

# SMART CITIES STUDY:

International study on the situation of ICT, innovation  
and Knowledge in cities



Comisión de *Ciudades Digitales y del Conocimiento*  
Committee of *Digital and Knowledge-Based Cities*  
Commission des *Villes Numériques et de la Connaissance*



***Published by:***

*The Committee of Digital and Knowledge-based Cities of UCLG*

*Chaired by Iñaki Azkuna, Mayor of the City of Bilbao*

*Bilbao, 2012*

## FOREWORD

Social and economic globalization is making the world 'more uniform', and cities are being seen as centres of economic attraction, that disseminate knowledge and culture and where talent can be cultivated and developed. Proof of this is that in 2008, for the first time in history, half of the world's population was living in urban areas, and predictions raise the percentage to 70% in 2050.

Cities account for the bulk of economic wealth and integrate some strategic sectors completely, such as the financial sector. That is why the challenge and work facing cities should focus on creating a new social and economic fabric based on creativity, innovation and new technologies.

Cities need public administrations, businesses and citizens that have a greater technological capacity, more entrepreneurial and innovative, more creative and better informed. These values, along with other social values, such as integration, transparency, participation, social cohesion and sustainability, will lead to competitive cities. Smart Cities.

The local strategy to make a city more competitive should address a comprehensive set of areas of development:

**Knowledge:** Only societies with high skill levels can compete on a global stage. This includes initial knowledge (vocational and university education) and lifelong learning (postgraduate, doctoral, life-long education). In this sense, Universities are key elements.

Definitely, one of the challenges we face is to retain the talent that comes out of these universities, to recover it, and even attract it.

**Technology:** Technological development, supported by Innovation, is essential to offer competitive products and services. In addition to Research & Development, we must also promote innovation, which includes areas such as new means of marketing and more efficient organisational and managerial systems.

**Leadership:** The leadership of public institutions in new technologies and innovation must be visible. A city must have a development strategy, but it is not enough if the agents do not believe in it and do not develop it in a coordinated and organised manner.

**Cooperation and partnerships:** In a global world we must base our work on the Network concept, thus acquiring the resources (financial, knowledge, talent) we need.

In short, we must work to achieve creative and talented cities that are innovative and highly technological.


Iñaki Azkuna  
Mayor of Bilbao  
Chairman of the Committee of Digital and Knowledge-based Cities of UCLG



# Table of Contents

Executive Summary .....	6
<b>1. Cities in the digital age, innovation and knowledge</b>	<b>14</b>
1.1 A journey that began in 2005 .....	15
• The Second World Summit on the Information Society	16
• Commitment by Local Authorities to implement a Local Digital Agenda in their Territories	17
• The Committee of Digital and Knowledge-based Cities of UCLG	18
1.2 Evolution from digital cities to innovative cities .....	20
• Concept of a smart and innovative city	21
• Characteristics and factors of a smart city	22
<b>2. Smart Cities Study: The need to assess the progress made by cities</b>	<b>23</b>
2.1 Methodology implemented to conduct the study .....	24
2.2 Cities participating in the study .....	25
• Socio-demographic data	27
<b>3. Smart Indicators</b>	<b>28</b>
3.1 Smart Economy .....	29
• Penetration of ICT use in businesses	30
• Financial promotion	32
• Retaining and attracting talent and promoting creativity	40
• Entrepreneurship. Support for entrepreneurship	43
• Business spaces	48
• Internationalization	56

<b>3.2 Smart People</b>	<b>68</b>
• Education and training	69
• e-Learning	74
• Life-long training	81
• Human Capital	83
• R&D&i	85
<b>3.3 Smart Governance</b>	<b>86</b>
• Local Public spending on ICT	87
• Website availability	88
• Strategic plans to promote e-Government and ICT	90
• On-line public services	94
• Transparent governance	98
• e-Democracy	99
• Promoting ICT and innovation	102
<b>3.4 Smart Mobility</b>	<b>103</b>
• Connectivity and ICT infrastructure	104
• Public Internet Access	110
<b>3.5 Smart Environment</b>	<b>115</b>
• Security and trust	116
• Culture and identity	119
<b>3.6 Smart Living</b>	<b>122</b>
• e-Health	123
• Accessibility and e-Inclusion	127

A large, solid blue rectangle occupies the left half of the slide.

## Executive Summary

Over the past six years, cities around the world have [been working to meet the commitment entered into](#) at the Bilbao Summit to develop the Information Society in their territories and they have taken a step further with a view to promoting innovation and knowledge management processes, two key factors to achieve the competitiveness of cities.

The [rapid development of new technologies and of innovation processes](#) has resulted in a [new city model](#), the famous "Smart City". A type of city that uses new technologies to make them [more liveable, functional, competitive and modern](#) through the use of new technologies, the promotion of innovation and knowledge management, bringing together 6 key fields of performance: the economy, mobility, the environment, citizenship, quality of life and, finally, management.

This study gives us an [overview of the current situation of cities](#) in different regions of the world, in terms of these fields, and allows us to identify particular experiences and good practices, facilitating the exchange and learning among cities.

Below are the [main findings](#) from the study on the situation of the cities in each of the fields.

## 1. Smart economy

The economy (Smart Economy) refers to cities with "smart" industries, especially in the areas of information and communication technology (ICT) as well as other industries that involve ICT in their production processes.

### Penetration of ICT use in businesses

The reality of the New Digital Society affects companies, just as it affects people, whatever their size. [Companies must adapt](#) to this reality, adapting their culture and the way they organise work to the digital economy. In that sense, although there are differences between regions in Europe and Asia compared with Latin America and Africa, regarding the degree of penetration of new technologies in businesses, [the number of companies that have computers and Internet connections is on the increase](#).

The same trend can be observed regarding the [penetration of Internet usage for e-commerce in companies](#). However, although the number of companies with websites is increasing, the percentage of companies that take advantage of e-commerce opportunities, either to buy or sell through the Internet, is still small.

### Economic promotion

One of the main instruments cities use to promote economic and social development in their territories are the [Local Development Agencies](#). They seek to leverage local resources, promote employment and entrepreneurship. Evidence of this trend is that the vast majority of cities (75%) has a Local Development Agency. This trend however does not exist in African cities, a region where the percentage of cities with Local Development Agency is still limited.

On the other hand, and with the aim of encouraging economic development, cities have sought to [promote sectors that are considered strategic](#) for the future economic and social development of their territories, either by developing sectoral strategic plans or by promoting certain industries, especially those based on technology, innovation and creativity.

### Retaining and attracting talent and promoting creativity

Other key factors in a "smart" economy include [retaining and attracting talent and fostering creativity](#). Cities are increasingly aware of the need to have well-educated, creative and entrepreneurial citizens in order to be more competitive.

It is for this reason that most cities (65%) have developed some kind of initiative to attract and retain talent in their territory, but this trend is more intense in Europe and Asia.

Some cities have developed very interesting experiences, as is the case of the "Do it in Barcelona" programme, the "Plan for the Promotion of Creative Industries" in the city of Bilbao, or the "Programme to boost R&D&i in SMEs" from the city of Taipei, among others.



### Support for entrepreneurship

Furthermore, regarding [support for entrepreneurship](#), another key factor for the present and future competitiveness of any territory, most cities (68%) have developed some type of programme to support entrepreneurship in cities, except in Africa, where the number of cities that have developed such initiatives is very small.

Note that most cities channel activities that promote creative industry through their Local Development Agencies. The type of initiatives they put in place includes organising awareness workshops and training, development of entrepreneurship contests and advice on innovative projects, among other aspects.

### Business spaces

In addition to seeking to attract and retain talent and promote entrepreneurship, cities must also have [infrastructure to support business activities in their territories](#), such as science or technology parks, industrial parks and business incubators. In this regard, it is noteworthy that [most cities have some sort of corporate promotional space](#). Once again, we must mention the gap with cities in Africa, where the development of such infrastructure is not yet widespread.

We must highlight interesting experiences such as those carried out in Latin America by the city of Guatemala with its Intecap ICT Centre (Guatemala Technology Campus), or the Technopark in the Mexican city of Colima.

In the case of Europe, the city of Barcelona has various business areas such as the Barcelona Nord Technology Park, the 22@Barcelona project, the Biomedical Research Park, the Industrial Free Zone or the Glòries Business Incubator; Bilbao, like the city of Barcelona, also has various business areas, such as the Technological Park of Bizkaia and the Science Park of the University of the Basque Country as well as the future Zorrotzaurre Urban Technology Park together with a number of business park in the metropolitan area.

The cities of Helsinki and Madrid have also developed very interesting projects. Helsinki has a Science and Business Park and the Enterprise Helsinki business incubator, while Madrid has the Vicalvaro Industrial Factory and the Business Incubator Network of the City of Madrid.

On the other hand, in Asia, the city of Taipei has developed on of the pioneering technology sector promotion infrastructures in the world with the Taipei Technology Corridor.

### Internationalization

Another key factor for the economic development of smart cities is internationalization. Globalization involves the need for cities to address the most effective strategies to join global exchange circuits. Strategies that serve to enhance the value of the territory and that take steps towards the construction of a sustainable and competitive development model.

Cities are becoming more aware of this need. Proof of this is that most cities (65%) have developed some sort of [plan or strategy for the international promotion of the city](#). Such initiatives are taken primarily in Asia and Europe. Internationalization initiatives undertaken by cities include developing specific plans, organising international events and promoting twinning or agreements with other cities.

Furthermore, in order to achieve the internationalization of their territories, cities have also sought to develop [flagship projects](#) seeking international recognition. Proof of this is that 75% of cities had developed some sort of flagship project though, as in the previous case, there is still a gap regarding African cities in this area.

In addition to developing flagship strategies and projects, cities are aware of the need to share their experiences and knowledge with other cities; this is why cities (75%) belong to UCLG and to other [international and regional thematic associations](#).



## 2. Smart people

The differentiating element between a digital city and a smart city is Smart People. People are smart in terms of their skill and educational levels, as well as the quality of social interaction in terms of integration and public life and their ability to open to the "outside" world.

### Education and Training

A key element in the development of cities is having well-educated citizens. In this sense, there is an increasing percentage of the [population with higher education](#), bringing the percentage of population with university degrees to between 0% and 25% in most cities (67%), a trend that increases in European and Asian cities.

In addition, most cities (62%) believe that the [University has a strong presence in the city](#). This reflects the importance of Universities in generating a particular city model. This positive trend can be seen mostly in European and Asian cities.

In addition to having well-educated citizens and a university with a major presence in the city, another priority is [to adapt the educational offer](#), especially considering the changes that society is going through due to globalization and the advancement of new technologies. However, in this regard, most cities (53%) believe that the education offered by their cities does not adapt to the demands of the current market. This percentage is particularly higher in Africa and Latin America.

### e-Learning

New technologies are evolving at breakneck speed; therefore, it is important to [design digital development plans in classrooms](#) that mainly focus on closing the digital divide, promoting the digital skills of teachers and incorporating the new generation of digital learning resources.

Given this need for incorporating new digital learning resources, the percentage of cities that have digital development plans for their schools is growing (50%); however, there is a gap regarding cities in Africa and Latin America, where the percentage of cities with some type of plan is still small.

We can highlight interesting experiences, such as the city of Bilbao and its 2.0 School Programme, Taipei City's project known as "e-Future Classroom", the Comprehensive School Connectivity Programme (PICE) 2008-2012 in Mexico City or the Digital Schools Plan in the French city of Limoges.

With regard to the penetration of [ICT in education](#), there are some very positive data, since in most of the cities (78%) the percentage of [schools connected to the Internet](#) is very high, ranging between 76% and 100%. This contrasts however with the percentage of [teachers using new technologies for educational purposes](#), reaching, in most cities (46%) between 0% and 25%. This percentage increases however in European and Asian cities.

New technologies contribute to improving people's education and training and, in that sense, [virtual education](#) offers many benefits, such as reduced costs, flexible hours and greater interaction. However, despite these benefits, the percentage of cities that have promoted some type of e-learning programme is very small (30%). Despite this negative figure, some cities have developed very interesting experiences, like the Digital Baccalaureate (B@DI) in Mexico City, the Distance Vocational Education Centre in Bilbao, the "e-Campus" Digital Learning Network in Taipei or the Digital Working Space in the city of Limoges.

### Life-long training

[Life-long education](#) is becoming an increasingly important element in new labour market dynamics. Evidence of this trend is that most cities (60%) have implemented measures to promote lifelong learning. This trend can be seen mostly in European and Asian regions. We can highlight projects such as the Cibernàrium Project in Barcelona or the various life-long training programmes for adults and seniors developed in the city of Taipei.

## Human Capital

Universities and Research Centres are key players in the innovation ecosystem. This is why cities are increasingly aware of the need to promote [cooperation between companies and knowledge centres](#), so as they may contribute to the economic and social development of their cities. Proof of this is that 68% of cities have developed some form of action for this line, especially in Europe, Africa and Latin America.

## R&D&i

Public Administrations play a key role in [transforming the innovation system](#) through their ability to develop infrastructure, support emerging sectors and encourage R&D&i. This is why most cities dedicate a percentage of their revenue on R&D in their territories. The average percentage of revenue dedicated to R&D stands at 1.59%.

## 3. Smart Governance

Smart Governance includes political and active participation, citizenship services and the smart use of e-Government. In addition, it often relates to the use of new communication channels, such as e-government or "e-democracy".

### Local Public spending on ICT

New technologies represent the first step in Innovation and Competitiveness; therefore, [investment in ICT](#) is an opportunity to enhance the development of a city through their influence in other sectors and their contribution to the efficient management of Public Administrations. In this sense, the mean percentage of Public spending on ICT in cities on the total budget stands at 3%.

## Website availability

Internet has become a major channel of communication, to the point that cities must include new tools of on-line marketing and communication in their promotion strategies. Evidence of this need and tendency is that the vast majority of cities (93%) has a [web site as their main channel of communication with the public](#).

### Strategic plans to promote e-Government and ICT

One of the main commitments entered into by Local Authorities at the Bilbao Summit was precisely the development of [Strategic Plans related to the Information Society](#). The cities have sought to meet this commitment. Proof of this is that 64% of cities have developed an e-Government action plan.

### On-line public services

The introduction of [new technologies to public administrations](#) greatly improves the productivity and quality of the service offered to citizens and businesses, providing access to government services at any time and place in a more convenient, personalised, faster and less expensive manner.

As a result of the implementation of e-Government plans, more and more cities are offering the possibility of [on-line services](#). However the percentage of public services that can be performed on-line in most cities (64%) is still small, ranging from 0% to 25% of the services offered by cities. Among the major on-line services offered by cities, we can mention the possibility of filing complaints and claims, requesting certificates and reports, making payments and debits, on-line registrations and paying taxes and fees.

Furthermore, the percentage of cities that offer the possibility of using [electronic signatures](#) for municipal procedures is increasing (54%). Electronic signatures are legally equivalent to handwritten signatures and allow the identification of certificate holders, enabling to electronically sign the data being submitted, so that its integrity and origin can be verified.

Regarding the percentage of [public employees using computers and connected to the Internet](#), the data are conflicting as there are many cities where the percentage of employees connected to the Internet is high (32%), while there is a similar percentage (36%) where the said percentage is very low.

### **Transparent governance**

New technologies can be used to [enhance democratic processes and increase opportunities](#) for individuals and communities to interact with the government. The characteristics of Internet mean that participation is broader, overcoming the limitations imposed by geography, physical disabilities or other factors. It also provides access to information by individuals and groups that had not previously been included.

Fully aware of the importance of promoting more transparent governments, cities provide the public access to municipal information through their websites. The institutional information that is most frequently posted by cities refers to municipal plans, regulations and budgets.

### **e-Democracy**

The so-called electronic democracy involves the use of ICT to improve politics and citizen participation in democratic communication and decision-making processes. More and more cities have some type of [on-line platform for citizen participation](#) (62%); this trend can mostly be seen European and Asian cities. Among major the major on-line participation platforms used by cities we can mention email and the use of chats and forums. Other platforms are also widely used; such as on-line surveys and social networks, the latter being used mainly by young people.

In addition to promoting citizen participation as a means of promoting e-Democracy, another tool used to promote and facilitate the involvement of all citizens in political issues is the possibility of [electronic voting](#). Although great technological advances have been made in this field to ensure the legitimacy of these electronic processes, the percentage of cities that use this possibility is still very low (15%).

### **Promoting ICT and Innovation**

It is important that in addition to developing on-line services and promoting e-Government, cities seek [to raise awareness and promote the importance of ICT and Innovation among the public and businesses](#). Despite this need, the percentage of cities that organise events related to ICT and innovation is small (46%). Most of the events organised by cities are aimed at bringing together trend leaders, experts, entrepreneurs, academics, institutions, the media and investors from the fields of innovation, technology and Internet to discuss the challenges and technological developments and how they affect cities.

## **4. Smart mobility**

Smart Mobility has to do with providing the public with access to new technologies, and the use of these in everyday urban life.

### **Connectivity and ICT infrastructure**

Internet has revolutionised the way we interact, learn, entertain and work. Today it is hard to imagine our life without Internet. Proof of this is the fact that the percentage of [Internet users](#) in most cities (41%) is very high, ranging between 76% and 100%.

In response to the needs of users and to the ever increasing demand for Internet, cities have worked to increase the percentage of [broadband or high-speed Internet coverage](#) in their territories. In most cities (70 %), between 76% and 100% of the municipal territory is covered by broadband services.

Given this trend, the percentage of people subscribed to broadband services has also increased in most cities; in 40% of them, the percentage of the [population subscribed to broadband services](#) stands between 76% and 100% . This trend can be seen especially in Europe and Asia.

In addition to the increased use of computers, the [use of mobile phones](#) has also proven to be one of the most widely used means of communication in cities. Proof of this is that, in most of cities (62%), the percentage of the population subscribed to mobile phone services is between 76% and 100%, and, furthermore, in cities like Helsinki, Taipei and Mexico City, a high percentage of the population has more than a mobile phone.

Linked to this trend of using mobile phones and the emergence in our lives in recent years of smartphones and mobile devices, there has been an increase in the percentage of people who use [mobile Internet services](#).

#### **Public Internet Access**

More and more cities have [Wi-Fi hotspots](#) around town with the aim of extending the benefits of the Information Society to all citizens. These hotspots enable citizens to connect, browse the Internet and perform on-line transactions offered by the municipality.

In addition to providing Wi-Fi access points in public spaces, cities also provide [municipal spaces](#) where computers with Internet connection are placed at the disposal of the public.

In addition, in some cases, cities have reached some kind of [agreement with ISPs](#) with a view to providing the public with the opportunity of subscribing a high-quality Internet connection at reasonable prices. Although such initiatives are not yet widespread, there are some very interesting experiences, such as those carried out by the city of Taipei with its "Wireless Taipei-Taipei Infinity" initiative , or by the city of Durban through the deployment of a Next Generation Network and its wholesale to the private sector.

## **5. Smart environment**

Smart environment refers to the use of new technologies to protect and preserve a city's environment.

#### **Security and trust**

The level of risk in cities and regions is increasing rapidly, particularly in developing countries, where town development does not always take place in an orderly manner. New technologies, therefore, offer the possibility of making safer cities.

A growing number of cities have implemented [systems to improve citizen security](#) based on ICT. The main system used is video surveillance. New technologies are also used to improve computer systems with a view to managing incidents and emergencies.

#### **Culture and identity**

The use of new technologies can contribute to cultural transmissions and to the maintenance and strengthening of cultural identities. A growing number of cities have promoted some type of initiative to [digitize and share their cultural heritage](#), especially in the cities of Asia and Europe.

## **6. Smart living**

Talking about smart living is to compile several aspects that substantially improve the quality of life of citizens, such as culture, health, safety, housing, tourism, etc.

#### **e-Health**

The application of new technologies in ways that affect health care, from diagnosis to monitoring patients, including the management of the organisations involved in these activities, is defined as e-Health.

e-Health provides citizens with considerable advantages in terms of information, and even favours the availability of alternative diagnoses and of remote treatment or tele-assistance.

Through the use of new technologies, citizens can enjoy a number of [on-line medical services](#), including key services such as requesting an appointment on-line or the possibility of having a digital record. However, the percentage of cities that offer such possibilities is still small.

The percentage of cities that have some sort of [electronic health card](#) is also small. Cities in Europe and Asia are primarily starting to use this system.

Another e-Health benefit is the possibility of accessing [remote home services, alarm systems or remote patient monitoring systems](#). Although the number of cities that offer these systems is still limited, we can highlight initiatives such as the "Telecare" project in Taipei, the remote alarm system used in the city of Le Havre or the "A help button" offered in Mexico City, among others.

### **Accessibility and e-Inclusion**

ICT can enhance the capabilities of people with special needs, providing them with autonomy, independence and access to services that had not always been available to them. This is why the use of ICT should focus mainly on two objectives: solving deficiencies and enhancing capabilities.

e-Inclusion aims to eliminate the [digital divide](#); i.e. the gap between those who use Information and Communication Technologies (ICT) as a routine part of their daily lives and those who have no access to them or, if they do have access to them, do not know how to use them. In that sense, more and more cities (52%) are driving [digital inclusion programmes for groups at risk of exclusion](#). Such initiatives are conducted primarily in Asia and Europe, while the percentage of cities in Latin America and Africa that have introduced them is still small.

Within this field, there are some interesting experiences, such as those carried out by the city of Barcelona with its "Digital Literacy Plan" and by the city of Mexico with its "Actions for Inclusion and Equality in Education" Programme, or the programs and initiatives targeting specific groups conducted by the city of Malmö, among other experiences.

# CHAPTER 1

Cities in the digital, innovation and  
knowledge age



## 1.1 A journey that began in 2005

Since 1990, the development of Internet and Communication Technologies has favoured the more or less widespread generation of initiatives aimed at creating opportunities for communication and information sharing by local or regional communities.

Early experiences often arise spontaneously and circumstantially in the shape of citizen forums or within certain groups in order to address common issues, to the point that each circle or forum has different objectives. This phenomenon first appeared in the U.S. and then moved on to Europe and Asia.



Local Authorities are aware that in recent decades the development of information and communication technologies (ICT), innovation and knowledge has increased, making them increasingly present in daily life and basic components in the social and economic progress of their territories.

The world is becoming increasingly digital and no-one can remain unaffected by these changes. A change process of such enormous proportions and a climate of uncertainty about the resulting social model require Local Authorities, as the public authorities closest to the citizens, to provide an appropriate response.





## The Second World Summit on the Information Society

---



**BILBAO2005**

The II World Summit of Local Authorities on the Information Society held in November 2005 in Bilbao, was part of an [overall reflection process on the Information Society led by the UN](#), the World Summit on the Information Society (WSIS), which arose from the belief that [the use of New Information and Communication Technologies is a universal right that should be available to everyone](#).

The Bilbao World Summit sought to overcome the ["digital divide"](#) with the support of local authorities, who best know the needs of their citizens.

During the Summit, more than 2,000 local authorities met to define a [common strategy on the Information Society](#) and to work for [full access to the information society in their cities and regions](#).

The importance of this World Summit lies in the fact that, for the [first time in UN history, the private sector and civil society, including local authorities, were allowed to participate in a World Summit](#), where until recently only states could participate.

The Bilbao Summit enabled us to establish the [position of Local Authorities in a Declaration and a Plan of Action](#) that were subsequently presented at the conclusion of the second phase of the "World Summit on the Information Society" (Tunis, 16-18 November 2005), to share experiences and knowledge and to demonstrate the central role that can be played by Local Authorities to bring the Information Society to all people.

The Bilbao Summit was also supported by the UN through UNITAR, and by a range of organisations, such as United Cities and Local Governments (UCLG), Citynet, eris@, CALRE, Global Cities Dialogue, FLACMA, the European Commission, the Committee of the Regions, the Digital Solidarity Fund, etc.



## Commitment by Local Authorities to implement a Local Digital Agenda in their Territories

The local authorities participating in the Second World Summit of Local Authorities on the Information Society agreed to act in this field to share digital development with other cities and regions in order to create inclusive cities and municipalities and implement the use of ICT as tools for development.

The [Local Digital Agenda is the main contribution of the Bilbao Declaration](#), the result and the culmination of the political work conducted by the local authorities.

The local authorities signed the Declaration of Bilbao, the effective contribution of local authorities to the United Nations World Summit on the Information Society, which [determines the main priorities in this area for the next decade](#).



Signing of the Declaration of Bilbao, November 2005

The commitments made a local and regional levels<sup>[1]</sup>:

- To work actively towards the development of our cities and regions, using Information and Communication Technologies as an instrument for sustainable development in all its dimensions, for each and every community, to bridge the North-South divide, and for all citizens, against marginalisation and social division;
- To implement in our cities and regions an e-local agenda (Digital Local Agenda), designed to promote the Information Society, taking into account in particular the socio-economic and cultural environment, and based on the broad participation of citizens and social actors, with the ultimate objective of fostering sustainable development;
- To strengthen the enabling role of local and regional authorities in guaranteeing adequate and secure technological infrastructure and in promoting ICT-based applications for inclusive services;
- To promote, insofar as it is possible, the use of free software and other tools that facilitate inclusion and digital solidarity;
- To facilitate the mobilisation of resources for digital inclusion, by engaging, if necessary, in new financing mechanisms;
- To prompt all local and regional organisations involved in the development of a more equitable Information Society to implement the commitments of this Declaration.

<sup>[1]</sup> Political Declaration of the "II World Summit of Cities and Local Authorities on the Information Society"

## The Committee of Digital and Knowledge-based Cities of UCLG

---

To achieve the objectives set during the Bilbao Summit, the [UCLG Committee on the Information Society](#) was established in 2005, Chaired by the City of Bilbao, to [reduce the digital divide and implement local digital agendas](#) as a means to improve the quality of life of citizens of decentralised governments.

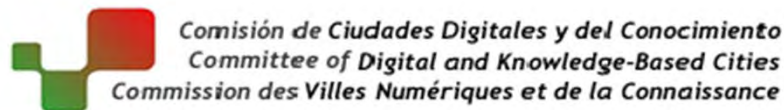
The Commission has sought to promote the development of a shared vision and joint measures among local governments in favour of an inclusive Information Society that promotes the reduction of the digital divide.

In November 2009, it was deemed necessary, in addition to continuing with the work the Committee was performing to share digital development in solidarity with other cities and regions that are still far from reaching this goal, to provide the Committee with a [broader scope, based on the pursuit of the competitive excellence of local governments through knowledge management and innovation in cities and municipalities](#).

With this in mind, the members of the Committee, and subsequently the UCLG World Council, adopted the decision to change the name of the Committee on the Information Society to the ["Committee of Digital and Knowledge-based Cities"](#). A new name that responds to new objectives and that is in line with the work performed by the Committee.

The Committee of Digital and Knowledge-based Cities (CDC) of UCLG is seeking to create an efficient network of cooperation made up of Local Authorities with a view to seizing any opportunities that new information and communication technologies (ICT), innovation and knowledge may offer, and share those opportunities, assimilate them and adapt them to local needs to create new opportunities for all.

[www.cities-localgovernments.org/committees/cdc](http://www.cities-localgovernments.org/committees/cdc)



## 1. Cities in the digital, innovation and knowledge age

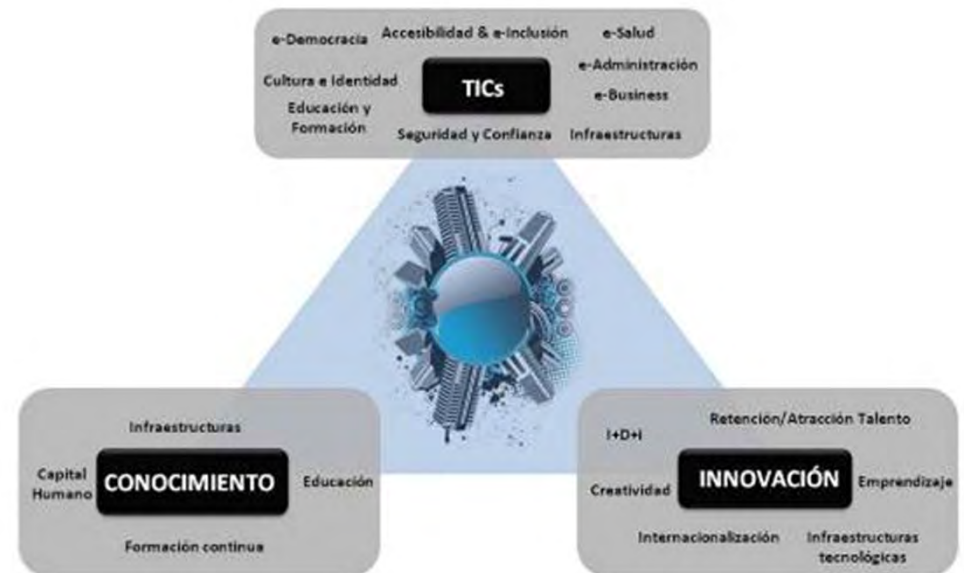
### 1.1 A journey that began in 2005

The aim is to achieve an **alliance between the various members of the Committee to achieve a competitive economy** driven by local authorities in which knowledge, innovation and new technologies (ICT) are created, transmitted, acquired and used to promote the economic and social development of the community.

The committee's fields of work:

1. **Dissemination of the Local Digital Agenda model**, whose momentum has been the main task of the Committee over the last four years, and that continues to be an extremely useful tool to advance the goal of digital, competitive and collaborative cities in a structured and planned manner, while also advancing the Smart City Agenda.
2. **Identification and strengthening of the factors that make cities innovative**, such as attracting and generating knowledge, improving education and learning throughout life, and support from local powers for economic sectors based on creativity and technological knowledge.
3. **Positioning of cities as leaders in territorial innovation processes** for their ability to articulate highly participatory and efficient networks.
4. **Creating an efficient cooperative network** consisting of UCLG member cities to tap into the creativity, innovation and knowledge with a view to sharing, assimilating and adapting to local needs and thus create new opportunities for all.

The Committee's thematic areas:





## 1.2 Evolution from digital cities to innovative cities

The Committee considers it is necessary to work on the competitive pursuit of excellence in local government through knowledge management and innovation in cities and municipalities.

Information technology and knowledge are a lever for innovation, a tool for managing knowledge and raising productivity and, hence, local competitiveness. Because the infinite amount of information on the Web is useless unless you are able to capture, organise, analyse and transform it into a shared asset that improves the quality of life of citizens.

Cities must generate a virtual space of interaction between citizens, the private sector and government that promotes an inclusive Information Society, which uses Internet and Information and Communication Technologies (ICT) to create an advanced model of community that fosters the sustainable economic and social development of cities based on ICT.

In this context, the Digital Local Agenda represents a strategic tool to achieve digital cities in a planned and structured manner.

It is important that cities seek to integrate their communities' intellectual capital, knowledge, in their economy and to develop knowledge-based services, with access to that knowledge and to universal, systematic, effective and efficient ICTs that are capable of attracting and retaining talent.

The relationship between knowledge, innovation and competitiveness is very clear. Therefore, that is our goal: to build competitive cities based on knowledge management and innovation. Achieving this involves having well-prepared and educated people, the political will of a committed government with a strategic vision, with supporting infrastructure, with a culture that encourages change in that direction. All this with a planned strategy and a long-term vision.

It involves an integrated concept of development based on participation in community dynamics to achieve common interests, in knowledge management to act effectively in the various fields of local activity, the provision of resources and motivation to innovate and create, and participation in a network of networks and interconnections within and beyond the community. Because you cannot innovate in isolation, you need a context of interaction. We are talking about a creative process that involves all actors in society and in which cooperation and networking are key elements.



## Concept of a smart and innovative city

---

Traditionally, a Smart City has been defined as a [city that uses information and communications technology to make both its critical infrastructure, its components and utilities more interactive, efficient, making citizens more aware of them.](#)

In a broader definition, a city can be considered as "smart" when its investment in human and social capital and in communications infrastructure actively promote sustainable economic development and a high quality of life, including the wise management of natural resources through participatory government<sup>[2]</sup>.



<sup>[2]</sup> Smart Cities Study: a first step towards the Internet of things by Fundación Telefónica

## Characteristics and factors of a Smart City

In preparing this study, we used the Smart City model, which identifies the [presence and convergence of six areas](#): economy, mobility, environment, citizenship, quality of life, and, finally, management<sup>[3]</sup>.

A city can be defined as smart when it displays a positive performance in these six areas, and when it has been built based on a "smart" combination of elements (communication, infrastructure, economic development) and on purposeful and independent citizen activities (participation, education ) that make sound management of natural resources through participatory governance.

### Areas and factors that define a Smart City

Economy	Citizens	Management
<ul style="list-style-type: none"><li>▪ Penetration of ICT use in businesses.</li><li>▪ Financial promotion.</li><li>▪ Retaining and attracting talent and promoting creativity.</li><li>▪ Entrepreneurship. Support for entrepreneurship.</li><li>▪ Business spaces.</li><li>▪ Internationalization.</li></ul>	<ul style="list-style-type: none"><li>▪ Education and training.</li><li>▪ e-Learning.</li><li>▪ Life-long training.</li><li>▪ Human Capital.</li><li>▪ R&amp;D&amp;i.</li></ul>	<ul style="list-style-type: none"><li>▪ Strategic plans to promote e-Government and ICT.</li><li>▪ On-line public services.</li><li>▪ Transparent governance.</li><li>▪ e-Democracy.</li><li>▪ Promoting ICT and Innovation.</li></ul>
Mobility	Environment	Quality of Life
<ul style="list-style-type: none"><li>▪ Connectivity and ICT infrastructure.</li><li>▪ Public Internet Access.</li></ul>	<ul style="list-style-type: none"><li>▪ Security and trust.</li><li>▪ Culture and identity.</li></ul>	<ul style="list-style-type: none"><li>▪ e-Health.</li><li>▪ Accessibility and e-Inclusion.</li></ul>



# CHAPTER 2

Smart Cities Study: The need to assess the progress made by cities

## 2.1 Methodology implemented to conduct the study

---

In 2005, during the II World Summit of Cities and Local Authorities on the Information Society held in Bilbao, the Local Authorities present pledged to work for the achievement of full access to the Information Society in their cities and regions through the implementation of Digital Local Agendas, local electronic strategies for the development of the information society in a given region.

Now, after more than five years, [it is time to take stock](#).

The study [does NOT seek to rank cities](#).

The study is intended as a [reference document for UCLG members](#) showing members' progress with respect to ICT, innovation and knowledge.



This analysis is based on a number of [monitoring indicators](#) that allow us to know whether we are working in the appropriate direction to achieve more competitive cities/municipalities.

It also seeks to [identify good experiences](#) that will lead to the subsequent exchange of knowledge between cities.

In order to identify the current situation of cities, over 70 questions covering areas related to elements that comprise digital cities and knowledge were set out and a data collection form was designed.

The form was made available to members in electronic format and could be accessed on the Committee's website in digital format, where it was also available for downloading.

In order to notify members of the existence of this study and to encourage them to participate by completing the information collection form, the following [distribution channels were used](#):

- A notification letter was sent to all Committee members
- An information section was created on the Committee's website.
- News was published on the Committee's website.
- Dissemination among members through letters sent by UCLG and by UCLG regional sections.

