for convergence with EU counterparts; Spain cannot converge with IS leaders without inter-regional convergence within its borders. With regards to broadband adoption, the nation as a whole has adopted broadband at relatively the same pace as other European countries, but several regions in Spain have surpassed average growth rates considerably. Broadband adoption in the regions of Extremadura, Castilla de la Mancha and Navarra for example have increased at above average rates since 2005, suggesting that the country will continue to progress steadily over time. There are some regions converging at a slower pace and who also continue to find themselves below Spanish national averages for broadband adoption, and these may need to receive greater attention from Plan Avanza 2 in the short-term.

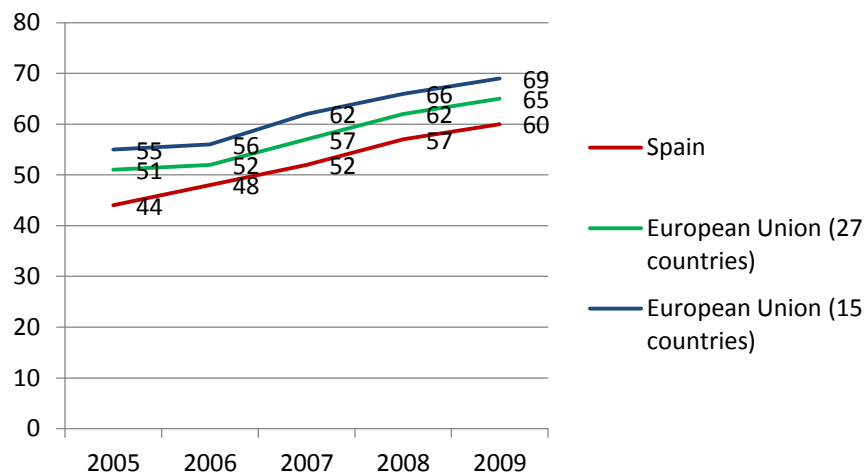
**Table 4.3 Households using a broadband connection, by region<sup>95</sup>**

Region	CAGR 2005-2009	Rank	Region	2009	Rank
Extremadura	38.2%	1	Madrid	62.6%	1
C. La Mancha	35.2%	2	Cataluña	60.5%	2
Navarra	32.1%	3	OECD avg	60.5%	2
Galicia	29.1%	4	EU15	59.0%	4
Andalucía	28.3%	5	Baleares	58.2%	5
Rioja	28.0%	6	EU27	56.0%	6
Cantabria	27.8%	7	Cantabria	55.2%	7
Murcia	27.5%	8	País Vasco	55.2%	7
Aragón	26.1%	9	Canarias	52.9%	9
C. León	25.3%	10	Navarra	52.4%	10
EU 27	24.9%	11	Spain	51.3%	11
Spain	24.9%	12	Asturias	51.2%	12
C. Valenciana	24.9%	13	Aragón	50.8%	13
Melilla	24.4%	14	Melilla	50.8%	13
País Vasco	24.2%	15	Rioja	48.0%	15
EU 15	23.9%	16	C. Valenciana	46.9%	16
Baleares	22.9%	17	Andalucía	46.3%	17
Cataluña	22.5%	18	Ceuta	45.6%	18
Madrid	22.2%	19	Murcia	44.4%	19
Canarias	22.1%	20	C. La Mancha	43.8%	20
Asturias	19.0%	21	C. León	41.1%	21
OECD avg	17.9%	22	Extremadura	39.4%	22
Ceuta	8.7%	23	Galicia	38.3%	23

190. In terms of internet-use, Plan Avanza's original target for 2010 was reaching 65% of individuals who had utilised internet with the last three months. According to most recent Eurostat data, at 60%, Spain lags 5 percentage points from its goal. Progress since 2005 is promising, however, with rates growing slightly higher than EU15 and EU27 averages. Indeed, since the Plan was launched, there has been a 36.4% increase in regular Internet users.



**Figure 4.26 Percentage of individuals reporting having used Internet within the last three months<sup>96</sup>**



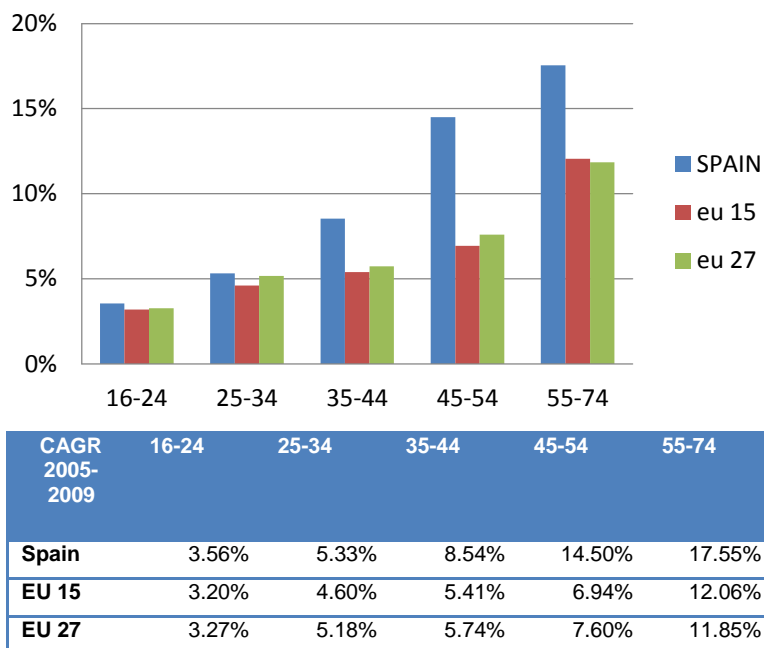
	2005-2006	2006-2007	2007-2008	2008-2009	comp. annual growth rate	Pct increase 2005-2009
<b>Spain</b>	9.1%	8.3%	9.6%	5.3%	8.1%	36.4%
<b>EU 15</b>	1.8%	10.7%	6.5%	4.5%	5.8%	27.5%
<b>EU 27</b>	2.0%	9.6%	8.8%	4.8%	6.3%	25.5%

191. When disaggregating internet-use, however, we find that a key to Spain converging with the EU may lie in targeting specific age groups and geographic areas. It seems the efforts by the Plan targeting older persons have been effective, as they are adopting internet must faster than their EU counterparts, a very important contribution of the Plan considering Spain's large ageing population. To close the 5% gap, ICT skills initiatives targeting the age groups of 25-34 and 35-44 may need to be prioritised under the next strategy, as this group is a core demographic of the workforce and remains below EU averages. Short-term productivity and competitiveness gains in the economy can depend largely on initiatives targeting this demographic group.

**Table 4.4 Internet use (within last three months) by age, 2009<sup>97</sup>**

2009	Pct of individuals using internet in past 3 months					
	Total	16-24	25-34	35-44	45-54	55-74
<b>Spain</b>	60%	92%	80%	68%	55%	21%
<b>EU 15</b>	69%	93%	85%	79%	68%	41%
<b>EU 27</b>	65%	91%	82%	75%	63%	36%

**Figure 4.27 Compound annual growth rates (2005-2009) internet use (within last three months) by age<sup>98</sup>**



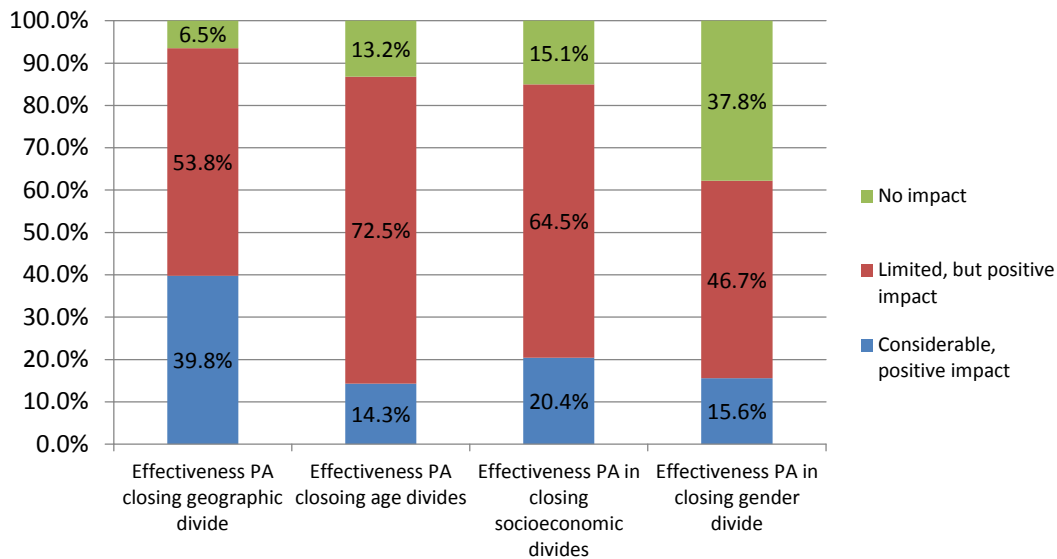
192. Once more, the territorial dimension to IS development must also be considered to examine progress. Regions like Asturias, Canarias, Melilla, Rioja, Murcia, Galicia and Ceuta are both (i) below national levels and (ii) are not demonstrating progress at the same pace as the national average.

**Figure 4.5 Internet use within last three months by region<sup>99</sup>**

Pct of individuals having used Internet in past 3 months	% 2009	2005-2009 CAGR
<b>EU 15</b>	<b>69,0</b>	<b>5.8%</b>
Madrid	67,8	5.4%
Cataluña	66,0	6.1%
Navarra	65,5	9.4%
Baleares	65,0	7.4%
<b>EU 27</b>	<b>65,0</b>	<b>6.3%</b>
Aragón	62,8	10.5%
País Vasco	62,5	6.2%
C. Valenciana	60,5	9.6%
Cantabria	60,3	8.8%
<b>Spain</b>	<b>59,8</b>	<b>8.1%</b>
Asturias	58,1	7.3%
C. León	57,4	10.0%
Canarias	56,9	7.1%
C. La Mancha	55,3	8.7%
Andalucía	54,8	10.4%
Melilla	53,6	1.8%
Rioja	53,6	5.8%
Murcia	51,4	7.1%
Galicia	49,8	6.9%
Extremadura	49,6	8.1%
Ceuta	49,3	7.4%

193. It is interesting to compare data with perceptions of Plan Avanza stakeholders on the effectiveness of the Plan in helping to close some of the principle digital divides of Spain. The majority of respondents perceive limited, but positive improvements. With regards to the closing geographic divides (urban/rural) we see nearly 40% of respondents view a considerable improvement: the faster convergence rates of rural regions would seem to support these results. Contributions to closing the gap between men and women in joining the information society, however are seen as less effective. Policy instruments used to pursue these initiatives have been mainly through NGOs, where monitoring and evaluation has been weak and funds have not been territorialised.

**Figure 4.28 Since 2006, to what extent has Plan Avanza contributed to closing the following kinds of “digital divides” in Spain?**



Source: OECD, Plan Avanza survey.

