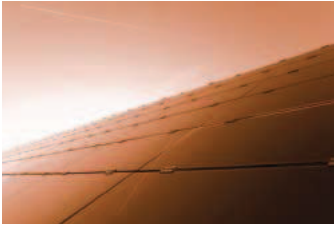

Chapter 6

The outlook for cloud computing in Spain

6

The outlook for cloud computing in Spain



Cloud computing is an ever more tangible reality. As society evolves towards greater mobility, demanding to be able to access information from anywhere in the world, it will be increasingly attracted by services offered on the cloud. It is precisely in the services sector—where information management and dealings with clients are essential—that the greatest benefits can be gained from new advances in cloud computing. The cloud may therefore have a very important impact on the Spanish economy, which is so firmly grounded on the services sector, accounting as it does for 50% of GDP and 43% of all jobs, according to the latest figure from the Spanish Statistics Institute (Instituto Nacional de Estadística, INE)¹⁵⁰. There is, however, another feature of the Spanish business world that makes it ideally placed for adopting the cloud. As we have seen in previous sections, cloud computing is of particular interest for SMEs. Small companies do not have the necessary resources to invest in large data infrastructures; the cloud, on the other hand, gives them a chance to catch up with larger companies in terms of technological capacity. DIRCE, the INE's Central Companies Directory, listed 3,355,830 active companies in Spain at 1 January 2009¹⁵¹. Of these, only 5,375 had 200 or more salaried employees, meaning that over 99.84% of the firms were SMEs. This makes Spain as a whole a major potential user of cloud services. Yet SMEs are not the only companies that might be interested. The economic crisis is also having an impact on larger corporations, which are currently seeing restrictions being placed on their investments in technology, and this might just tip the scales towards the use of cloud services.

Spain could also be an attractive location for hosting the elements needed to offer cloud services to other geographical areas. A study published by Gartner, a leading IT research and consultancy service, places Spain among the top thirty locations for hosting offshore services¹⁵². Among the country's main attractions as a delivery centre, Gartner lists its cost advantages over countries in northern and western Europe, a good command of foreign languages, good IT and transport infrastructures and strong ties with Latin America¹⁵³. Some firms, such as Accenture, have already selected Spain as a delivery centre¹⁵⁴; however, when it comes to locating data centres, large cloud providers also factor in other criteria in which Spain does not rank as well, such as a climate with moderate or cold temperatures and easy access to clean, inexpensive energy. According to Michael Manos, Microsoft's senior director of data centre services, his company uses more than 35 different factors to select the location of their data processing centres; based on these criteria, they draw up a coloured map of the globe, which allows them to identify suitable locations for siting their large centres¹⁵⁵.

For the moment, Spain would not seem to be an attractive location for large cloud providers, judging by the fact that two of the world's most global firms, Google¹⁵⁶ and Amazon¹⁵⁷, have no data centres on Spanish soil. Nonetheless, the country is proving to be a breeding ground for innovative companies providing

¹⁵⁰ http://www.ine.es/prensa/iass_prensa.htm.

¹⁵¹ The 3,355,830 firms extend across all industries except agriculture and fishing, public administration, defence and compulsory social insurance, homes employing domestic personnel and extraterritorial organisations. Source: <http://www.ine.es/jaxi/menu.do?type=pcaxis&path=/t37/p201&file=inebase&L=0>.

¹⁵² "Gartner's 30 Leading Locations for Offshore Services", Ian Marriott, Gartner, November, 2009.

¹⁵³ "Analysis of Spain as an Offshore Services Location", Ian Marriott and Gianluca Tramacere, Gartner, October, 2009.

¹⁵⁴ http://www.accenture.com/Global/Services/Global_Delivery_and_Sourcing/AccentureSpain.htm.

¹⁵⁵ <http://www.areadevelopment.com/viewpoint/jun08/michael-manos-microsoft.shtml>.