## 2.2 Cities participating in the study

28 cities around the world contributed to this study by submitting the information collection form with the required data.

Cities participating in the study

### AFRICA:

Nioro du Rip (Senegal)  
District of Ngaka Modiri Molema (South Africa)  
Municipality of eThekweni-Durban (South Africa)  
City of Bissau (Guinea Bissau)  
Moka Flacq District Council (Mauritius)

### LATIN AMERICA:

Charata (Argentina)  
Municipality of Agua de Oro (Argentina)  
Municipality of La Costa (Argentina)  
Municipality of Villa Gesell (Argentina)  
IMDEC Region - Municipal Integration for the Development of East Catamarqueño (Argentina)  
Municipality of Patacamaya (Bolivia)  
City of Guatemala (Guatemala)  
Mexico City (Mexico)  
Colima City (Mexico)

### ASIA:

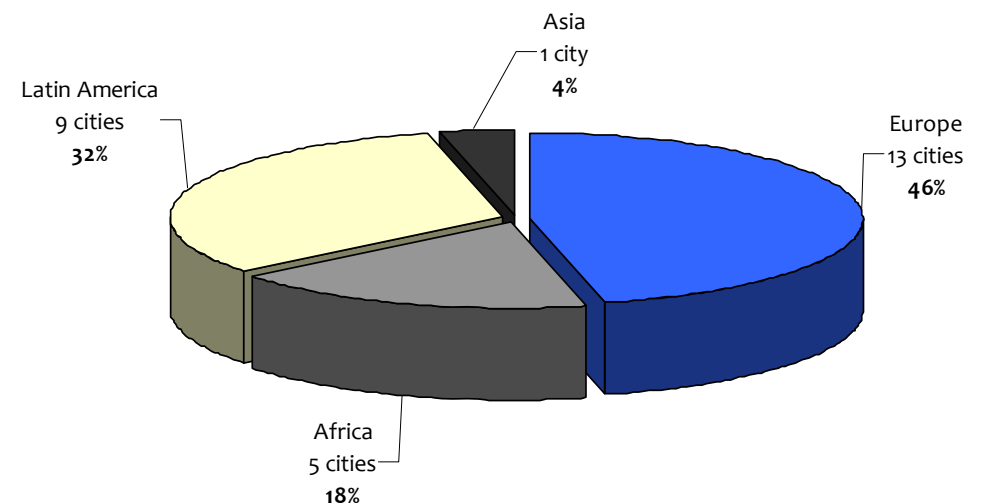
Taipei City (Taiwan - R.O.C.)

### EUROPE

City of Roeselare (Belgium)  
Barcelona City Council (Spain)  
Bilbao City Council (Spain)  
Madrid City Council (Spain)  
Provincial Council of Jaen (Spain)  
Bordeaux City Council (France)  
L'Havre City Council (France)  
Limoges City Council (France)  
City of Helsinki (Finland)  
City of Lappeenranta (Finland)  
City of Malmö (Sweden)  
City of Lisbon (Portugal)  
Katowice City Council (Poland)

We must mention the wide-ranging participation in the study of cities from Europe and Latin America.

Geographical distribution of the cities participating in the study



## 2. SMART Cities Study: The need to assess the progress made by cities

### 2.2 Cities participating in the study



## Socio-demographic data of the participating cities

Most cities taking part in the study (68%) are medium-sized or large cities. 32% of the participating cities have from 100,001 to 1 million inhabitants, and 36% more than 1 million.

Considering the population of the cities and their geographical distribution, most of the cities from the African region are large participants; 60% have more than 1 million inhabitants. All other cities have from 20,001 to 100,000 and 100,001 to 1 million inhabitants (20% respectively). Most of them are medium-sized and large.

In the case of Latin America, most of the cities are small to medium-sized. 44% have from 20,001 to 100,000 inhabitants and 22% have more than 20,000 inhabitants. Only 22% of participating cities have more than 1 million inhabitants.

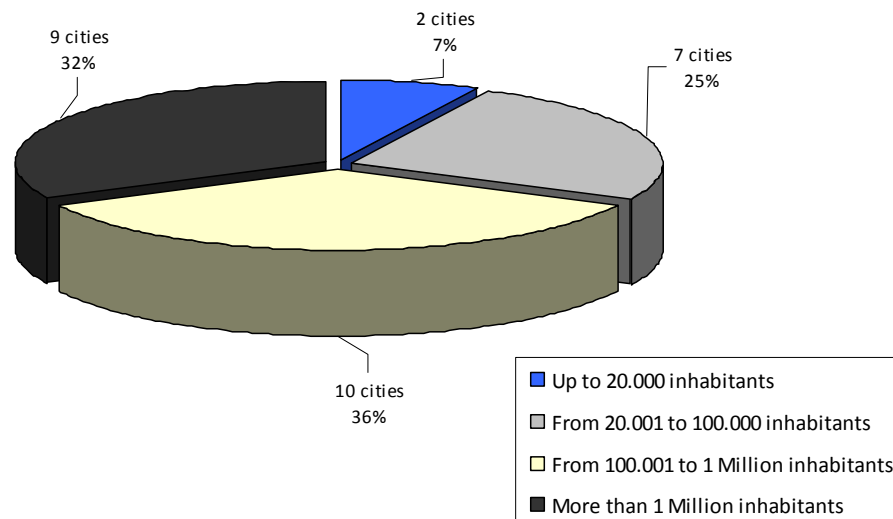
In the case of Asia, only Taipei City is participating in the study, and it has over 1 million inhabitants.

Finally, in Europe, most of the cities are medium-sized; 62% have from 100,001 to 1 million inhabitants. On the other hand, 23% have more than 1 million inhabitants and only 15% have from 20,001 to 100,000.

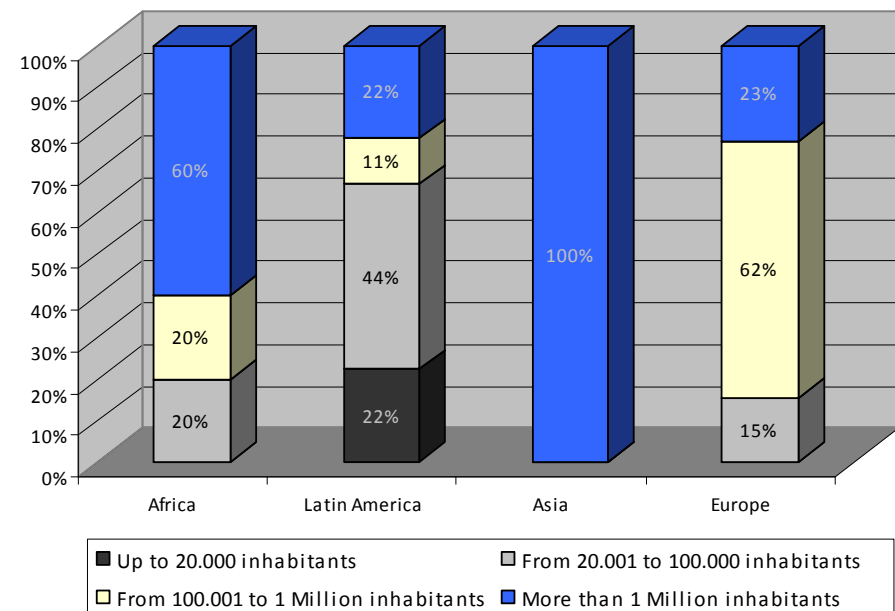
These data serve as reference to provide an idea of cities' requirements and solutions.

Similarly, most of the cities have service-focused economies. In seven cities, services account for over 50% of GDP, a figure that contrasts with the primary sector, which only represents between 1% and 10% of GDP in 11 cities.

Population based distribution of the cities participating in the study



Distribution by population and region of the cities participating in the study



# CHAPTER 3

## Smart Indicators

## 3.1 Smart Economy

The first area, **Smart Economy**, refers to cities with "smart" industries, especially in the areas of information and communication technologies (ICT), and other industries that require ICT in the production processes.

The smart economy also includes factors related to the economic competitiveness of a territory, such as:

- Penetration of ICT use in businesses.
  - ✓ PC and Internet usage in enterprises.
  - ✓ Internet usage penetration for electronic commerce.
- Financial promotion.
  - ✓ Local development agencies.
  - ✓ Strategies for the economic development of the city.
- Retaining and attracting talent and promoting creativity.
- Entrepreneurship. Support for entrepreneurship.
- Development of business spaces.
  - ✓ Science and technology parks.
  - ✓ Industrial parks.
  - ✓ Business incubators.
- Internationalisation of the city
  - ✓ International promotion strategy for the city.
  - ✓ Development of flagship projects for the city's international positioning.
  - ✓ Participation in international networks.





## Penetration of ICT use in businesses

## Penetration of ICT use in businesses

## PC and Internet usage in enterprises

The reality of the New Digital Society affects companies, just as it affects people, whatever their size. Companies must adapt to this new reality by adapting their culture and the way they organise work to the Digital Economy, encouraging higher levels of commitment from all internal stakeholders of the organisation to the same objectives, and using the information as a strategic resource to relate to other businesses, meet customer needs and identify new business opportunities.

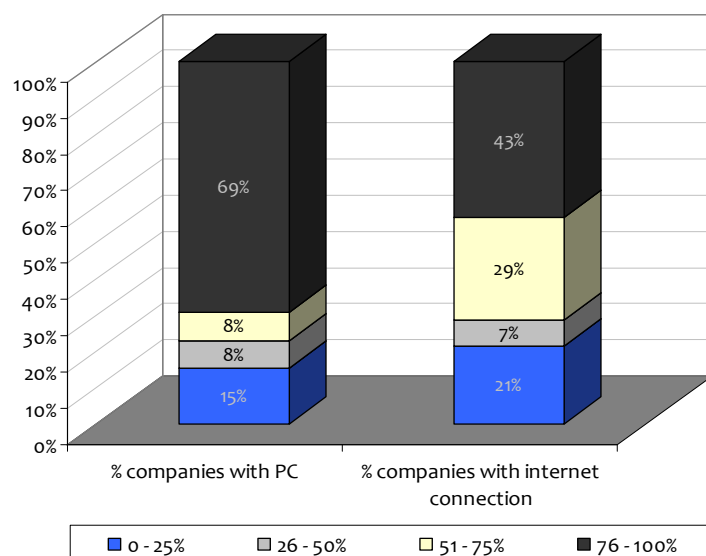
As part of the study, the cities were asked to state the percentage of businesses that use PCs and that are connected to Internet. Regarding the question on the **percentage of businesses that have PCs**, of the 13 cities that responded to this question (3 from Africa, 3 from Latin America, 1 from Asia and 6 from Europe), **in 69% of them between 76% and 100% of companies used PCs**.

Regarding the **percentage of companies that have an Internet connection**, the percentage of cities in this case is rather balanced.

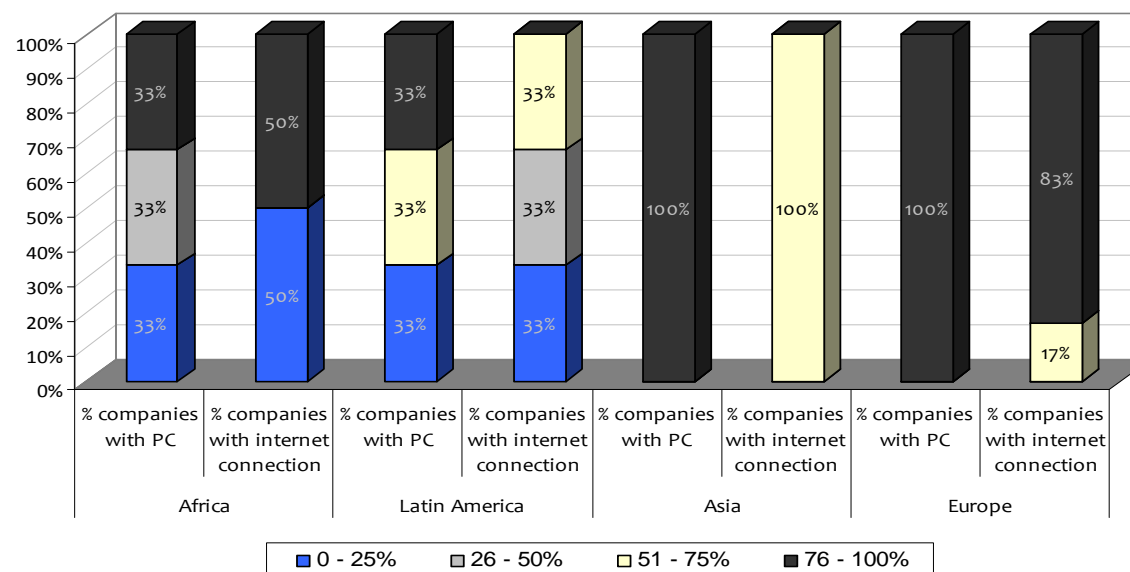
Of the 14 cities that responded to this question (4 in Africa, 3 in and Latin America, 1 in Asia and 6 in Europe), **in 72% of them more than 50% of companies** are connected to Internet, and that **in 43% of them, between 76% and 100% of companies have an Internet connection**.

**Only 21% of the cities have between 0% and 25% of their companies connected to the Internet.**

Penetration of PC and Internet usage in companies



Penetration of PC and Internet usage in companies by region



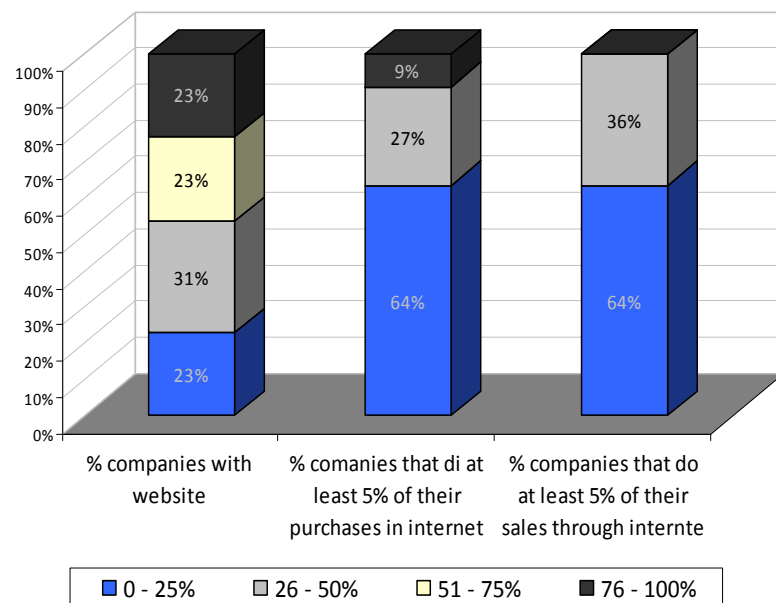
## Internet usage penetration for electronic commerce

With respect to the degree Internet usage for electronic commerce, the percentage of companies that have a website differs considerably. In **most** of the cities, **fewer than 50% of companies have internet**, and in 23% of cities only between 1% and 25% of businesses have a website. Only in 23% of the cities, the percentage of firms that have a website reaches levels between 76% and 100%.

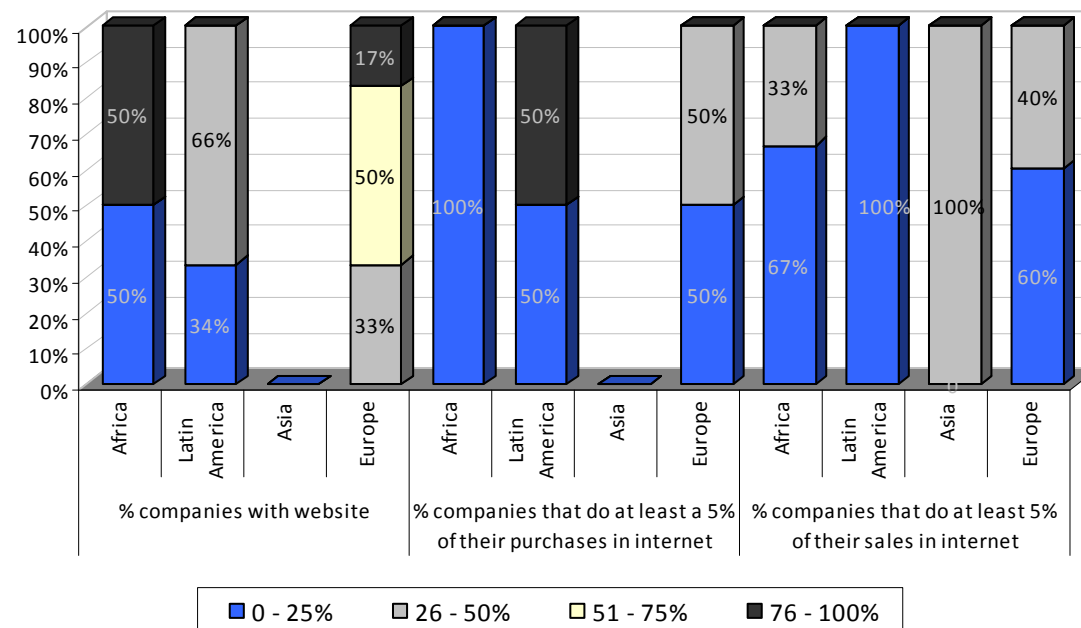
The regions in which the percentage of businesses with a website is highest are Africa and Europe. We have no information regarding Asia.

Regarding the percentage of **companies making sales or purchases** on-line, in both cases the percentage is **very small**; between 0% and 25% of the companies make use of this possibility.

Penetration of Internet usage for electronic commerce.



Penetration of Internet usage for electronic commerce by region.

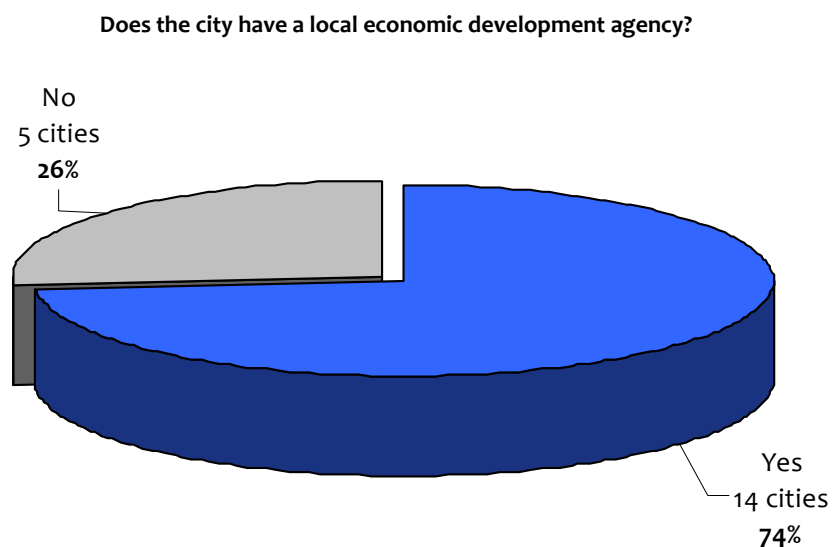


## Financial promotion

### Local development agencies

Local Development Agencies are dependent on the municipalities and are dedicated to intermediation tasks and to promoting and supporting the economic development of their municipalities. Consequently, they are entities that provide a public service, the object of which is to promote economic and social development, promoting local resources, employment and entrepreneurship.

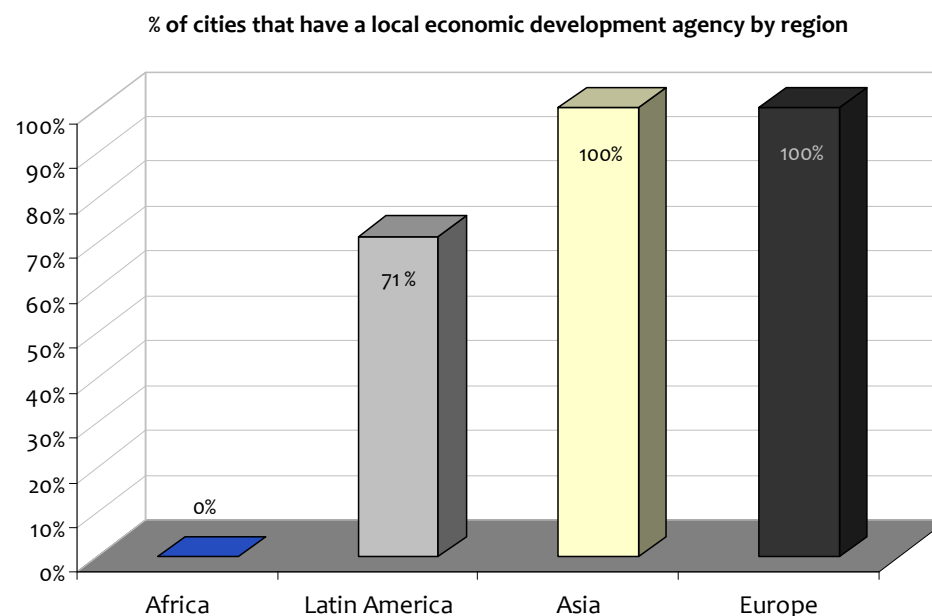
Of the 19 cities (3 in Africa, 7 in Latin America, 1 in Asia and 8 in Europe) that responded to this question, 74% has a local or regional development agency.



We must highlight the **European** region, where 100% of the cities that responded to the question have Local Development Agencies. **Latin America** follows, a region where 71% of the cities that responded to the question have local development agencies. In the case of **Asia**, the Taipei City also has an Agency.

We must also highlight **Africa**, where none of the cities that responded to the question have a Local Development Agency.

*Below are some examples of Local Development Agencies in certain cities.*



## Madrid

### Economic Development Agency "Madrid Emprende"

Its function is to design municipal economic development policies for the city of Madrid, with a priority focus on territorial rebalancing, through the implementation of actions in the areas of business infrastructure, fostering innovation, promoting the competitiveness of SMEs and entrepreneurship, the development of European projects, internationalization of Madrid's economy, analysis of Madrid's economy and, in general, all actions that may favour the city's economic development.

<http://madridemprende.esmadrid.com/>



## Barcelona

### Local Development Agency of the City of Barcelona "Barcelona Activa"

Created in 1986, this municipal company was established as a business incubator and has promoted 16 projects. Today, Barcelona Activa is a local and international benchmark supporting entrepreneurs, innovation, professional improvement and job creation.

Barcelona Activa offers answers to the 100,000 plus participants that visit its facilities each year, it oversees more than 1,000 new business projects each year, over 115 companies are installed in its business incubator and technology park, more than 30,000 participants receive services via Portaz2, almost 50,000 participants enter the world of new technologies at the Cibernarium and over 1,000 unemployed people are hired to learn a trade while working.

<http://www.barcelonactiva.cat>



## Katowice

### The Upper Silesian Regional Development Agency Co.

Established in 1992 as a non-profit organization for the economic restructuring and development of the region support. The main shareholder of the Agency is the Silesia Voivodship (regional authority) having directly more than 50% of shares. The Agency is well rooted in the regional policy and developed a network of cooperation with the major players in the region. The Agency offers the information, consulting and trainings services for SMEs and local governments, especially in the field of EU assistance programs, providing business activities

<http://www.garr.pl/>



## Havre

### Regional Development Agency of Le Havre

- Design the economic development strategy of the region of Le Havre.
- Promote the image of the region in France and abroad and organise dissemination actions.
- Identify and promote international investment.
- Support implementation and development projects.

<http://www.havre-developpement.com>





## Bilbao

### Local Economic Development Agency "Bilbao Ekintza"

It heads strategic and supportive developments in Bilbao, ensuring the socio-economic balance between neighborhoods and the people who inhabit them. It offers:

- Knowledge and skills to facilitate access and continuity in the labour market.
- Opportunities to encourage job creation and the implementation of new business projects.
- Support for local businesses and for the economic, business and strategic development of the city and its neighborhoods.
- Innovation resources, management excellence, social responsibility and technological skills.
- Funding formulas for entrepreneurial projects aimed at driving economic activity and employment.
- Studies and publications on socio-economic development that are placed at the disposal of social institutions and agents

<http://www.bilbao.net/BilbaoEkintza>

## Taipei

### Economic Development Commission of Taipei City Government are:

1. Mapping out the medium and long-range policies of economic development for Taipei City Government.
2. Fostering an optimal business climate for enhanced economic development.
3. Combining the financial resources of Taipei City Government and the private sector to further revitalize Taipei's economy.
4. Approval of major economic construction related investment plans for Taipei City Government.
5. Teaming up with business sectors to hold symposiums and seminars to strengthen economic development policies

<http://english.doed.taipei.gov.tw>



## Colima

### Development Agency of the Colima City Council:

It facilitates, promotes and supports economic development in the Municipality through coordination with the business community, academia and government, the identification and promotion of productive projects to attract domestic and foreign investment in strategic sectors with a view to strengthening its competitive position, the strengthening of SMEs, innovation and technological development and the promotion of tourism, to enhance the economic well-being of its inhabitants.

The agency's mission is to cater for the 8000 operating licenses registered in the municipality and promote the establishment of new businesses in the town by providing training, jobs and funding for the primary purpose of maintaining and increasing employment opportunities.

<http://colima.gob.mx>





## Strategies for the economic development of the city.

It is important for cities to focus on the [design of forward-looking and strategic activities and projects](#) for regional economic development.

Therefore, cities were consulted on the strategic lines they were working on.

***Below are some of the answers.***

Lappeenranta	Stable economy, high-quality and sustainable basic services, safe and appealing living environment, valued EU-Russia operator, national developer of policies and practices, good and inspiring employer, active promotion of employment
--------------	--

Mexico City	Fund for the Development of the Software Industry (PROSOFT FUND). This is a tripartite programme, which aims to promote the development of the information technology industry by granting temporary subsidies to projects in the field of Information Technology and related services
-------------	--

Madrid	<p>The strategic lines on which Madrid Emprende bases all its policies, actions and plans are:</p> <ol style="list-style-type: none"><li>1. Renewal of the current economic model</li><li>2. Accelerating the new economic model</li></ol> <p>This includes several lines of action, one of them is called Entrepreneurship and Business Management, which includes a wide range of actions:</p> <ul style="list-style-type: none"><li>• Entrepreneurial Culture.</li><li>• Promoting Innovation.</li><li>• Investment and Financing.</li><li>• Developing, Attracting and Retaining Talent.</li><li>• Eliminating red tape.</li><li>• Clustering and Networking.</li><li>• Specialization.</li><li>• Sustainability.</li></ul>
--------	---



## Barcelona

### Barcelona Economic Triangle

Catalonia and Barcelona are strongly focusing on a model for economic growth based on innovation and creativity, fully integrated into the knowledge economy and part of a new project transformation and development process that seeks strategic planning and a renewed offer of economic spaces.

Barcelona Economic Triangle, an excellent example of these transformations, has three main areas that are driving activity and creating an economic triangle. Each vertex is an area with many investment opportunities, with nearly 7 million m<sup>2</sup> dedicated to knowledge-intensive activities and with a capacity to generate more than 200,000 new jobs in strategic sectors.

Barcelona Economic Triangle, where innovation and technology become business opportunities.

<http://www.barcelonaeconomictriangle.cat>



## Helsinki

### Strategy Programme 2009-2012

Helsinki City Council endorsed the Strategy Programme on 29.4.2009. The Strategy Programme presents the City's focal objectives, developing targets and measures for the council term 2009 - 2012. The City's departments, public utilities and affiliates will implement the Strategy Programme for their part by organising services to residents and other users.

A. Welfare and Services

B. Competitiveness

C. Urban Structure and Housing

D. Leadership

<http://www.hel.fi/hki/taske/en/City+Economy/Corporate+Strategies>



## Bilbao

The city of Bilbao is focusing on the promotion of the following strategic sectors for the city:

### 1. Art, Technology and Design

- Art Institutions and Schools
- Museums, Galleries and Cultural Centre
- Fashion and Industrial Design
- Digital Design
- Performing Arts

### 2. Eco-technology and Urban Solutions

- Architecture + Urban Design
- Alternative Energy Design
- Infrastructure, Sustainable Transportation and Urban Mobility
- Transparent Governance

### 3. Tourism, Health and Quality of Life

- Cultural Tourism
- Public Health Institutions
- Wellness Tourism
- Gastronomy

[www.bilbao.net/bilbao/BilbaoNext\\_City\\_Marketing.pdf](http://www.bilbao.net/bilbao/BilbaoNext_City_Marketing.pdf)

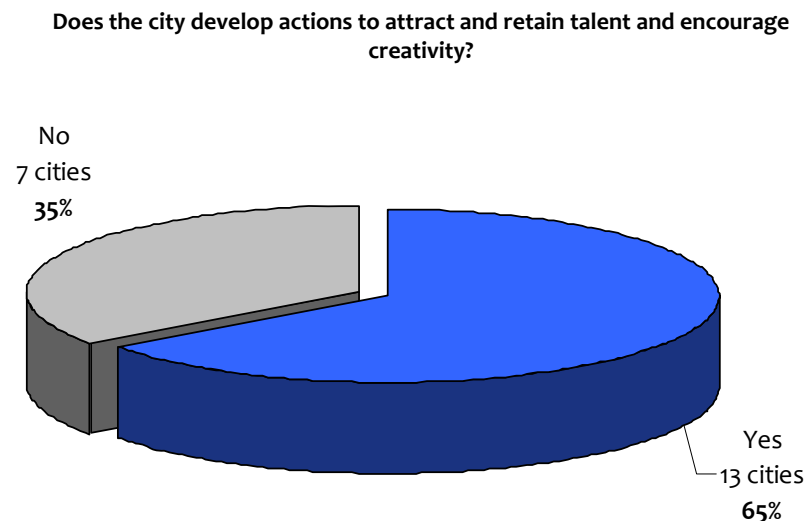


## Retaining and attracting talent and promoting creativity

For the development of cities and for cities to be more competitive, it is necessary to have educated, creative and entrepreneurial citizens. This requires cities to develop various lines of action aimed at attracting and retaining talent.

In this regard, of the 20 cities (3 in Africa, 7 in Latin America, 1 in Asia, 9 in Europe) that responded to this question, 65% have developed some kind of action aimed at attracting and retaining talent and fostering creativity.

If we consider the distribution by region, we can highlight the high percentage of European cities that develop some type of action, as almost 89% of European cities have stated that they have developed plans in this line.

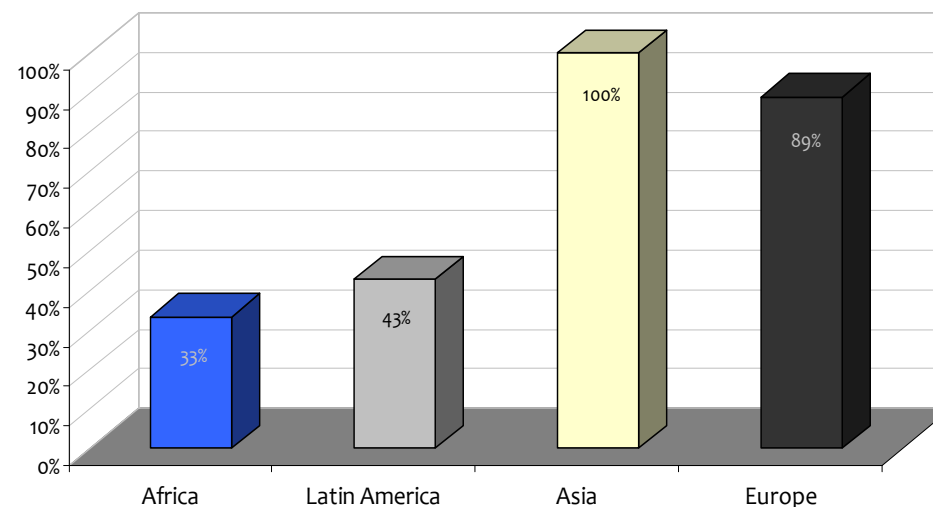


However, this contrasts with Africa, where only 33% of African cities that answered the question have developed some kind of action. A similar percentage to Latin America, where 43% of the cities have taken some form of action.

In the case of Asia, Taipei, the only Asian city participating in the study, has developed some kind of action in this regard.

Below are some of the initiatives developed by the cities in order to attract and retain talent.

% of cities implementing actions to attract and retain talent and encourage creativity by region





## Retaining and attracting talent and promoting creativity

## Helsinki

## Forum Virium Helsinki

A subsidiary of the City of Helsinki Group, develops new digital services in cooperation with companies, City of Helsinki, other public sector organizations, and Helsinki residents. The aim is to create better services and new business, plus to open up contacts for international markets.

Forum Virium Helsinki has made Finland and the Helsinki Metropolitan Area an internationally recognized showcase for digital services, in the process attracting a number of top-level international organizations to invest in their operations here. Forum Virium Helsinki is the central node of the EU in the development of digital services. The project has enabled participating companies to generate significant international business.

[www.forumvirium.fi](http://www.forumvirium.fi)

## Barcelona

## "Do it in Barcelona" Programme

Barcelona City Council programme to attract talent. "Do it in Barcelona" offers personalised plans to implement activities in Barcelona successfully:

- **Emprende:** to create or develop a business.
- **Trabaja:** to explore professional career opportunities in Barcelona.
- **Investiga:** to develop research activities in Barcelona.
- **Estudia:** to take master or postgraduate studies in Barcelona.
- **Instálate:** support to settle in the city and look for accommodation and schools.

[www.doitinbcn.com](http://www.doitinbcn.com)



## Retaining and attracting talent and promoting creativity

## Bilbao

## Plan to Promote a Creative Economy

The aim is to make creativity a key factor in the city's development strategy through a series of measures to support innovation, to encourage the development of creative skills in businesses and citizens, and promote initiatives in the field of creativity that are going to take place in Bilbao.

1. Support the development of creative businesses and initiatives.
2. Support the development of creativity and innovation in all companies in Bilbao.
3. Value, retain and attract people with creative talent in/to Bilbao.
4. Intensify Bilbao's position as a creative city.

[Link to plan information](#)



## Taipei

## Small Business Innovation Research Program

Since SMEs constitute the backbone of Taiwanese industry, it was anticipated that this program would help to reduce the cost and risk of innovation and R&D for SMEs, thereby helping to stimulate these activities in the SME sector. Under Taiwan's SBIR plan, SMEs can apply for subsidies covering up to 50% of the total cost of R&D. This government funding support helps to reduce the costs and the level of risk that SMEs must bear when engaging in innovation or R&D. By encouraging SMEs to undertake the development of new technologies and products.

<http://www.sbir.org.tw>



## Mexico City

The programme to enable young people to work with companies in the Federal District includes, as part of its system to promote science and technology, the provision of grants for work placements with companies in the city.



## Entrepreneurship. Support for entrepreneurship

With regard to supporting entrepreneurship, a key factor for the present and future competitiveness of any region, **of the 19 cities** (3 from Africa, 7 from Latin America, 1 from Asia and 9 in Europe) that responded to the question, **68% have introduced some kind of initiative to support entrepreneurship** in order to facilitate the implementation of new business projects in their cities.