**Conclusion: closing digital divides**

194. Progress made in increasing the availability of ICTs for citizens is evident, especially in targeted groups such as rural areas and older persons. However, in some regions and age groups the rate of that progress may need to be greater if the goal of Plan Avanza 2 is to become a European leader. It is clear that there is a strong territorial dimension to be considered in the future, and which ultimately affects overall impact of the strategy; the mix of policy instruments used to address digital inclusion could be more conducive to inter-regional convergence. For example, 0% loans destined for citizens’ purchases of computers and broadband internet service are not territorialised, and- while there are a subset of loans targeting families with school-aged children- currently there are no additional criteria to ensure funds are destined to persons living in rural areas or for certain socio-economic groups. Likewise, funds for capacity-building distributed to NGOs do not follow a logic of territorial convergence. Tailoring policy instruments with these this objective in mind is likely to help increase impact in the future while increasing cost-effectiveness in times of fiscal constraints.

## **Section 4.7**

### **Plan Avanza and the Public Administration: supporting national agendas for modernisation and e- government**

#### 4.7. Plan Avanza and the Public Administration: supporting national agendas for modernisation and e-government

195. The remainder of this chapter examines the progress made by Plan Avanza in the specific sectors of education, health and justice, according to both survey results and the most recent data on available on ongoing modernisation and e-government reforms. Additionally, the section looks at how future efforts can contribute to increasing users' take-up of digital services, both by incentivizing the use of digital channels as a means of interacting with public authorities, increasing eSkill competencies, and by focusing more on users' needs to ensure that digital services are responsive and generate perceivable benefits.

##### *Plan Avanza, ICTs and Education*

196. There is little doubt that ICTs have an important role to play in education. In the first place, ICTs can have a positive- although limited- impact on student performance. Analysis of 2003 and 2006 PISA results for example, yield positive correlations between students' average scores and (i) their access to technology; (ii) their experience using technology; and (iii) their confidence in their ability to utilise ICTs. Additionally, positive relationships were established between moderate ICT-use and above-average PISA scores.<sup>100</sup> But there are additional reasons for integrating ICTs into curriculums: as cornerstone institutions of modern knowledge economies, excluding schools from technological advances reinforces socio-economic divides and also hinders the productivity and competitiveness of the future labour force. Indeed, beyond contributing to improvements in student performance, ICT-use in schools can help students develop the necessary eSkills to succeed in a globalised knowledge economy, as well as help reduce socio-economic and gender divides in access to jobs.

197. From inception, Plan Avanza policy makers have understood these linkages between education, ICTs and the advancement of the information society: programmes like Internet en el Aula (and important sub-programme AGREGA) were amongst the first initiatives to be adopted by the Plan in collaboration with the Ministry of Education. In total, between 2006 and 2009, close to EUR 460 million have been mobilised for these two programmes; the budget reflecting the emphasis that has been placed- at this point- on e-readiness.

**Table 4.6 Key Plan Avanza programmes in education sector<sup>101</sup>**

Programme	Budget (Euros)	Period
Internet en el Aula & Agrega	453 million	2005-2009
eSkills for teachers	5 million	2006-2008

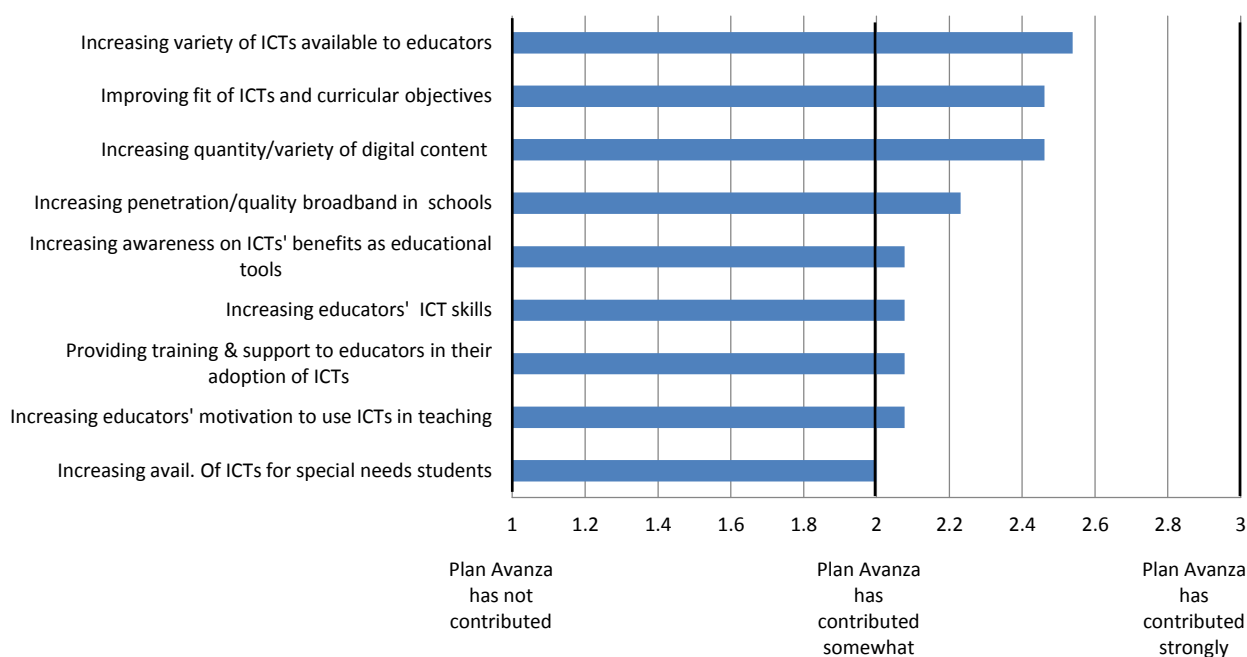
- **Internet en el Aula:** this programme is the second phase of an initiative (“Internet en la Escuela” or “Internet in School”) between the Ministry of Education and red.es. The initiative is largely dedicated to ICT diffusion in schools including: extending broadband to schools and purchasing other ICT equipment such as computers and digital whiteboards. Under the drafted Plan Avanza 2 these efforts will continue under the auspices of a new initiative “Escuela 2.0”. The objective of this latest incarnation of the project is to continue to improve connectivity (speed, resilience or broadband connections) to schools, as well as provide students with individual laptops.
- **Agrega:** The AGREGA project has involved establishing a repository of downloadable educational digital content for educators. The programme is now co-operating with the UK to promote the exchange of materials. (Box 4.3 offers a more detailed description of this programme).

- **eSkills for Teachers:** Plan Avanza has invested EUR 5 million on “training of trainers” programmes for educators in the use of ICTs.

*Results*

198. What has been the result of four years of close co-operation and over EUR 450 million invested over the course of 5 years? Survey results from Plan Avanza stakeholders in the field of education complement the latest available data of ICT access and use. Perceptions from stakeholders confirm that the Plan has contributed most to objectives associated with ICT diffusion: increasing schools’ access to broadband and Internet, provision of computers and other ICTs such as digital whiteboards, and the development of digital content were cited as areas of the Plan’s larger contributions. Respondents represent the central government (*e.g.* Ministry of Education) as well as regional government organisations (*e.g.* regions’ consejerias of education).

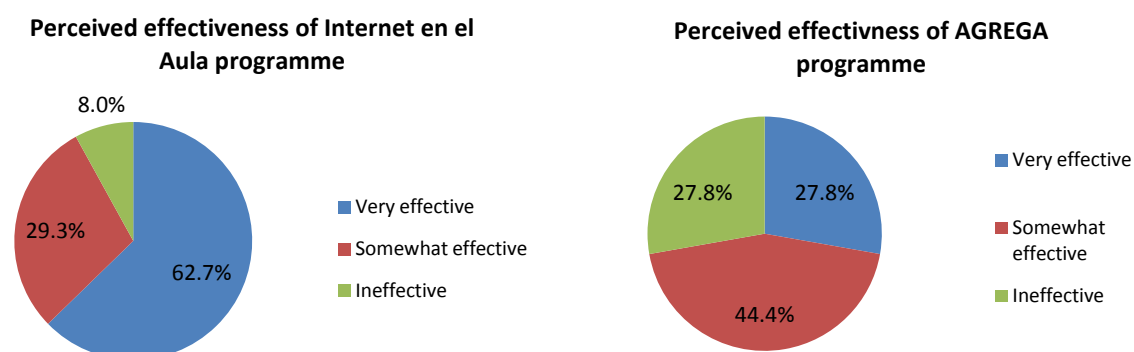
**Fig 4.29 Indicate the extent to which Plan Avanza has contributed to improvements in the following objectives.**



*Source: OECD, Plan Avanza survey.*

199. With regards to the effectiveness of specific projects, the Internet en el Aula initiative has been rated highly by stakeholders- with 63% reporting it had been very effective. However, the AGREGA programme was rated as less effective with the majority responding as “somewhat effective”. Once again, this discrepancy may stem from the fact that Internet en el Aula is more infrastructure-based, while AGREGA is more dependent on educators’ usage and take-up of the tool. Indeed, without educators’ active participation in the programme, downloading and using materials in class, the initiative is less likely to be effective. Lastly, it is important to note that AGREGA is a relatively new programme, having been brought *on line* in 2009.

**Fig 4.30 Effectiveness of Education programmes**



Source: OECD, Plan Avanza survey.

200. Analysis of indicators on internet and broadband access in schools confirm findings from surveys and interviews that progress has been most marked in terms of increasing e-readiness. Table 4.7 demonstrates the growing access to broadband since 2005: a 14% increase in DSL connections over three years. Additionally, the percentage of schools with speeds over 2Mbps has increased from approximately 21.6% during the 2006-2007 academic year to 28.4% in 2007-2008.<sup>102</sup> What's more, gains in schools' access to broadband under Plan Avanza seems to have been relatively equitable throughout the country, with the exception of some regions who lag behind leaders like Madrid and Baleares, and the autonomous cities of Ceuta and Melilla.

**Table 4.7 Percentage of education institutions (primary, secondary and private) with Internet connection.**<sup>103</sup>

	Internet Connection	Phone line	ISDN	DSL	Other
2005-2006 school year	98.7	10.2	12.6	77.4	10.7
2006-2007 school year	99.3	6.4	8.9	86.2	8.7
2007-2008 school year	99.5	5.4	6.4	88.3	9.6

Note: A centre may have more than one kind of internet connection.