¹⁵⁶ <http://www.datacenterknowledge.com/archives/2008/03/27/google-data-center-faq/>.

¹⁵⁷ <http://www.datacenterknowledge.com/archives/2008/11/18/where-amazons-data-centers-are-located/>.

services to users over the net, either using cloud technologies or directly offering cloud services. EyeOS is an example of these new firms. The free, open code eyeOS system, allows users to create a strong cloud desktop, which can be accessed from any device via a browser. It also has a simple platform for developing customised applications on this desktop. Tuenti is another clear example. Set up in 2006, the company developed a social network targeted at Spanish youth which has grown into the largest competitor to Facebook in the country.

However, the cloud environment in Spain will not only be marked by these small firms; the way the large companies position themselves will have a major impact on the way it develops too. Telefónica, Spain's leading telecommunications operator, recently went into partnership with NEC to offer cloud services in Latin America, in a move that clearly reflects its desire to become a serious competitor on the cloud market¹⁵⁸. Its dominant position in Spanish access infrastructures makes Telefónica a serious threat to large cloud providers. The fact that it has presented a new interface to improve cloud interoperability and its integration with the communications networks shows that it is keen to capitalise on this position¹⁵⁹. Another area that needs to be considered is the future of computing in large financial institutions. Banks such as Banco Santander, BBVA and Banco Sabadell have large processing centres for managing all their systems and applications. The trend towards virtualization of their servers¹⁶⁰ is turning these large centres into private clouds and as they gain experience in managing them, they might venture to set up as cloud providers, creating spin-offs to manage their data centres.

IDC España, a technological market research firm, predicted that the crisis and fall in GDP in 2009 would speed up the consolidation, virtualization and automation of data centres, arguing that this would lead to greater outsourcing of these services¹⁶¹. In 2010 cloud computing is already one of its ten main market trends in ICTs¹⁶². However, to judge from the result of a survey by CA¹⁶³, cloud computing has not won over many Spanish companies. Eighty-six percent of firms surveyed said they were undecided as to the future of the cloud. This contrasts with certain features of the Spanish market—some of which we have already touched on—which make cloud computing a particularly attractive model for the country.

The effect of the cloud on the services sector

The first most important feature of the Spanish market is the predominance of the services sector. Of all sectors, this is the one best positioned to lead the migration to the cloud; it is made up of businesses whose chief asset are people, with no complex supply chains and physical assets requiring on-site management systems (like factories and department stores). This should make them more flexible when it comes to capturing new business opportunities, since they are more capable of redefining their processes and even the limits of the company as market conditions change. To do this, the companies focus on the activities that set them

¹⁵⁸ <http://www.nec.co.jp/press/en/1002/1803.html>.

¹⁵⁹ <http://es.finance.yahoo.com/noticias/telefonica-presenta-el-api-tcloud-para-la-interoperabilidad-de-cloud-computing-iberonew-ea5c327b7952.html?x=0>.

¹⁶⁰ <http://www.itcio.es/virtualizacion-centro-datos/soluciones-negocio/1005206011402/banco-sabadell-apoya-virtualizacion.1.html>.

¹⁶¹ <http://www.ewekeurope.es/noticias/las-10-tendencias-en-tic-para-el-mercado-espanol-435>.

¹⁶² <http://www.computing.es/Noticias/201001150000/Los-primeros-signos-positivos-de-recuperacion-en-el-mercado-iberico-TIC-no-se-veran-hasta-el-cuarto-trimestre.aspx>.

¹⁶³ <http://www.baquia.com/actualidad/noticias/15871/el-cloud-computing-no-convence-a-las-empresas-espanolas>.

apart, with a view to serving clients, turning to external experts for their other activities. As a result, services companies are now beginning to consider using experts to manage infrastructures, applications and software—all tasks that can be delegated to cloud service providers.