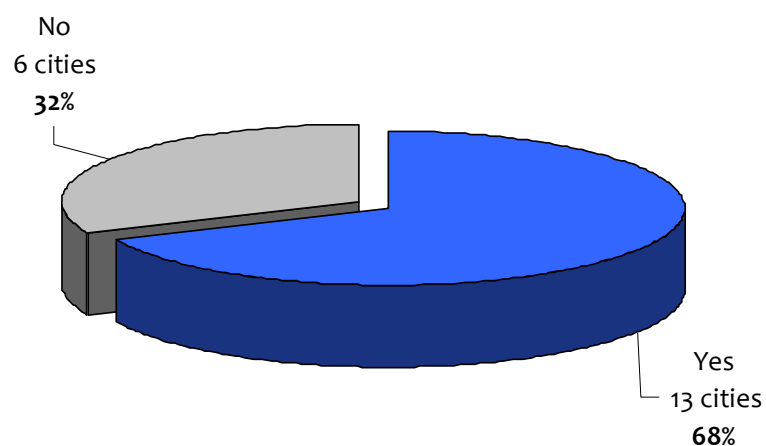
In that sense, we can highlight the **high percentage of cities that have developed some kind of action to support entrepreneurship** in Europe, Asia and Latin America.

In the case of Europe, **89%** of European cities that responded to the question have introduced some kind of initiative to support entrepreneurship in their cities. In the case of Asia, **Taipei City** has also developed some kind of initiative. In Latin America, the percentage is also high, with **71%** of cities introducing some line of action

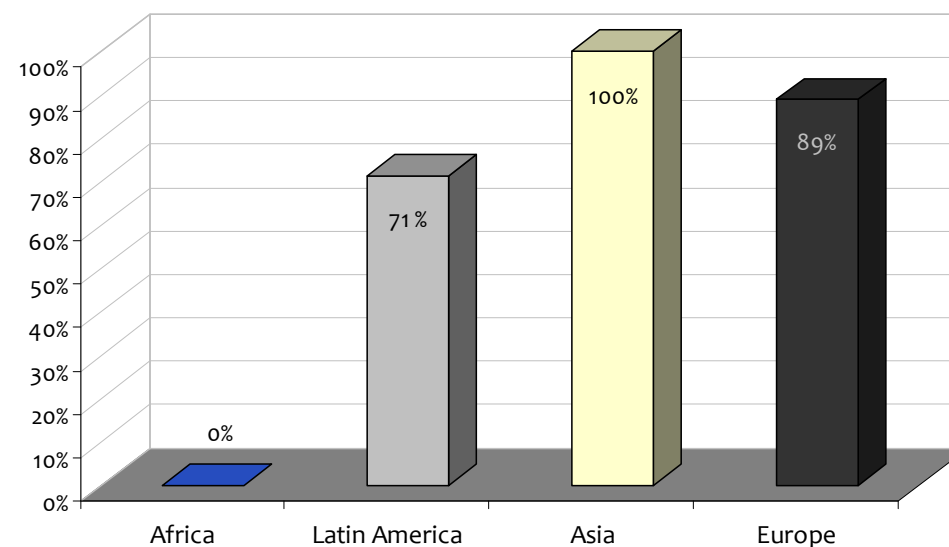
This contrasts significantly with Africa, where **none of the cities** that responded to the question has developed any kind of action to promote entrepreneurship in their cities.

***Below are some experiences developed by cities.***

Does the city/municipality have an action plan to support citizen entrepreneurship?



% of cities with an action plan to support entrepreneurship by region



## Barcelona

In the city of Barcelona, the creation of new companies is channelled through Barcelona Activa, Barcelona's Local Development Agency. Since its inception in 1986, almost 7,000 companies have been established. The programmes developed and dedicated to entrepreneurship are:

- **Programme "Entrepreneurship with Barcelona Activa is easy".** On a daily basis, and through collective briefings, different options and resources are introduced that enable entrepreneurs to set up their businesses.
- **Resource Centre for Entrepreneurs.** An area where information, interactive media, expert guidance and content to start a business in good conditions can be found.
- **BarcelonaNETactiva entrepreneur portal** From which to access content for the creation of companies like a formalities Guide, a Funding Search Guide, an Idea Test to validate a business idea, and an On-line Business Plan.
- **On-line Business Plan.** Interactive pedagogical format tool that enables users to complete a business plan, step by step and safely.
- **"What you need to know to become an entrepreneur" Programme.** Daily activities programme in the shape of 3-hour seminars that address current issues that are of interest to entrepreneurs.
- **Customised programmes.** Adapted according to specific needs, to accompany a business plan based on the profile of the entrepreneur or sector.
- **ODAME school for women entrepreneurs.** The ODAME School of Women Entrepreneurs brings over 20 years of experience providing women entrepreneurs with advice, training and networking.
- **Barcelona Equal Entrepreneurship Programme.** For women with family responsibilities, unemployed or long-term unemployed, immigrants and people with disabilities.

[www.barcelonactiva.cat](http://www.barcelonactiva.cat)



## Bilbao

In the city of Bilbao, support for entrepreneurs is channelled through the Local Development Agency, Bilbao Ekintza. Some initiatives developed are:

- **Day of the Entrepreneur.** A yearly event of an informative, fun and social nature that recognises and rewards the work of entrepreneurs in Bilbao.
- **Learning become an entrepreneur.** Programme aimed at schools in Bilbao to encourage entrepreneurship among younger people. This project proposes to find an idea and develop a business plan. A "Learning to become an Entrepreneur Idea Contest" is held every year.
- **Explot Esperientzia.** Part of the "Learn to become an Entrepreneur" Programme, this initiative aims to spread the culture of entrepreneurship in schools in Bilbao to revive and promote creativity, identify ideas and projects that excite younger people and guide future initiatives.
- **Entrepreneurship in Bilbao.** Entrepreneurship Initiative Contest aimed at all those who have a business-building project in the city of Bilbao.
- **Your New Company in the Neighborhood.** Annual competition that recognises the effort and contribution of the companies promoted by Bilbao Ekintza to the economic and social regeneration of the neighborhoods of Bilbao La Vieja, San Francisco and Zabala.
- **EKIN Entrepreneurship and talent community** To enhance the generation of economic and business activity in Bilbao and its surroundings by creating spaces for action, connection and to meet to promote networking and professional communities, groups and companies.

[www.bilbao.net/BilbaoEkintza](http://www.bilbao.net/BilbaoEkintza)

[www.ekinbilbao.net/](http://www.ekinbilbao.net/)



Innovación abierta – empresas tractoras

Empresas innovadoras globales

Alianzas

Bilbao, ciudad para vivir, trabajar y emprender. Ciudad de profesionales.



## Madrid

The **Economic Development Agency Madrid Emrende** implements a number of measures:

- Help and advice for innovative projects.
- Accelerator for projects with high potential.
- Innovation management in industrial SMEs.
- Collaboration with specialised institutions to finance innovative or technology based business ventures.

<http://madridemprende.esmadrid.com>

## Helsinki

## Enterprise Helsinki:

Helsinki regions joint service centre for startups and acting entrepreneurs. It offers the following services:

- Information sessions about how to become an entrepreneur.
- Business Counselling for startups and early-stage entrepreneurs.
- Entrepreneurship training courses.
- Business Incubation services.
- Business Services for immigrants.
- Startup Acceleration.

<http://www.yrityshelsinki.fi/en>



## Mexico City

**SME FUND** This is a support fund for micro, small and medium enterprises, which generally aims to promote economic development through the provision of temporary support to projects that favour the creation, development, consolidation, viability, productivity, competitiveness and sustainability of micro, small and medium enterprises and to enterprising initiatives, as well as to those that promote productive investments that will generate more and better jobs, more and better micro, small and medium enterprises, and more and better entrepreneurs.

[www.fondopyme.gob.mx](http://www.fondopyme.gob.mx)

**Social Development Fund of the City of Mexico (FONDESOC).** This is one of the City Council's fundamental institutions that aims to meet the demand for credit and financial support of the population that is not eligible for credit from banking institutions.

[www.fondesoc.df.gob.mx](http://www.fondesoc.df.gob.mx)

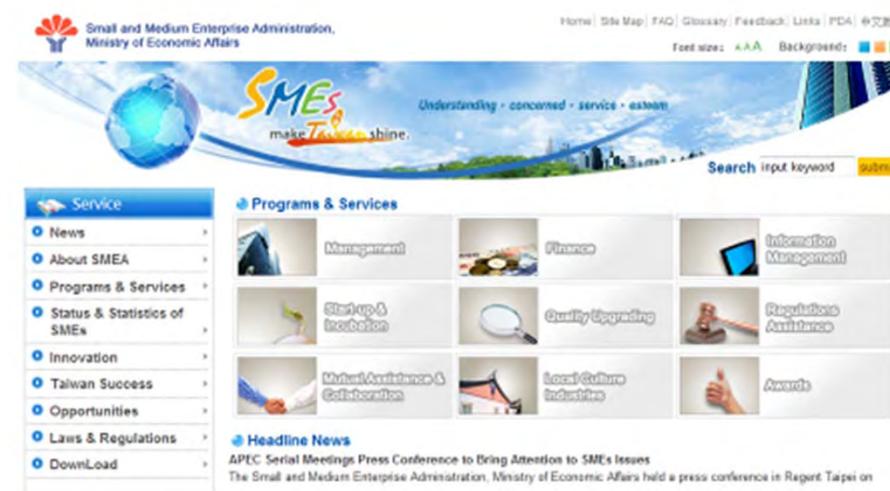


## Taipei

### The Small and Medium Enterprise (SME) Service Center:

In collaboration with the SME Administration of the Ministry of Economic Affairs, has provided SMEs with a series of guidance programs on e-services based on their requirements and electronic workflow. Projects include Bridging Industry Digital Divide, Industry-specific e-Commerce Business Operation Project, SME e-Services Corps Project, SME e-Learning Project (SME Online University), SME Knowledge Management Promotion Project. Other services are consulting for start-ups, HR training, financing, marketing and promotion services.

<http://www.moeasmea.gov.tw>



## Business spaces

---

It is important for cities to have business support infrastructure in their districts to facilitate their economic development.

This study has detected that most cities have some type of business promotion space.

***Below are some experiences developed by cities in terms of business spaces.***

In that sense, developed cities were asked about those developed in their districts:

- Science and technology parks.
- Industrial parks.
- Business incubators.





## Science and Technology Parks.

Understanding Science and Technology Parks as [quality spaces and facilities used to stimulate and manage the flow of knowledge and technology](#) between universities and research institutions, companies and markets. These spaces encourage the creation and growth of innovative companies through incubation and spin-off mechanisms and provide other value added services.

### Barcelona

**Barcelona Nord Technology Park.** An economic development hub and home to technology-based activities. It is also a centre that disseminates and trains people in information technology.

**22@Barcelona.** The 22@Barcelona project transformed 200 hectares of industrial land in Poblenou into an innovative district offering modern spaces for the strategic concentration of knowledge-intensive activities.  
<http://www.22barcelona.com>

**Barcelona Biomedical Research Park.** It is one of the largest centers of biomedical research in southern Europe. PRBB, an initiative of the Generalitat of Catalonia, the Barcelona City Council and the University Pompeu Fabra (UPF), is a major scientific infrastructure in physical connection with the Hospital del Mar in Barcelona, which brings together six closely coordinated public research centers.  
<http://www.prbb.org/>

### Helsinki

**Helsinki Business and Science Park.** Helsinki Business and Science Park (HBSP) provides a dynamic business environment with a diversified research and expert network and a Centre of Expertise within biotechnology, drug development and diagnostics, as well as food and environmental technology. Our objective is to improve the success opportunities of Finnish companies on the international market, and to improve domestic competitiveness.

<http://www.hbsp.net>

## Bilbao

**Bizkaia Technology Park.** Located in Metropolitan Bilbao, it was founded in 1985 and was the first created in Spain. It includes research centres and advanced technology companies, together an excellent communications infrastructure and employs about 7,000 people. Currently, 60% of its total capacity is occupied. [www.parque-tecnologico.net](http://www.parque-tecnologico.net)

**Zorrotzaurre Urban Technology Park (Bilbao).** Project under design, specialising in areas related to knowledge and creativity. [www.zorrotzaurre.com](http://www.zorrotzaurre.com)

**Science Park of the University of the Basque Country.** It comprises 5 large groups:

- University research groups.
- Newly created technology-based companies that arise from academia (spin-off).
- Intensive R&D+i companies.
- Institutions engaged in R&D+i.
- Companies or institutions that provide services to clients within and outside the Park.

Parque Científico y Tecnológico de Bizkaia



## Taipei

**Taipei Technology Corridor.** In order to advance Taipei's role as an important industrial center, the Taipei City Government has linked the hi-tech parks along the Keelung River and consolidated industry resources. The result is the Taipei Technology Corridor, a 768.5 hectare, 20-kilometer long operations hub that is an ideal environment for industrial future expansion. The corridor has attracted increasing numbers of global players, including some of the world telecoms big names.

[http://hitech.taipei.gov.tw/cgi-bin/SM\\_theme?page=4aa49b57](http://hitech.taipei.gov.tw/cgi-bin/SM_theme?page=4aa49b57)

Illustration of Taipei Technology Corridor



### 3. Smart Indicators

#### 3.1 Smart Economy

##### Business spaces

#### Guatemala

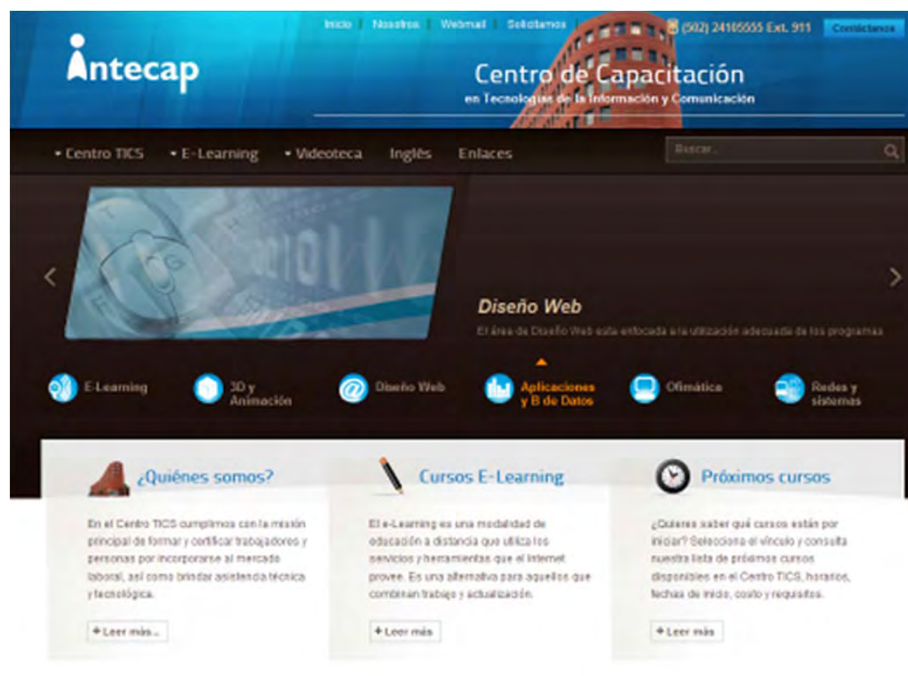
**Intecap Technology Campus ICT Centre in Guatemala.** Its main aim is to extend ICT training by creating strategies for the dissemination and adoption of ICT to contribute to the productivity and development of the country, reducing the digital divide, through the training of human resources.

<http://www.intecap.edu.gt/>

#### Colima

**Tecnoparque.** Colima has a Technopark located in the southwest of the city in a metropolitan area.

The Tecnoparque CLQ is a strategic project of the State Government that aims to boost the competitiveness of strategic economic sectors in Colima, providing adequate space for the installation of technology-based companies and science and technology institutions, to provide scientific and technological support to agricultural production, logistics and transport, energy, information and health technology sectors, which drive economic development.





## Industrial Parks

Industrial Parks, also called industrial belts, industrial estates or industrial areas, are understood to be areas that where a number of industries, that may or may not be related, are grouped.

### Madrid

**Industrial Factory.** The Vicálvaro Industrial Factory is a centre that provides support for the consolidation of industrial and services companies with a high R&D+i component, and provides counselling and support services, primarily in the areas of internationalization and R&D+i.

It covers 11,000 m2 distributed in sixteen 280 m2 open plan buildings, tailored to the needs of high value-added industries.

<http://www.madridemprende.net/FactorialIndustrial/tabid/386/language/es-ES/Default.aspx>

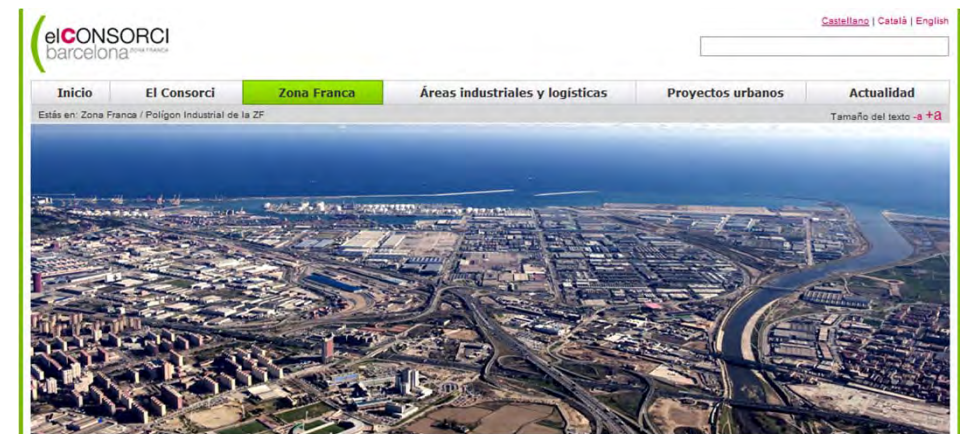
### Barcelona

The City Council of Barcelona has multiple spaces dedicated to industrial production. Among them, we can highlight:

#### Industrial Free Zone:

Since its construction in the 1950s, the Industrial Free Zone is a key part of Barcelona's economic potential. Gradually, its economic importance has increased, making it the largest and most active industrial area in Spain and one of the most dynamic in Europe with over 300 companies installed.

<http://www.elconsorci.net/>



## Bilbao

There are numerous public and private business parks that, in addition to space, offer additional services.

Public industrial parks usually offer special conditions to companies installed (which should normally display a high degree of innovation or social interest), with average support levels of about 40% of the rental costs for the first 3 years of the company.

<http://www.sprilur.es/oferta-de-espacios>



## Business incubators.

Business incubators are understood to be **spaces that aim to temporarily support the promoters of business projects and/or future businessmen/women, to start their businesses** in an appropriate location and in an environment conducive to achieving the degree of maturity that will enable them to enter the market with the necessary skills and knowledge to survive in a competitive environment.

### Bilbao

In the Metropolitan Bilbao area, there are **multiple infrastructures supporting the incubation of new companies**, both general and sector related:

- 4 incubators managed by the Bilbao City Council, 3 of a general type and another for companies specialising in New Technologies.
- European Business and Innovation Centres (BIC).
- University Incubators.
- Other general municipal incubators and incubators that specialise in bioscience, ICT, ...

These infrastructures are complemented by services designed to support the incubation process and by a substantial package of financial aid (grants, loans, seed capital, ...), which means the start-up aid at Bilbao Metropolitan is probably the most important in the State and the European Union.



### Madrid

**Business Incubator Network in Madrid.** 7 sector incubators , which provide offices and business services in the seven districts of the capital.

- Infrastructure investment: in excess of € 24 million. .
- Investment in management and support: € 1.3 million /year.
- Capacity: 200 companies.
- Total area: 22,800 m2.
- Average office size: 20 m2.

<http://www.madridemprende.net/>

### Portal de la red de viveros de empresas





## Barcelona

**Glòries business incubator.** An environment of innovation with the most advanced infrastructure and services to support start-ups in the city of Barcelona.

<http://www.barcelonactiva.cat/barcelonactiva/es/que-es-barcelona-activa/los-equipamientos/incubadora/index.jsp>

## Helsinki

### Enterprise Helsinki Business Incubator - Enterprise Finland.

The business incubator serves as an international soft landing for new enterprises and life sciences companies seeking to secure a foothold in Europe. The Helsinki Business Incubator also collaborates with the Akron Global Business Accelerator in Akron, Ohio.

<http://www.yrityshelsinki.fi/en/>

Ajuntament de Barcelona Català :: English

**Barcelonactiva**

Actividades | Actualidad | Noticias | Ofertas de trabajo | Perfil contratante

**01** Qué es Barcelona Activa

**02** Barcelona Empresa

**03** Barcelona Treball

**04** Barcelona Crecimiento

Quiénes somos  
**Los equipamientos**  
Alquiler salas  
Relaciones institucionales  
Cooperación internacional  
Publicaciones  
Videomemoria

Barcelona Activa Seu Central  
Centro para la iniciativa emprendedora  
Parque Tecnológico Barcelona Nord  
Porta 22, Espacio de Nuevas Ocupaciones  
Can Jaumandreu  
Convento de Sant Agustí  
Ca n'Andalet  
Cibernarium  
**Incubadora d'empreses Glòries**  
Almogavers Business Factory

Inicio » Qué es Barcelona Activa » Los equipamientos » Incubadora d'empreses Glòries

**Los equipamientos/Incubadora de empresas Glòries**

Entornos de innovación y crecimiento empresarial  
Situado en el 22@ Distrito del Conocimiento. Destinado a facilitar el futuro de empresas de reciente creación generando redes de cooperación y contribuyendo a la mejora de su competitividad.

**ENTERPRISEHELSINKI**  
HIGH QUALITY STARTUP GUIDANCE

Phone: +358 (0)9 210 36362 | Kaisanlempiä 6 A, 6. krs, PL 37, 00099 Helsinki kaupunki | Open: 8.30 - 16.30

Search our site

**News**  
Helsingin Uusintyöskeskus on avannut uuden palveluiden markkinapaikan Ostapalvelu.fi:n >>  
TangaReef tarjoaa sukeltajille varauspalvelun ja keinoon auttaa maailman meriä >>  
Pulp Republic tekee sähkökirjojen lukemisesta sosiaalista >>  
Nöyrästi ja rohkeasti kohti menestystä >>

**WELCOME AS ENTREPRENEUR TO HELSINKI**  
EnterpriseHelsinki is Helsinki regions joint service centre for startups and acting entrepreneurs. We are pleased to offer all the service needed how to become a entrepreneur

**SERVICES**  
**BUSINESSPLAN**  
**YHTYDENOTTO**

**START A BUSINESS**  
Guides how to start and develop business in Finland  
> Read more

**POTENTIAL GROWTH COMPANY**  
Guides for potential growth companies. EnterpriseHelsinki's startup acceleration service network offers sweat equity investments.  
> Read more

**BUSINESS TOOLS**  
Business tools for startups and development.  
> Read more

**INFORMATION SESSIONS AND COURSES**

**Entrepreneurship training course for immigrants**  
Next entrepreneurship training course for immigrants begins 20.8.2012. The course is held in Finnish.  
>> Read more...

**Evening Courses for Entrepreneurs**  
Evening courses in English for active entrepreneurs continue again in the autumn 2012, schedule is confirmed later in August.  
>> Read more...

**Information sessions in English**  
EnterpriseHelsinki organizes information sessions about entrepreneurship also in English as a part of Become an Entrepreneur in Finland -project.  
>> Read more...

**BUSINESS BLOG**  
Ohjeita ravintolan tai kahvilan perustajalle  
Uusi ravintolaesite 2012 on julkaistu, jossa on käytännön ohjeita ravintolan tai kahvilan perustajalle.  
>> Read more...

**TWITTER**  
follow us on twitter

## Internationalization

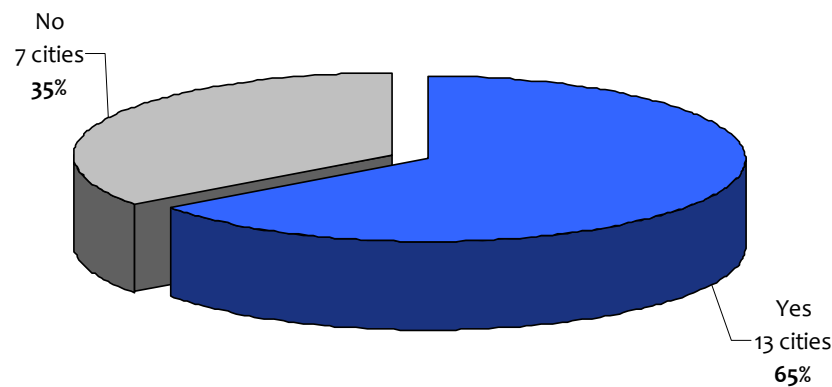
### International promotion strategy

Globalisation involves the need for cities to address more effective strategies to join global exchange circuits. Strategies that serve to enhance the value of the territory and that take steps towards the construction of a sustainable and competitive development model.

With this in mind, local public policies and local management must adapt to the challenges of globalization. In this context, the international dimension of municipal actions becomes a must.

Of the 20 cities that responded to the question (3 from Africa, 7 from Latin America, one from Asia and 9 from Europe), 65% had some type of plan or strategy for the international promotion of the city.

Does the city have an international promotion plan/strategy?

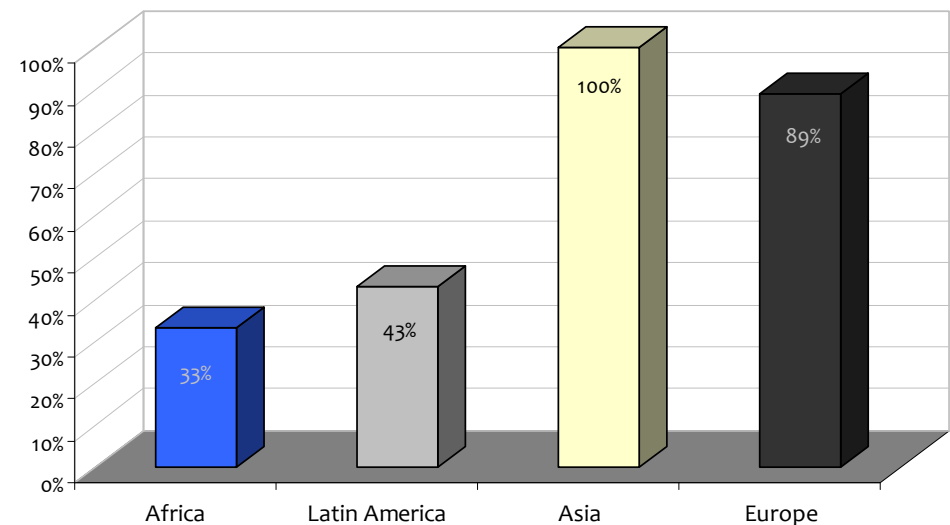


Regarding the analysis of the information by region, in the case of Europe, the percentage of cities that have some international promotion strategy is very high, as 89% of European cities that answered this question have a strategy. In Asia, Taipei also has an international promotion strategy.

These data contrast with Latin America and Africa, where only 43% and 33% of cities, respectively, have some type of international promotion strategy.

***Below are some experiences in international promotion strategies developed by municipalities.***

% of cities that have an international promotion plan/strategy by region



## Madrid

The city of Madrid has the [International Positioning Plan 2007 - 2011](#) and is working on the development of the International Positioning Plan 2012-2015.

The plan aims to put Madrid at the forefront of global cities worldwide, a key objective set out in the electoral programme for the 2007-2011 municipal mandate. Madrid has been active in improving its international position by communicating its competitive advantages and its reality, by conducting a series of strategic projects, all in the hands of key players with similar goals ( private sector, international organisations, institutions, other public authorities, countries and cities).

We can highlight the following actions taken in the last term:

- Establishing the International Strategy and Action Office, "Madrid Global" (running until 2010).
- Creating the Global Madrid Chair for a Global Urban Strategy together with the IE Business School and the Centre for International Studies.
- Creating and enhancing the Madrid Air Liaisons Committee.
- Japan Plan.
- United States Plan.
- Participation and promotion of the Open Cities project together with the British Council to promote openness in cities.
- Agreements and contacts with various levels of international diplomacy (Institutions, Forums and Tribunals, International Networks).
- Conventions and agreements with other institutions (ADB, China-Europe School of Law, Instituto Cervantes, Asia-Europe Foundation, etc.).
- Organisation of and participation in various seminars and conferences on international promotion (the Spain India Conference, Global India Business Meeting, EuroIndia, etc ...).
- Relevant institutional activities: town twinning, cooperation agreements, bilateral relations.

[http://www-1.munimadrid.es/SBAE\\_262\\_SF\\_SIGE\\_Internet/area.do?Key=14443](http://www-1.munimadrid.es/SBAE_262_SF_SIGE_Internet/area.do?Key=14443)

## Helsinki

There is an International Strategy, Competitiveness Strategy for the Helsinki Metropolitan Area, and Helsinki Region Strategy Programme.

<http://www.hel.fi/hki/helsinki/en/international>

The screenshot shows the City of Helsinki website. The top navigation bar includes links for 'ESTADÍSTICA', 'Site map', 'Service map', and 'Search phone numbers'. The main content area is divided into several sections:

- Hel.fi homepage**: A link to the official city website.
- International Relations**: A section with links to 'Operating Principles', 'Objectives and Measures', 'Partners and Networks', and 'Contacts'. It also lists 'Helsinki Region in 15 Languages', 'Helsinki Business Hub', 'Helsinki Region for Students', 'Helsinki for Tourists', 'Helsinki as a Conference City', and 'Helsinki the Venue'.
- Current and News**: A section with a sub-header 'International Helsinki' and a description: 'These web pages are based on Helsinki's international strategy and City of Helsinki International Relations. Links to different languages lead you to the main web pages of the city. These pages are in Finnish and in English. Read more...'. It lists several news items with dates and titles, such as 'Artificial oxygenation may improve the status of coastal waters', 'The Era of Autonomy Festival takes the city back to the 19th century', 'Finland, the avatar of embassy's twitter unveils', 'Helsinki-Uusimaa Region Museum Guide published', and 'Kellohalli at the Abattoir to open on 1 September'.
- Shortcuts**: A section with links to 'Finnish holidays', 'Embassies in Helsinki', 'Information on Finland', 'Printable Helsinki City Centre Map (pdf)', 'Strategy for the Baltic Sea Region', 'Baltic Sea Region Programme 2007 - 2013', 'Baltic Sea Region Investor's Guide (pdf)', and 'RBC'.

Below the main content area, there is a section titled 'madrid una de las ciudades más at' (madrid one of the most attractive cities) and a 'Current and Contacts' section with a 'Welcome Weeks' logo and a date range of '20 August to 21 September 2012'. This section includes a list of activities and a 'We Recommend' section with a link to 'We Recommend'.



## Mexico City

The Federal District's Mixed Tourist Promotion Fund has a **foreign communication strategy** and has contracted a company in the U.S. to promote it.

Go to site: [www.mexicocityexperience.org](http://www.mexicocityexperience.org)



### Message from Mayor Ebrard:



Mexico City is a dynamic global business center, and a unique and authentic cultural and modern destination. It is a modern city that offers visitors a wealth of experiences. [read more](#)

## Mexico City to host FITA 2012 tourism fair

Mexico City will host the third annual international tourism fair of the Americas, FITA 2012, on September 20-23, 2012.

FITA 2012 will attract the travel's industry's most prominent professionals: wholesalers, tour operators, transportation companies, hotels, event planners, travel agencies, national tourism promotion agencies, convention marketing offices, travel media and general visitors. FITA 2012 will take place in the modern Expo Bancomer center, located in the Santa Fe area in Mexico City.



## Havre

The city of Le Havre organises various **international conventions** as well as meetings between China and Europe in the city. In 2012 there will be a meeting to propose "French solutions for the Chinese".

<http://lehavre.fr/dossier/le-havre-ville-partenaire>

lehavre.fr

Français | English

Rechercher



Découvrez Le Havre | Vivre au Havre | Mairie pratique | Ville en mouvement | Ville durable | Vie citoyenne | Exprimez-vous

Vous êtes ici: Accueil » villes jumelées

### MÉTROPOLE MARITIME INTERNATIONALE

- Le Havre, ville partenaire
- Le Havre, Métropole Maritime Internationale
- Le Havre, je vis ma ville
- Le Havre, ville des talents.
- Le Havre, métropole d'avenir

### ACTUALITÉ

1 de 2 »  
L'économie havraise à la conquête de la Chine  
du 12/02/2011  
Une délégation havraise, emmenée par Edouard Philippe - maire du Havre et président de la COGAM - et composée de...

### MULTIMEDIA

1 de 13 »  
2011 au Havre  
Rassemblez en images tous les projets à venir au Havre pour cette année 2011.

### Le Havre, ville partenaire



Cinquième port européen, premier port pour le trafic de conteneurs, la Ville du Havre entretient des partenariats renforcés actifs avec Dalian en Chine et Pointe-Noire au Congo. Une coopération est également initiée, notamment avec la ville allemande de Magdebourg, située à 100 km à l'ouest de Berlin.

D'autres coopérations, celles-ci plus ponctuelles, sont en cours d'élaboration : Gdansk en Pologne, Niteroi et Brasilia au Brésil.

La Ville du Havre souhaite encourager l'apprentissage des langues étrangères pour les jeunes havrais et soutient également ses partenaires locaux dans le cadre des liens qu'ils développent eux-mêmes à travers le monde : le Grand Port Maritime du Havre et ses coopérations, l'Université et ses réseaux inter-universitaires, l'AIVP (Association Internationale Villes et Ports), Chambre de Commerce et d'Industrie (CCI) International Normandie, Le Havre Développement, etc.

### ■ Le jumelage avec la Chine : Dalian

Le Havre et Dalian fêtent cette année les 25 ans de leur jumelage. Signé le 23 novembre 1985, le pacte de jumelage entre Le Havre et Dalian en Chine été confirmé à l'occasion du dixième anniversaire de cet accord. A cette occasion, une convention de partenariat a été signée par Antoine Rufenacht, alors maire du Havre et M. Xia De Ren, maire de Dalian en 1995 (l'actuel maire de Dalian est Li Wancai).

## Niort du Rip

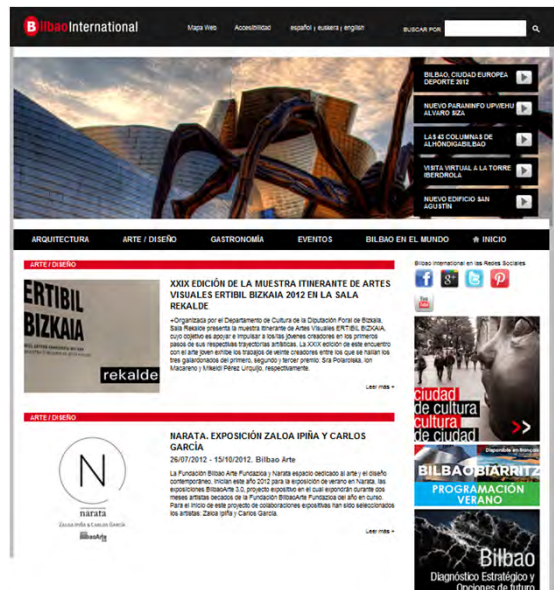
Niort du Rip has an **city identification document**. It also has an integration plan for international organisations in the different regional meetings, in order to facilitate contacts.