**Table 4.8 Percentage of education institutions (primary, secondary) with Internet connection by region**<sup>104</sup>

Percentage of primary and secondary institutions with Internet connection 2007-2008 school year	Internet Connection	Type of Connection (1) (pct of schools)			
		Phone Line	ISDN	DSL	Other connection
Spain	99.5	5.4	6.4	88.3	9.6
Andalucía	99.4	0.6	0.7	89.9	8.2
Aragón	100.0	7.0	4.5	93.2	15.6
Asturias (Principado de)	99.8	5.6	3.9	89.3	14.8
Balears (Illes)	99.2	1.4	2.8	96.1	3.0
Canarias	99.4	24.0	3.9	89.6	10.1
Cantabria	99.2	1.2	0.8	95.5	5.0
Castilla y León	99.8	14.3	10.7	89.5	10.1
Castilla - La Mancha	99.3	9.3	11.8	91.0	7.7
Cataluña	99.3	1.1	2.2	89.9	8.7
Comunitat Valenciana	99.3	2.8	5.6	94.8	1.3
Extremadura	99.8	9.3	7.6	47.5	46.5

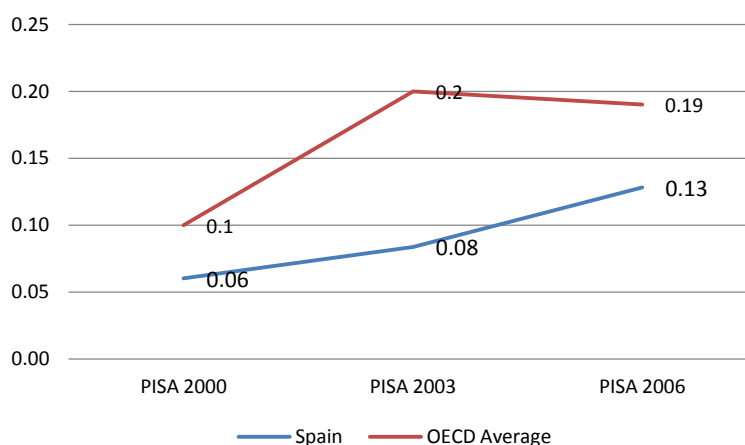


<b>Galicia</b>	98.3	2.7	12.8	77.8	5.1
<b>Madrid (Comunidad de)</b>	99.9	8.4	18.7	96.1	3.6
<b>Murcia (Región de)</b>	99.8	1.5	2.0	88.2	8.4
<b>Navarra (Comunidad Foral de)</b>	100.0	3.2	7.7	84.6	8.1
<b>País Vasco</b>	100.0	1.3	5.5	78.6	28.6
<b>Rioja (La)</b>	100.0	22.7	6.4	95.5	7.3
<b>Ceuta</b>	100.0	0.0	3.6	100.0	7.1
<b>Melilla</b>	100.0	8.7	0.0	100.0	21.7

Note: One centre can have more than one type of connection.

201. Access to computers has also increased under the Internet en el Aula programme (figure 4.31), and the latest OECD data from PISA 2006 results suggest Spain is approaching the OECD average in terms of the number of computers per student.

**Figure 4.31 Number of computers per student<sup>105</sup>**



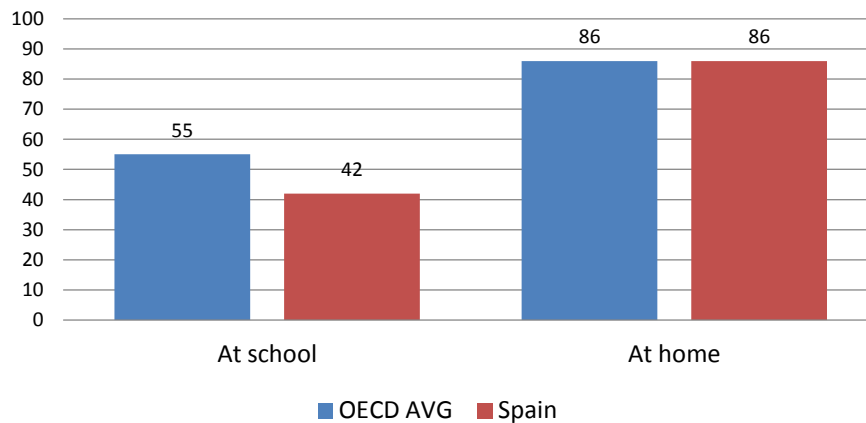
202. Once more, access to computers has been relatively equitable: the differential between urban and rural schools in Spain is lower than the average OECD differential of 0.4.

**Table 4.9 Computer access in rural and urban areas<sup>106</sup>**

	Computers per student in rural locations or towns	Computers per student in cities
<b>Spain</b>	0.13	0.12

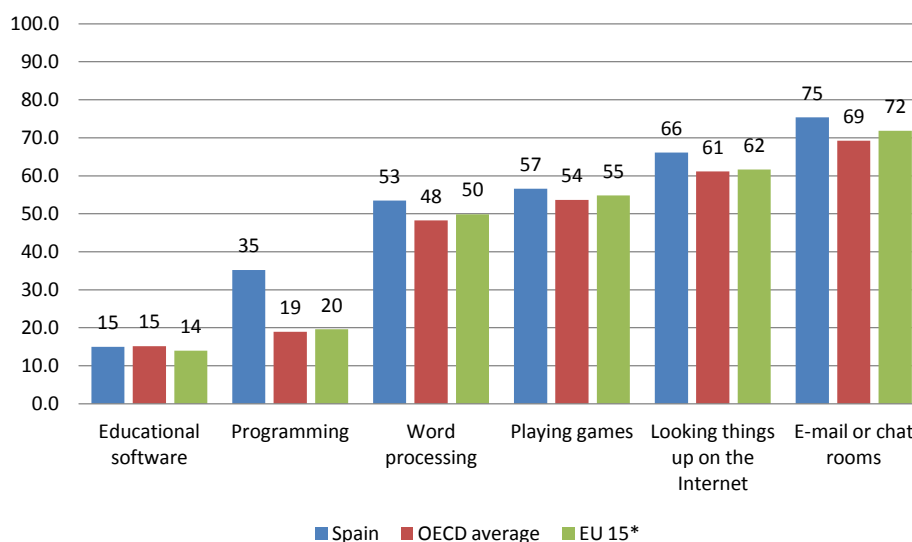
203. PISA results reveal that, in most OECD countries, the relationship between home use and academic attainment is stronger than that of school use and academic attainment, even when accounting for socio-economic factors. Indeed, students without access to a computer at home, or who use computers less frequently at home, tend to be lower achievers than others.<sup>107</sup> Given this fact, it is a positive development that Spanish-OECD differences disappear when looking at computer home-use: the percentage of students with a computer at home is comparable to the OECD average of 86%.

**Figure 4.32. Percentage of students on average in OECD countries who utilise computers frequently<sup>108</sup>**

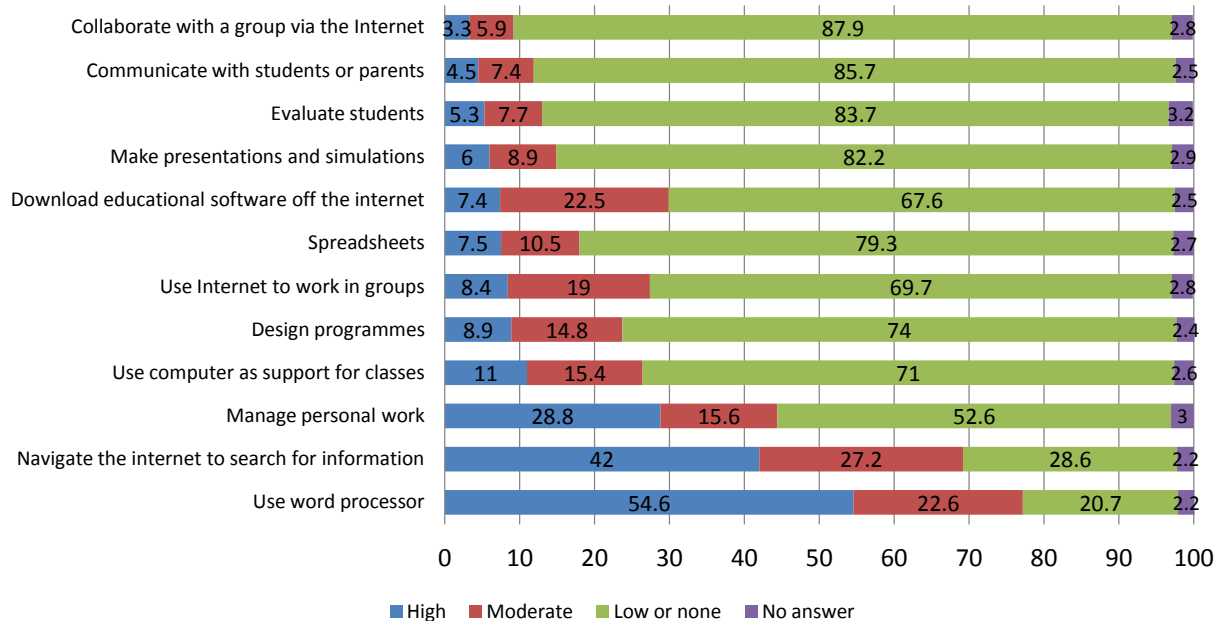


204. However, of those students who use computers frequently, the main activities are email and chats, internet searches, and games. Only 15% of students use computers frequently for utilising educational software. The trend holds for educators: according to a different study conducted in 2005- only 7.4% of professors said they often downloaded educational software. The comparatively lower take-up of ICTs by teachers, students, and even parents for educational purposes may signal the presence of important barriers to take-up that have not been addressed. Indeed, according to interviews with stakeholders, lagging utilisation is a result of educators’ and parents’ lack of awareness about the role of ICTs in learning and teaching; the lack of eSkills; and difficulties in tailoring digital learning resources to curricular needs.

**Figure 4.33 Activities of frequent computer users<sup>109</sup>**



**Figure 4.34 Frequency of use of ICTs by teachers (percentage of teachers)<sup>110</sup>**



Source: ONTSI, 2006.

### Conclusions: shifting from technology to methodology

205. Deployment of ICTs in schools does not translate automatically into impacts associated with the third phase of the S-curve: higher attainment, higher attendance rates, lower drop-out rates, etc. Certainly, reaching these goals will first require a shift in IS priorities from readiness to intensity- from technology to methodology- where ICTs are not just present in classrooms and schools, but integrated into pedagogical methodology and curricular objectives.

206. Both survey results and data suggest that, in Spain, a tipping point may have been reached where a better balance may be achieved between policies aimed at promoting access and usage: access to broadband and computers has risen, but the differential between ICT use at home and at school remains large. Additionally, both students and teachers are under-utilising ICTs for educational purposes. The relatively slower adoption and use of ICTs should drive policy makers to think about what barriers are preventing programmes like AGREGA (whose success relies on educators' adoption of ICTs) from becoming more effective, and what roles educators and parents must play in promoting their use.

207. Perhaps more than in any other sector (e.g. health or justice), the time is right to make the transition to the intensity phase of the S-curve. Worrying however, is that new programmes launched in 2010 such as Escuela 2.0 seem to continue to prioritise deployment of ICT infrastructure over initiatives aimed at increasing take-up. Plan Avanza 2 initiatives in the education sector could, rather, consider addressing some of the main obstacles to raising e-intensity. These are discussed in the following chapter.

#### Box 4.4 The AGREGA PROGRAMME

The AGREGA project has consisted in the development of an *on line* repository which provides access to digital learning resources to complement teaching, and which standardises and organises materials according to curricular objectives and e-learning platforms. 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. 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.