Within the services sector, one of the areas most affected by the economic recession is the financial sector, particularly savings banks. There is increasing debate on the inefficient management of these institutions and the need for mergers to reduce the number of organisations. Mergers are complex processes not only because of the human aspect of integrating two different management models different, but also because of the typical differences in computer models. Nonetheless, these processes hold out opportunities for adopting cloud-based services. The banks will have to review their different computer systems in detail before merging; this represents a unique opportunity to define a strategy of adopting cloud computing that could transform the current processing centres into private clouds and identify the information and computing resources that might be moved to public clouds. However, in order for this to be possible, the IT managers of the savings banks must know what opportunities cloud computing offers; it will be up to the large cloud providers to enlighten them. In this regard, Microsoft seems to be taking the lead, presenting the benefits of its cloud services at the Ninth Microsoft Savings Banks Forum¹⁶⁴. At the same time, the large Spanish banks are looking for opportunities to expand their international business by acquiring assets in other organisations (an example is the rival bids for the UK offices of Royal Bank of Scotland by Banco Santander and BBVA¹⁶⁵). Virtualization is an established technology in these organisations, but these acquisitions represent an opportunity to make the most of the cloud's advantages.

A similar process of consolidation to that of the savings banks is also taking place in the media, particularly in television. With the coming of TDT (terrestrial digital television) and a consequent mushrooming in the number of channels available, existing channels are suffering a drop in advertising revenue and are currently involved in a restructuring process. New business models tend to reduce staff costs by replacing permanent in-house staff with external collaborators. As a result, many journalists are now working free-lance, with no access to the major information sources and technological tools available to them at the communication groups. These free-lancers are calling for greater access to the large groups' information¹⁶⁶, and adopting the cloud is seen as a way of solving this problem. Using cloud services, the information could be made be available from any terminal; free-lance journalists could therefore access it from their own computers or mobile phones. In this model, the communication groups would administer each collaborator's access permits and would be able to control the information each journalist accessed, depending on the type of collaboration.

¹⁶⁴ <http://www.consultoras.org/frontend/aec/Cloud-En-Las-Cajas-De-Ahorro-vn11850-vst778>.

¹⁶⁵ <http://www.expansion.com/2010/03/29/opinion/llave-online/1269890745.html>.

¹⁶⁶ <http://www.consultoras.org/frontend/aec/Los-Periodistas-Reclaman-Mayor-Acceso-A-La-Informacion-Y-A-Soluciones-Tecnologicas-Especificas-Para-vn11454-vst778>.

Cloud computing will have an uneven effect on telecommunications, but the trend set by Telefónica gives an idea of the road the main operators may take. As Internet access providers, they have a direct contact with the client and are in a privileged position to offer specialist cloud services. From a simple phone line to television, the range of offerings has evolved as competition has increased and revenue from established services has fallen. Cloud services represent the next stage in the difficult race between operators, who will need to evolve apace with the technology. Competing against the large cloud providers will be no easy task, but operators will be able to integrate their offerings with phone, broad band and television services. This will help them overcome users' reluctance to join the cloud by using a known image, recognised and trusted by the customer.

As for the services sector, tourism is undoubtedly a basic lever for the Spanish economy. This is a much more fragmented industry, containing as it does large chains, such as the NH and AC hotel groups, and a host of individual businesses, such as small hotels, restaurants and camp sites. Cloud computing is attractive at both ends of the scale, but particularly for small businesses. They will be able to access computing capacities that will enable them to manage information better and offer customers the same quality on-line services as large hotel chains. However, the cloud may have an even greater impact on the industry, by simplifying the possibility of sharing information between travel agencies and end destinations. This will encourage greater specialisation in the industry, with a model in which the agencies are responsible for engaging clients, while catering establishments and accommodations focus their efforts on the client's experience and satisfaction.