## Bilbao

In recent years, the Bilbao City Council, aware of the need and importance of achieving international renown, has embarked on an **internationalization process** to position itself as an international benchmark in areas such as urban regeneration, city management, environmental management, etc.

The internationalization activities undertaken by the City Council of Bilbao include: signing twinning and cooperation agreements with other cities, hosting delegations, receiving international awards, participation in international networks of cities and the participation in and organisation of events and conferences at international level.

[www.bilbaointernational.com](http://www.bilbaointernational.com)



## Taipei

**1. Taipei's Department of Information and Tourism.** Holds an annual overseas promotional activity called the "Impressions of Taipei" to promote Taipei to regions such as Southeast Asia, Northeast Asia and Mainland China. The promotional activities appear in various media channels to create a positive image of Taipei in the international community and to attract tourists from overseas. Our strategy creates value for Taipei tourism. <http://english.tpedoit.taipei.gov.tw/>

**2. Taipei's international scale events.** Such as Deaflympics Taipei and Taipei International Flora Expo, engaging in promotional activities.



## Barcelona

**Consulates of the Sea Network** The international offices of the Consulates of the Sea network were established as a proposal for dialogue to exchange knowledge, creativity and new ideas with other cities.

The existence of the foreign network of ACCIÓ offices, of the Government of Catalonia, has enabled the rapid deployment of the first 16 offices, covering a global expansion.

**Support services: BCN Business Spaces.** The new search engine for business spaces in the city of Barcelona. It allows users to search for properties, offices, business centres, industrial warehouses or industrial land for rent or sale. The contents are available in English.

**Barcelona Venture Hub Programme.** This service offers workspaces and services to international investors interested in companies in Barcelona in a highly innovative environment: district 22@.

[http://w3.bcn.cat/barcelonainternacional/0,4022,229724149\\_229832355\\_2,00.html](http://w3.bcn.cat/barcelonainternacional/0,4022,229724149_229832355_2,00.html)

## Colima

The city of Colima has initiated **twinning programmes** with a number of cities, such as one in Canada and another in the USA. It also intends to ratify the existing agreement with Redwood City, California, United States.

The twinning programme responds to the "Sister Cities" international initiative, a platform that provides guidelines to enable municipal governments to establish relations by subscribing agreements. In the case of Mexico, apart from the "Sister Cities" platform, the twinning process is regulated by the Ministry of Foreign Affairs at national level, by the General Secretariat of Government at state level and by the city councils at local level.





## Development of flagship projects for international positioning

Regarding the development of flagship projects for the international positioning of their cities, of the **20 cities** (3 from Africa, 7 from Latin America, 1 from Asia and 9 from Europe) that answered the question, **75%** has **developed a project aimed at positioning and promoting their cities at an international level**.

Regarding the **analysis of the information by region**, the percentage of cities that has developed a project in Europe, Asia and Latin America is very high.

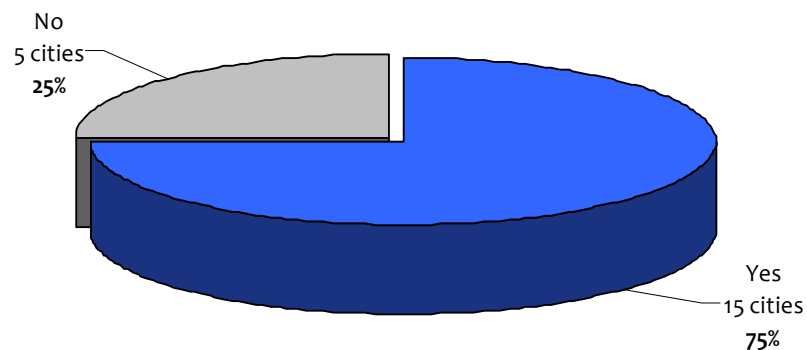
For Asia, the only city that answered the question, **Taipei City, has developed some projects**.

In the case of **Europe**, **89%** of the cities have developed some kind of project. A similar percentage can be found in **Latin America**, a region where **86%** of the cities that responded to the question have developed a project for their international promotion.

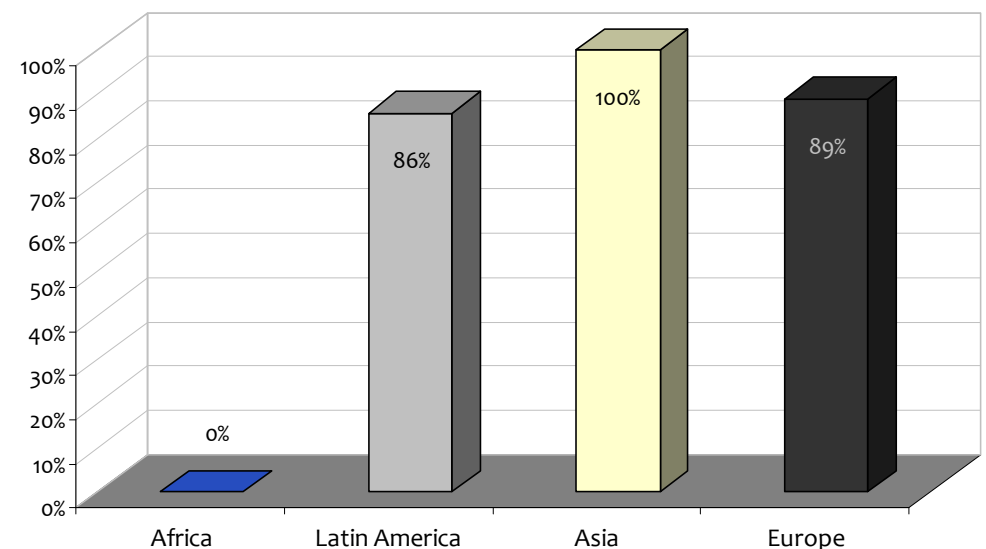
This **contrasts significantly with Africa**, a region in which **none of the cities** that responded to the question had developed an international positioning flagship project.

**Below are a number of key projects developed by cities to enhance their international position.**

Has the city launched a flagship project that seeks to position the city internationally?



% of cities that have launched flagship projects to position the cities internationally by region



## Madrid

Nominations for the 2012 and 2016 Olympic Games and the recently announced candidacy for the 2020 Olympic Games are projects with a clear impact on the international positioning of Madrid that the City Council has developed in the last two terms. <http://www.madrid2020.es/>

Additionally, the City of Madrid has participated with a pavilion at the Shanghai World Expo 2010.

[www.madrid2010shanghai.com](http://www.madrid2010shanghai.com)

## Katowice

The City Strategy 2020 - A metropolitan future of Katowice will be decided by the concentration of actions in three basic components of the area, which comprise:

- Development of metropolitan functions.
- Increase in investment potential.
- Rise in metropolitan awareness of inhabitants.

Development of Katowice as a metropolis will determine its position in a regional, national and international scale. POSITION OF THE CITY - Katowice as a strong urban centre in a regional, national and international scale.

[www.um.katowice.pl/en/files/katowice2020.rtf](http://www.um.katowice.pl/en/files/katowice2020.rtf)



## Bilbao

### The Transformation of Bilbao

The city of Bilbao has come a long way since the early 1980s when it was a situation of deep crisis and decline; a situation that, almost thirty years later, it has managed to overcome, to reinvent itself as a city, adapting to changing times.

Bilbao is an exemplary city that seeks to continuously evolve and reinvent itself, adapting to constant changes, and inspire other cities worldwide. Bilbao's experience as an "integrated city project" carried out over 25 years has achieved the profound transformation of the city.

As a result of this extraordinary transformation, the urban, economic and sustainable rehabilitation of Bilbao has been recognised internationally, as evidenced by the fact that it was selected to participate in the Urban Best Practices Area at Expo Shanghai 2010 and that it was awarded the "Lee Kuan Yew World City Prize" in 2010 in recognition of its comprehensive approach to urban transformation.

<http://www.bilbaoexposhanghai2010.com>



## Barcelona

### International Corporate Universities Forum (ICUF)

The ICUF, promoted by the City of Barcelona, is a key meeting point in Barcelona for top strategies and executive education managers from companies around the world. <http://www.icufbcn.com/es>

### Air Route Development Committee

The Barcelona Air Route Development Committee (BARDC) was established in early 2005 by Aena, the Generalitat of Catalonia, the Barcelona City Council and the Barcelona Chamber of Commerce, with the aim of promoting the development of new intercontinental routes from Barcelona Airport.

The main objective of the BARDC is to work to attract new intercontinental air links from Barcelona airport and retain existing links. <http://www.bcnair-route.com>



**BILBAO GUGGENHEIM ++**  
Shanghai World Expo 2010

## Mexico City

**Science and Innovation Week.** This event serves as a framework for analysing the problems facing large cities, and especially Mexico City.

**Bicentennial Project.** Safe City. The project began with the installation of cameras and sensors at all the delegations in the Federal District after the Act Regulating the Use of Technology for Public Safety was passed. This Act states the need to "contribute to the maintenance of order, peace and stability for coexistence and prevent emergencies or disasters and increase public safety".

The city government organised the **World Summit of Local and Regional Leaders 2010** (3rd World Congress of United Cities and Local Governments) and the World Mayors Summit on Climate (November 2010) with 3,000 delegates from 94 countries.

**"International Month of Mexico City".** With parallel events on various international issues, including the General Assembly of Peace Messenger Cities, a meeting of the Union of Capital Cities of Latin America.

**The Portal** [www.ciudadglobal.df.gob.mx](http://www.ciudadglobal.df.gob.mx) concentrates the international actions of Mexico City Council

## Colima

Through the **"Doing Business"** project, the city has achieved international standards regarding the provision of municipal services, resulting in the Municipal Business Centre, the fourth at national level in terms of granting building licenses and that was also granted the INDA Award.

<http://espanol.doingbusiness.org/reports/subnational-reports/mexico>

The image displays two screenshots. The top screenshot shows the 'Ciudad de México Global' portal, which features a navigation menu with 'Acciones internacionales para ser una...' and 'Ciudad sustentable'. The main content area highlights 'Ciudad de México Ciudad Global' and includes a section for 'Lo más destacado' with a bicycle icon and the text 'Ciudad SUSTENTABLE'. The bottom screenshot shows the 'Doing Business' website for Colima, México, which provides a comparison of economic indicators for Colima against other cities in Mexico and Latin America. The website includes a table with data on 'Perspectiva General del País' and 'Clasificación de la Categoría'.

Indicador	América Latina y el Caribe	Colima
Facilidad de hacer negocios	1	Colima
Seguridad de los contratos	1	Colima
Regulación de la contratación	1	Colima
Calidad de la contratación	2	Colima



## Taipei

**IDA Congress Taipei 2011.** In 2007, Taipei won the opportunity to host the '2011 IDA Congress' by defeating 18 other cities from 12 countries around the world, including Paris, France and Melbourne, Australia. <http://www.2011idacongress.com/>

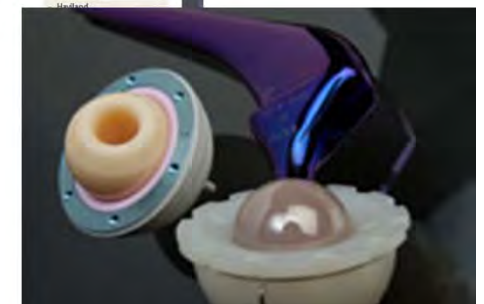
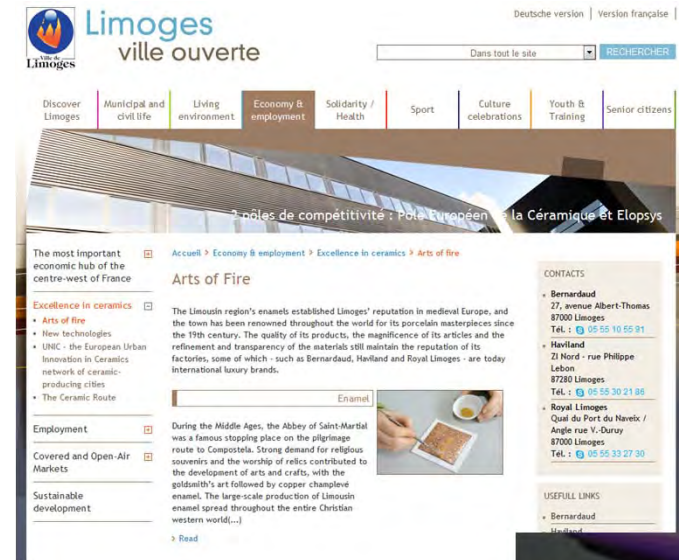
**Taipei International Flora Exposition 2010.** The 2010 Taipei International Flora Exposition is the first international certified standard exposition that Taiwan has ever held. Taipei is also the 7th AIPH certified exposition conducted within Asia. The exposition attracted more than 8 million visitors internationally.



## Limoges

**European Ceramics Centre.** A collaborative platform in the context of international relations among cities with international positions in the field of ceramics.

<http://www.ville-limoges.fr/index.php/fr/economie-emploi/lexcellence-en-ceramique>





## Participation in international networks

With regard to participation in international networks, of the 20 cities that responded to the question (3 in Africa, 6 in Latin America, 1 in Asia and 10 in Europe), 75% of them participate in some type of international network besides UCLG.

Regarding the analysis of the information by region, we can mention that, in the four regions, over 50% of the cities that responded to the question are participating in another network.

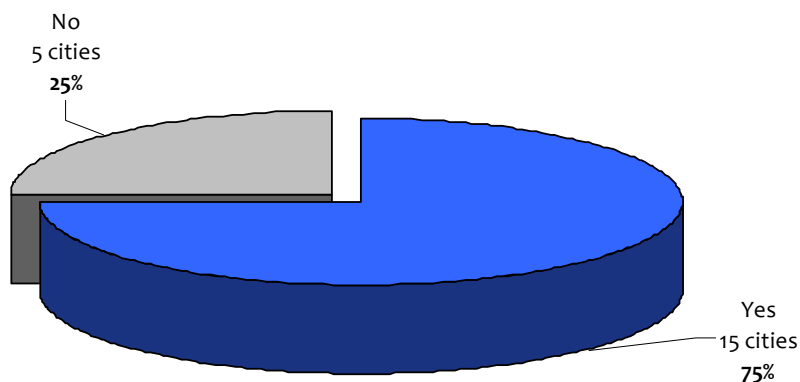
In this regard, the case of Europe is noteworthy, as this is a region where 90% of the cities that responded to the question are involved in some other network. It is followed by Africa, a region in which 67% of cities participate in another network. Finally in Latin America, 50% participate in some other international network.

In the case of Asia, Taipei City participates in other international networks besides UCLG.

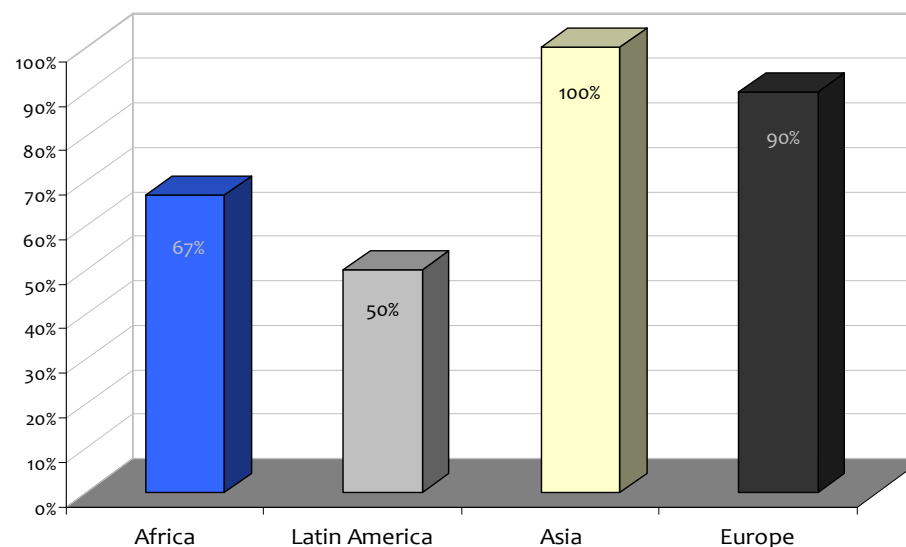
The main international networks that UCLG cities belong to are:

- Association of Mayors for Peace
- Asian Network of Mayor Cities (ANMC21)
- Sister Cities International
- C40 Cities
- Asia Pacific Cities Summit (APCS)
- CITYNET
- UCCI - Union of Capitals of Latin American
- UCUE - Union of Capitals of the European Union
- American Forum of Local Governments
- Metropolis
- Eurocities
- Major Cities of Europe
- Global Cities Dialogue

Does your participate in any international network besides UCLG?



% of cities participating in other international networks besides UCLG by region



Besides the aforementioned networks, cities also participate in [international thematic networks and associations](#), such as:

- Airport Regions Conference
- AIECI-International Association of Cities and Institutions of Enlightenment
- European Coalition of Cities against Racism
- World Alliance of Cities Against Poverty
- European Cities Network for Conciliation
- International Association of Educating Cities
- European Cities Marketing
- Network of Observatories for Participatory Development
- World Tourism Organisation
- The Delice Network of Good Food Cities of the World
- World Cities Gastronomic Gourmet Network
- NBIA - National Business Incubation Association
- EBN: European Business and Innovation Network
- EURADA - European Association of Regional Development Agencies
- WAIPA - World Association of Investment Promotion Agencies
- Union of Baltic Cities (UBC)
- World eGovernment Organization
- International Association of Cities and Ports
- Wine Cities Network
- Educating Cities
- Peace Messenger Cities
- World Heritage Cities
- International Council for Local Environmental Initiatives
- The International Council for Local Environmental Initiative
- Cluster Green and Connected Cities
- Sustainable Cities International Network (SCIN)
- Global City Indicators Facility
- Recreational Bikeways of Americas



## 3.2 Smart People

---

The differentiating element between a digital city and a smart city is **Smart people**.

People are smart in terms of their skill and educational levels, as well as the quality of social interaction in terms of integration and public life and their ability to open to the "outside" world.

Smart people are characterised by the following factors:

- Education and training.
  - ✓ Population with college degrees.
  - ✓ Presence of a University in the City.
  - ✓ Priority areas for educational offers.
  - ✓ Adaptation of the educational offer to the current labour market demand.
- E-Learning.
  - ✓ Plans for digital development in classrooms.
  - ✓ Penetration of ICT use in education.
  - ✓ Implementation of e-learning programmes.
  - ✓ Life-long training.
- Human Capital
  - ✓ Collaboration between companies and knowledge centres.
- R&D&i.



## Education and training

## Population with university qualifications

A key element in the development of cities is having well-educated citizens. With regard to the percentage of the population that hold university qualifications, of the **15 cities** (2 in Africa, 4 in Latin America, 1 in Asia and 8 in Europe) that answered the question, **10 cities have between 0% and 25%** university graduates while **5 cities have between 26% and 50%**.

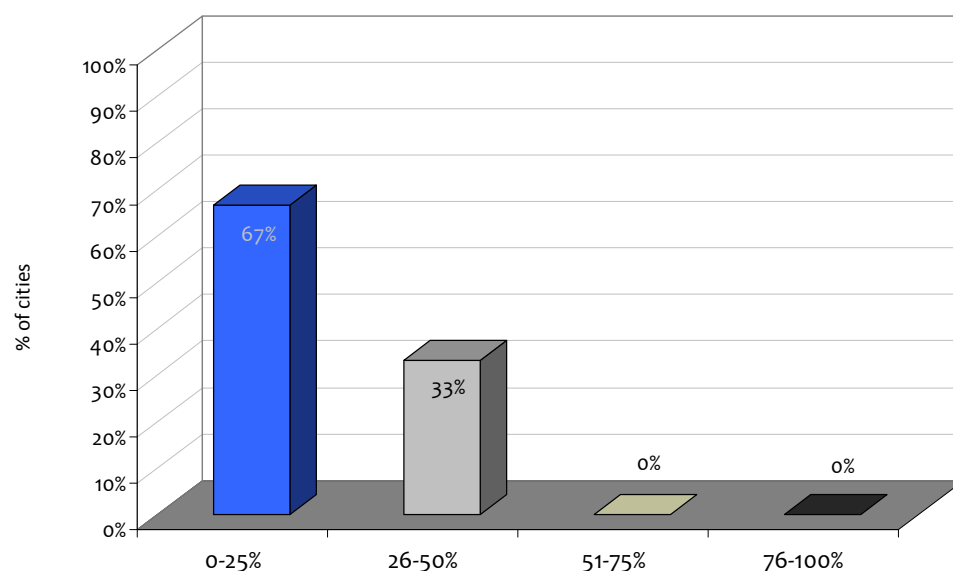
Notably, of the 15 cities that responded to the question, **the population holding university qualifications did not exceed 51% in any of them.**

As for the analysis by regions, between 0% and 25% of the population in the **2 African cities and 4 Latin American cities** have university studies.

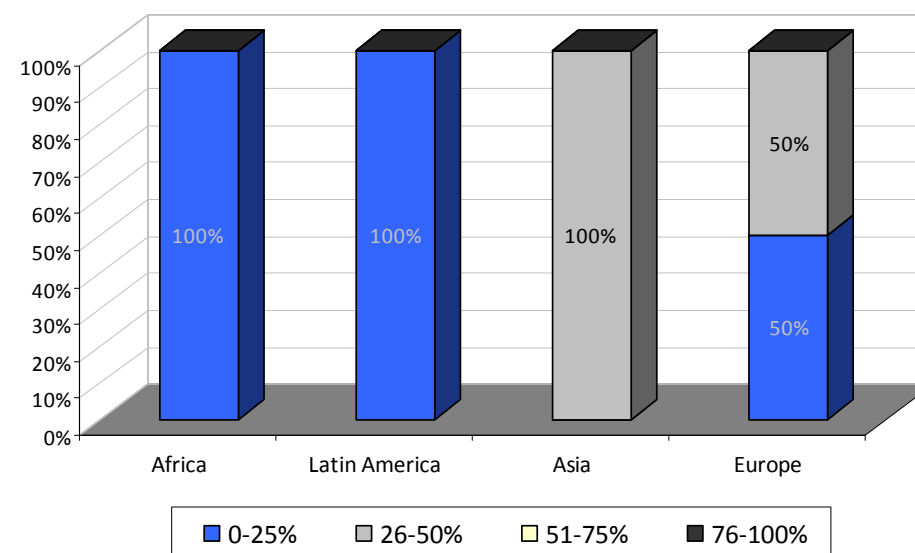
In **Europe**, between 0% and 25% of the population of **4 cities** and between 26% and 50% of the population of another **4 cities** have university studies. We must mention the high percentage in the cities of **Barcelona and Malmö**, with **37% and 40% respectively**.

In the case of Asia, **33% of the population of Taipei** have university studies.

% of population with university qualifications in cities



% of population with university qualifications in cities by regions



## Presence of a University in the City

The importance of Universities in the creation of a given city model is a relative factor based on many variables, such as the population, economic dynamics, historical evolution, socio-cultural aspects, cultural heritage...

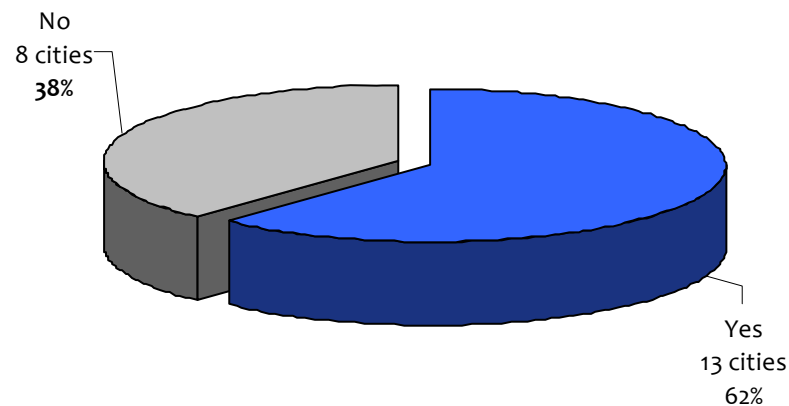
Consulted on the presence of Universities, of the 21 cities (3 in Africa, 6 in Latin America, 1 in Asia and 11 in Europe) that responded to the question, 63% of them stated that Universities have a strong presence.

Regarding the analysis of the information by region, we can highlight the case of Europe, where universities are present in 73% (11 cities) of the cities.

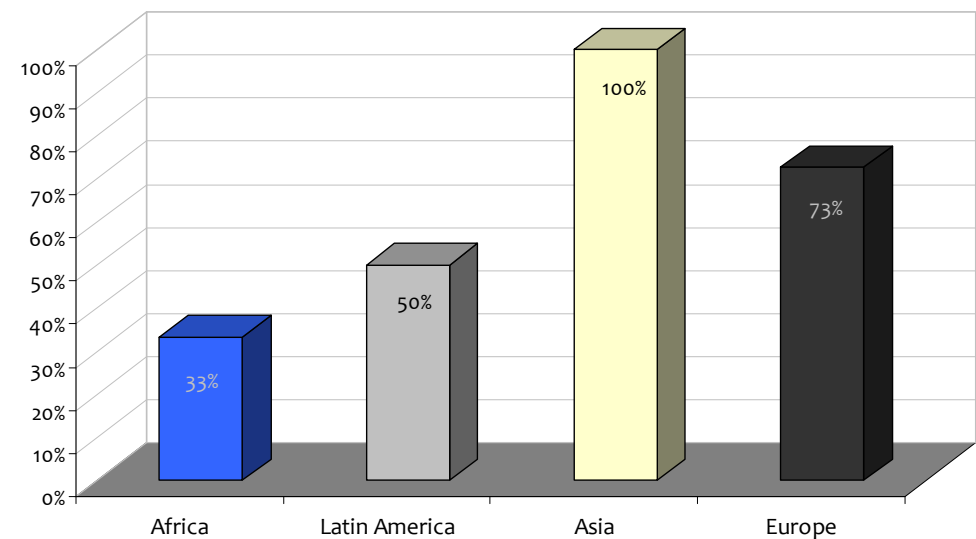
On the other hand, in Africa and Latin America, 33% (1 city) and 50% (3 cities) respectively, have a strong presence of universities.

In the case of the Asia, the university is also a key element of Taipei City.

Do Universities have a major presence in the city?



% of cities in which the University have a strong presence by region





## Priority and specialization areas regarding education

Below, we have included the priority and specialisation areas regarding the education offered by some cities.

<b>Helsinki</b>	There are 12 universities and polytechnics in the Helsinki Region, with 58 196 students, providing a wide range of studies in different fields.
<b>Bilbao</b>	Bilbao has set itself the goal of becoming a university city, based on three major areas. A technology campus in Basurto with the Mining and Engineering Collage; an administrative campus will be implemented in another part of the city (Sarriko) with a Faculty of Law; and the one hundred-year-old University of Deusto is creating the Deusto Business School".
<b>Havre</b>	Social sciences and business management.
<b>Barcelona</b>	The city has 12 Catalanian universities and 3 of the best European business schools (top25): IESE, ESADE, EADA

<b>Guatemala</b>	Independent University: 11 Collages. Private Universities: 5 Collages.  There is also a specialised offer, especially regarding business studies.
<b>Mexico City</b>	The Federal District has a significant number of public universities, such as the National Autonomous University of Mexico, the National Polytechnic Institute, the Metropolitan Autonomous University, or the Autonomous University of Mexico City as well as several private universities. Therefore, the educational offer is varied and there is no priority area given the wide range of degrees and engineering courses offered.



3. Smart Indicators  
3.2 Smart People  
Education and training

<b>Bissau</b>	Law, Medicine, Economics and Communication.
<b>Colima</b>	Administrative Studies, Medicine, Law, Political Science, Engineering and Architecture.
<b>Vila Gesell</b>	Related to tourist services.
<b>Limoges</b>	National School of Decorative Arts and European Ceramics Centre.

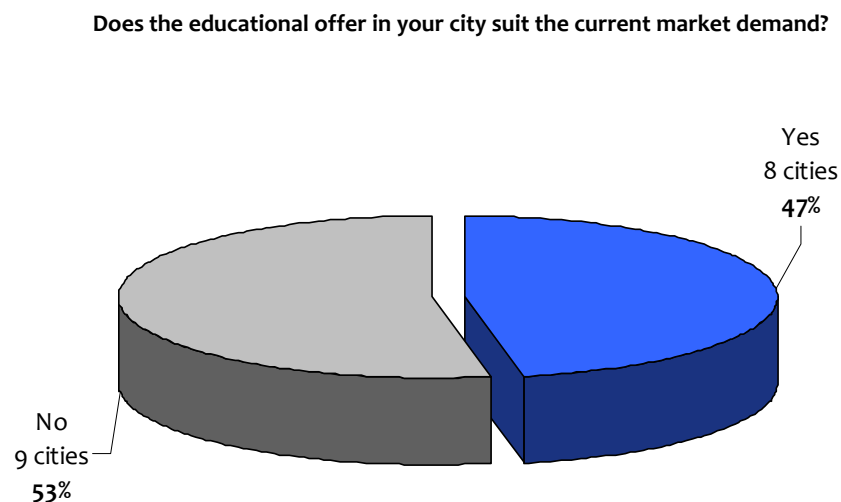
<b>Bordeaux</b>	The University has specialised centre of excellence in different subjects.
<b>Taipei</b>	<p>Academia Industry Cooperation – Training Diverse Human Resources for the industry:</p> <p>While the educational programs in Taiwan are under the direct guidance of the central government body, the Taipei City Government is working under the guidance of Ministry of Education promoting the plan for the "Training Diverse Human Resources for the Industry." Through close interaction between academia and industry, and using the "learning on the job and working at study" approach, the plan intends to close the gap between academia and industry. The plan is well received among industry, schools and parents.</p>



## Adaptation of the educational offer to the current labour market demand

Given the changes that society is going through due to globalization, the advance of new information and communication technologies, etc, constant adjustments are being made in the labour market that make it necessary to adapt the provision of professional training to the said adjustments.

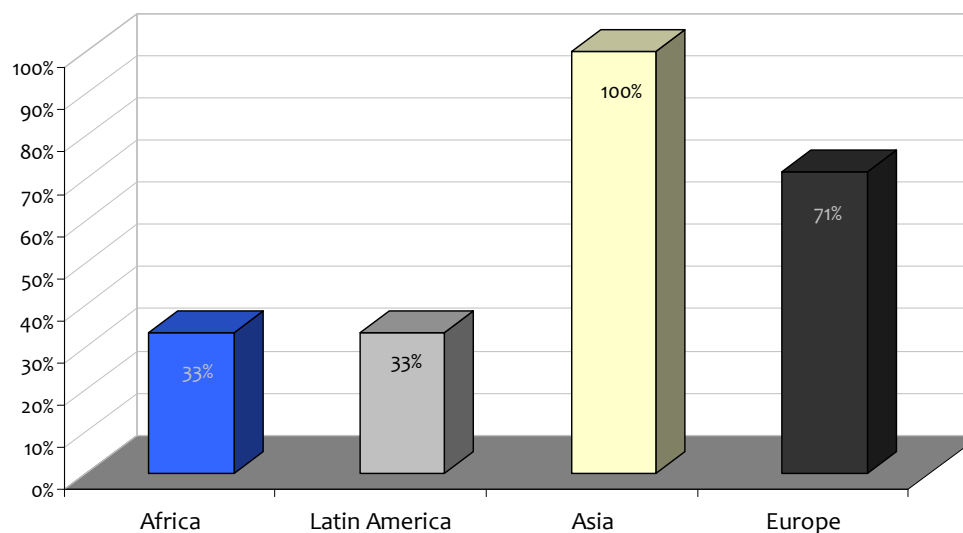
Consulted on whether they consider the courses offered by the different educational institutions (University, Vocational Training Centres, technological and investigation centres, etc.) in their cities adequate with respect to the demands of the current labour market, of the **17 cities** (3 in Africa, 6 in Latin America, 1 in Asia and 7 in Europe) that responded to the question, note that **only 47% of them felt that the educational offer in their cities suited the demand of the current labour markets.**



Analysing the information by region, only **33%** of the cities in Africa and Latin America considered that the educational offer was adequate.

These data contrast with the case of **Europe**, where **71%** of the cities considered that the educational offer was suited to the needs of today's market. The same can be said for Asia, in the case of **Taipei City**.

**% of cities that consider the educational offer in their cities adapts to the current market demand by region**

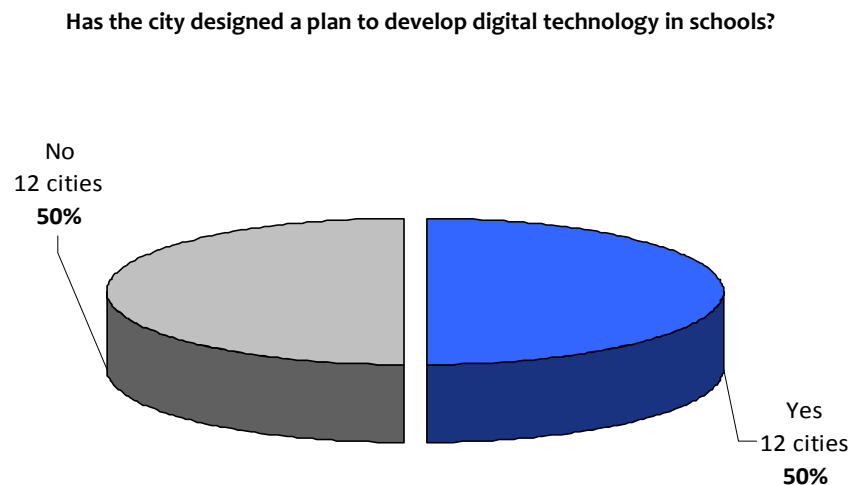


## E-Learning

### Plans for digital development in classrooms.

New technologies are evolving at breakneck speed; therefore, it is important to design digital development plans in the classrooms that focus mainly on closing the digital divide - equipping educational centres with the necessary infrastructure-, promoting digital skills among teachers -specialised training to promote the use of ICT in the teaching/learning process - and boosting the incorporation of the new generation of digital learning resources -such as Educational Computer Models, educational software catalogues, video games, etc. -

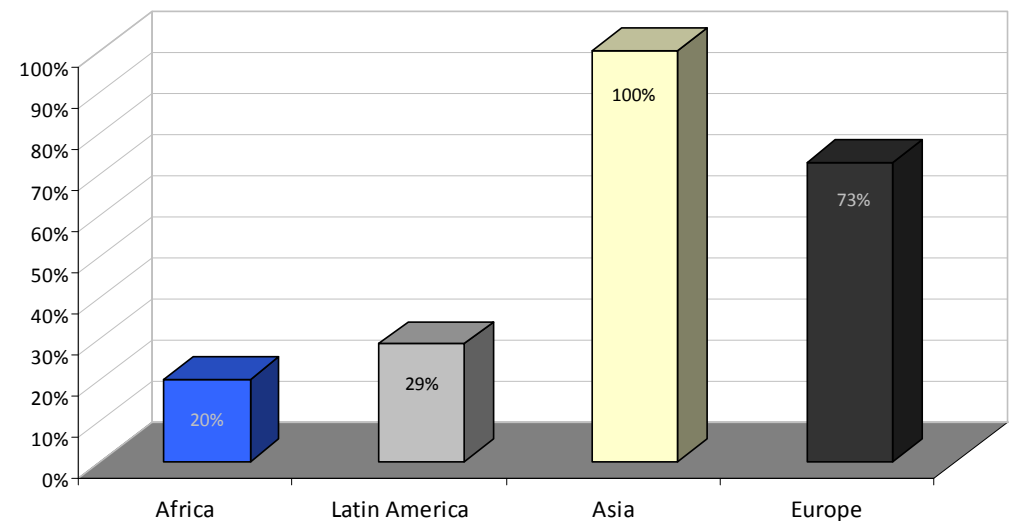
Of the 24 cities (5 in Africa, 7 in Latin America, 1 in Asia and 11 in Europe) that answered this question, 50% have designed a plan to develop digital resources in city schools.