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

#### Plan Avanza, ICTs and Health: building a critical mass

208. Plan Avanza initiatives targeting the health sector certainly have a large potential to affect the quality of lives of citizens and help reduce operating costs, as Spain has universal health coverage, a large aging population, and a decentralised national health system (NHS) that can create costly inefficiencies from fragmentation and duplication. But maximising this potential hinges, first, on the levels of e-

readiness achieved as well as the existence of a critical mass of participating health institutions and regions. Indeed, while Plan Avanza interventions in the education sector have had a longer trajectory, and are beginning to focus on exploiting the value of ICTs for teaching and learning, policies targeting the health sector have primarily focused on building this critical mass of users (e.g. participating regions, hospitals and pharmacies) on which to subsequently promote development of new services and achieve cost-reductions.

*Spain’s National Health System and the role of ICTs*

209. According to Spanish law, all persons living in the country are entitled to access to healthcare under the national health system (NHS), and in 2007 total spending on health equated to EUR 63.8 million (8.5% of GDP). Close to 72% of this expenditure was financed publically, amounting to EUR 1,421 per capita, about 12% below the OECD average.<sup>111</sup> Of 804 hospitals in the country, 315 are public, and divided into three types: primary hospitals, specialist centres and primary care centres, which users access with national health card.<sup>112</sup>

210. Management of the national health system (NHS) in Spain is decentralized. As evident by the distribution of funding amongst the different tiers of government, competencies for the provision of health services are devolved to regional governments, as outlined by both the Constitution and Law 16/2003 of May.

**Table 4.10 Competencies in health care delivery and management of NHS**

Tier	Competencies	2009 Budget
<b>Central</b>	Co-ordination with sub-national governments to ensure minimum standard of conditions for health institutions and practitioners; health policy for research, prevention, pharmaceuticals; international co-ordination; provision of health (via INGESA) of autonomous cities.	EUR 4.69 billion
<b>Regional</b>	Planning and provision of public health; management of public health services.	EUR 58.96 billion
<b>Local</b>	Collaboration in management of health services, such as co-ordination between health and social services; sanitation of public spaces.	EUR 1.07 billion

Source: Ministry of Health, “Sistema Nacional de Salud de España, 2010”

211. Maintaining policy coherence and avoiding the fragmentation of information between health institutions and regions is challenging in a decentralized context. Inefficiencies have the potential to affect the quality of care provided and threaten the sustainability of system, as they can incur unnecessary costs. As in other OECD member countries, the adoption of ICTs in the Spanish NHS has had the following three objectives:<sup>113</sup>

- **Increasing the quality of care:** The use of ICTs in health care delivery can facilitate information-sharing and communication between health practitioners, increasing patient safety and improving the quality of care provided. For example, Plan Avanza’s eHealth programme has included a pilot initiative which uses customized software to reduce the potential for human error in blood transfusions, and timely access to patients’ records (e.g. medications, past incidents, etc.) can help doctors better diagnose and treat patients. Additionally, older people or persons with chronic illnesses- who are often treated by several physicians or receive treatment

in more than on centre- can receive better treatment as different physicians can more easily share information via a centralised node.

- **Reducing operating costs of clinical services and administrative costs:** Evidence from case studies in OECD countries suggests that ICTs have the potential to help save time, reduce paperwork and improve the productivity of health practitioners- ultimately reducing costs. For example the use of digital medical images reduces waiting times for tests/lab results. Additionally, services like e-billing or *on line* reservation systems not only increase convenience for patients, but can also help streamline administrative processes.
- **Enabling entirely new modes of care:** ICTs can also be central to supporting new models of care. Patients living in rural or remote areas, for instance, can benefit greatly from telemedicine initiatives that allow them to receive specialised medical attention faster, and without having to travel long distances. The region of Balears, for example, has implemented a telestroke programme that delivers immediate specialized care to remote areas. Furthermore, assistive living technologies allow older or disabled persons to maintain greater independence, as their physicians can monitor them remotely.

212. Recognizing the scope for ICTs in health, ICT investments by the Spanish NHS have been increasing (from EUR 443 million in 2008 to 544 million in the following year). However, this amounts to 0.9% of the overall health care budget.<sup>114</sup> Within the auspices of Plan Avanza, several initiatives have been implemented under the umbrella of eHealth, which have received EUR 122 million from the central government, and a total of EUR 428 million from regional governments between 2006-2009.<sup>115</sup>

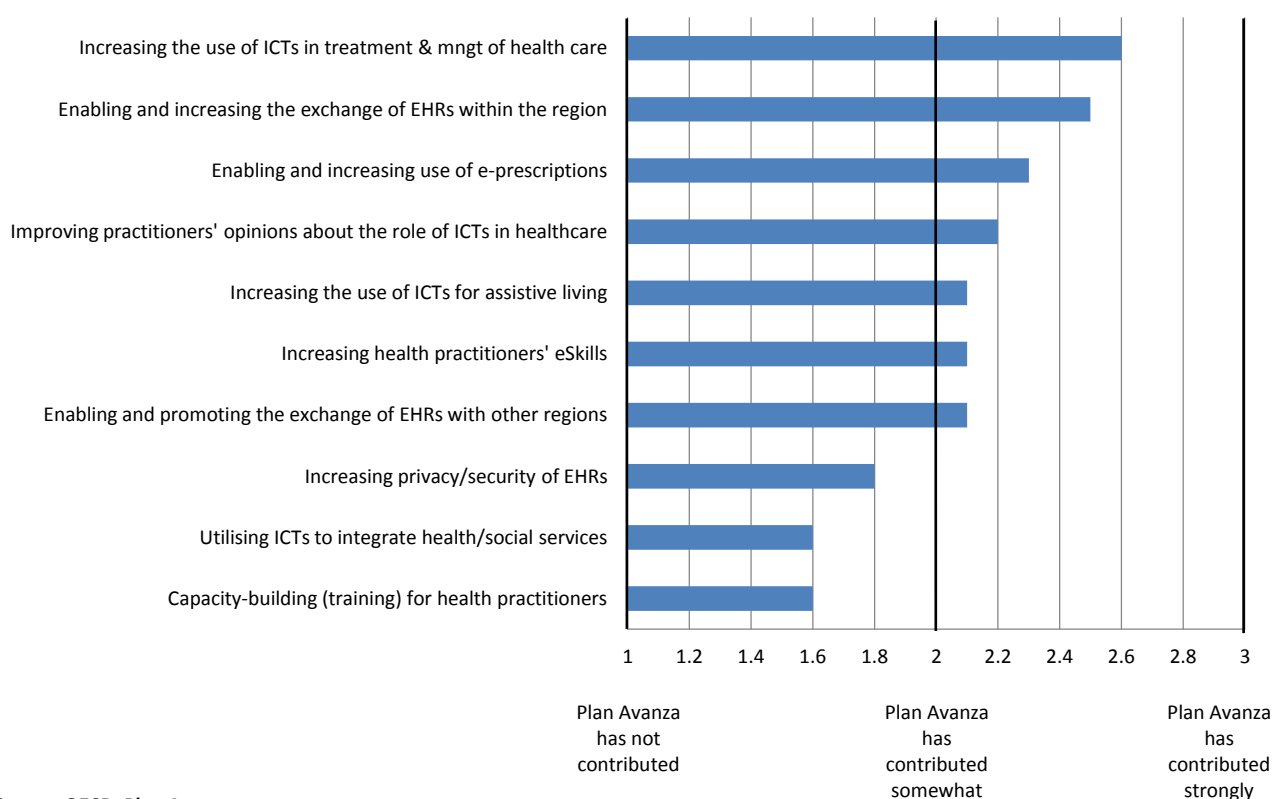
- **ePrescriptions:** This Plan Avanza programme targets pharmacies and primary care centres, allowing doctors, hospitals and pharmacies to exchange and store prescriptions electronically. This system saves patients time and allows them to have access to medications from different regions.
- **Electronic Health Records:** An electronic record is a digital record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organisation.<sup>116</sup> In Spain, the EHR programme works to ensure the interoperability of different regions' electronic health records (EHRs) systems in order to integrate clinical records into a centralized, national, node. Currently 10 regions are participating in the programme, whose aim is to be able to make all patients' records accessible regardless of their location. The central node currently complies with ISO 27001 and 27002 standards. Plan Avanza has also worked to back-up the central node.
- **ICT equipment:** Via red.es, Plan Avanza has supplied the critical ICT equipment which supports the goals of the EHR and e-prescriptions initiatives (servers, computers, scanner and printers, high-res monitor for viewing diagnostic images, etc.)
- **Online booking:** Under Plan Avanza, the initiative working to enable patients to make online appointments has now been expanded to include 11 regions.

## Results

213. Overall, the Plan's stakeholders from the health sector are pleased with the contribution of the Plan to eHealth goals. In their views, the main contribution of Plan Avanza since 2006 has been increasing the use of ICTs in treatment and in the management of health care, suggesting that the provision of ICT

equipment (computers, scanners, servers, monitors, etc.) has been perceived as the highest area of impact. Second, stakeholders perceive positive contributions to enabling and increasing the exchange of EHRs within the region; this is in contrast to enabling the exchange of EHRs with other regions, which ranked lower- still remains a challenge for Plan Avanza 2 as not all regions are integrated in the central node. Also, according to respondents, future efforts could prioritise measures to integrate ICTs with social services and provide training and support to health practitioners to increase utilization of the applications available. As we will see in the conclusion of this section, these measures are necessary for increasing take-up of services and leveraging existing investments; up until now, it seems these efforts have received less priority.

**Figure 4.35 Indicate the extent to which Plan Avanza has contributed to the following objectives.**

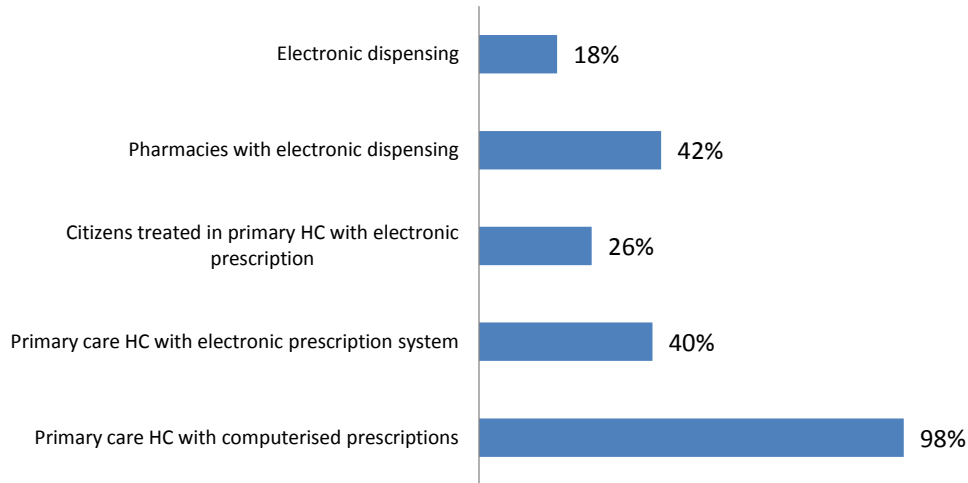


Source: OECD, Plan Avanza survey.