The cloud and Spanish companies

The second noteworthy feature of the Spanish market is the predominance of SMEs in the industrial sphere. As we saw in the section on "The democratisation of IT for SMEs and start ups", it is these companies that stand to benefit most from cloud services and a review of INE statistics shows the potential market for cloud providers. As Illustration 27 shows, Spain has a very high rate of access to the Internet (96.2%) and mobile phones (90.9%) among SMEs, making them good potential consumers of cloud services¹⁶⁷. Although e-mail is used in the vast majority of firms and nearly two thirds have their own website, the use of other electronic services is not very widespread: three quarters of all firms lack a customer relationship management (CRM) application and only 14.2% share electronic information with other members of the value chain. These statistics are encouraging for cloud providers; with the right strategy of communicating the benefits of the cloud, they could easily gain access to this emerging market.

¹⁶⁷ The percentages shown in the illustration include large companies. However, the results can be extrapolated to SMEs, since they represent 99.84% of all businesses. The percentages marked as services do not include food and beverage companies, financial institutions, public administration, defence and social security.

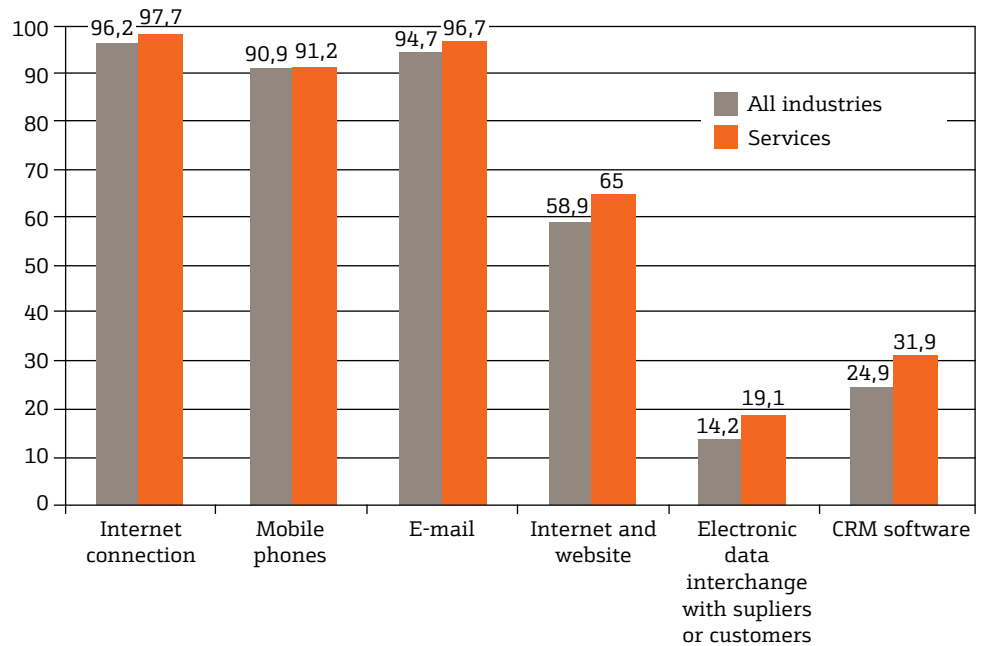


Illustration 27. Percentage of ICT penetration in Spanish companies
 Source: Data from the INE as of 1 January 2009.

A survey by Sage, a company specialising in developing management software for small and medium-sized enterprises, reflects the current situation among Spanish SMEs. This study, entitled *Radiografía de la pyme 2010*¹⁶⁸, shows the results of a survey of nearly 8,000 SMEs and free-lance workers on the use of management software. The results show that only 32% of the firms surveyed acquired computer applications during 2009 and, of these, the great majority (68%) invested in management software (see Illustration 28).

The same study shows that nearly two thirds of those surveyed considered the lack of funding to be the main barrier for setting up a company. Despite the fact that 56% said they were interested in accessing their data over the net, these problems of funding tended to limit their investments in IT. Here again, there is an opportunity for cloud providers, who can provide these services on a "pay-per-use" basis, freeing the firms from initial investments in software licences and development. Illustration 29 shows the low use of computer applications in the different areas of the company, with the largest rate of adoption in accounting management (though only in 30% of the firms). When asked about the future, only 24% planned to invest in software, mostly in management applications, and among the most important technological trends was the development of on-line applications.