When analysing the information by regions, we can mention the case of Europe, where 73% of the cities have developed some type of plan. This figure contrasts with the regions of Africa and Latin America, where 20% and 29% of cities, respectively, have developed some sort of plan to promote new information and communication technologies in schools. In the case of Asia, the Taipei City also has a plan.

***Below are some digital development plans implemented by schools in some cities.***

% of cities that have designed a plan to develop digital technology in schools by regions



## Bilbao

### School Programme 2.0

The Basque Government's School Programme 2.0 is a radical leap in the introduction of new Information and Communication Technologies in the field of education. The inclusion of the Basque Country to this programme is reflected in the complete digitization of the third primary education cycle, in training teachers to use open-source software and new methods and in the preparation of multimedia content.

<http://www.eskola20.euskadi.net/>

## Taipei

An e-Future Classroom has been established and equipped with modern innovative technology, offers a team-work adventure, experience learning and online community learning. The students' computers are connected to the touch screen, where they are able to look up information online, prepare reports and complete homework for the teacher to review. In the future, installation of web cameras may further transform the classroom into a facility for video conferencing or for distance learning among schools in different areas, and even cross-border exchanges.

<http://yearbook.taipei.gov.tw/fp.asp?fpage=cp&xltem=29433977&ctNode=54085&mp=100095>



Taipei e-Campus Learning City Expo 2011



## Mexico City

### Comprehensive School Connectivity Programme (PICE) 2008-2012

The goal is to ensure that all public school students in basic education can use available modern tools to process information and telecommunications, expanding their capabilities to achieve higher levels of academic performance and higher levels of competitiveness.

The Digital Classroom Programme seeks to provide connectivity to enable public school students in basic educational programmes and educational centres of different types to access Internet on an individual basis. With this programme, 1,150,000 students have been able to use 2,240 digital classrooms with computers and internet connections.



Digital Classroom at the Daytime High School in the F.D.

## Limoges

### Digital Schools Plan

Main objectives:

- Fibre-optic infrastructure for secure shared Internet access.
- Mobile classrooms and interactive whiteboards in all schools.
- Digital workspaces with video conferencing, digital textbooks, messaging and other services.

<http://www.ville-limoges.fr/index.php/fr/jeunesse-education/education-1er-degre/education-a-limoges>

## Bordeaux

The city of Bordeaux has launched a **comprehensive e-Learning plan**. One of its main objectives is the installation of interactive whiteboards in each classroom in compulsory education schools in the city.

[http://www.bordeaux.fr/ebx/portals/ebx.portal?\\_nfpb=true&\\_pageLabel=pgPresStand8&classofcontent=presentationStandard&id=49506](http://www.bordeaux.fr/ebx/portals/ebx.portal?_nfpb=true&_pageLabel=pgPresStand8&classofcontent=presentationStandard&id=49506)



## Penetration of ICT use in education.

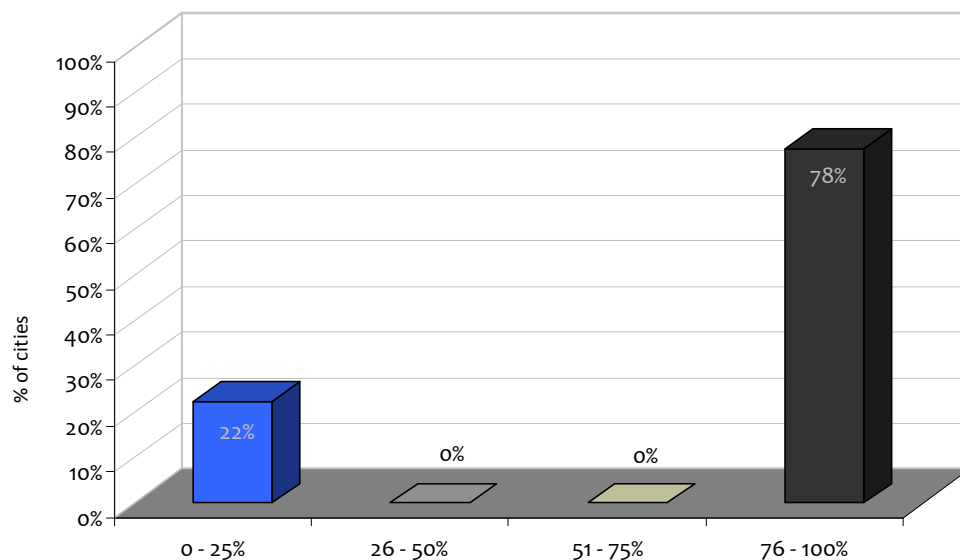
Regarding the level of penetration of the use of new technologies in education, of the **18 cities** (3 in Africa, 4 in Latin America, 1 in Asia and 10 in Europe) considered, **4 cities** have between **0% and 25%** of their schools connected to the Internet. We must mention that, among the remaining **14 cities**, the percentage of schools connected to Internet ranges from **76% to 100%**.

Regarding the analysis of the information by regions, in the case of **Africa**, **2 cities** (Bissau and Nioro du Rip) have between **0% and 25%** and **1 city** (The Moka Flacq District Council) has **95%** of their schools connected to the Internet.

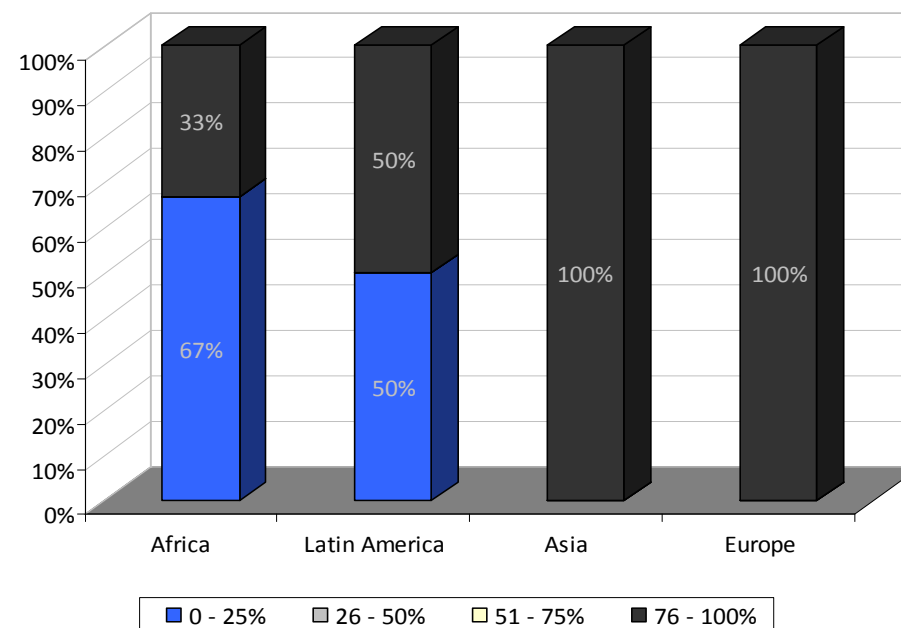
In **Latin America**, the data are varied, **since half** of the cities (IMDEC Region and Patacamaya) have between **0% and 25%** of their schools connected and the other **2 cities** (Vila Gesell and Mexico City ) have **between 76% and 100%**.

In the case of the **10 cities in Europe** (Helsinki, Barcelona, Bilbao, Lisbon, Katowice, Malmö, Limoges, Le Havre and Bordeaux), as in the case of the **Asian city of Taipei**, **100%** of schools are connected to the Internet.

% of educational centres connected to internet



% of educational centres connected to internet by region



On the other hand, when asked about the percentage of teachers using new technologies for educational purposes, of the 13 cities (3 in Africa, 4 in Latin America, 1 in Asia and 5 in Europe) that answered the question, in 6 cities between 0% and 25% of teachers used ICT, in 4 cities between 51% and 75% used ICT and in 3 cities between 76% and 100% used ICT.

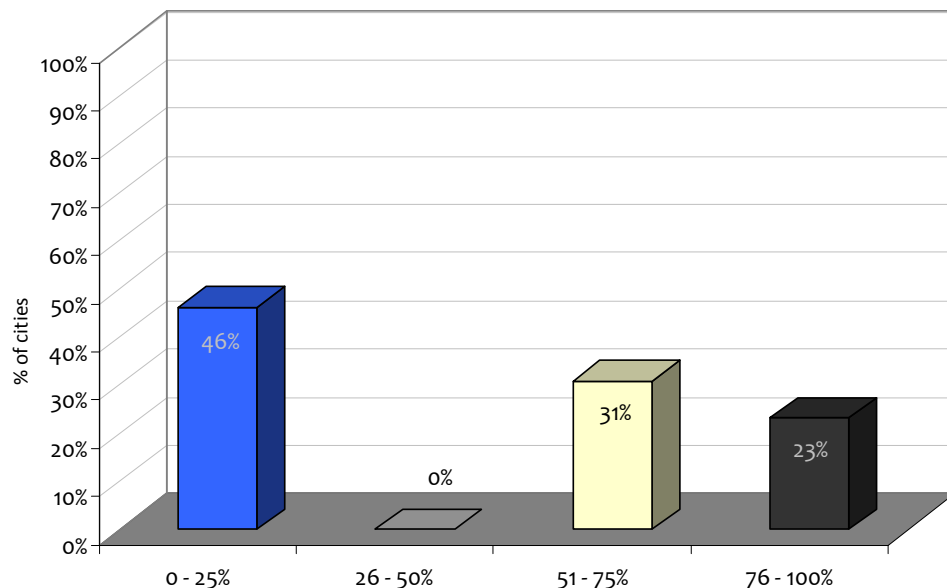
As for the analysis of information at regional level, the 3 cities in Africa (Niore du Rip, Bissau and The Moka Flacq District Council) presented percentages for ICT use for educational purposes between 0% and 25%.

A similar situation occurs in the region of Latin America, where 3 cities (Patacamaya, Region IMDEC and Guatemala) present percentages of teachers using ICT between 0% and 25% and in only 1 city (Vila Gessell ) that percentage increases to 60%.

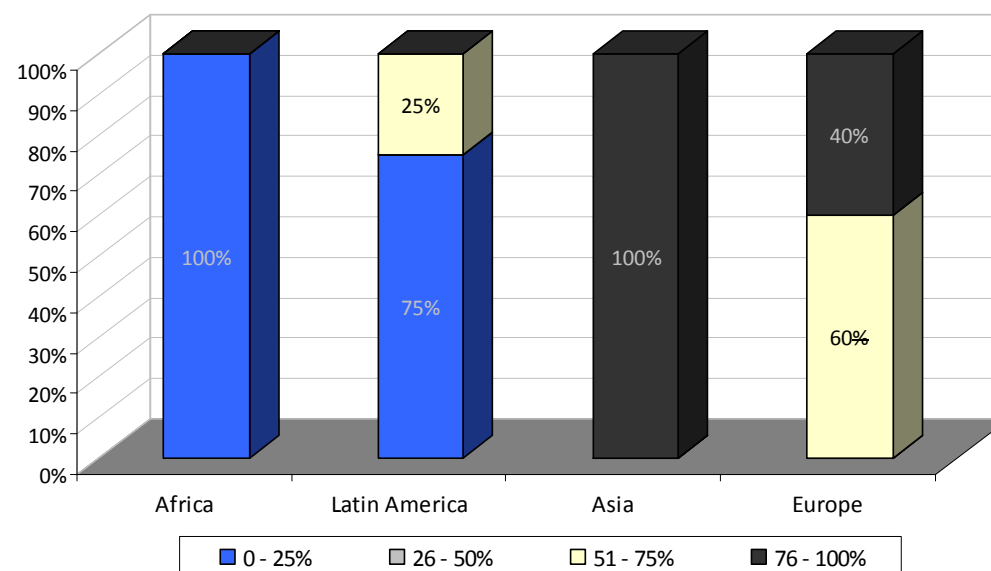
In Europe, the percentage of teachers using new technologies for educational purposes in 3 cities (Bilbao, Bordeaux and Barcelona) ranges from 51% to 75%, and in 2 cities (Malmö and Le Havre) the percentage increases to 80% and 100% respectively.

In the case of Taipei, 100% of teachers use ICT for teaching

% of teachers using ICT for educational purposes



% of teachers using ICT for educational purposes by region

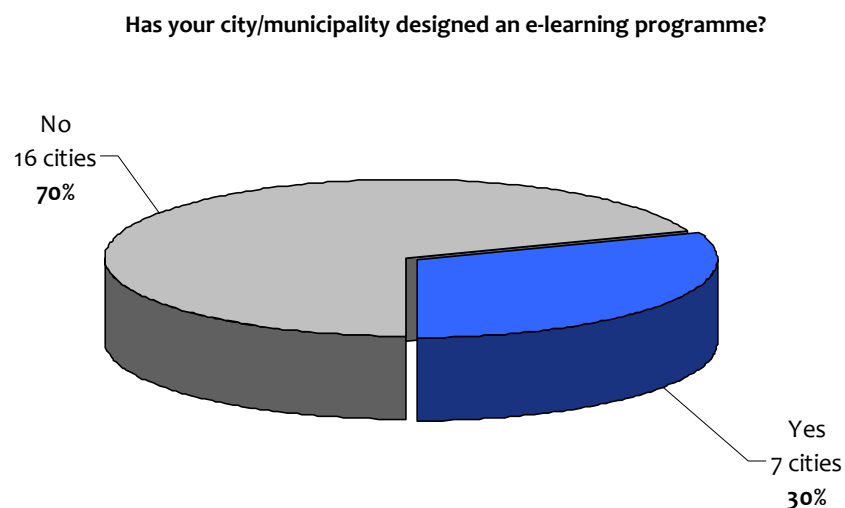


## Implementation of e-learning programmes.

New technologies contribute to improving people's skills, whether for work or for their personal lives.

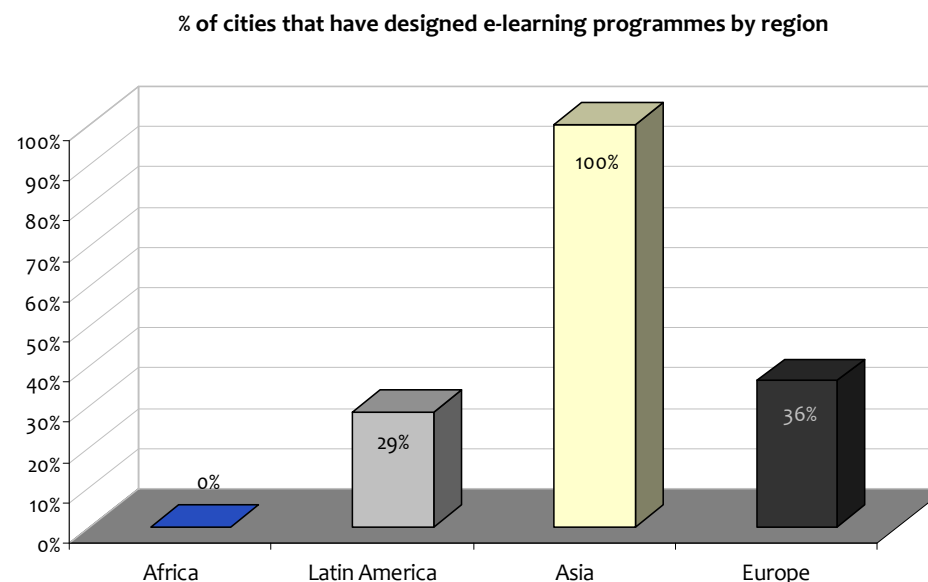
Virtual education offers a number of benefits, such as lower costs, which makes it possible to offer courses to more people than traditional in-classroom courses, fewer seminars and required skills, flexibility regarding timetables, and the interaction these courses generate, arousing the interest of participants and helping people who are timid to take part in group work through discussion forums and other ways of participation.

Of the 23 cities (3 in Africa, 7 in Latin America, 1 in Asia and 11 in Europe) that responded to this question, only 30% have designed some type of e-learning programme.



As, to the analysis of the information by regions, none of the African cities that answered the question had implemented any type of e-learning programme. In Latin America, 29% (2 cities: Mexico City and the IMDEC region) had similar percentages. In the case of Europe, the percentage was slightly higher, at 36% (4 cities: Helsinki, Lappeenranta, Bilbao and Limoges). In Asia, Taipei City has implemented e-learning programmes.

*Below are some of the e-learning programmes implemented by the cities.*



## Mexico City

### Mexico City's Digital Baccalaureate (B@DI)

Mexico City has launched its "Mexico City Digital Baccalaureate (B@DI) as part of its distance-learning Baccalaureate programme. This programme enables students to take their Baccalaureate on-line for free, with the assistance and advice of specialists.

<http://www.ead.df.gob.mx/portal/>



## Bilbao

### Distance Vocational Training Centre

Bilbao has launched a distance Vocational Training centre. There are also centres that offer e-learning courses.

## Taipei

### Taipei City e-Campus Digital Learning Network:

In order to offer diverse and flexible self-learning channels in the form of digital learning, the Taipei e-Campus has offered as many as 400 courses through recordings, self-productions, commissioned productions, purchasing online materials for its 190,000 plus members; a cumulative total of 15,080,000 hits received; over 570,000 persons were granted certification in 777 certificate classes, for 1,410,000 certification hours. A Topic learning Forum, set up for knowledge sharing and experience exchange, has more than 440,000 articles for access.

<https://elearning.taipei.gov.tw/>



## Limoges

Through ENT (Digital Space for Work), students who are absent or hospitalized can attend classes through video conferencing and "remote" access to digital textbooks via the Internet. There is also a digital school at the CBRU (Maternity Hospital).

[http://ecole.ville-limoges.fr/index.php/blog/default/showPage?blog=edito&page=le\\_portail\\_des\\_coles](http://ecole.ville-limoges.fr/index.php/blog/default/showPage?blog=edito&page=le_portail_des_coles)



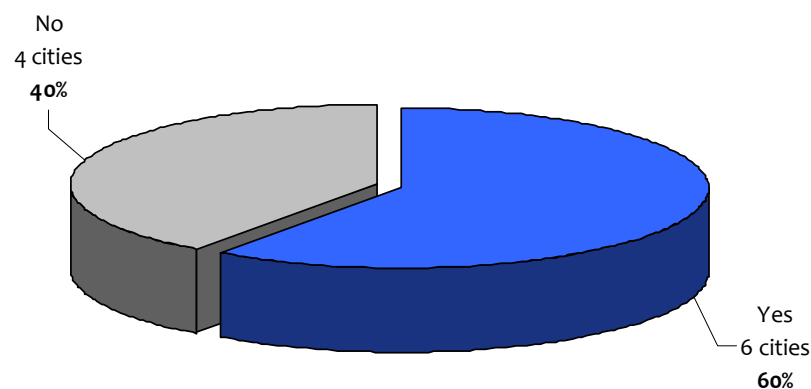
## Life-long training

Life-long education is becoming an increasingly important element in the new labour market and in redefining the relations based on the skills required for a global economy.

In that sense, of the 10 cities (2 in Africa, 2 in Latin America, 1 in Asia and 5 in Europe) that answered the question, 60% of them have implemented measures to promote lifelong learning in their cities.

Regarding the analysis of the information by region, it is noteworthy that none of the 2 African cities that responded to the question has implemented any measure.

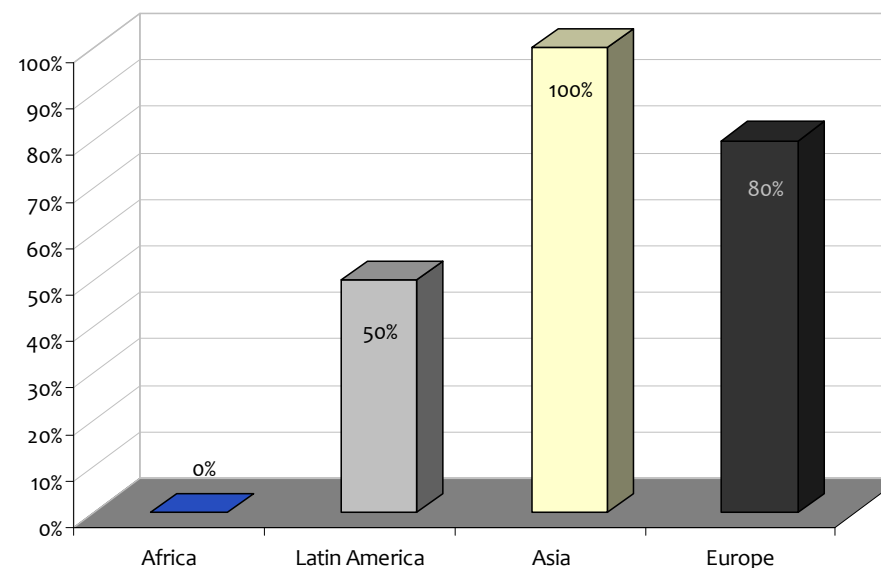
Has your city implemented measures to promote lifelong learning?



The percentage increases in the case of Latin America, a region in which 1 city (Guatemala) has implemented measures to promote lifelong learning. In the case of Europe, the percentage rises considerably, since 80% of the cities (Helsinki, Roeselare, Barcelona, and Malmö) have implemented some measure in this field. In the case of Asia, Taipei has also implemented measures to promote lifelong learning.

**Below are some of the initiatives implemented by the cities to promote lifelong learning.**

% of cities that have implemented measures to promote lifelong learning by regions



## Helsinki

There are opportunities for long-life learning in the schools, adult education centres, polytechnics and vocational education institutes.

## Barcelona

### Cibernàrium Programme:

Among the actions designed by the municipality to encourage lifelong learning, we can highlight the Cibernàrium.

Cibernàrium is the training and technology outreach programme of Barcelona Activa - Barcelona City Council. It features over 180 training courses for professionals and businesses, together with internet introduction activities for all citizens.

Cibernàrium is the meeting point in Barcelona for people interested in training in technological tools, acquiring skills needed in the knowledge society and who want to keep up to date on information technology and communication (ICT) developments. <http://www.cibernarium.cat>



## Taipei

1. Active Aging Learning Resource Center, Taipei City: Since 2008, Taipei has been establishing Active Aging Learning Resource Centers in various districts. In 2010, a total of 1,858 opened courses and seminars were held. A total of 45,840 elderly people participated.
2. Promoting Adult Education and Encouraging Job Training: 30 primary schools held an “adult basic education Workshop” to recruit people and new immigrants who had left school early
3. Seniors Lifelong Education: Based on principles of localized community education, the elderly can get to the nearest access learning resources.



## Roeselare

Program stimulating long life learning for special target groups with less chances on the educational market. Nationwide measures: hours spent on education are compensated, half the tutoring money is refunded.

## Human Capital

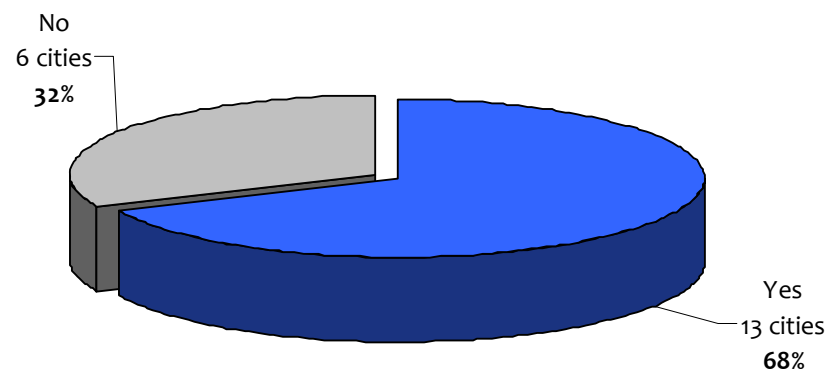
### Collaboration between companies and knowledge centres

Universities and Research Centres play a key role in the innovation ecosystem. They are not only a source for creating new business ventures, but are also responsible for developing leaders who can link universities to companies, generating knowledge for the latter, and serving as a meeting place between centre of knowledge, students and the business world.

Therefore, it is important that cities seek to foster collaboration between companies and knowledge centres, so as to contribute to their economic and social development.

Of the 19 cities (3 from Africa, 6 from Latin America, 1 from Asia and 9 in Europe) that answered the question, 68% have taken steps to support collaboration between companies and knowledge centres.

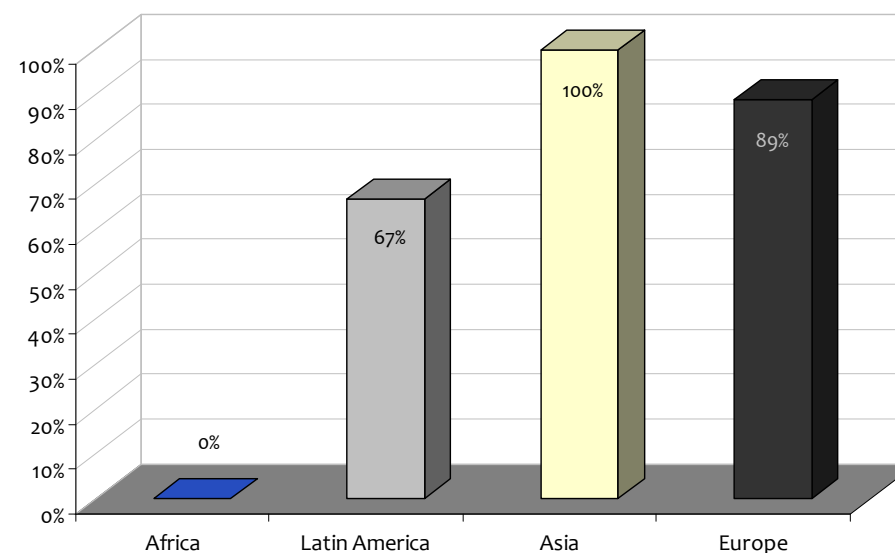
Has your city taken any actions to promote collaboration between businesses and knowledge centres?



Regarding the analysis of the information at regional level, in the case of Africa, none of the three cities has developed any type of action. In the case of Latin America, 67% of cities (Mexico City, Patatamaya, Colima and IMDEC Region) have implemented some type of action. In Europe, this percentage increases to 89% of the cities involved (Helsinki, Lappeenranta, Barcelona, Bilbao, Katowice, Bordeaux, Le Havre and Malmö). In the case of Asia, the city of Taipei has also taken steps to support collaboration between companies and knowledge centres.

*Below are some experiences developed by cities.*

% of cities that have taken steps to promote collaboration between business and knowledge centres by region



## Bilbao

### Euskampus - Campus of International Excellence.

Strategic alliance between the University of the Basque Country (UPV), the Tecnalia technological centre and the Donostia International Physics Centre (DIPC). The Euskampus project aims to make the Basque country an international benchmark in its three areas of expertise, based on its attractive range of undergraduate and postgraduate teaching, for the generation and transfer of knowledge, technological innovation and sustainable development.

Therefore, internationalization is one of the keystones in this project. Within this context, as a key success factor, we must emphasize the importance of the creation of Trans-frontier Campus with the University of Bordeaux, within the context of the European Atlantic Axis.

<http://euskampus.ehu.es>



## Taipei

### Academia-Industry Cooperation Center in Neihu Technology Park:

the Center in Neihu Technology Park is trying to build a knowledge-intensive, innovative, and international cooperation center by using and extending the present energy in National Taiwan University of Science and Technology. Also, this cooperation center is eager to assist in counseling talent cultivation, academia-industry cooperation, skills transferring, and innovative incubation by following the vision of policy implementation of Taipei City Government and overall kinetic energy of Neihu Technology Park.

[http://hitech.taipei.gov.tw/cgi-bin/SM\\_theme?page=4aa4ae6b](http://hitech.taipei.gov.tw/cgi-bin/SM_theme?page=4aa4ae6b)



位置圖：



聯絡人：陳立人 先生

聯絡電話：02-27937008、02-27930269

傳真電話：02-87916685

## R&D&i

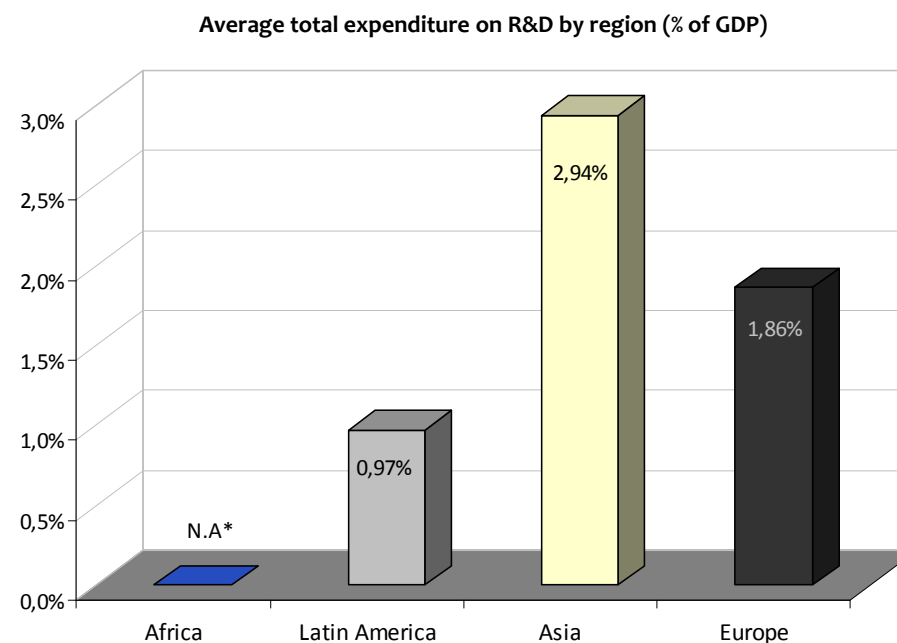
Public Administrations play a key role in transforming the innovation system through their capacity to develop infrastructure, support emerging sectors and encourage R&D&i.

Consulted on the percentage of GDP invested in promoting R&D in the cities, 6 cities (3 in Latin America, 2 in Europe and 1 in Asia) answered the question.

Although the number of cities that responded to the question was limited, we can consider that the mean percentage of expenditure on R&D in Cities is 1.59%.

Local Government:	Region	Total expenditure on R&D (% of GDP)
Mexico City	Latin America	0.41%
City of Guatemala	Latin America	1%
Municipality of Patacamaya	Latin America	1.50%
City of Barcelona	Europe	1.68%
City of Madrid	Europe	2.05%
City of Taipei	Asia	2.94%

Regarding the analysis of the data by region, there is no reference information for the region of Africa. In the case of Latin America, the average total expenditure on R&D is 0.97%. The percentage increases in the case of Europe and Asia with 1.86% and 2.94% on average, respectively.



\* Information not available



## 3.3 Smart Governance

---

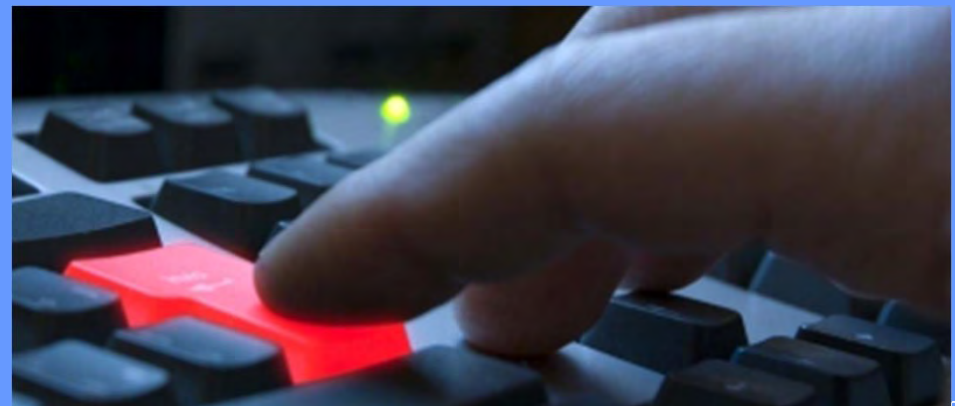
Smart Governance includes political and active participation, citizen services and the smart use of e-Government. In addition, it often relates to the use of new communication channels, such as e-government or "e-democracy".

New Technologies enable the introduction of a new relationship between Local Governments and citizens; in particular regarding the introduction of public on-line services and the use of New Technologies to improve the participation of citizens in public decision-making. In general, e-Government can be considered as a concept that consists in improving public governance and the provision of public services through the use of ICT (e-Government), improving the consultation and decision-making processes using ICT (e-democracy) and improving public policy making, with the use of ICT, incorporating more critical agents throughout the process (e-Government).

In all these aspects, the role played by citizens has a special impact. The new relationship emerging from e-Government has led to the emergence of a new kind of citizen, the e-citizen.