## ePrescriptions

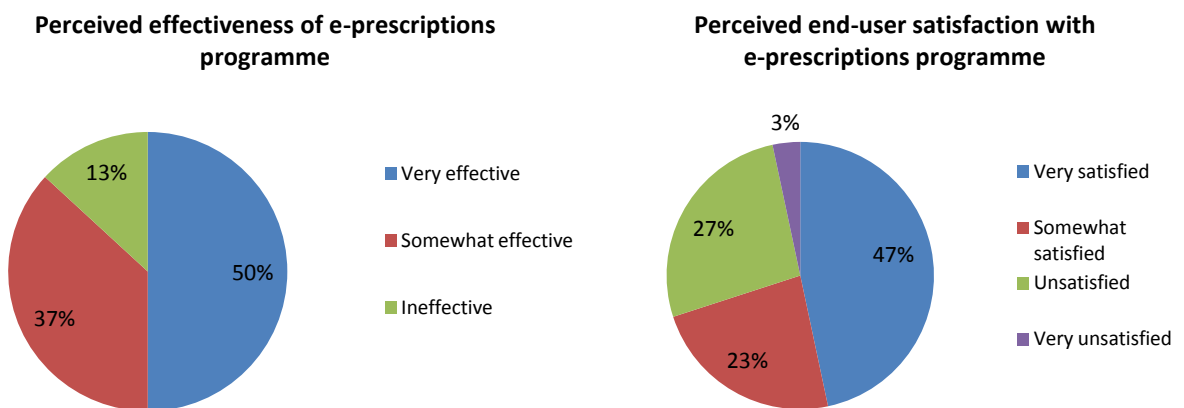
214. In 2007, according to a survey commissioned by the EU<sup>117</sup>, 3.1% of general physicians (GPs) reported using an e-prescriptions system. The EU 27 average at that time was 6.3%. By 2009 however, many more regions in Spain had undertaken initiatives to promote the availability of e-prescriptions systems. According to data from red.es, for example, last year, 18% of medicines dispensed in Spain were handled electronically, and 42% of pharmacies had the option of dispensing prescriptions electronically.<sup>118</sup> Though data from the EU study measured usage and ONTSI statistics measure readiness, it can be inferred that in 2 years progress has indeed been made. Additionally, whereas in 2006 only one region had implemented an e-prescription programme, in 2009, five had commenced execution of this project (Canary Islands, Catalonia, Galicia, Valencia and Pais Vasco).

**Figure 4.36 E-prescriptions in primary HCs, 2009<sup>119</sup>**



215. In the views of respondents surveyed, the majority are very satisfied with the effectiveness of the e-prescriptions programme, with a small (13%) subset reporting they were unsatisfied. The challenge it seems is reaching end-users, as 27% of stakeholders reported that end-users had been unsatisfied with the programme. This may reflect two things (i) firstly, the fact that this service is not yet available nationwide and (ii) a readiness (in participating regions) to increase the priority of initiatives aimed at raising awareness of the benefits of these applications amongst end-users (pharmacists, physicians, patients), in order to increase the utilization of these services.

**Figure 4.37 Effectiveness of e-prescriptions programme**



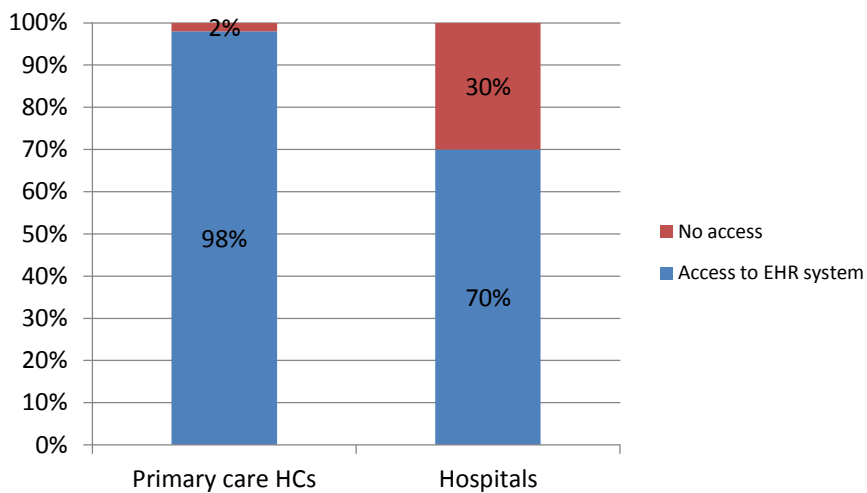
Source: OECD, Plan Avanza survey.



## Electronic Health records

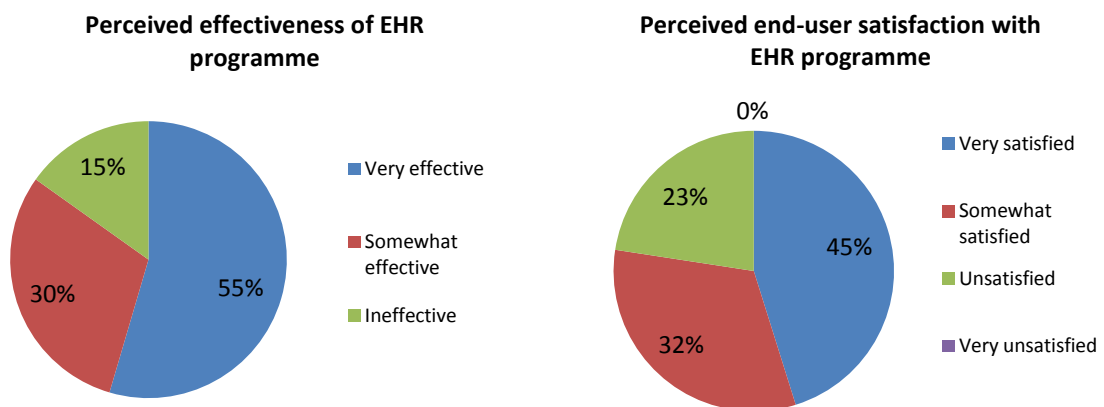
216. In 2007, only 12.6% of general physicians in Spain reported having transferred medical data electronically to other medical practitioners.<sup>120</sup> In 2009, however, 87% of doctors have access to an EHR system, and 88% of the population has an electronic health record. Again, comparisons between these indicators is problematic, but it could be argued that the potential for GPs to exchange information electronically has progressed considerably in only two years' time.

**Figure 4.38 Percentage of health institutions with access to EHR system, 2009**



217. The difference between stakeholder and citizen satisfaction is also evident with the EHR programme; 55% of direct stakeholders report the initiative has been very effective, while the perceived satisfaction of end-users is relatively lower. Again, this could reflect the fact that exchanges are not yet possible nationwide, and that up-take of the service remains lower than it potentially could be.

**Figure 4.39 Effectiveness of EHR programmes**



Source: OECD, Plan Avanza survey.

218. Lastly, due to interventions under the auspices of Plan Avanza, progress in the availability of online booking service has increased 46% in two years, with 88% of primary health centres currently offering patients this option. However, despite the fact that the number of online appointments made has more than doubled over the same period, these currently represent only 3.3% of total bookings made in 2009.

**Table 4.11 Progress on online appointments initiative**

Year	Pct of Primary HCs offering online appts	Number of online appts made
2007	60.2%	5,289,677
2009	87.6%	12,464,018
<b>Pct increase</b>	46%	136%

**Conclusions: leveraging existing investments while bringing “eHealth” to citizens**

219. Plan Avanza has made a difference in terms of ICT diffusion of Spain’s NHS, reaching hospitals, primary health centres, pharmacies and laboratories in participating regions. Project data and survey results support this conclusion, but indicate that greater strides may be needed to yield results for end-users, since new capabilities are (i) under-utilised and (ii) as of yet not rolled-out nation-wide. After all, initiatives for permitting the efficient and accurate exchange of medical information- whether they be clinical records or prescriptions- require the participation of all regions if they are to maximise benefits for citizens and health practitioners: if a patient seeks care in a non-participating region or health institution, it matters little for them if their “home” hospital is integrated in the national node, as their records will not be transferable.

220. When it comes to its interventions in the health sector then, Plan Avanza 2 awaits a difficult challenge in balancing e-readiness and e-intensity policies in this sector, as there are greater inter-territorial discrepancies in their levels of implementation, and levels of progress vary by programme. For example, it would seem also, that the EHR programme is farther along in creating a critical mass of users than that of the e-prescriptions initiative. Promoting the utilisation of these capabilities (especially within institutions of the same region), then, may be a greater priority for this programme in the short-term.

***ICTs in Justice: first steps in modernisation***

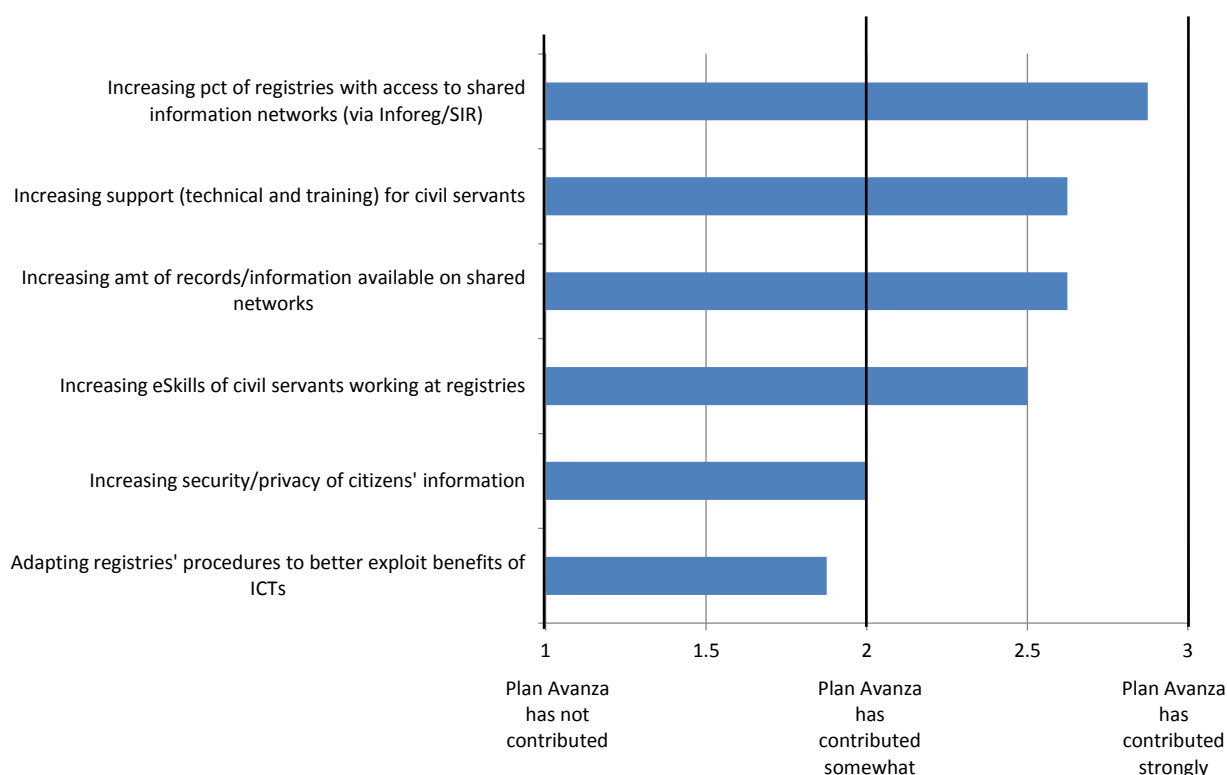
221. The Plan’s interventions in the justice sector have centred around civil registries. The Civil Registries Online programme has been allocated a budget of 129 million over four years and is implemented jointly by Plan Avanza and the Ministry of Justice. The project consists of rolling out a web-based system, Inforeg, 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. Lastly, a third leg of this pillar has been the integration of registries within and across regions, via the (SIR) network.