¹⁶⁸ http://www.sage.es/radiografiadelapyme2010/Radiografia_de_la_pyme_2010.pdf.

Did your company acquire any software application in 2009?

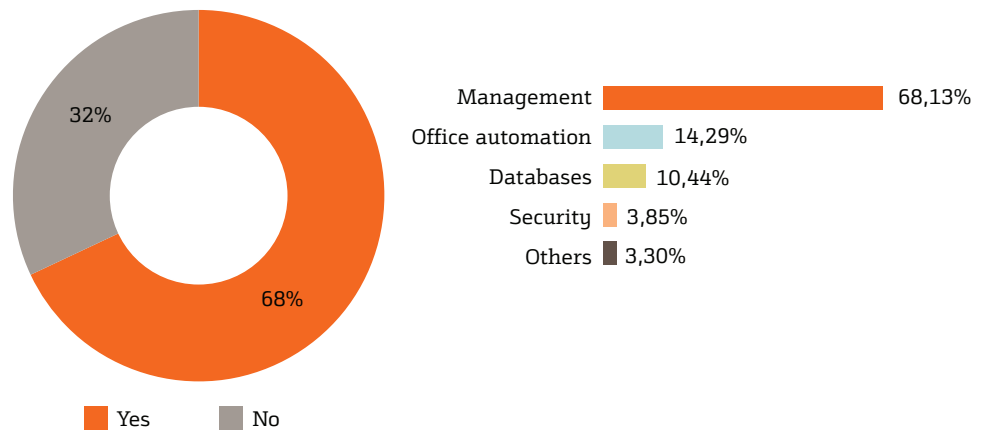


Illustration 28. Acquisition of computer applications by SMEs
Source: *Radiografía de la pyme 2010*, Sage.

These results confirm that there is a need for computer applications among Spanish SMEs, but also a barrier to their being adopted, characterised by a lack of resources and financing. The cloud is an opportunity to break down this barrier. Nonetheless, the cloud providers' task is not merely to offer the right services, but also to ensure that the SMEs know that they exist. The Spanish market holds out major opportunities, as long as providers are capable of targeting their offerings appropriately.

The future of Spanish government and citizens is in the clouds

A Spanish government report entitled *La Sociedad de la Información en España [The Information Society in Spain]*¹⁶⁹ points out that 50% of Spanish territory is classed mountainous, with INE figures showing that 84% of all municipalities have a population of less than 5,000. These features make developing communication infrastructures a complicated task; however, as part of its Broadband Rollout Plan (PEBA), the Spanish government aims to extend access to 99% of Spanish territory¹⁷⁰. With a rural and mountainous geography, and the great majority of inhabitants having access to broadband, the Spanish population may be among the greatest beneficiaries of the development of the cloud.

However, another important feature of the Spanish economy, accentuated by the economic crisis, is the size of its civil service. The government has upped public spending in recent years in an attempt to encourage economic growth and in 2009, the public deficit stood at 11.4% of GDP, according to estimates from the BBVA's Studies Service¹⁷¹. With a commitment to reduce this percentage to the 3% imposed by the European Union by 2013, the government will have to wield the

¹⁶⁹ <http://www.planavanza.es/InformacionGeneral/ResumenEjecutivo2/Documents/2009-12-16%20Contexto%20Avanza%20SI.pdf>.

¹⁷⁰ <http://www.planavanza.es/InformacionGeneral/ResumenEjecutivo2/Documents/2009-12-16%20Contexto%20Avanza%20SI.pdf>.

¹⁷¹ http://serviciodeestudios.bbva.com/KETD/fbin/mult/100216_perspectivasparalaekonomiaglobal2010_tcm346-215122.pdf?ts=842010.