Smart governance is characterised by the following factors:

- Local Public spending on ICT.
- Website availability.
- Strategic plans to promote e-Government and ICT
- On-line public services.
  - ✓ Percentage of services available on-line.
  - ✓ Major on-line services offered by cities.
  - ✓ Administration staff that use Internet-connected computers.
- Electronic signature.
- Transparent governance.
- e-Democracy.
  - ✓ Citizen participation.
  - ✓ Electronic voting.
- Promoting ICT and Innovation

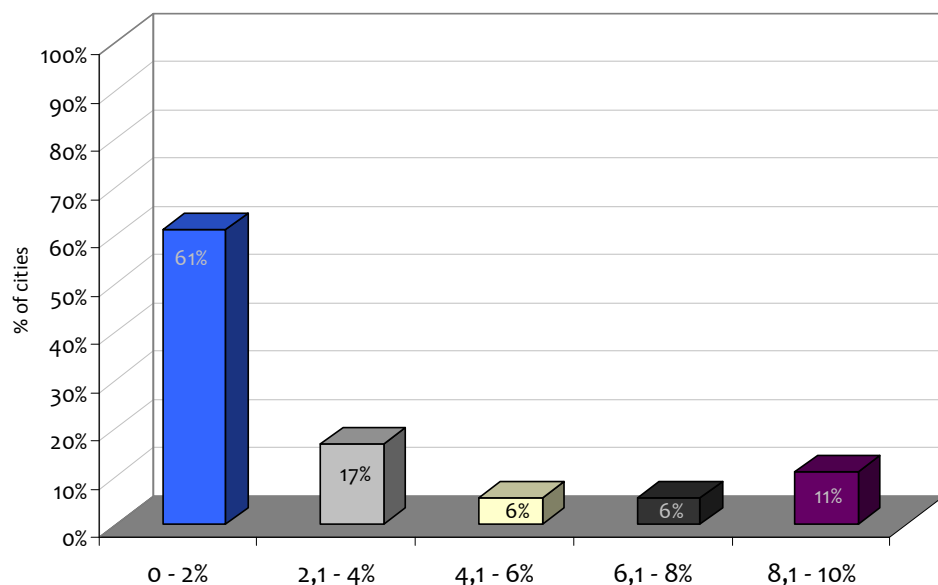


## Local Public spending on ICT

New technologies represent the first step in Innovation and Competitiveness; therefore, investment in ICT is an opportunity to enhance the development of a city through their influence in other sectors and their contribution to the efficient management of Public Administrations.

Consulted on the [percentage of ICT expenditure](#) on the total city budgets of the [18 cities](#) (2 from Africa, 6 from Latin America, 1 from Asia and 7 from Europe) that answered the question, [61%](#) of them [spend between 0 and 2%](#) of their total budgets, while the [average](#) rate of ICT expenditure over the total budget is 3%.

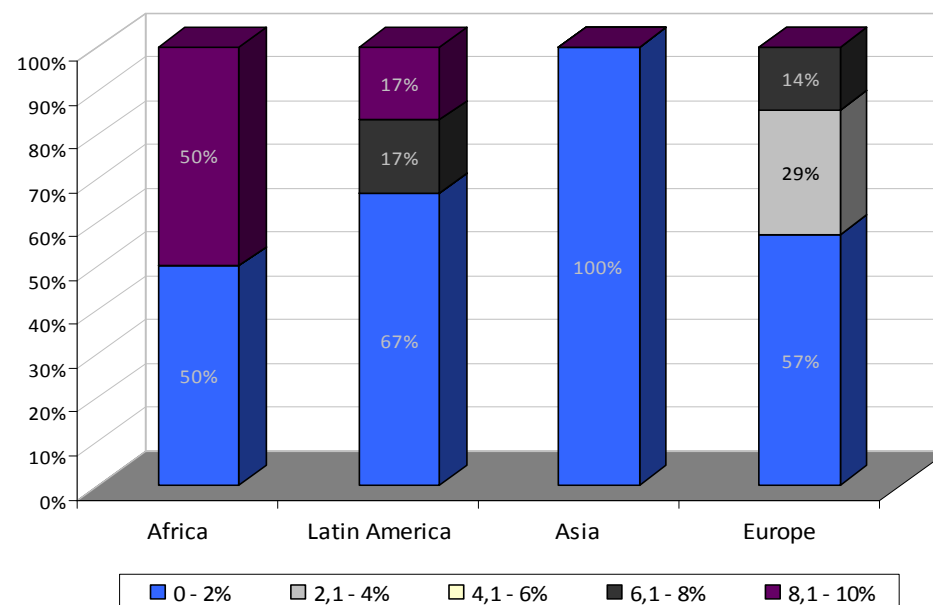
% of Public Administration expenditure on ICT in relation to the budget



Regarding the analysis of the information by region, it is noteworthy that the [cities that invest the largest percentage of their budget in ICT are in Africa and Latin America](#) (Mexico City and Bissau), as they dedicate between [8.1 and 10%](#) of their budget to ICT. However, unlike in Africa, in [Latin America](#) most cities, [67%](#) of them, [dedicate between 0% and 2%](#).

On the other hand, in the case of [Europe](#), as in Latin America, most of the cities ([57%](#)) [dedicate between 0 and 2%](#), [29%](#) of them dedicate between [2, 1% and 4%](#), and only [14%](#) dedicate between [6.1% and 8%](#). In the case of [Asia](#), the percentage of the budget spent on ICT in the city of Taipei is [1.1%](#).

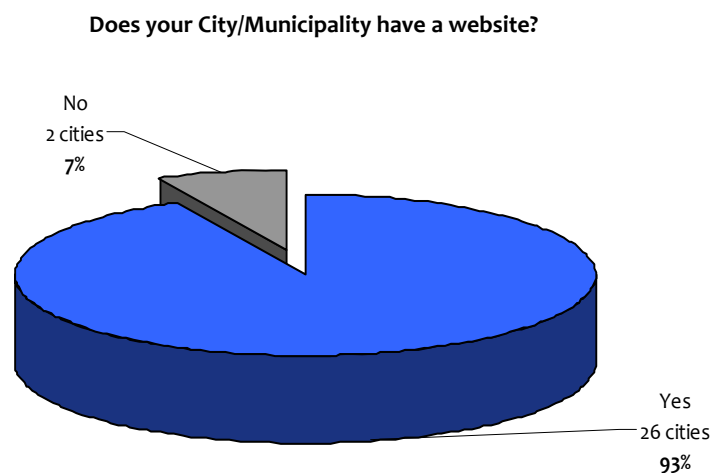
% of Public Administration expenditure on ICT in relation to the budget by region



## Website availability

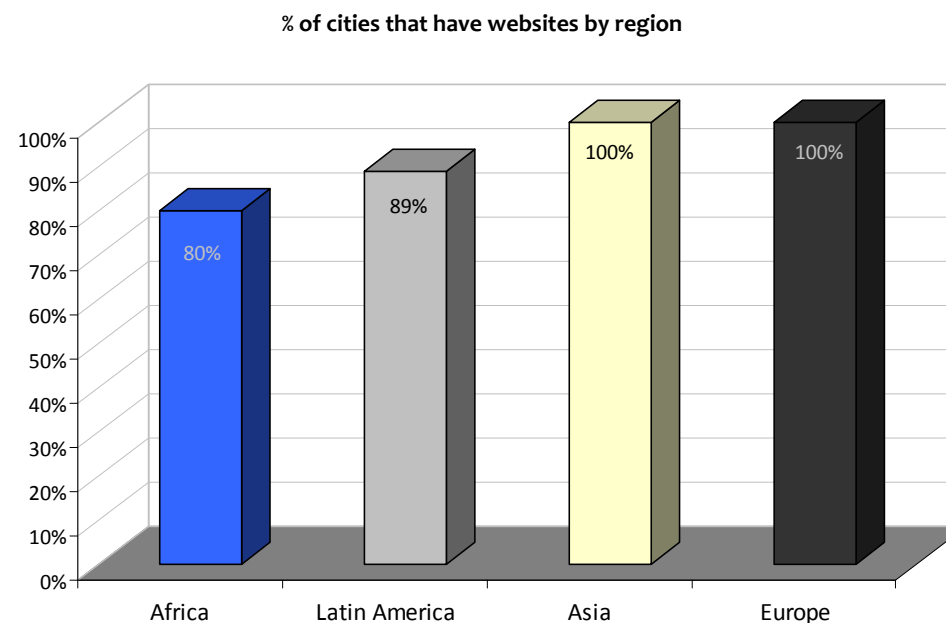
Internet has become one of the most important channels of communication for many people, so, like many organisations, cities face the challenges of Internet by incorporating new on-line marketing communication tools among their promotion strategies and using them to identify the needs and wishes of the different target groups and address them in the most effective manner.

Asked whether they had a website, it is noteworthy that of the 28 cities (5 in Africa, 9 in Latin America, 1 in Asia and 13 in Europe) only 7% had no website.



Regarding the analysis of the information by region, in the case of Africa, 80% of cities have websites. The percentage rises slightly to 89% in Latin America. In the case of Europe and Asia, 100% of cities have websites.

**Below are the addresses of the cities' websites.**



Africa	
Nioro du Rip	<a href="http://www.niorodurip.com">www.niorodurip.com</a>
eThekwini- Durban	<a href="http://www.durban.gov.za">www.durban.gov.za</a>
Ngaka Modiri Molema	<a href="http://www.nmmdm.gov.za">www.nmmdm.gov.za</a>
Moka Flacq District Council	<a href="http://www.mfdc.orange.mu">www.mfdc.orange.mu</a>

Latin America	
Charata	<a href="http://www.municipalidadcharata.gov.ar">www.municipalidadcharata.gov.ar</a>
Guatemala City	<a href="http://www.muniguate.com">www.muniguate.com</a>
Mexico City	<a href="http://www.df.gov.mx">www.df.gov.mx</a>
Agua de Oro	<a href="http://www.aguadeoro.gov.ar">www.aguadeoro.gov.ar</a>
La Costa	<a href="http://www.lacosta.gov.ar">www.lacosta.gov.ar</a>
Colima	<a href="http://www.colima.gob.mx">www.colima.gob.mx</a>
IMDEC Region	<a href="http://www.regionimdec.org.ar">www.regionimdec.org.ar</a>
Vila Gesell	<a href="http://www.gesell.gov.ar">www.gesell.gov.ar</a>

Asia	
Taipei	<a href="http://www.taipei.gov.tw">www.taipei.gov.tw</a>
Europe	
Madrid	<a href="http://www.madrid.es">www.madrid.es</a>
Helsinki	<a href="http://www.hel.fi">www.hel.fi</a>
Lappeenranta	<a href="http://www.lappeenranta.fi">www.lappeenranta.fi</a>
Roeselare	<a href="http://www.roeselare.be">www.roeselare.be</a>
Barcelona	<a href="http://www.bcn.cat">www.bcn.cat</a>
Bilbao	<a href="http://www.bilbao.net">www.bilbao.net</a>
Lisbon	<a href="http://www.cm-lisboa.pt">www.cm-lisboa.pt</a>
Provincial Council of Jaen.	<a href="http://www.promojaen.es">www.promojaen.es</a>
Katowice	<a href="http://www.katowice.eu">www.katowice.eu</a>
Bordeaux	<a href="http://www.bordeaux.fr">www.bordeaux.fr</a>
Malmö	<a href="http://www.malmo.se">www.malmo.se</a>
Vile Limoges	<a href="http://www.ville-limoges.fr">www.ville-limoges.fr</a>
Havre	<a href="http://www.lehavre.fr">www.lehavre.fr</a>

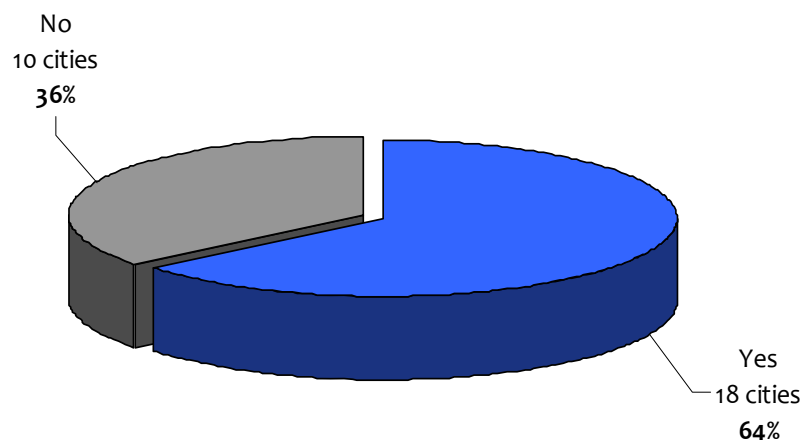
## Strategic plans to promote e-Government and ICT

One of the main commitments made by the Local Authorities at the II World Summit of Cities and Local Authorities on the Information Society was the development, in their territories, of Strategic Plans to promote the Information Society, also known as the "Local Digital Agenda".

In this sense, of the 28 cities (5 in Africa, 9 in Latin America, 1 in Asia and 13 in Europe), 68% have or have developed an action plan to promote the information society in their territory.

Regarding the analysis of the information by region, 20% of African cities (Durban) have developed a plan.

Does your city/municipality have an e-Government action plan in place?

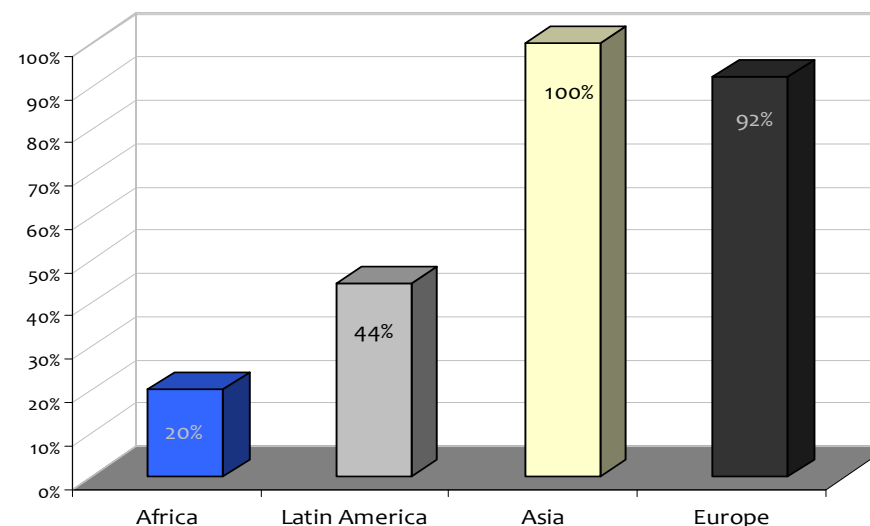


In the region of Latin America, 44% of cities (Charata, Mexico City, La Costa and IMDEC Region) have developed a plan to promote the Information Society in their territories.

In the case of Europe, the percentage increases significantly, as 92% of the cities (Madrid, Helsinki, Lappeenranta, Roeselare, Barcelona, Bilbao, Jaén, Katowice, Bordeaux, Malmö, Limoges and Le Havre) have plans. In the case of Asia, the Taipei City also has a plan.

**Below are some of the Plans for the Promotion of the Information Society, developed by cities.**

% of cities that have a Plan in place by region





## Madrid

The city of Madrid is implementing a [roadmap for the development of e-government](#).

It has also launched a [Plan for the implementation of the Law on the Electronic Access](#) of Citizens to Public Services and has carried out various plans to adapt to National Security Systems and Interoperability.

## Helsinki

The City of Helsinki is developing the [next generation of e-Services](#) that are interoperable with other data systems used by the city.

The aim is to promote productivity by replacing manual processes with electronic processes.  
<https://asiointi.hel.fi/eservices>

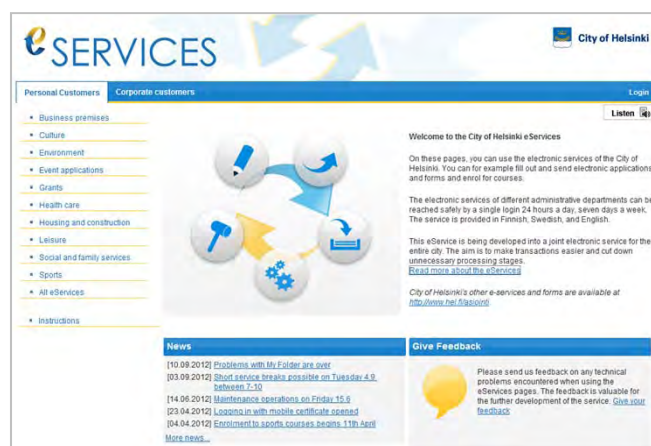
## Bilbao

## Agenda Digital Bilbao 2012

Bilbao is implementing its Bilbao Digital Agenda 2007-2012. This is a Strategic Plan which aims to promote the improvement of the human, economic and cultural level of Bilbao, both individually and collectively, thereby promoting and using resources provided by information and communication technologies and ensuring equal opportunities for all citizens to access them.

The Agenda consists of 40 lines of action / projects spread over 9 fields: Utilities, Public Space, Infrastructure and regulations, Groups, Promotion of the ICT sector, Dissemination, Strategic alliances, Cooperation and the Improvement of the internal management of the City.

[www.bilbao.net/agendadigital](http://www.bilbao.net/agendadigital)



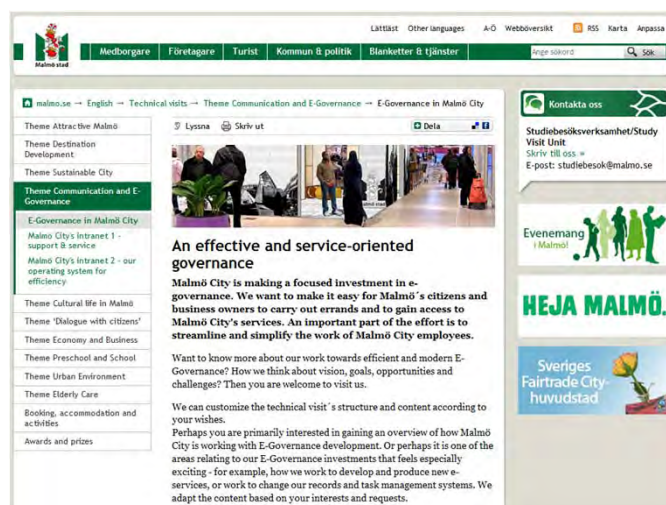
## Roeselare

The city of Roeselare is developing a plan to [maximize the number of on-line services](#) for citizens and to simplify procedures by reducing the number of times citizens must contact the administration in person.

## Malmö

The city of Malmö is working on an [e-Programme](#) from business and sustainability perspectives in different areas, for example, contact centre, e-File, e-Democracy.

<http://www.malmo.se/English/Technical-visits/Theme-Communication-and-E-Governance.html>



## Bordeaux

## Bordeaux, Cité Digitale

The city of Bordeaux is implementing a [plan for the development of on-line services](#) in order to facilitate access to administrative forms, information about life in the city and a platform for participation on city issues.

<http://www.bordeaux.fr/p64003/cite-digitale>



## Strategic plans to promote e-Government and ICT

## Taipei

Taipei City is developing a [Plan for the development of e-Government in the City](#).

The Plan includes the development of services such as: Citizen Hotline 1999, digital classroom and including various learning processes into Taipei's Education Portal; the 010 Automated Emergency System, video surveillance system and the 119 second-generation crime reporting system for people with speech or hearing problems.

<http://tcgwww.taipei.gov.tw/ct.asp?xItem=2943344&ctNode=54085&mp=100095>



## Mexico City

Mexico City's [General Development Programme 2007-2012](#) has included [e-Government](#) as one of the 7 fields that, in a sense, include ICTs, such as:

1. Political reforms: Full rights to the city and its inhabitants.
2. Equality.
3. Instant security and justice.
4. Competitive and inclusive economy.
5. Intense cultural movement.
6. Sustainable and long-term development.
7. New urban order: efficient services and quality of life for all.

In addition, the following programmes also exist:

- Citizen Innovation and Government Modernization Programme.
- Special Programme to Develop Information and Communications Technology.

[http://www.cgma.df.gob.mx/wb/cgma/programa\\_de\\_innovacion\\_ciudadana\\_y\\_modernizacion\\_g](http://www.cgma.df.gob.mx/wb/cgma/programa_de_innovacion_ciudadana_y_modernizacion_g)



## On-line public services

### Percentage of services available on-line

The introduction of new technologies in Public Administrations greatly improves the productivity and quality of the service offered to citizens and businesses, providing access to government services at any time and place in a more convenient, personalised, faster and less expensive manner.

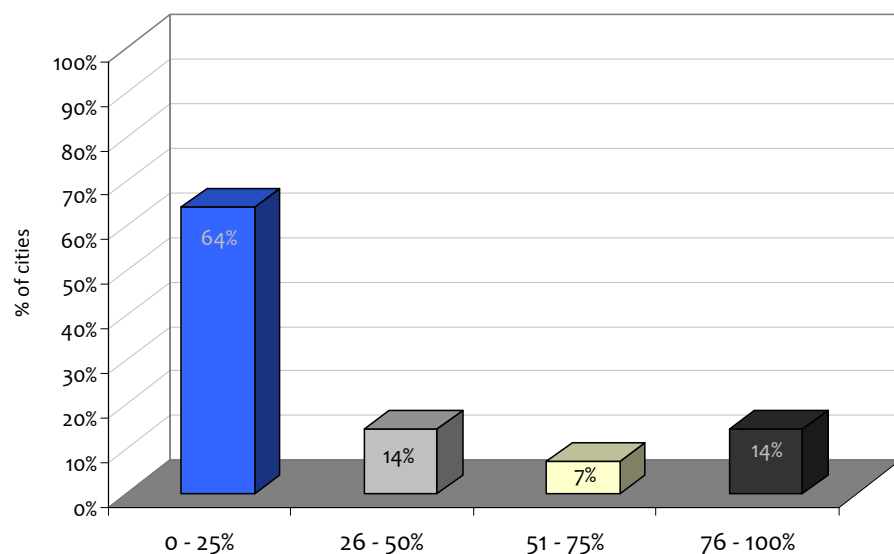
The implementation of e-Government is a priority for cities around the world. There is complete consensus that it is vital for social development and economic growth.

Thanks to services like e-Government, the intention is to provide a more efficient and higher quality services, save costs, reduce waiting times and improve the transparency of processes, both for citizens and businesses.

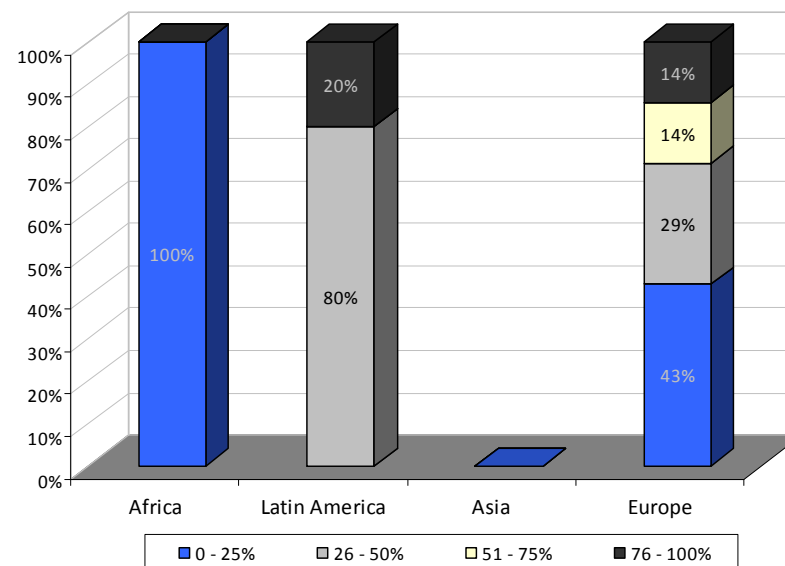
Asked about the percentage of available on-line services with respect to the total number of services offered, of the 14 cities (2 from Africa, 5 from Latin America and 7 in Europe) that answered the question, 64% of them stated between 0% and 25%. 14% of the cities had between 26% and 50% of their services on-line, and only 21% had more than 50%, the latter cities were: Bilbao (67%), Mexico City (80%) and Barcelona (100%).

Regarding the analysis of the information by region, in the case of Africa, 100% of the cities that responded to the question stated they had between 0% and 25% of their services on-line. The percentage increased in Latin America, where 80% of the cities stated they had between 26% and 50% and 20% between 76% and 100% of their services on-line. However, in the case of Europe, the casuistry is more variable. 43% of the cities offer between 0% and 25% of their services on-line and only 14% of them offer more than 76% of their services on-line. No information is available on Asia.

% of on-line public services compared to total available services



% of on-line public services compared to total available services by region



## Major on-line services offered by cities

With respect to the **major on-line services** offered by cities, the first place is taken by the **possibility of lodging complaints and claims**. This is a service offered by **68%** of the cities. It is followed by **requests for certificates and reports and making payments and debits with 57% and 50% respectively**. The least frequently offered on-line service is the possibility of applying for school vacancies.

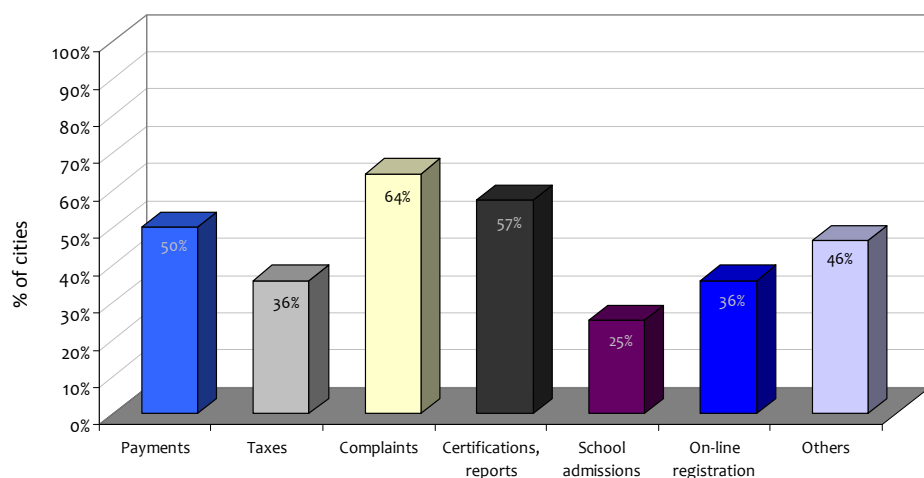
When analysed by regions, in **Africa**, the major on-line services offered by cities are applications for certificates and reports (60%); the possibility of making payments and debits (40%), the possibility of lodging complaints and claims (40%) and on-line registrations (40%).

In the case of **Latin America**, the on-line service offered by most cities is the possibility to lodge complaints and claims (67%).

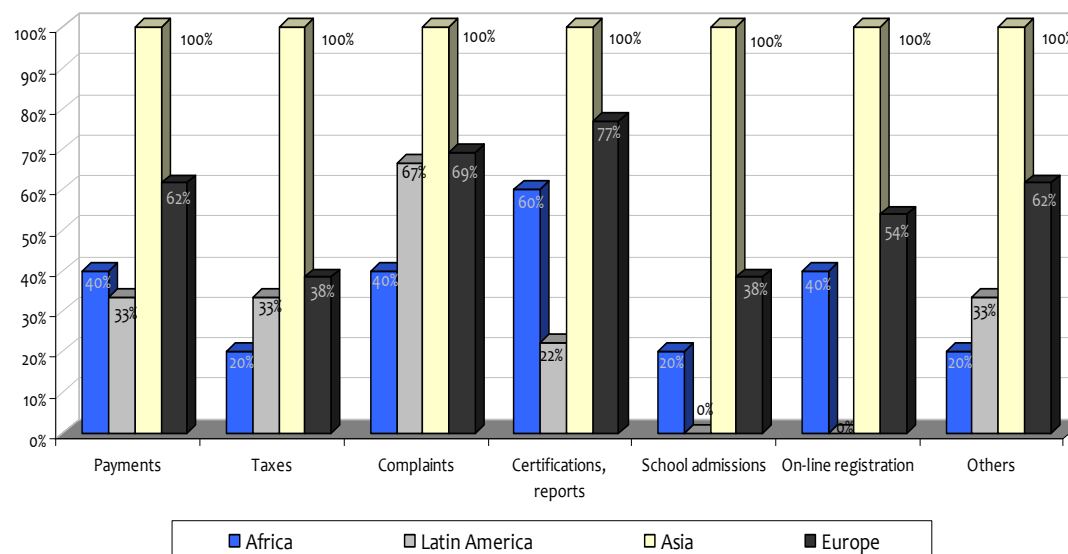
Meanwhile, in **Europe**, the on-line services most frequently offered by the cities are the possibility to request certificates and reports (77%); make complaints and claims (69%) and process on-line payments and debits (62%). In **Asia**, the number of on-line services offered by Taipei is very broad.

Cities also offer **other on-line services**, in addition to those mentioned, including: appointments with municipal services, building licenses, registration for City Council staff selection processes, renewal of parking cards for residents, renewal of library cards, on-line animal adoptions, among others.

Major on-line services offered by cities



% of cities with public on-line services by region

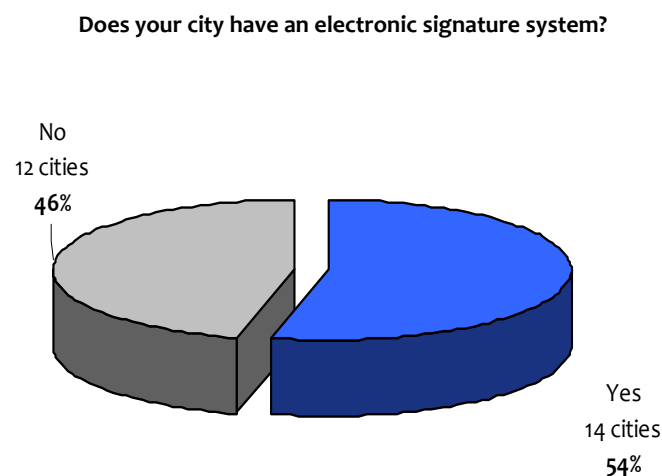




## Electronic signature

An electronic signature is legally equivalent to a handwritten signature, and operates using a digital certificate embedded in a chip. The electronic or digital certificate includes data that is used to identify the certificate holder, to exchange information with other persons and entities, in a secure manner, and to sign the data being sent electronically to verify its integrity and provenance.

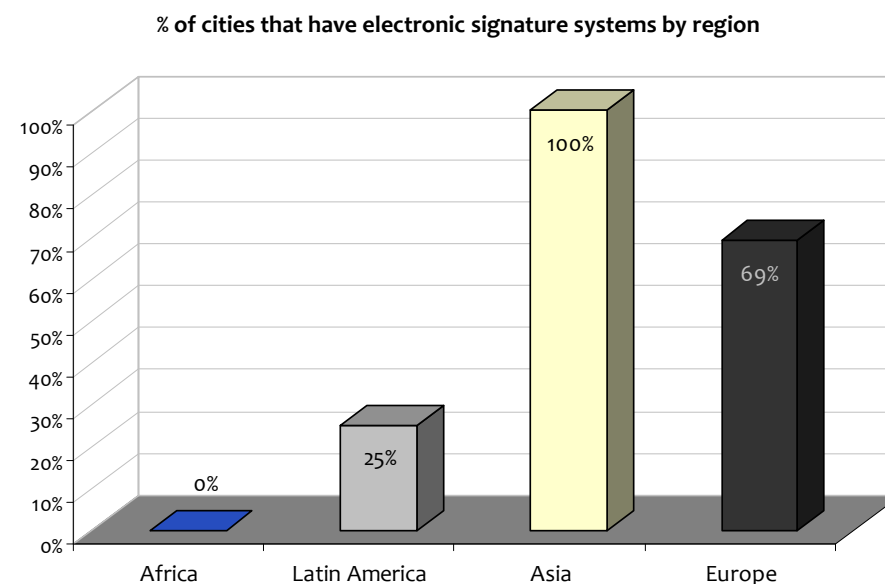
Of the 26 cities (4 in Africa, 8 in Latin America, 1 in Asia and 13 in Europe) taking part in the study and that answered the question, 54% of them have offer the use of electronic signatures when conducting municipal procedures.



Regarding the analysis of the information, in the case of Africa, none of the 4 cities that responded to the question have electronic signature systems in place. In the case of Latin America, the percentage increased slightly to 25% (Mexico City and Colima).

This contrasts with Europe, a region in which the use of electronic signatures is more widespread, and in which 69% of the cities (Madrid, Helsinki, Lappeenranta, Barcelona, Bilbao, Jaén, Katowice, Malmö and Limoges ) offer the possibility of using electronic signatures when conducting municipal procedures.

In Asia, the city of Taipei also has an electronic signature system.



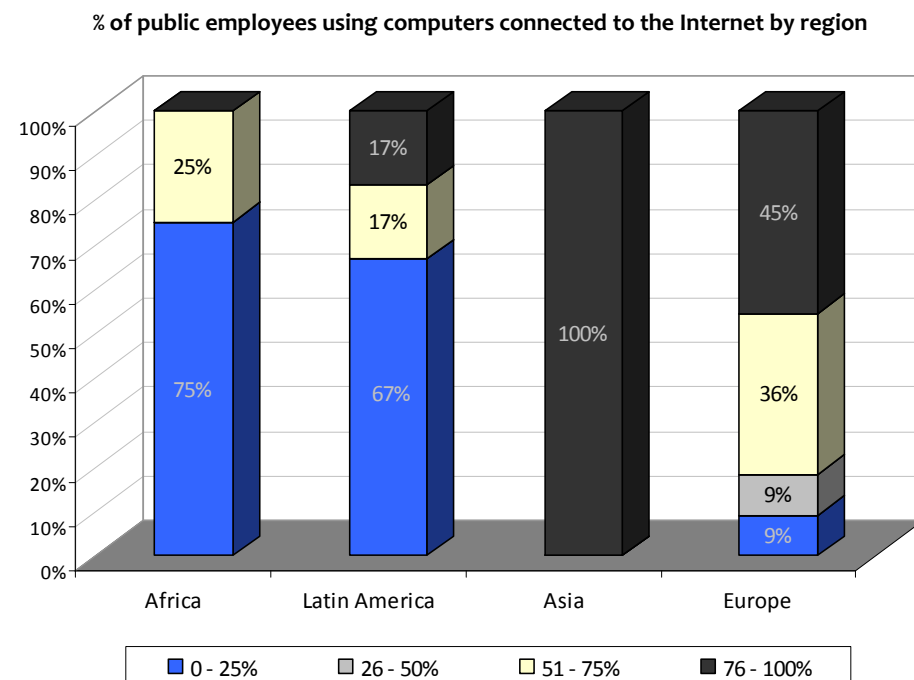
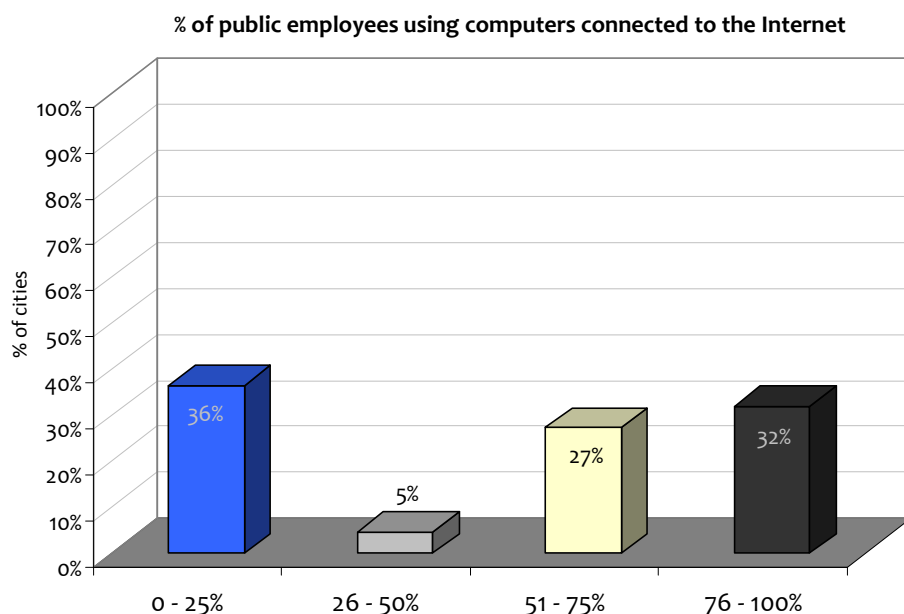
## Administration staff that use Internet-connected computers

Asked about the percentage of administration staff using computers connected to the Internet, of the 22 cities (4 in Africa, 6 in Latin America, 1 in Asia and 11 in Europe) that answered the question, between 0% and 25% of the administrative staff use internet-connected computers in 36% of the them. At the other end, we have 32% of cities where between 76% and 100% of their employees are connected to the internet.