## Results

222. Thus far, in the 432 civil registry offices in the country, 99.7% of civil records in Spain have been digitised and 100% of these have access to the Inforeg application. Several thousand local courts have received computers and other ICT equipment.

223. With regards to eJustice programmes in civil registries. Stakeholders report greater contributions to increasing availability of ICTs in registries, increasing support for civil servants in their use of new applications such as SIR and Inforeg, and increasing the amount of information accessible via shared networks. Main concerns seem to be ensuring the Plan contributes to increasing the security of information and privacy of citizens, as well as adapting back-office procedures to better exploit the potential of ICTs and produce real efficiencies in processing and cost reductions.

**Figure 4.40 Perceived contributions to eJustice**



Source: OECD, Plan Avanza survey.

## Conclusions

224. Justice sector institutions have, arguably, gotten a “late start” in implementing major modernisation and e-government reforms, and in the short-term programmes are likely to continue focusing on the “supply-side” dimension. Plan Avanza 2 seems to have already begun to address this sector’s strong demand for further action, as there is greater focus on justice in this second incarnation of the strategy. Indeed, over EUR 76 million will be destined to the *Ius+Red* programme which will continue to work with civil registries and the courts to digitise records, install kiosks, and diffuse audio-visual technologies to courts.

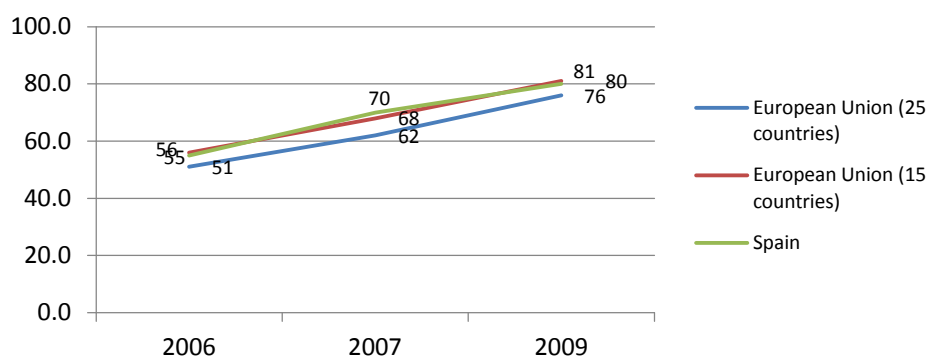
### *Plan Avanza: Supporting E-government programmes*

225. As seen at the start of the chapter, Plan Avanza's initiatives in the public sector have been rated as amongst the most effective by the Plan's stakeholders with 46% of respondents reporting that the Plan had had a considerable and important impact (figure 4.4). Initiatives in this line of work have focused largely on integrating ICTs into back-office operations, supporting modernisation efforts and promoting e-government policies in co-ordination with local governments, the Ministry of the Interior and the Ministry of the Presidency. Some of the key programmes have included:

- **060 online portal:** The Ministry of the Presidency launched the 060 portal in 2007, 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 on how to use this channel at rural telecentres, in order to promote take-up of digital public services.
- **National electronic ID cards:** Plan Avanza has provided support to police stations, where national ID cards are emitted, with the provision of key equipment for issuing these cards. Additionally, the Plan has also rolled out applications at these stations for: waiting list management and online booking, and communication initiatives have been implemented to raise awareness about the benefits of using eID cards and what functions they offer. Rural telecentres are utilised as training centres for using these cards to access online public services.
- **Avanza Local:** a line of funding for municipalities to support e-government initiatives. The Avanza Local programme includes a EUR 1 million in 2009 alone, which runs informative sessions and workshops for municipalities and provides a suite of technological solutions such as LOCALGIS, LOCALWEB, SIGEM, CATASTRO, specifically developed for municipalities. One of these solutions, Urbanismo en Red, has been promoted with a budget of EUR 57 million over four years. This particular application involves the implementation of a GIS Open Source solution (LOCALGIS or POSTGIS). The programme also supports the digitalization of the town-planning according to initial phase systematization.

226. Programmes such as Avanza Local and 060 have increased the availability of government services available online. Both EU and UN data confirm the leaps that have been made in this dimension. According to a survey by Capgemini commissioned by the EU to assess the availability of digital public services, the country's score has increased by 60% in only three years, with 80% of services measured accessible through the digital channel last year.

**Figure 4.41 E-government availability (supply-side)**<sup>121</sup>



Source: Eurostat, 2009.

Note: no data is available for 2008.

Based on survey conducted by Capgemini on the online availability of 20 public services.

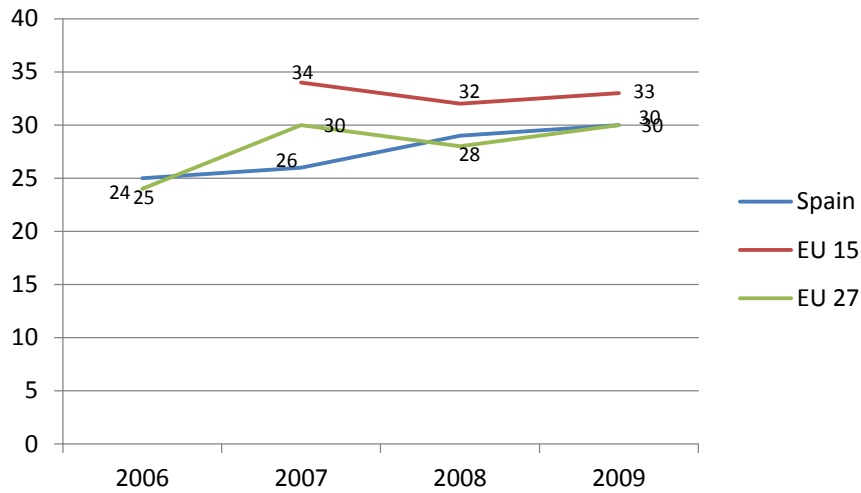
227. Likewise, Spain's position in the United Nations e-government rankings has increased substantially, up 30 posts in the e-government ranking and 66 posts in the online services ranking. The launch of the 060 portal in 2007, and the continued efforts to integrate national and sub-national services through this tool, have been reflected in international comparisons.

**Table 4.12 Spain's position in e-government rankings**

Spanish position in United Nations e-gov rankings	2005	2008	2010	Progress
E-government rank	39	20	9	+ 30
Online services rank	71	15	5	+ 66

228. While access is increasing at a fast pace, the utilisation of public services by the general population however remains lower in comparison to their availability, with only 30% of individuals having used Internet to interact with public authorities. Spain shows continued (and more stable) progress on increasing take-up (with a 22.7% increase between 2006 and 2009), but this rate of adoption is slightly below that of its EU counterparts.

**Figure 4.42 Percentage of individuals who have used Internet for interaction with public authorities**



	2006-2007	2007-2008	2008-2009	PCT change	CAGR 2006-2009
<b>Spain</b>	4.0%	11.5%	3.4%	20.0%	6.3%
<b>EU 15</b>	..	-5.9%	3.1%	..	..
<b>EU 27</b>	25.0%	-6.7%	7.1%	25.0%	7.7%

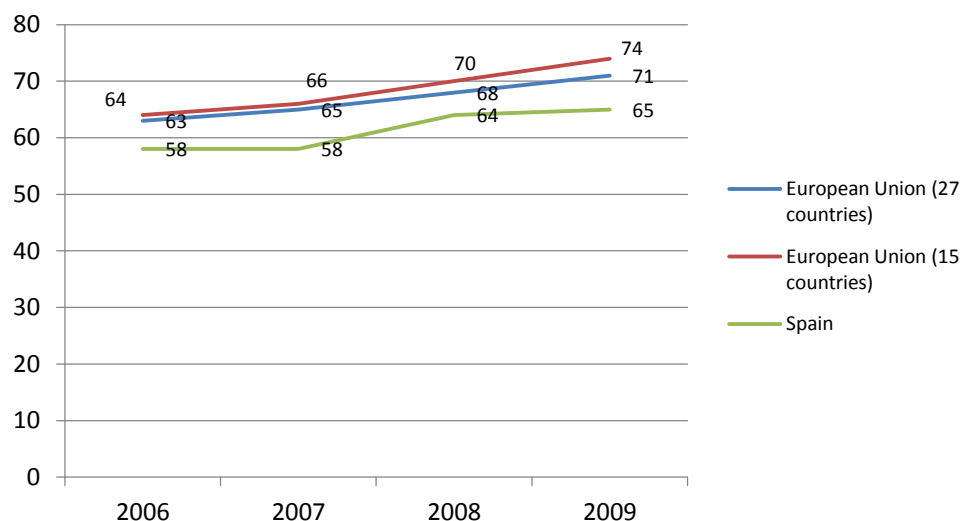
Source: Eurostat, 2009.

229. The digital channel is utilised more, however, by enterprises, since by law it is now mandatory for some administrative procedures to be carried out online. In October 2007, a ministerial order was issued intended to standardise and promote electronic invoicing for public contracts. The aim is to ensure common practice amongst ministries, and the order applies to invoices issued by private individuals or entities. It deals with two main aspects of electronic invoicing:

- The approval procedure within ministerial departments and other bodies which opt to accept incoming electronic invoices.
- The technical conditions to be met by those sending electronic invoices to the public administration.

In particular, the origin and content of an invoice must be authenticated by an electronic signature that is valid under the Law on Electronic Signatures. Nonetheless, 65% report having utilised the Internet to interact with public authorities. This remains below EU averages, and rates of progress are also slightly lower than EU 15-27 averages.

