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Tariq Mohammed, *Harvard University*

> " It is hard to find lecturers [in the IT field] with the right qualifications, which translates into problems for training more students to satisfy the demand."
>
> **—Dean of computer studies at a Spanish university**

> " While Internet use in large companies and urban areas is about equal to that in the most advanced countries, small companies and rural zones are significantly behind."
>
> **—Spanish IT professional**

Spain is marked by dynamism in parts of its ICT sectors, but progress has been slowed by delayed benefits of fixed-line telecommunications liberalization. The country ranks twenty-sixth overall in Readiness for the Networked World.

Both national and local government initiatives are focusing on ICTs for economic growth (Ranking in ICT as Government Priority: 6). For example, the city of Barcelona is trying to use tax incentives to attract companies to set up R&D facilities in an upcoming technology zone.[1] Meanwhile, European Union-funded initiatives in marketing rural tourism through ICTs have proven noteworthy in establishing business and social networks.[2]

In December 1999, the Spanish government launched a four-year national initiative, INFO XXI; La Sociedad de la Información Para Todos (The Information Society for All), which attempts to deliver information services to businesses and citizens (Ranking in Online Government Services: 19). An Action Plan for 2001–2003 calls for support from local government and the private sector on issues of the Internet in education, public access, digital literacy, small and medium enterprises (SMEs), and e-commerce.

In early 2001, the local loop former state provider (over 90 percent of which is owned by Telefónica) was unbundled to create competition among other operators; however, success has been limited because of economic difficulties, technical challenges, and high interconnection fees charged by Telefónica (Ranking in Effect of Telecommunications Competition: 29). Broadband is in its infancy (Ranking in Availability of Broadband: 22). Attempts to roll out cable networks, although increasingly more numerous, have been slowed by bureaucratic red tape, and DSL has only a limited number of subscribers to date, partly due to the high rates Telefónica charges alternative DSL operators. Mobile wireless is growing rapidly.

Spain already boasts 2.5G (GPRS) cellular telephony, and has created an innovative third-generation (UMTS) cellular licensing process driven by effectiveness and reach rather than revenue generation.

Internet penetration is a mere 13 percent, due in part to the combination of high access cost and an average of fourteen PCs per 100 inhabitants, less than half the EU average. When adjusted for purchasing power, Spain has among the highest Internet access costs in the EU, even though many ISPs offer free Internet service and draw their income from call charges and portal advertising instead. Despite Spain's advantage in PCs and income per capita, neighboring Portugal's rate of Internet penetration is more than 50 percent higher.

E-commerce is new, with estimates of 2000 B2C e-commerce at US$120 million,[3] and B2B e-commerce in 2002 at almost US$ 400 million[4] (Ranking in e-Commerce micro-index: 26). Spain's numerous SMEs have been slower to adapt to the Internet, with estimates that fewer than one-third have a Web presence, and only about 10 percent of those offer online services.[5] In general, the Web has been viewed more as a marketing tool than one for service delivery.

Educational institutions have relatively good ICT infrastructure. Under the New Information and Communication Technologies Program (PNTIC), 80 percent of secondary schools have computer equipment, with an average of twenty-four students per computer[6] (Ranking in Internet Access in Schools: 30).

Through a consultative process, the Spanish government has drafted the Information Society and Electronic Commerce Law to enforce competition in the Internet sector and prohibit restrictions against other European Union ISPs.

Key Facts

Population	40,600,000
Rural population (% of total population) 1999	22.62 %
GDP per capita (PPP)	US$19,202
Global Competitiveness Index Ranking, 2001–2002	22
UNDP Human Development Index Ranking, 2001 (adjusted to GITR sample)	20
Main telephone lines per 100 inhabitants	42.12
Telephone faults per 100 main telephone lines	1.50
Internet hosts per 10,000 inhabitants	112.19
Personal computers per 100 inhabitants	14.29
Piracy rate	51.00 %
Percent of PCs connected to Internet	7.85 %
Internet users per host	11.83
Internet users per 100 inhabitants	13.27
Cell phone subscribers per 100 inhabitants	60.92
Average monthly cost for 20 hours of Internet access	US$19.81

	RANK
Networked Readiness Index	**26**
Network Use component index	**26**
Enabling Factors component index	**23**
Network Access	**23**
Information Infrastructure	22
Hardware, Software, and Support	23
Network Policy	**22**
Business and Economic Environment	24
ICT Policy	20
Networked Society	**24**
Networked Learning	24
ICT Opportunities	19
Social Capital	30
Networked Economy	**22**
e-Commerce	26
e-Government	21
General Infrastructure	18