Regarding the analysis of the information by region, in the case of Africa, the percentage of public employees connected to the Internet is quite limited, as in 75% of the cities the percentage of administrative personnel connected to internet is between 0% and 15%, and only in 25% of them does the percentage increase to between 51% and 75%.

In the case of Latin America, the situation is similar to that in Africa, as the percentage of administrative personnel using Internet-connected computers in 67% of the cities is between 0% and 25%. However, it is noteworthy that in 17% of them, the percentage rises considerably to between 76% and 100%.

In the case of Europe, the situation is completely different, because, in 49% of the cities, the percentage of administration staff using computers connected to Internet is between 76% and 100%, while in another 36% of them, the percentage is between 51% and 75%. Only 9% of the cities have percentages between 0% and 25%. In Asia, 100% of the administrative personnel in Taipei uses Internet-connected computers.

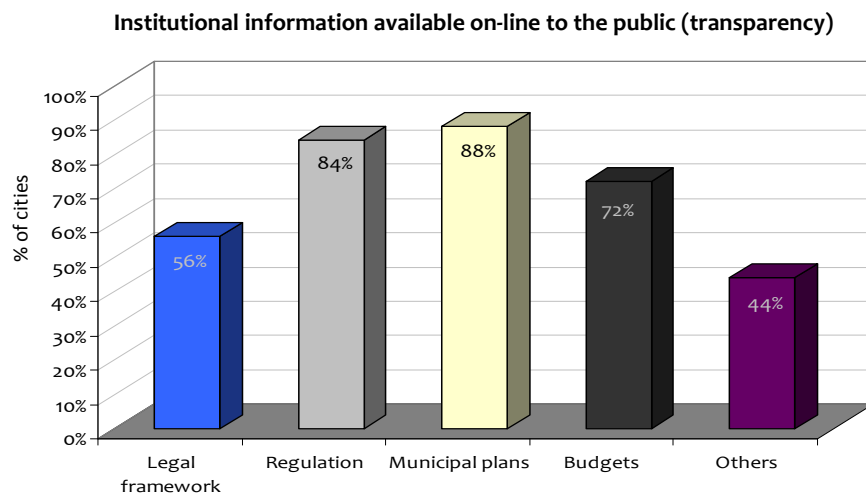


## Transparent Governance

New technologies can be used to enhance democratic processes and increase opportunities for individuals and communities to interact with the government. Internet leads to greater participation, as it overcomes the limitations imposed by geography, disabilities or other factors. It also facilitates access to information by individuals and groups that had not been included previously.

Asked about the institutional information available on-line for citizens, of the 25 cities (4 in Africa, 7 in Latin America, 1 in Asia and 13 in Europe) that responded to the question, the institutional information that was most widely posted on the cities' websites involve **municipal plans and regulations**, as this type of information was found in 88% and 84% of them respectively. In 72% of cities, **economic-financial information** on the cities and municipal accounts or budgets were also available.

Analysing the information at regional level, we find that the information most frequently posted by cities in **Africa** on their websites is related to **municipal budgets and accounts**, since 100% of cities that responded to this question post this type of information.

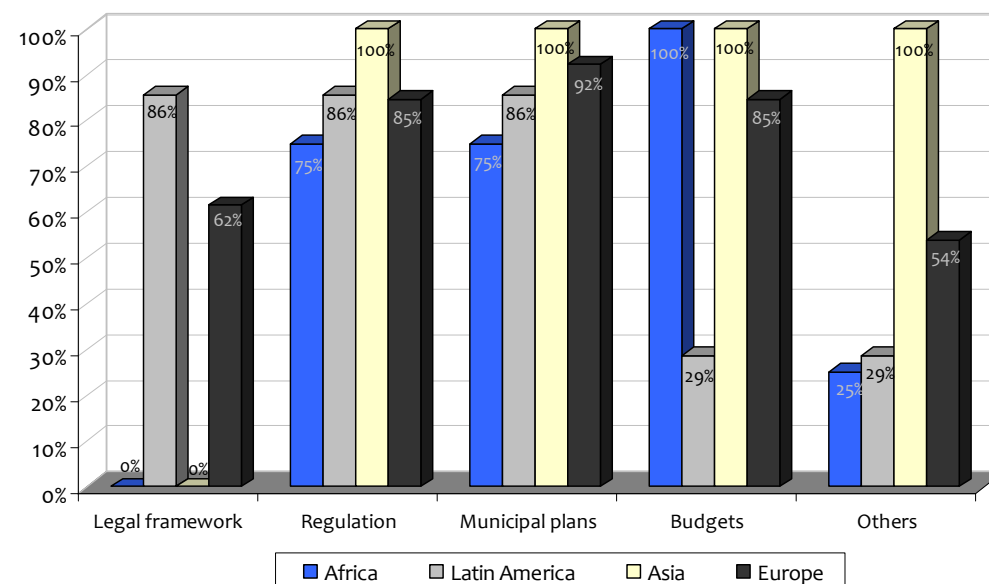


In the case of **Latin America**, the information most frequently published on city websites is related to **municipal laws, regulations and plans**, information that is available at 86% of them. This contrasts with the **economic information**, because only 29% of the cities publishes their budgets and municipal accounts.

In the case of Europe, 92% of cities provide information related to **municipal plans** on their websites and 85% of them also publishes **regulations and budgets**. In **Asia**, Taipei City offers a wide range of information on-line and published **municipal regulations, plans and budgets**, but does not publish information on laws.

The cities also publish **other information**, such as: Municipal corporation (composition, structure, contact details, etc.), news and announcements, subsidies and grants and service contracts, among others.

% of cities that provide institutional information on-line by region



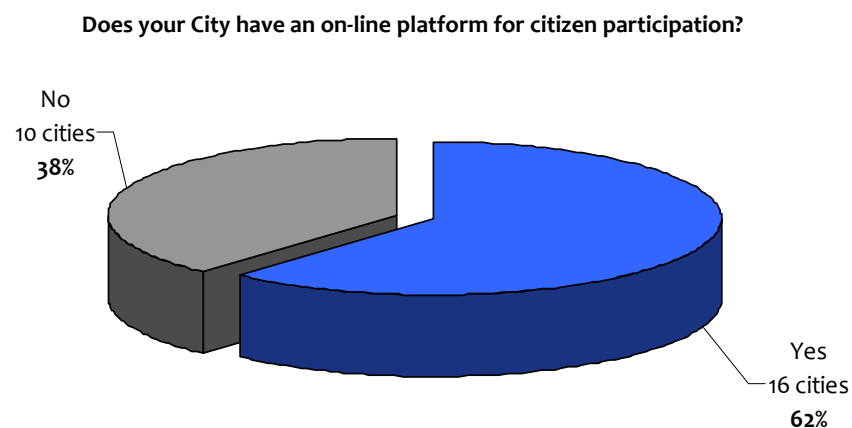
## e-Democracy

### Citizen participation

The so-called electronic democracy involves the use of ICT (computers, Internet and telecommunications) to improve politics and citizen participation in democratic communication and decision-making processes.

One of the key factors in the current municipal administration is the incorporation of participatory processes aimed at establishing a dialogue with the public. Public participation helps to:

- Increase the effectiveness of measures through the inclusion of citizens and social groups.
- Strengthen the involvement of citizens (commitment for the common good).
- Strengthen the democratic system (take into account as many views as possible when deciding).
- Strengthen general interests against individual interests.
- Obtain the support of citizens.

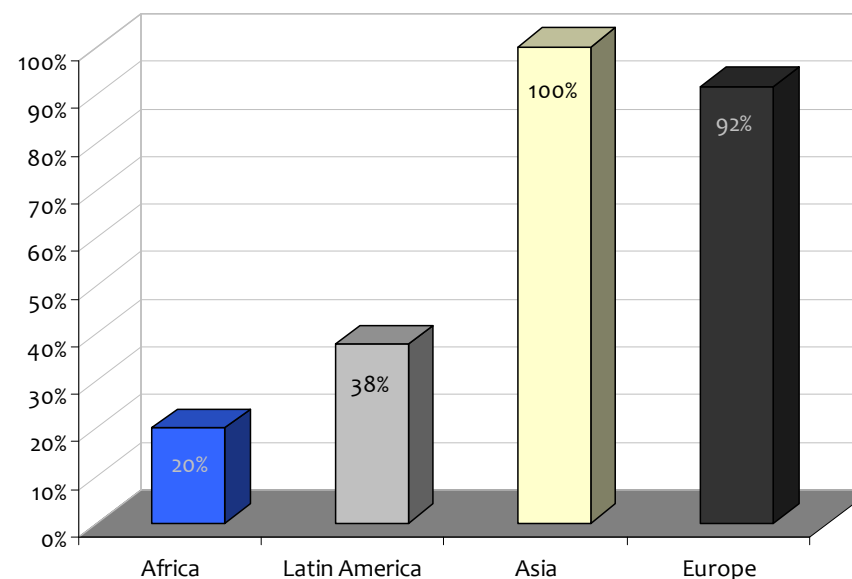


Of the **26 cities** (5 in Africa, 8 in Latin America, 1 in Asia and 9 in Europe) that answered the question, **62%** have developed some type of on-line platform to promote citizen participation.

Regarding the analysis of the information, there is a great **contrast between Asia and Europe with regard to Africa and Latin America**.

In the case of **Africa and Latin America**, only **20% and 38%** of cities, respectively, have developed some form of on-line engagement platform, while in the case of **Europe and Asia**, the percentage of cities that have developed a platform rises to **92% and 100%**, respectively.

**% of cities that have some type of citizen participation platform by region**



With regard to the type of major participation platforms used, in the first place we have **email** (88%) and the **use of chats and forums** (75%).

Other platforms that are also widely used by cities include **online surveys** (69%) and **social networks** (63%). In this last section, the **major social networks** used by cities are: Twitter, Youtube, Flickr, Facebook, RSS, Foursquare.

**31%** of the cities use, in addition to the previously mentioned platforms, **other on-line participation platforms** such as:

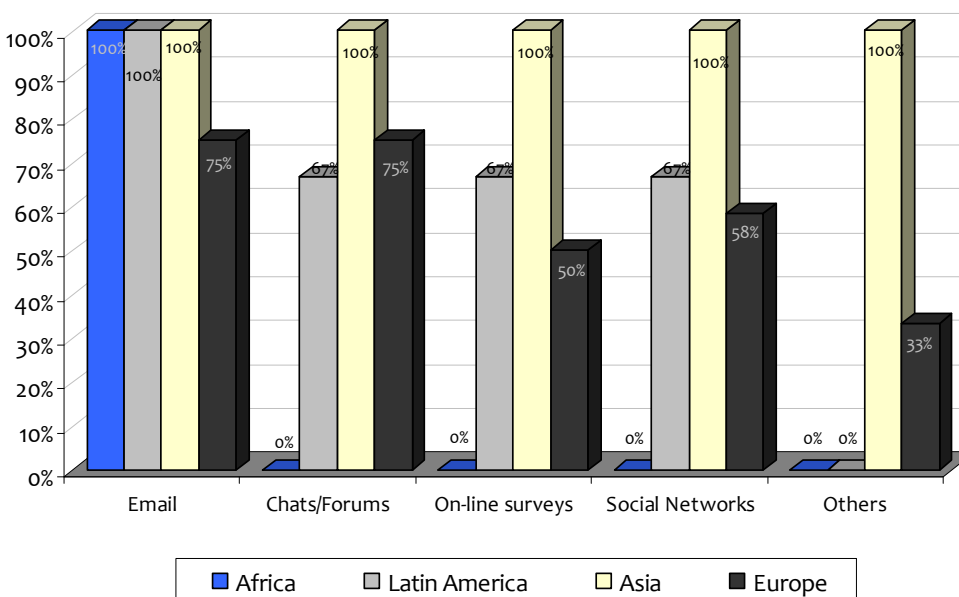
- Blogs.
- Citizen service hotline.

Regarding the use of major on-line platforms by region, the main platform used in **Africa** is **email** (100%).

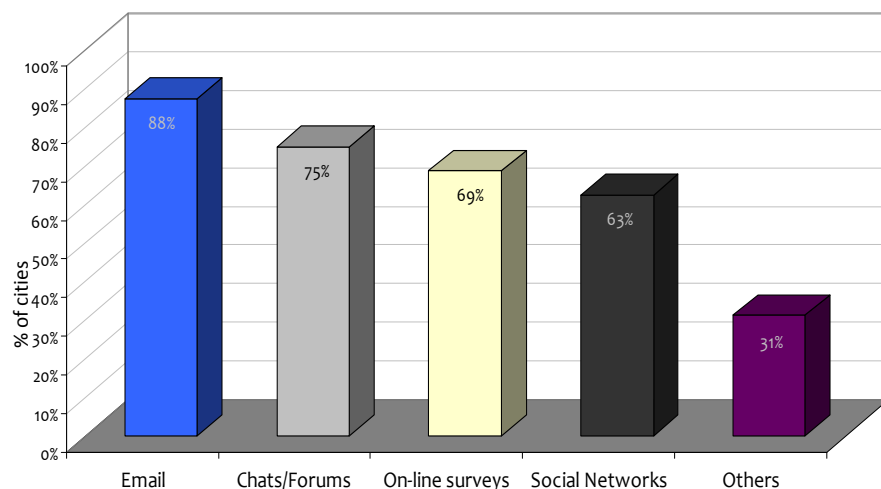
In the case of **Latin America**, cities primarily use **email** (100%), but there is also widespread use of **chats and forums** (67%), **on-line surveys** (67%) and **social networks** (67%).

**European** cities primarily use **email** (75%) as well as **chats and forums** (75%). The Asian city of **Taipei** has **all** the on-line platforms mentioned.

Major on-line participation platforms used by cities, by region



Major on-line participation platforms used by cities.





## Electronic voting

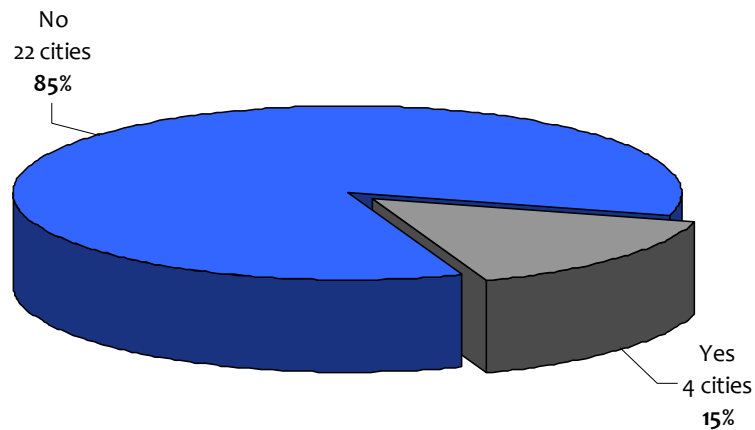
Electronic voting includes both electronic methods for casting votes and electronic vote counting systems. Therefore, it must feature all the advantages of legal security to be implemented, as it is considered that all the technological means to do so exist.

In that sense, the first advantage of electronic voting is that it is a cheaper, more efficient, secure and accurate system than traditional voting methods. It can be used in an intuitive way by all potential users, and for all types of votes or interactions (voting in elections, referendums, popular initiatives...).

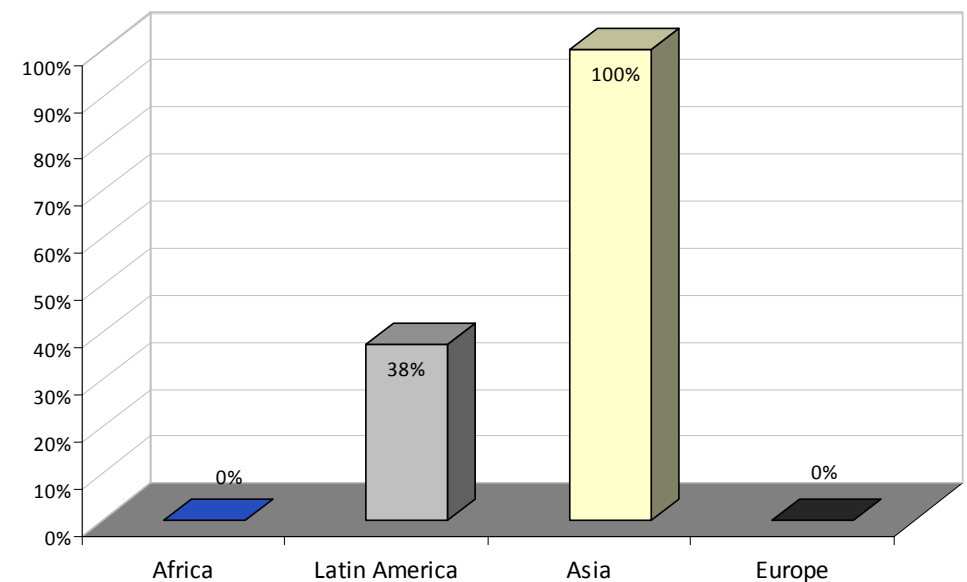
Asked about the availability of e-voting systems in their cities, it is noteworthy that of the 26 cities (5 in Africa, 8 in Latin America, 1 in Asia and 12 in Europe) that responded to the question, **only 15% have electronic voting systems in place.**

Regarding the analysis of the information by region, it is noteworthy that **only cities in Latin America and Asia have electronic voting systems in place.** In the case of Latin America, 38% of cities (Charata, Mexico City and Colima) have electronic voting systems. In Asia, the city of Taipei also offers this possibility.

Does your City have an electronic voting system in place?



% of cities that have electronic voting systems in place by region



## Promoting ICT and Innovation

Regarding the organisation of ICT and innovation awareness-raising or promotional events, of the **26 cities** (5 in Africa, 8 in Latin America, 1 in Asia and 12 in Europe) that answered the question, **46%** organise some kind of event.

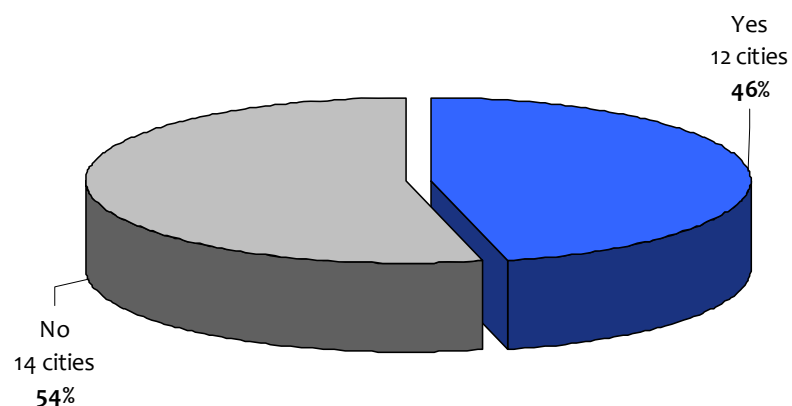
When studying the information by region, we can see that in the case of **Africa and Latin America** the percentage of cities that have organised some kind of event is low, at **20%** (Durban) and **25%** (Guatemala and Mexico City) respectively.

This percentage increases considerably in the case of **Europe**, a region where **83%** of the cities (Madrid, Helsinki, Lappeenranta, Barcelona, Bilbao, Lisbon, Katowice, Bordeaux, Le Havre and Malmö) organise ICT and innovation-related events. In **Asia**, the city of **Taipei also organises events**.

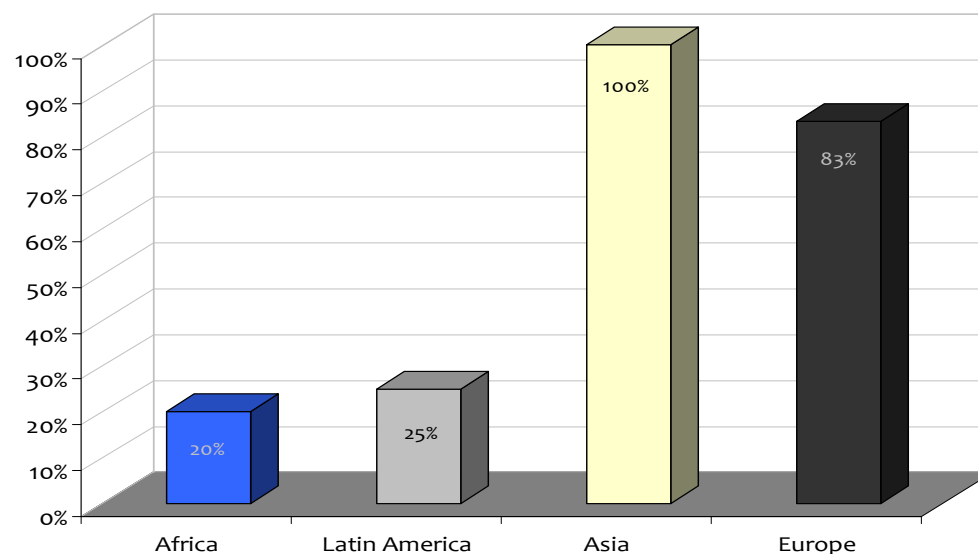
The **type of event** varies quite a lot. Most of the events organised by cities are aimed at bringing together **trend leaders, experts**, entrepreneurs, academics, institutions, the media and investors from the fields of innovation, technology and Internet to discuss the challenges and technological developments and how they affect cities.

Similarly, **events targeting citizens** are also organised to display the use of new technologies as well as available on-line services and how to use them.

Does your City Council/City organise ICT and innovation-related events?



% of cities that organise ICT and innovation-related events by region



## 3.4 Smart Mobility

**Smart Mobility** has to do with providing the public with access to new technologies, and the use of these in everyday urban life.

The infrastructure must provide the ability for all users to share and process any information instantly from anywhere.

Today, the transmission of vast amounts of information at high speed requires a large bandwidth. Broadband has become the cornerstone of the future development of the Internet and the Information Society.

Only with good broadband infrastructure can communications services be developed. These services are being put into operation at a very limited rate, but they will be widespread in the near future.

In recent years, interesting municipal initiatives have been introduced that, taking advantage of wireless technologies, Wi-fi, have established a public telecommunications network that even allows Internet access at a certain speed. The possibility of a free service could be considered "unfair competition"; which is one of the current topics being discussed.

Smart governance is characterised by the following factors:

- Connectivity and ICT infrastructure.
  - ✓ Penetration of ICT use in homes.
  - ✓ Internet usage.
  - ✓ Broadband coverage.
  - ✓ Broadband usage.
  - ✓ Mobile phone usage.
  - ✓ Mobile Internet usage penetration.
- Public Internet Access.
  - ✓ Wi-Fi hotspots in cities.
  - ✓ Public Internet access centres.
  - ✓ Promotion deals with ISPs.



## Connectivity and ICT infrastructure

## Connectivity and ICT infrastructure

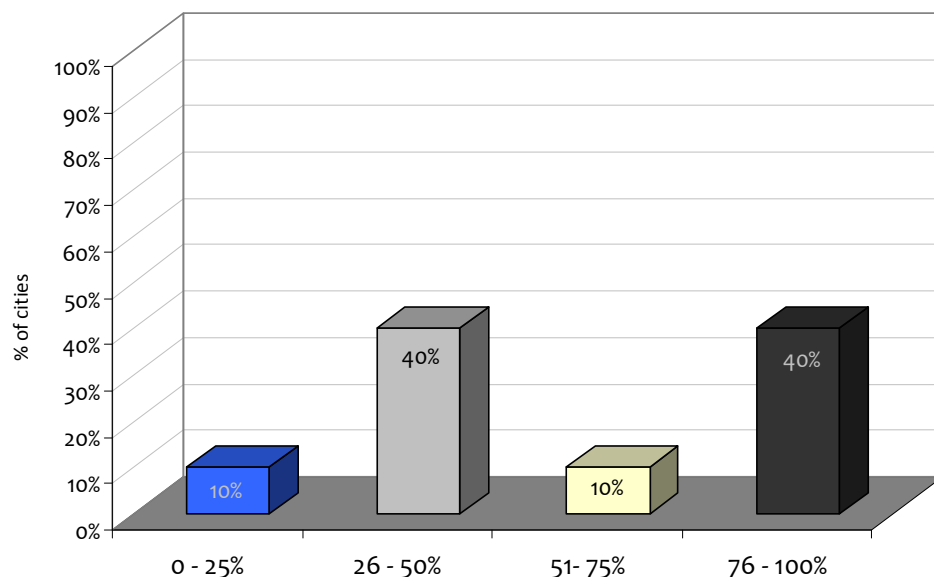
## Penetration of ICT use in homes.

New technologies have become an indispensable tool in our daily lives. More and more households have a personal computer.

Asked about the percentage of population that have personal computers, of the 20 cities (4 in Africa, 8 in Latin America, 1 in Asia and 7 in Europe) that answered the question, it is noteworthy that in 40% of them the rate of people who had personal computers was between 76% and 100%. Only 10% of the cities displayed percentages between 0% and 25%.

Regarding the analysis of information by region, Africa and Latin America are the regions with the lowest percentage of people who have personal computers.

% of residents who have personal computers.

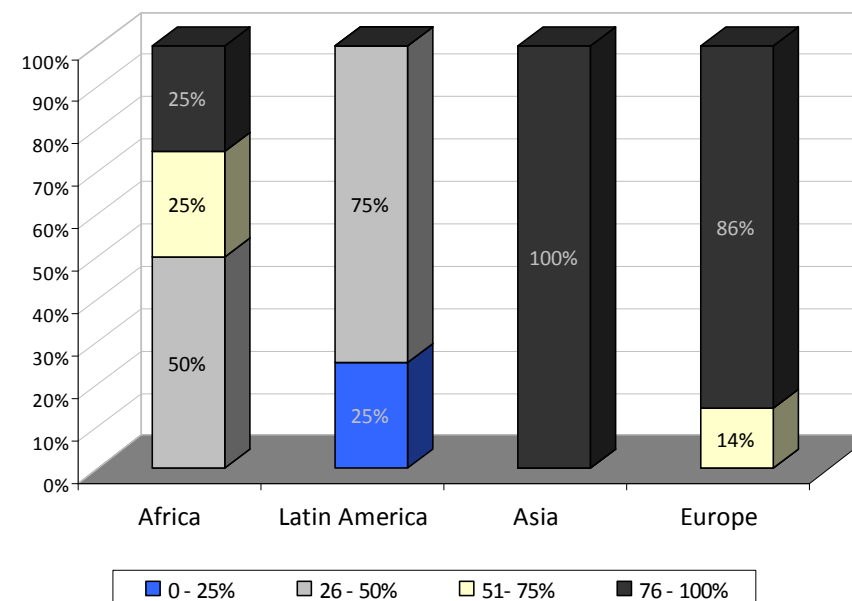


In the case of Africa, in 50% of the cities, the population that have computers stands between 26% and 50%; and in 25% of them, the percentage increases to between 76% and 100%. In the case of Latin America, in most cities (75%), the percentage is between 26% and 50%; however, in 25% of them the percentage falls to between 0% and 25%.

In the case of Europe, the percentage of the population that have personal computers is very high; in 86% of cities the percentage stands between 76% and 100%. Only in 14% of them, the percentage falls to between 51% and 75%.

In the case of Taipei City, 91% of the population has a personal computer.

% of residents who have personal computers by region.



## Internet usage

Internet has revolutionised the way we interact, learn, entertain and work. Today it is hard to imagine our life without Internet.

Proof of this statement is that of the 22 cities (4 in Africa, 8 in Latin America, 1 in Asia and 7 in Europe) that answered the question, in 41% of them, the rate of Internet users is between 76% and 100%. Only 9% of the cities displayed percentages between 0% and 25%.

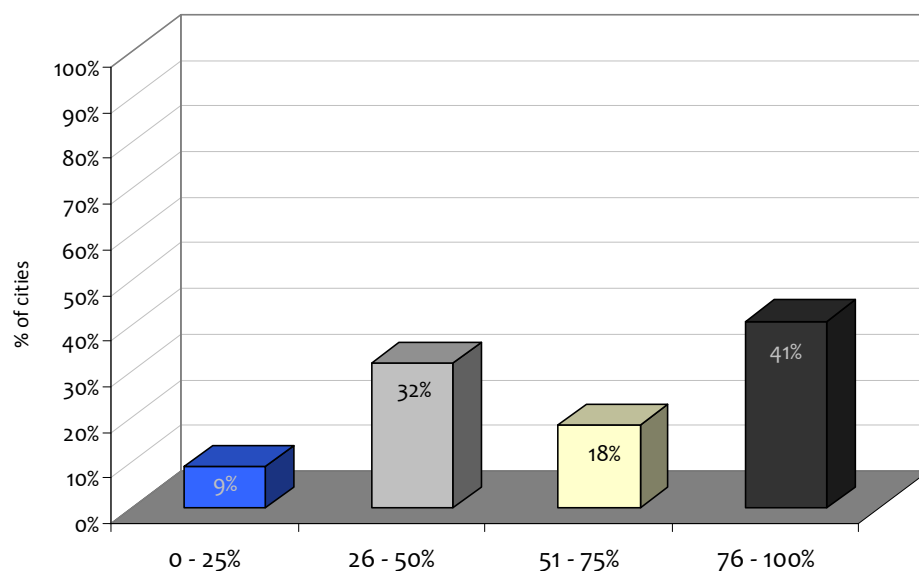
Regarding the analysis of the information by region, in the case of Africa, in most of the cities, 75% of them, the percentage of Internet users was between 26% and 50% while in 25% of the cities the percentage increased to between 51% and 75%.

In the case of Latin America, the picture is more varied, as there are cities where a high percentage of the population use the Internet and cities where the percentage is very small, however, note that in 50% of them Internet users stand at between 26% and 50%.

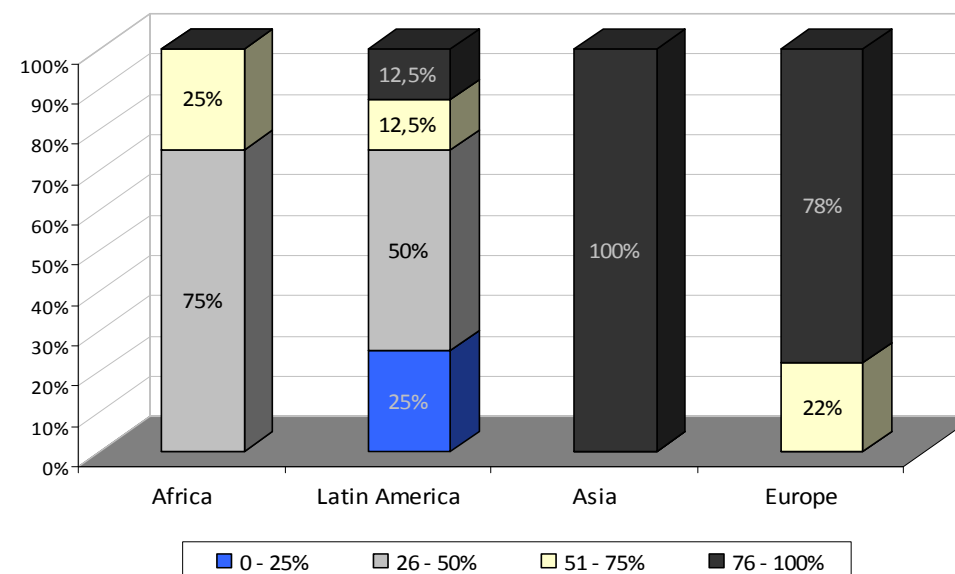
In the case of Europe, the penetration rate of Internet use is higher than in cities in Africa and Latin America. In the cities in this region, the rate of Internet users is very high, as in 78% of them the percentage is between 76% and 100% of the population and only in 22% of them does it drop to between 51% and 75%.

In Taipei, the rate of Internet usage is also high; 78% of the population uses Internet.

% of Internet users



% of Internet users in cities by region



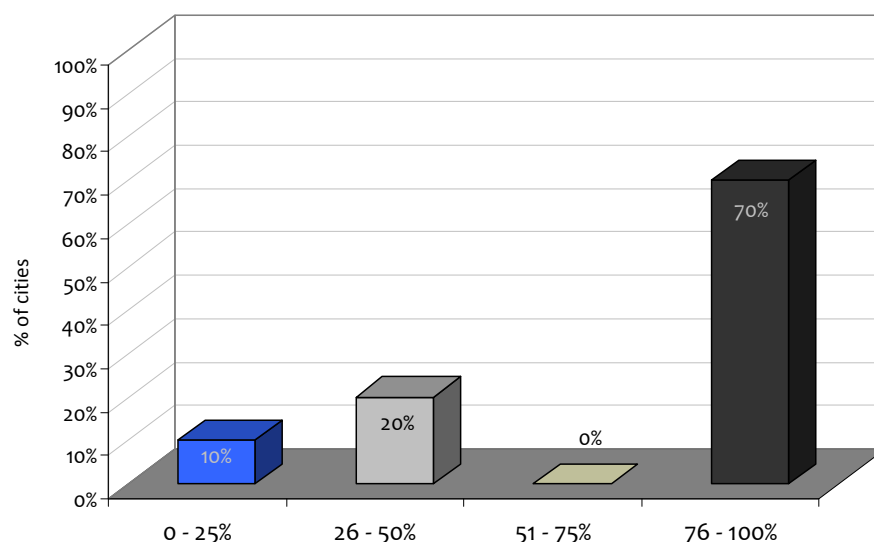


## Broadband coverage

Broadband or high-speed Internet allows users to enjoy a connection to Internet and to the services it offers at speeds that are significantly higher than those provided by dial-up Internet services. The band includes several high-speed transmission technologies, such as: Digital subscriber line (DSL), cable modem or fiber optics, Wireless, Satellite and Broadband over the power line (BPL).

Asked about the percentage of territory with broadband coverage, it is noteworthy that of the 20 towns (3 in Africa, 8 in Latin America, 1 in Asia and 8 in Europe) that answered the question, in 70% of them the percentage of the territory with broadband coverage was very high (between 76% and 100%) and in only 10% of them it was very small (between 0% and 25%).