**Figure 4.43 Percentage of Enterprises which use the Internet for interaction with public authorities**



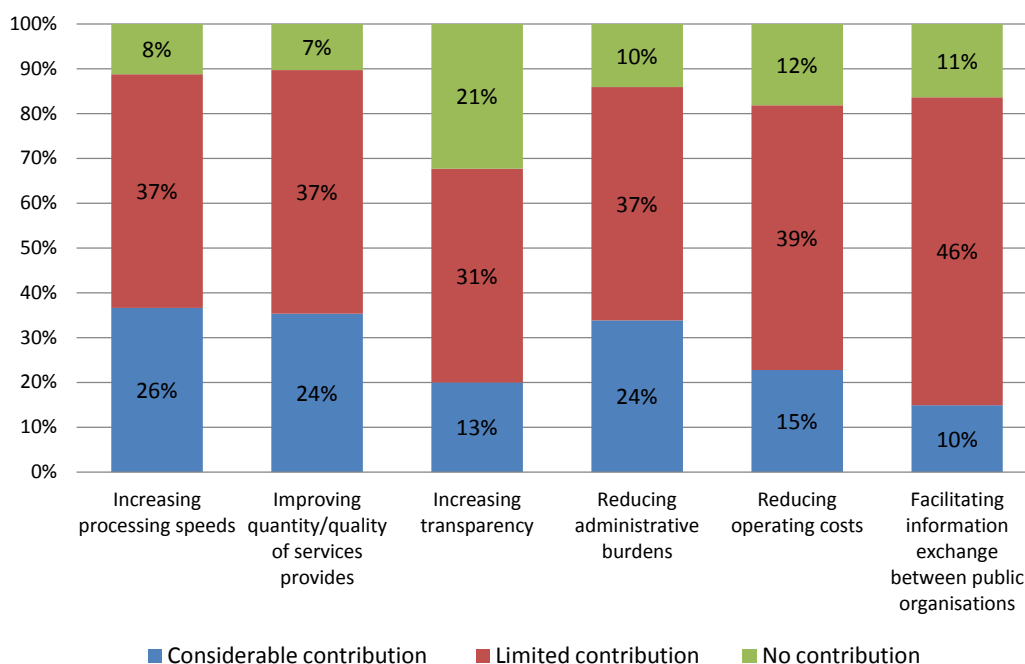
	2006-2007	2007-2008	2008-2009	Pct increase	CAGR
<b>Spain</b>	0.0%	10.3%	1.6%	12.1%	3.9%
<b>EU 15</b>	3.1%	6.1%	5.7%	15.6%	5.0%
<b>EU 27</b>	3.2%	4.6%	4.4%	12.7%	4.1%

Source: Eurostat, 2009.

## **Conclusions**

234. Overall, the majority of stakeholders implicated in modernisation and e-government initiatives perceive positive impacts from Plan Avanza interventions. Nearly all view that either a considerable or limited contribution has been made to improving processing speeds, increasing the quantity and quality of services provides, reducing administrative burdens, and facilitating the exchange of information between different public sector organisations. 21% of respondents however, note that thus far, ICTs have not been exploited to increase transparency of the public sector. The United States Open Government Initiative, for example, may offer inspiration to Plan Avanza- as this programme has exploited the potential of ICTs, Web 2.0, and social networking to ensure that ICT applications are not sequestered to the back-office, but rather have more visible impacts for citizens. Box 4.X offers an example of a pilot project supported by the Plan as a first step in promoting the use of technologies to 'open government' and increase transparency.

**Figure 4.45 Plan Avanza contribution to modernization of Public Administration**



Source: OECD, Plan Avanza survey.

#### **Box 4.4 ICTs for increasing public sector transparency**

Although policies aimed at promoting the **reutilisation of public data** are relatively nascent in Spain, important first steps have been made under the auspices of the national Information Society strategy *Plan Avanza 2 (2010-2015)*. The most prominent example is a project launched in early 2009, *Aporta*, a user-friendly repository and search engine similar to that of the United States' data.gov. *Aporta* (literally meaning to "contribute" or "share" in Spanish) has a budget of EUR 1 million, allocated to the construction and maintenance of an online portal ([www.aporta.es](http://www.aporta.es)). Government organisations can upload data and share with citizens, businesses and other public sector organisations. The project also seeks to stimulate take-up of this tool, by funding informative and capacity-building sessions for citizens, SMEs and civil servants.

*Aporta* demonstrates Spain's intentions to follow the trend of other EU countries to encourage **open government**, with the goals of fostering public sector co-operation and innovation; increasing transparency and interoperability; and generating new opportunities for social and commercial gain. Spurred by the EU law 2003/98/CE, national legislation followed in Spain with law 37/2007 of the 16th of November, which also governs the conditions under which data can be shared and used. Indeed, *Plan Avanza 2* includes open government as one of its strategic objectives, though specific initiatives beyond *Aporta* are in early stages development.

Spain's 17 autonomous communities are also following suit. Pais Vasco for instance is one of the first regional governments to launch its own website <http://opendata.euskadi.net/w79-home/es/>. Thus far, some of the solutions developed from re-use of public data have included wikis and geographic information systems that compile tourism and cultural information of interest, as well as customisable widgets.

Though not unique to Spain, challenges remain to increase the exploitation of re-use opportunities. This will require specific measures to:

- foster a culture of information-sharing in the public sector
- increase awareness of the potential benefits of open government and re-use of public data
- ensure that uploaded information shared is of value to users
- help link these initiatives to strategies/procedures for performance management

Source: OECD, based on information provided by the SSTIS.



### *Towards a user-centred approach*

234. Investments in ICT diffusion in the public sector and support to development of digital public services require a critical mass of users if they are to be cost-effective and generate real benefits for a greater number of citizens and businesses. As we have seen in this chapter, certain levels of e-readiness have already been achieved enabling citizens and businesses to choose the digital channel when interacting with government: i) broadband access has grown, especially in rural areas; (ii) more households and businesses have adopted internet/broadband services; (iii) internet use is growing, in some segments of the population (*e.g.* younger people) rates have already converged with EU averages; and (iv) a much larger percentage of public services are available online. Like many other OECD countries, Plan Avanza's challenge now is to balance continued efforts for modernisation and support to the development of digital public services with initiatives to foster take-up. To accomplish this, they must place focus on users, considering:<sup>122</sup>

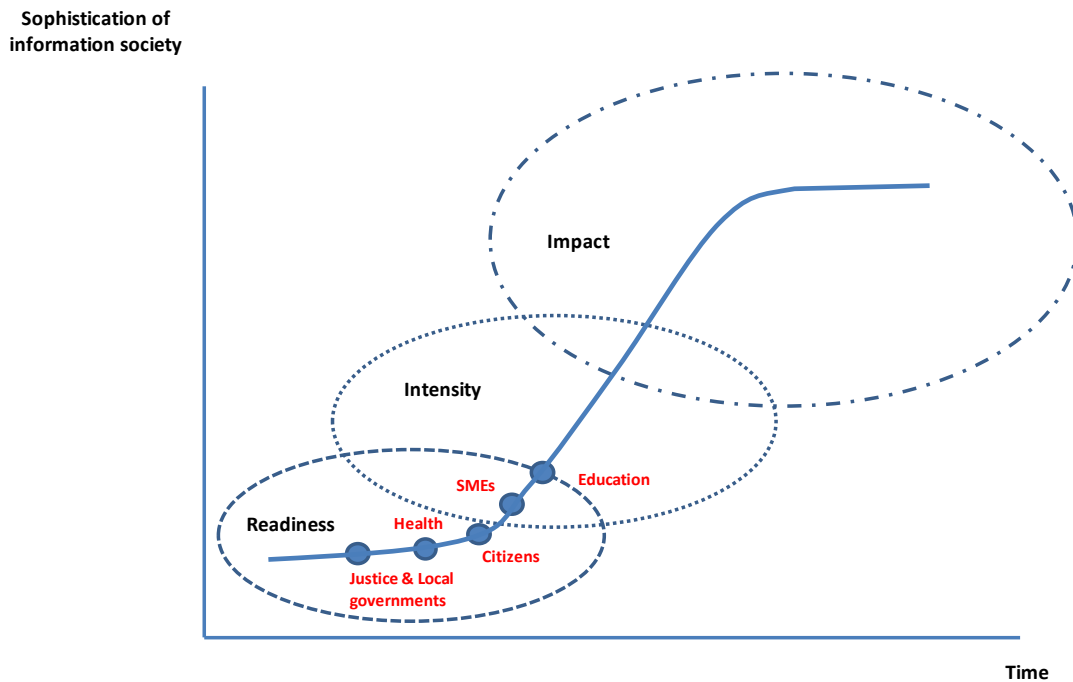
- **Users' awareness of the availability of public services online:** Are users aware that they can access services online? Are they aware of the benefits of choosing this way of interacting with government?
- **Users' trust in government:** Do users feel the digital channel is secure? Do they perceive that measures have been taken to maintain their privacy and sensitive personal information?
- **Users' motivation to use digital services:** Would citizens prefer the digital channel over another (*e.g.* phone, in person, etc.)? Do they realise benefits in this way that they wouldn't otherwise? Do they perceive improvements in the quality/quantity of services provided?

### **Chapter 4 Conclusions: from e-readiness to e-intensity**

230. As discussed at the start of this chapter, assessment of Plan Avanza should consider the strategy's original goal, which has been to primarily to increase the state of e-readiness of Spain's information society, especially in regions and demographic groups lagging behind national and EU averages for various reasons: whether because of their mountainous terrains, disperse populations, socio-economic disparities, predominance of SMEs, or traditionally low levels of economic activity in the ICT sector. Has this goal been achieved? Survey results, programme indicators and international data signal that considerable progress has been made in ICT diffusion, thanks in large part to investments in telecommunications infrastructures, the adoption of a collaborative governance model based on co-financing and joint-implementation, as well as critical support from the public enterprise red.es.

231. The next logical question for IS policy makers at this important junction in Spain's IS agenda (Plan Avanza 2 is launched in May of 2010) is whether sufficient progress has been made in ICT diffusion to justify a growing prioritisation of e-intensity policies (*e.g.* greater focus on usage and take-up of digital services). While, in general, findings from this study point to an affirmative answer, this depends highly on the policy sector and region in question: The below graph represents, based on the data and survey results presented in this chapter, a possible positioning of different sectors/target groups along the S-curve.

**Figure 4.43 Current states of IS development (chapter overview)**



Source: OECD.

232. Looking at rates of progress also offers clues as to whether the tipping point between e-readiness and e-intensity is approaching. In justice and health, rates of ICT diffusion remain high, since these are relatively new areas of work. Conversely, in the sector of education, rates of growth in internet/computer access have slowed, as a high percentage of schools have improved their connectivity. Likewise, the latest annual trend for household broadband adoption suggests rates of growth are beginning to stabilise, though the effect of the crisis cannot be discounted. This could be further evidence in favour of a shift of objectives in some sectors.

233. It is evident that since Plan Avanza’s launch in 2006 Spain’s information society has made considerable progress in increasing its state of “e-readiness” (e.g. increasing the availability of critical ICT infrastructure on which the continued development of ICT goods and digital services depends). Several factors have contributed to this achievement- namely- strong leadership on the part of the State Secretariat for Telecommunications and the Information Society, as well as close collaboration with sub-national governments and stakeholders. However, if Plan Avanza 2 is to achieve its goal of consolidating Spain as a leading European knowledge economy, strong e-readiness is necessary but, alone, insufficient. Now, leveraging the progress achieved thus far in ICT diffusion will depend on establishing a greater equilibrium between demand and supply-side policies. As Plan Avanza begins a new phase, then, achieving greater “e-intensity” is key- that is: (i) promoting ICT take-up and usage, (ii) building ICT skills of all kinds (users’ skills, practitioner skills, e-Business skills), and (iii) improving the responsiveness of public services- this means, exploiting ICTs not only to improve efficiency and reduce costs, but also to create value for society: increasing public sector transparency, offering new services, and improving the quality of services. This changing philosophy can be summed up as follows: a shift in priorities is needed, from a focus on technology, to a focus on users.