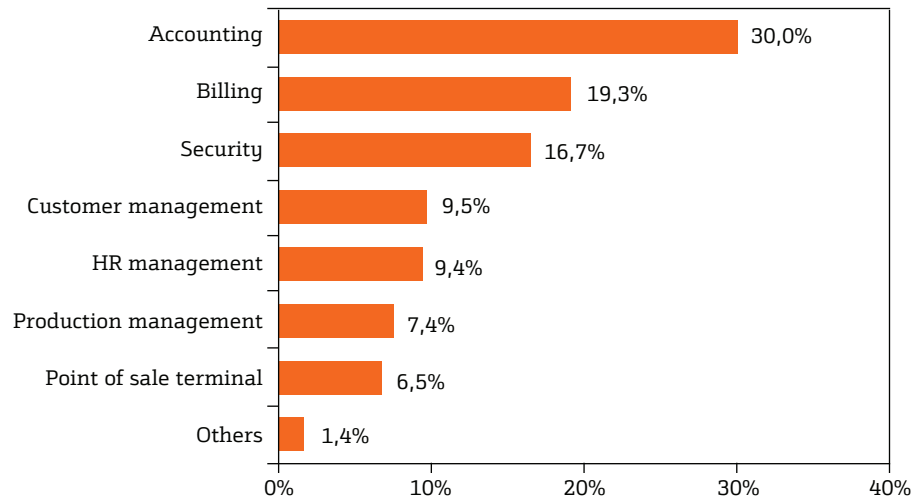


Illustration 29. Penetration of computer applications in different company activities
Source: *Radiografía de la pyme 2010*, Sage.

axe extensively in public spending and in this process, cloud computing could prove to be a valuable ally.

The idea of teleworking in the public sector has long been debated¹⁷². With nearly 3 million civil servants altogether, teleworking could bring important cost-cutting in public buildings. Cloud computing is the best-placed technology to facilitate this system, since it provides on-line services that can be accessed from any user's terminal. However, the cloud can also help improve the efficiency of an administrative system that is very widely dispersed amongst state, regional and local bodies, by virtualising part of the services and moving them to the cloud. There is a host of services that can be administered on-line and remotely: examples of these services include applications for grants, despatch and processing of documents, tax management and even certain procedures related to the justice systems. The benefits for citizens would be immense, since they would not have to leave home, depend on office hours or know the right ministries, registers or administrations for each formality. In turn the government would have a more efficient and automated management system with which it could progressively reduce staff numbers. All that would be needed would be a shared Internet address with a user-friendly portal.

¹⁷² http://www.elpais.com/articulo/economia/Gobierno/ofrecera/20000/funcionarios/posibilidad/trabajar/casa/elpepuec/20070312elpepueco_11/Tes.

¹⁷³ <http://www.ecm-spain.com/noticia.asp?IdItem=7032>.

Electronic medical records are another public sector area in which the cloud could have a major impact. The project for centralising the records of seven hospitals in the Community of Madrid¹⁷³ is an example of the trend currently being taken in public health. Unlimited storage and computing capacity accessible from the cloud

is a way of containing the costs in a sector that needs ever more capacity. Even in the Ministry of Defence, a strategic area with a high rate of consumption of technological resources, there is already talk of the advantages of moving to the cloud. Carlos Pérez Vázquez, head of the Architecture Area of the Inspección General CIS, describes the viability of cloud computing in the ministry, highlighting the possible use of public clouds in the case of services that are not considered to be decisive for the organisation¹⁷⁴.

Features of the Spanish market that might boost the development of cloud computing in the country include the geography, large number of SMEs, large civil service and strong services sector. Much of this development will be marked by the government's position but, above all, by the strategy of emerging firms and large providers to make sunny Spain a bit cloudier.

¹⁷⁴ <http://www.socinfo.es/contenido/revistas/pdf66marzo10/p06-07semivirtual.pdf>.