234. This shift in priorities in Information Society policy is not only important to contribute to greater public value, but also it is especially important in terms of contributing to Spain's economic recovery. Plan Avanza 2, has an important role to play in the current economic context, as ICTs and the ICT sector have the potential to contribute to societal-wide goals for greater growth, innovation, sustainability and equity. Indeed, in a globalised world that increasingly depends on knowledge-based transactions, where ICTs facilitate access to new markets and ideas, and where access to information can help "level the playing field" for socially excluded groups, OECD governments are understanding that societies that are good at creating, diffusing and exploiting information for social and economic gain will find themselves at the forefront of new economic opportunities and pioneering ways for generating welfare for citizens. Plan Avanza has much to contribute in this regard, and recent initiatives such as the draft Law for the Sustainable Economy are windows of opportunities for IS policy to contribute further to wider socio-economic goals.

235. However, to maximize the Plan's impact (as well as optimize resources in times of fiscal consolidation), Plan Avanza could encourage greater co-ordination between stakeholders and adapt policy instruments to match its changing objectives and priorities. As we've seen in this report, the governance tools exist, it is a matter of leveraging them further and looking at cross-sectoral synergies that can be realised. The following chapter summarises the report's conclusions, and proposes recommendations for how the next phase of the Plan could materialise these changing priorities.



## **ANNEX I**

**Organisations participating in interviews and roundtables**  
**OECD Missions to Madrid:**  
**July, 2009**  
**November, 2009**  
**March, 2010**

### CENTRAL GOVERNMENT ORGANISATIONS

- SENATE COMMISSION FOR INDUSTRY, TOURISM AND TRADE
- SECRETARIAT OF STATE FOR TELECOMMUNICATIONS AND THE INFORMATION SOCIETY
- RED.ES
- NATIONAL OBSERVATORY FOR TELECOMMUNICATIONS AND THE INFORMATION SOCIETY
- MINISTRY OF INTERIOR
- MINISTRY OF THE PRESIDENCY
- MINISTRY OF EDUCATION
- MINISTRY OF JUSTICE
- MINISTRY OF HEALTH
- MINISTRY OF ENVIRONMENT
- MINISTRY OF SCIENCE AND INNOVATION
- SECRETARIAT OF ENERGY
- DIRECTORATE FOR SME'S
- TELECOMMUNICATIONS MARKET COMISSION
- TELECOMMUNICATIONS CUSTOMER SUPPORT OFFICE

### REGIONAL AND LOCAL GOVERNMENT REPRESENTATIVES

- ANDALUCÍA
- ARAGÓN
- BASQUE COUNTRY
- CANTABRIA
- EXTREMADURA
- GALICIA
- MADRID
- MURCIA
- NAVARRA
- SPANISH FEDERATION OF MUNICIPALITIES AND PROVINCES (FEMP)- ICT Commission
- CITY HALL OF LLEIDA
- CITY HALL OF MOLINA DE SEGURA

NON-GOVERNMENTAL ORGANISATIONS AND FIELD VISITS (Spanish acronyms in parentheses).

- INTERNATIONAL FINANCIAL ANALYSTS S.A. (ANALISTAS FINANCIEROS INTERNACIONALES, S.A)
- AUTONOMOUS UNIVERSITY OF MADRID (UAM)
- OFFICIAL COLLEGE OF TELECOMMUNICATIONS ENGINEERS (COIT)
- TELECOMMUNICATIONS ENGINEERING SCHOOL (ETSIT)
- SPANISH ELECTRONICS, INFORMATION TECHNOLOGY AND TELECOMMUNICATIONS INDUSTRIES ASSOCIATION (AETIC)
- SPANISH MULTI-SECTORAL ASSOCIATION OF ICT AND ELECTRONICS BUSINESSES (ASIMELEC)
- SPANISH ASSOCIATIONS FOR E-COMMERCE AND MARKETING (AECM)
- SPANISH CONFEDERATION OF USERS AND CONSUMERS (CEACCU)
- CIBERVOLUNTARIOS
- FOUNDATION FOR TECHNOLOGICAL INNOVATION (COTEC)
- SPANISH SOCIETY FOR IT IN HEALTH
- HOSPITAL- NUESTRA SEÑORA DE SONSOLES DE ÁVILA
- SCHOOL- IES VALLE DEL TIÉTAR DE ARENAS DE SAN PEDRO
- CIVIL REGISTRY- MADRID CIVIL REGISTRY

## ANNEX II

**Survey Methodology** In addition to extensive interviews with government and non-governmental stakeholders, a diagnostic of Plan Avanza has also been conducted with three objectives in mind: (i) first, to identify strengths and challenges in multi-level governance of the Plan; (ii) second, to evaluate the effectiveness of the current coordination tools used and; (iii) third, to measure the perceived effectiveness of key Plan Avanza programmes. Ch.3 presents findings on the first two objectives, ch. 4 on the latter. It is important to note that the survey was administered to regional and local governments, implementation stakeholders (including non-government organisations), as well as ministries currently involved in the Plan (e.g. ministries of the presidency, interior, justice, education and health). All participating ministries and regions were invited to complete the survey, while- due to the large number of local governments in Spain- a smaller sample of these received questionnaires. This sub-sample of local governments was selected on the basis of population to ensure the needs of small, medium and large territories were equally represented. Additionally, representatives on the IS commission of the Spanish Federation of Provinces and Municipalities (FEMP) participated in the survey.

A series of core questions were distributed to all participants, these included questions on multi-level governance and overall impact. An additional set of sector-specific questions were developed for education, justice, health and science and technology. All respondents were asked to reply on behalf of their organisations; in order to comply with this condition, in many cases several individuals cooperated in the completion of the same survey. In total, 167 organisations were invited to participate in the survey, the overall response rate was 55%.

Organisation by Tier	Organisations invited to participate in survey	Response rate	Organisations by sector	Organisations invited to participate in survey	Response rate
Central	9	88.8%	Health	18	94.4%
Regional	60	68.3%	Education	17	63.2%
Local	67	44.7%	Justice	9	55.6%
External stakeholders	31	41.9%			
<b>TOTAL</b>	<b>167</b>	<b>55.1%</b>			

In total, 99 responses were received. The below table disaggregates respondents by tier and sector. It is important to note that all sectors are represented at the central and regional levels however, non-government stakeholders and local governments are not affiliated to any sector in particular. Their answers are not applicable (and were omitted) from sector-specific impact questions.

Respondents by Tier	Num. Responses	Respondents by Sector	Num. Responses
Central	13*	Education	12
Regional Consejerias	43	Health	20
Regional co-signers for high-level contracts (Convenios Marco, most often with S&T consejerias)	12	Science and Technology	12
Regional co-signers for addendums to contracts (sectoral consejerias of education, health, justice)	31	Justice	6
Local governments	30	Local (telecentres & Avanza Local)	30
Non-government stakeholders	13	Other (Interior, Presidency and non-govt)	19
<b>Total</b>	<b>99</b>		<b>99</b>





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[http://www.cmt.es/es/publicaciones/anexos/091217\\_InformeBA\\_Junio09.pdf](http://www.cmt.es/es/publicaciones/anexos/091217_InformeBA_Junio09.pdf)

<sup>67</sup> 2-10 Mbps advertised download speed, which includes between 70 and 80% of the customer base

<sup>68</sup> Broadband Internet Access Cost (BIAC), Second half of 2009. Van Dijk Management Consultants/European Commission, Information Society and Media Directorate-General. Available offers from EU-27 countries plus Norway, Iceland, Japan, Korea, Canada and the United States (New York, California and Colorado) were considered.

[http://ec.europa.eu/information\\_society/eeurope/i2010/docs/eda/biac\\_2009.pdf](http://ec.europa.eu/information_society/eeurope/i2010/docs/eda/biac_2009.pdf)

<sup>69</sup> OECD (2009), DSTI/ICCP/CISP(13)/FINAL, “*Wireless Broadband Indicator Methodology*”

[http://www.oilis.oecd.org/olis/2009doc.nsf/LinkTo/NT00008FDA/\\$FILE/JT03280334.PDF](http://www.oilis.oecd.org/olis/2009doc.nsf/LinkTo/NT00008FDA/$FILE/JT03280334.PDF)

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<sup>70</sup> European Commission, 15<sup>th</sup> Implementation Report.

[http://ec.europa.eu/information\\_society/policy/ecomms/doc/implementation\\_enforcement/annualreports/15threport/15report\\_part2.pdf](http://ec.europa.eu/information_society/policy/ecomms/doc/implementation_enforcement/annualreports/15threport/15report_part2.pdf)

<sup>71</sup> [http://circa.europa.eu/Public/irc/infso/cocom1/library?l=/public\\_documents\\_2009/cocom09-01\\_switchover/ EN\\_1.0\\_&a=d](http://circa.europa.eu/Public/irc/infso/cocom1/library?l=/public_documents_2009/cocom09-01_switchover/ EN_1.0_&a=d), <http://www.dtv.gov/>, OECD Communications Outlook 2009.

<sup>72</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on accelerating the transition from analogue to digital broadcasting (SEC(2005)661).

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2005:0204:FIN:EN:PDF>

<sup>73</sup> OECD Communications Outlook 2009. Spain’s share of households using terrestrial technology (75.2%) is among the highest in the OECD (second after Italy).

<sup>74</sup> <http://www.mityc.es/es-es/gabineteprensa/notasprensa/documents/npactobienvenidatdt300310.pdf>

<sup>75</sup> Sources: MITyC (May 2010), Ofcom (Sep 2009), CSA (Oct 2009), DGTVi (January 2010). Data may not be comparable, as they may be based on different methodologies.

<sup>76</sup> <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/540&format=HTML&aged=0&language=EN&guiLanguage=en>

<sup>77</sup> [http://ec.europa.eu/information\\_society/policy/ecomms/radio\\_spectrum/document\\_storage/legislation/800mhz/dec800mhz\\_en.pdf](http://ec.europa.eu/information_society/policy/ecomms/radio_spectrum/document_storage/legislation/800mhz/dec800mhz_en.pdf)

<sup>78</sup> <http://www.bundesnetzagentur.de/cae/servlet/contentblob/155164/publicationFile/6992/100520FrequenzverstgBeen-det.pdf.pdf>

<sup>79</sup> <http://www.mityc.es/es-es/gabineteprensa/notasprensa/documents/npasignacionmultipletdt260310.pdf> ,

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<sup>88</sup> OECD (2010), *OECD Innovation strategy: Getting a Head Start on Tomorrow*, OECD Publishing, Paris.

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<sup>89</sup> <http://www.iie.com/publications/wp/wp08-10.pdf>; UN MSITS

<sup>90</sup> Eurostat (2006), “SMEs and entrepreneurship in the EU”, *Statistics in Focus*, 24, authored by M. Schmiemann.

<sup>91</sup> Eurostat data, 2009.

<sup>92</sup> OECD (2010, forthcoming), *Information Technology Outlook*, OECD Publishing, Paris.

<sup>93</sup> OECD, Broadband portal, accessed May 2009; Eurostat 2009.

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