% of territory with broadband coverage

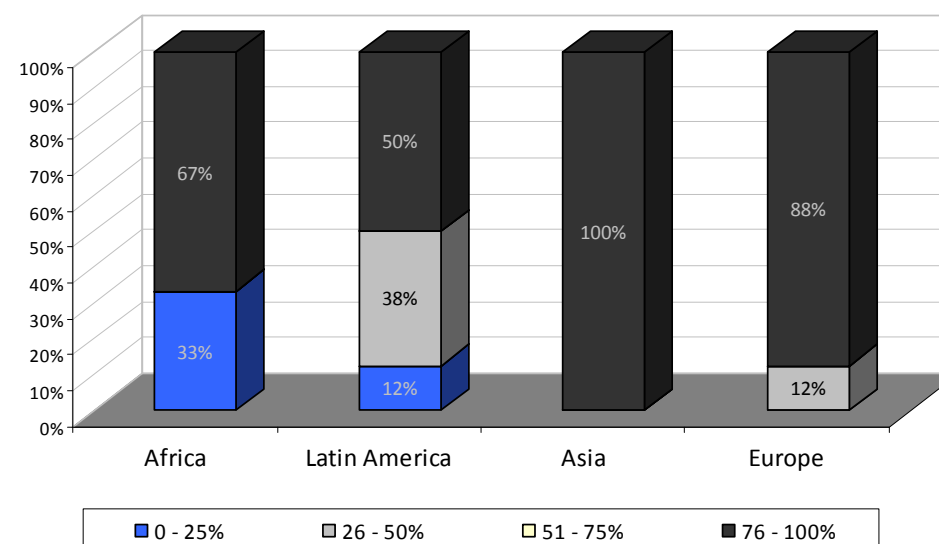


Regarding the analysis of the information by region, we find a great contrast between cities in the case of Africa; while in 67% of them the percentage of the territory covered by broadband is very high (between 76% and 100%) in the remaining 33% the percentage is very low (between 0% and 25%).

The situation is similar in the case of Latin America, while in 50% of the cities the percentage covered by broadband is very high (between 76% and 100%), in 38% of them it is significantly reduced (between 26% and 50%) and even in 12% of cities, it is very low (between 0% and 25%).

In the case of Europe, the percentage territory covered by broadband in 88% of cities is very high (between 76% and 100%) and in only 12% of them it falls to between 26% and 50%. On the other hand, the percentage of land in Taipei with broadband coverage is very high (90%).

% of territory with broadband coverage by region



## Broadband usage.

Asked about the percentage of population subscribed to broadband technology, the information provided by the 20 cities (3 in Africa, 6 in Latin America, 1 in Asia and 9 in Europe) that responded to the question differs greatly, because while in 40% of them the rate was **very high** (between 76% and 100%), in 30% of them the rate of the population subscribed to broadband was **very small** (between 0-25%).

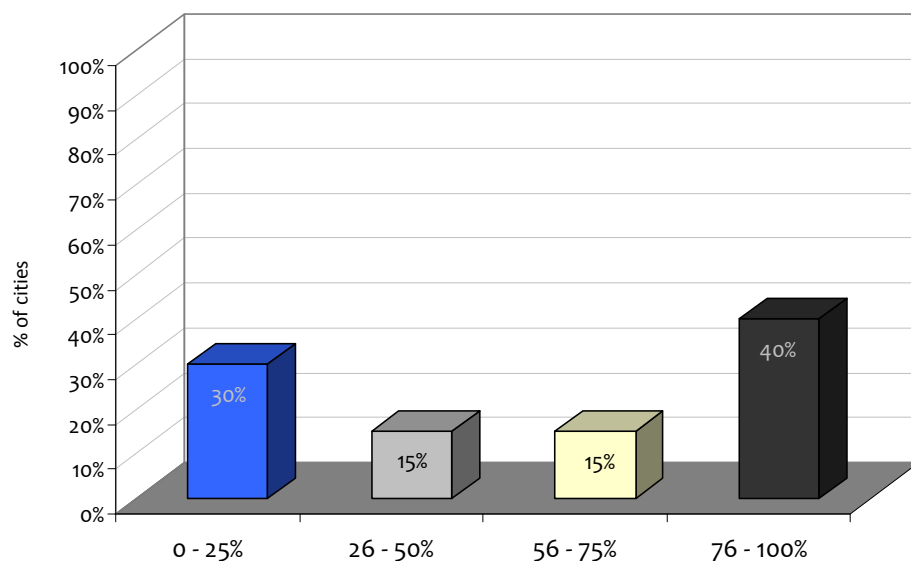
Regarding the analysis of the information by region, it is noteworthy that in **Africa**, in 100% of the cities that responded to the question, the percentage of people subscribed to broadband services is **very low** (between 0% and 25%).

In the case of **Latin America**, the penetration of broadband is more segregated. In 50% of the cities the percentage of people subscribed to broadband is **very low** (between 0% and 25%), but in 17% of them the percentage rose to between 56% and 75%.

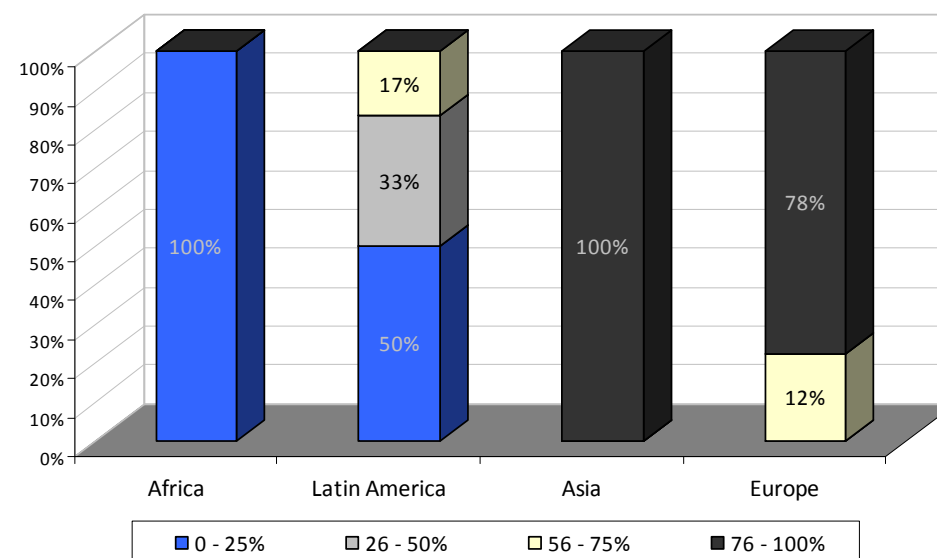
In **Europe**, the situation is different, because in 78% of the cities the percentage of people subscribed to broadband is **very high** (between 76% and 100%) and only in 12%, the percentage drops to **between 56% and 75%**.

In the case of **Asia**, in **Taipei**, 80% of the population is subscribed to broadband services.

% of people subscribed to broadband



% of people subscribed to broadband by region



## Mobile phone usage

It is clear that mobile phones are one of the most widely used means of communication in cities.

Of the 21 cities (4 in Africa, 8 in Latin America, 1 in Asia and 7 in Europe) that answered the question, in 68% of them, the rate of the population that have mobile phones is between 76% and 100%.

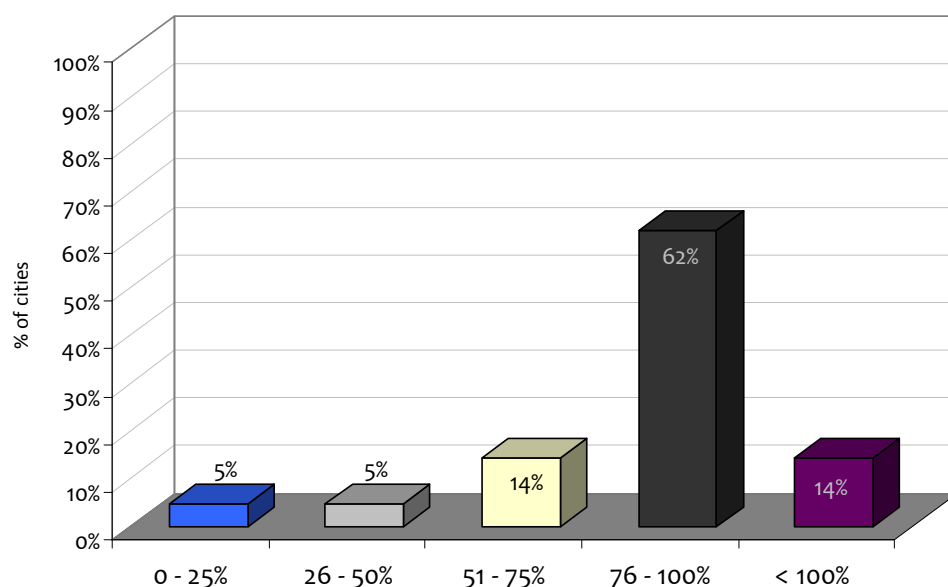
Notably, in 14% of the cities, most people have more than one mobile phone, as is the case in Helsinki, Taipei and Mexico City.

Regarding the analysis of the information by region, it is noteworthy that in Africa, in 50% of the cities that responded to the question, the percentage of people who have mobile phones is between 76% and 100%. Only 25% of the cities presented percentages between 0% and 25%.

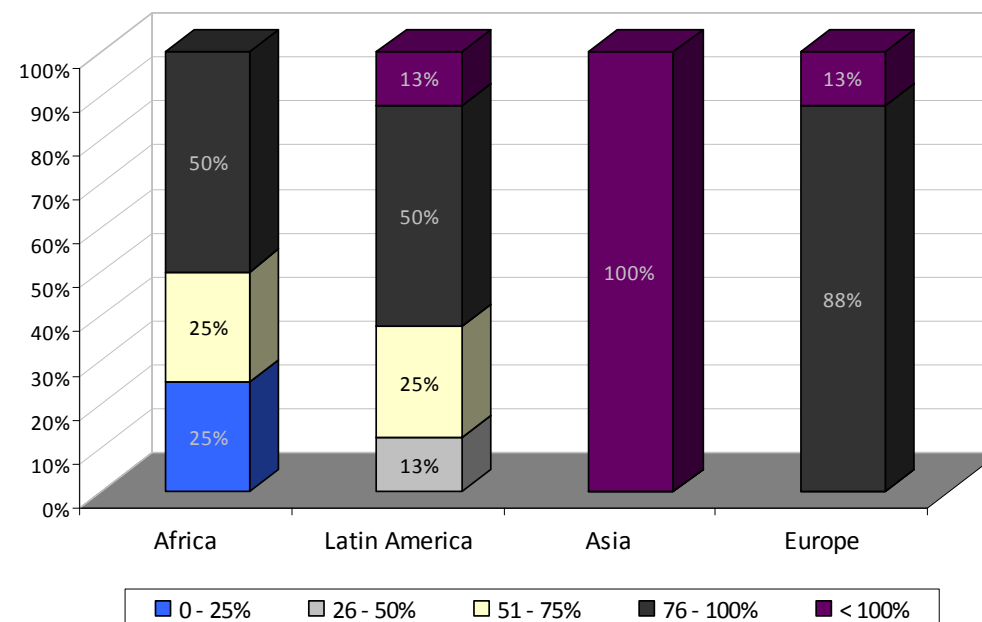
In the case of Latin America and Europe, as in Africa, in most of the cities (50% and 88%, respectively) the percentage people who have mobile phones is between 76% and 100%, and even in 13% of them, people have more than one phone.

In Asia, most of the population of Taipei has more than one mobile phone.

% of people subscribed to mobile phone services



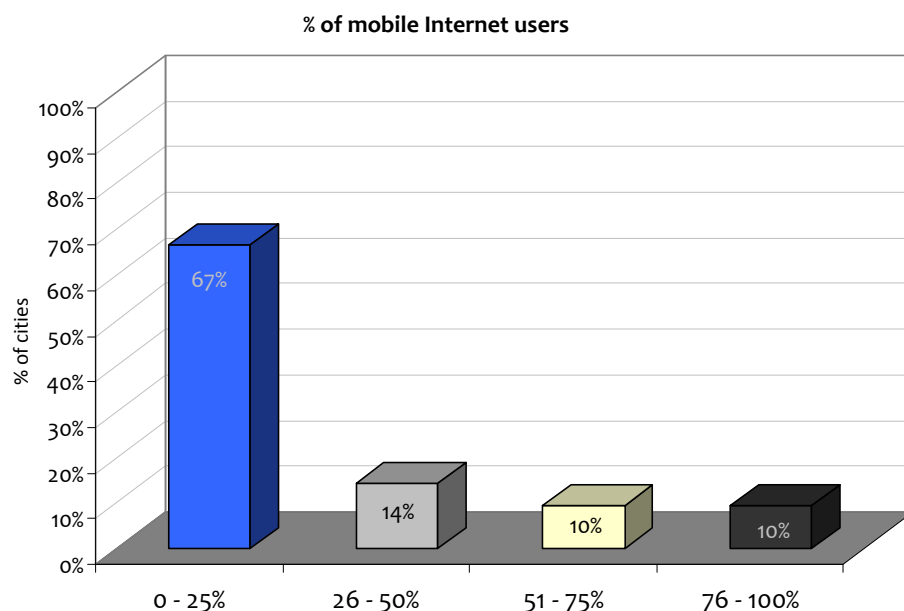
% of people subscribed to mobile phone services by region



## Mobile Internet usage

In recent years, smartphones and mobile devices have come into our lives and are becoming increasingly popular. The rapid growth of smart mobile devices and smartphones that are continuously appearing on the market, is generating a positive momentum that is accelerating the growth of mobile Internet use at an unstoppable pace.

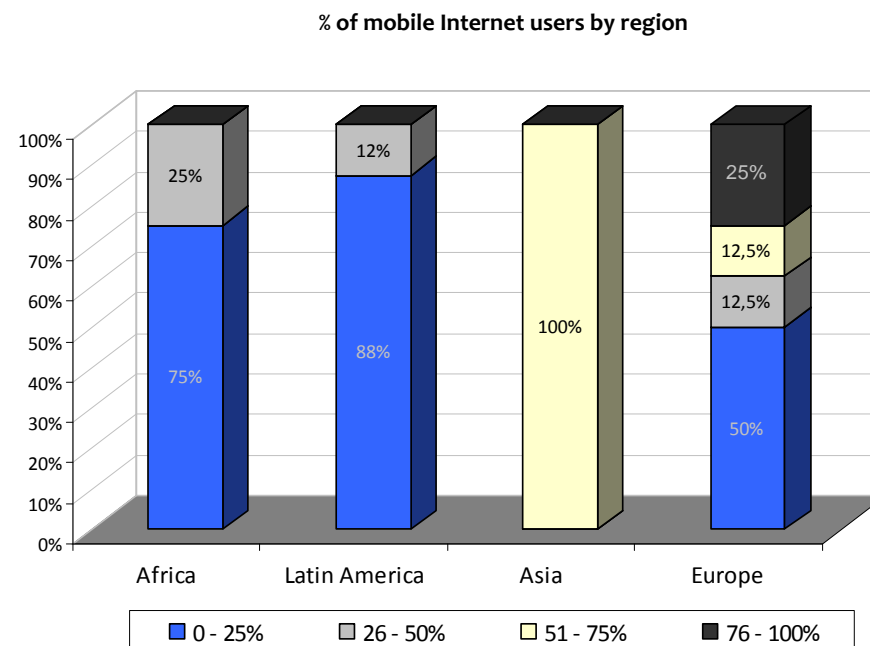
Asked about the percentage of mobile Internet users, of the 21 cities (4 in Africa, 8 in Latin America, 1 in Asia and 8 in Europe) that answered the question, the percentage of the population using mobile internet devices in 67% of them was between 0% and 25%. Higher percentages, in between 76% and 100%, could only be found in 10% of the cities.



Regarding the analysis of the information by region, in the case of **Africa**, in 75% of the cities, between 0% and 25% of the population use Internet over mobile devices.

This percentage increases in **Latin America**, where in a large majority of cities (88%) the rate is also between 0% and 25% and the percentage rises to between 26% and 50% in only 12% of them.

In the case of **Europe**, the percentage of the people that use mobile Internet services is between 0% and 25% in 50% of the cities, but it is noteworthy that, in 25% of them, this rate increases to between 76% and 100%. This is the case in the cities of **Bordeaux and Lisbon**.



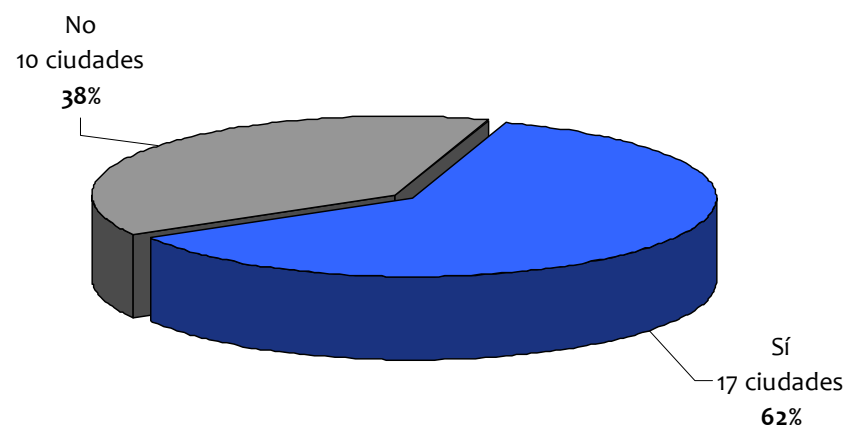
## Public Internet Access

## Wi-Fi hotspots in cities

More and more cities have Wi-Fi hotspots around town with the aim of extending the benefits of the Information Society to all citizens. These hotspots enable citizens to connect, browse the Internet and perform on-line transactions offered by the municipality. They must always comply with the restrictions established in the legislation of their countries of origin.

Of the 27 cities (5 in Africa, 8 in Latin America, 1 in Asia and 9 in Europe) that answered the question, 62% offer Wi-Fi hotspots.

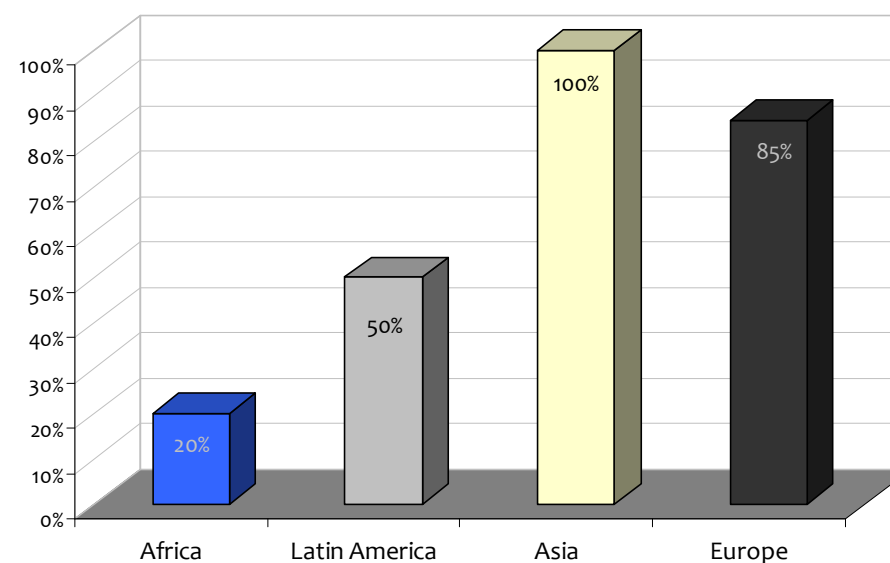
Does the City Council offer Wi-Fi hotspots in the city?



Regarding the analysis of the information by region, it is noteworthy that in Africa only 20% of the cities offer Wi-Fi hotspots. In the case of Latin America, this percentage increases to 50%. However, these data contrast with those of Europe and Asia, regions where the percentage of cities that offer Internet hotspots is very high.

In the case of Europe, 85% of the cities that responded to the question offer Internet hotspots. In Asia, the city of Taipei also offers Wi-Fi hotspots.

% of cities with Wi-Fi hotspots by region





Regarding the number of Wi-Fi hotspots each city has, of the 13 cities (1 in Africa, 2 in Latin America, 1 in Asia and 9 in Europe) that provided this information, 54% of them have installed between 0 and 25 Wi-Fi hotspots. In 15%, the number of hotspots rises to between 26 and 50. Notably, 15% of cities offer more than 500 Wi-Fi hotspots.

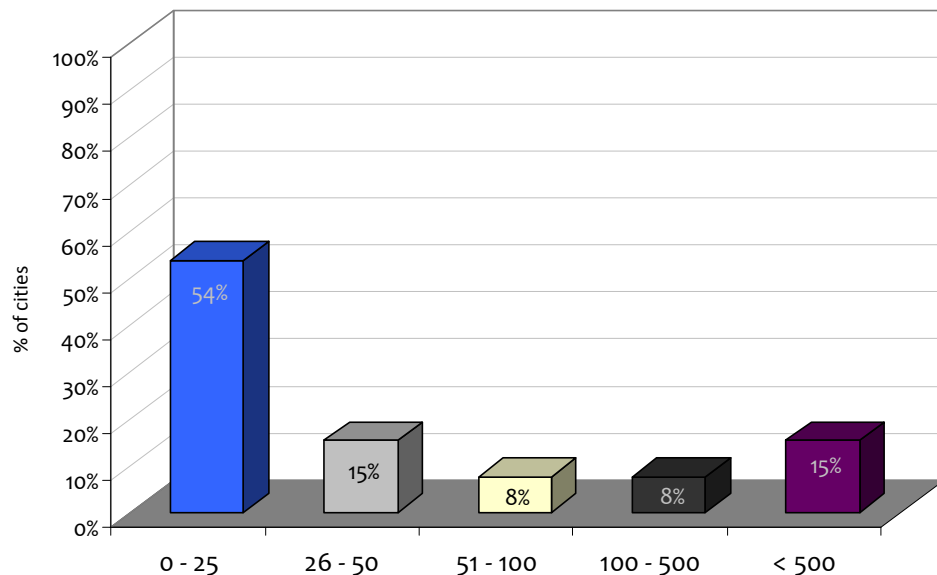
When analysing this information by region, we find that, in the case of Africa, 100% of the cities that provided information have between 26 and 50 available Wi-Fi hotspots.

In the case of Latin America, the figures vary considerably and while 50% of cities have between 0 and 25 Wi-Fi hotspots, the remaining 50% have more than 500 hotspots.

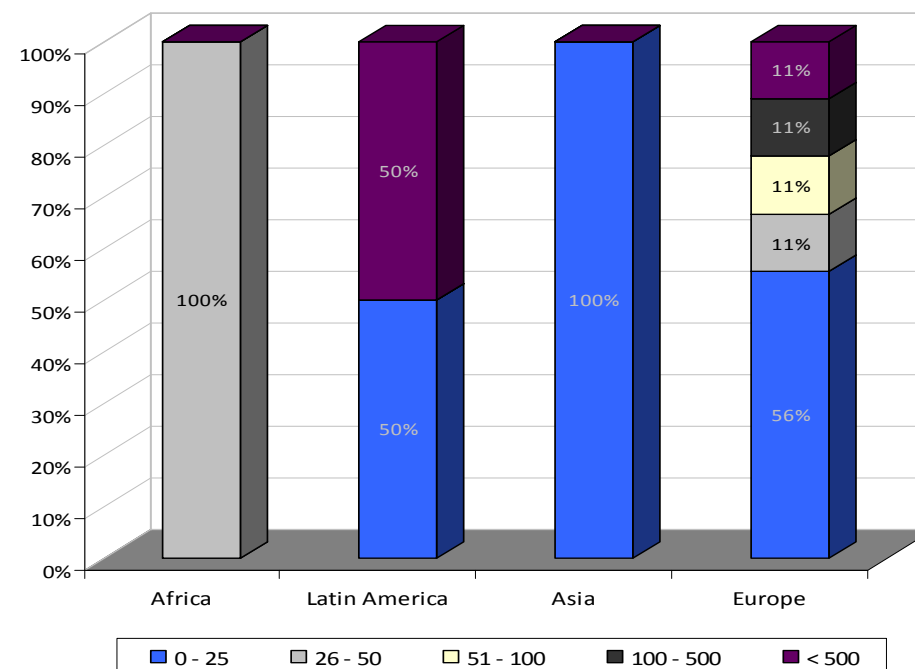
In the case of Europe, most of the cities (56%) have from 0 to 25 Wireless hotspots. Notably, 11% of cities offer more than 500 Wi-Fi hotspots.

In the case of the Asian city of Taipei, it has made available 4 Wi-Fi hotspots for its population.

Number of Wi-Fi hotspots available in cities



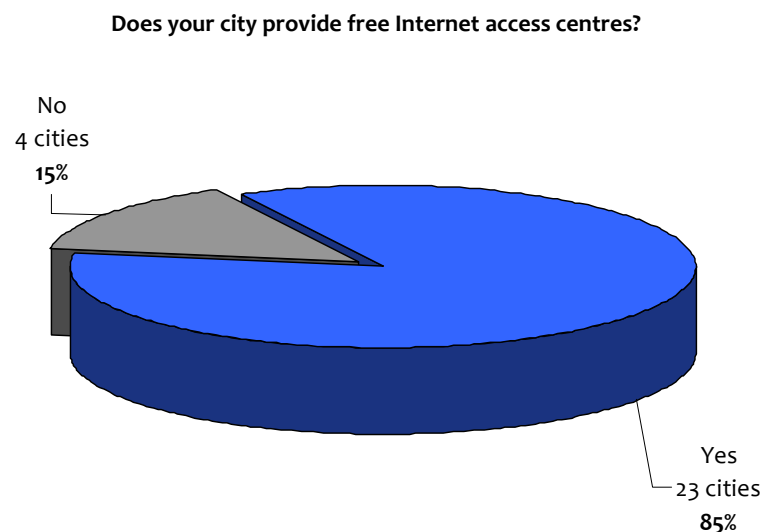
Number of Wi-Fi hotspots available in cities by region



## Public Internet access centres

In order to provide all citizens with access to new technologies, the cities are dedicating municipal spaces to offers citizens computers with internet access. These centres also provide training and support in the use of new technologies.

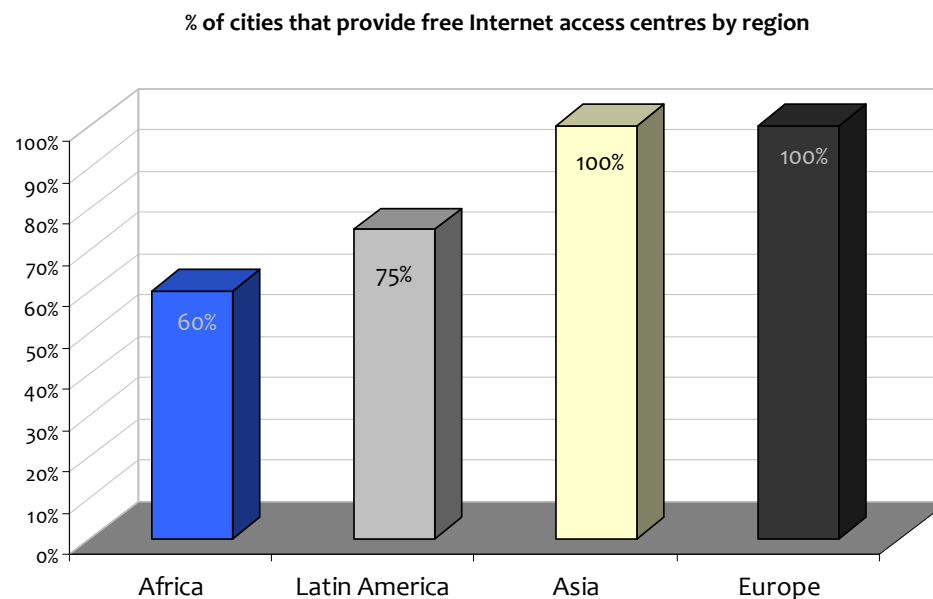
Creating public Internet access centres is an initiative that is becoming increasingly widespread in the cities. Of the 27 cities (5 in Africa, 8 in Latin America, 1 in Asia and 13 in Europe) that answered the question, most of them (85%) offer public Internet access centres for their citizens.



Regarding the analysis of the information by region, in the case of Africa, 60% of the cities provide public Internet access centres, which is lower than in other regions.

In the case of Latin America, more and more cities are implementing this type of initiative. 75% of the cities now have public Internet access centres.

In the case of Europe and Asia, 100% of the cities that responded to the question have public Internet access centres.

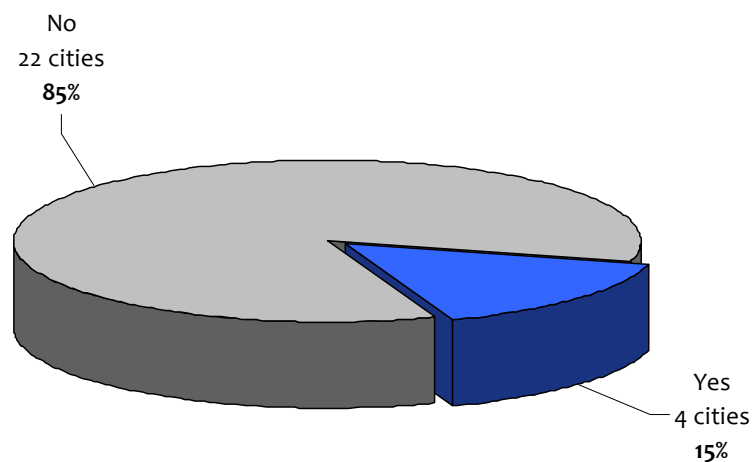


## Promotion deals with ISPs.

In some cases, cities have reached some kind of agreement with ISPs with a view to providing the public with the opportunity of subscribing a high-quality Internet connection at reasonable prices.

While this is a good option as regards facilitating all citizens with Internet access, the percentage of cities that have reached some form of agreement is small. Of the 26 cities (5 in Africa, 8 in Latin America, 1 in Asia and 12 in Europe) that responded to the question, only 15% of them has reached some sort of agreement with ISPs.

Has your city promoted deals with ISPs to reduce the digital divide between the population?



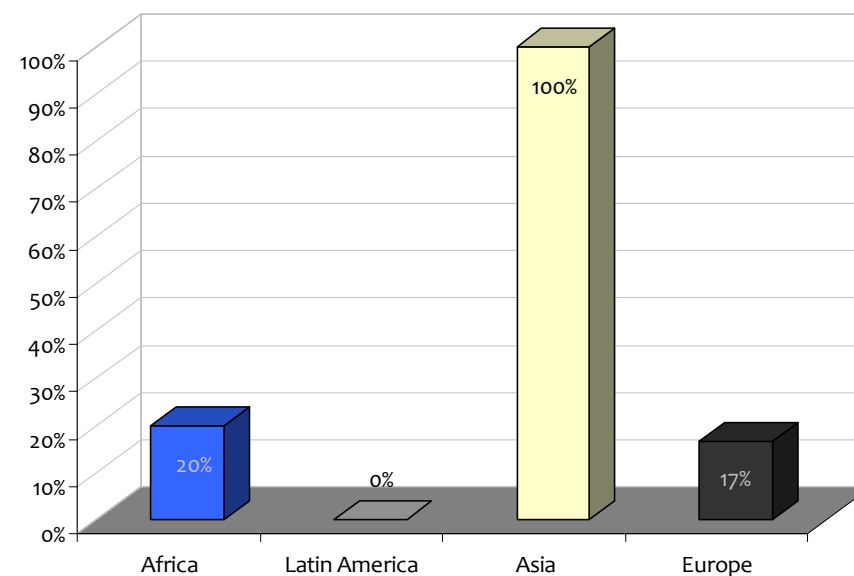
In regard to the analysis of the information by regions, we can highlight that 20% of African cities have arranged some kind of deal with ISPs; this is the case of the eThekweni-Durban Municipality.

In the case of Latin America, none of the cities that responded to the question has arranged any offer of this kind. On the other hand, in Europe 17% of the cities have. This is the case of Lappeenranta and Bordeaux.

The case of Asia, Taipei has also arranged a deal with ISPs.

**Below are some experiences developed by cities.**

% of cities that have promoted deals with ISPs by region



## Taipei

### Wireless Taipei – Taipei Infinity

Through the "Wireless Taipei - Taipei Infinity" initiative, the Local Government of the city of Taipei has deployed a wireless LAN (WLAN) that covers over 90% of the city's population (2.3 million inhabitants). The service is available free of charge and there are no limits regarding the terms of access and frequency. The initiative has made the City of Taipei into the "City with the world's largest Wi-Fi" according to JiWire. Citizens, visitors and business travelers can access the internet through their laptops, smartphones and mobile computers using this Wi-Fi connection.

[http://english.doit.taipei.gov.tw/MP\\_121002.html](http://english.doit.taipei.gov.tw/MP_121002.html)

## eThekwini, Durban

The Municipality has deployed a Next Generation Network (NGN) and is selling it wholesale to the private sector. Prices are from 40 to 60 percent cheaper than those offered by Teleco companies.



**Taipei Free  
Public Wi-Fi Access**

SSID : TPE-Free

無線臺北城、行動任意門



## 3.5 Smart Environment

---

**Smart environment** refers to the use of new technologies to protect and preserve a city's environment.

Smart environment is characterised by the following factors:

- Security and trust.
  - ✓ Using ICT to improve public safety.
- Culture and identity.
  - ✓ Initiatives for the digitization of heritage assets.





## Security and trust

The level of risk in cities and regions is increasing rapidly, particularly in developing countries, where town development often takes place in areas that are open to disasters. Half the world's population live in cities, which concentrate all kinds of human activities. Therefore, they are more vulnerable to terrorism, crime and natural disasters.

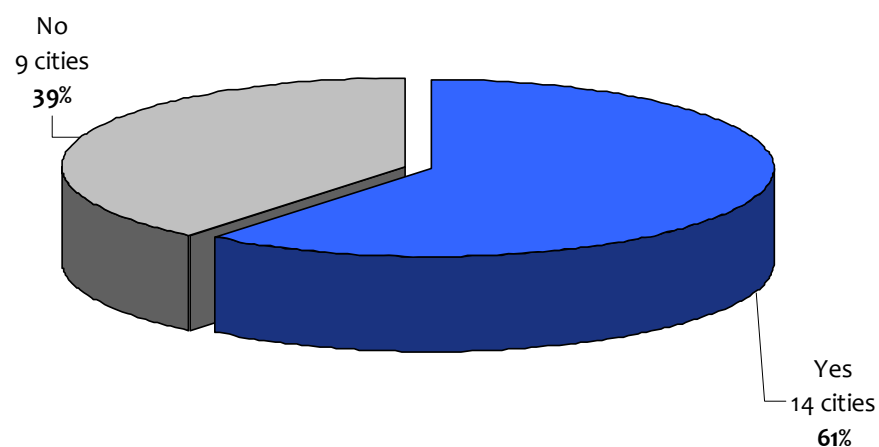
Local authorities can improve security using ICT systems and, consequently, make their cities safer, more sustainable and prosperous. To gain the necessary experience, it is crucial that experts from different disciplines work closely together and in conjunction with relevant partners.

Of the **23 cities** (4 in Africa, 7 in Latin America, 1 in Asia and 11 in Europe) that answered this question, **61% have implemented a system** to improve security through the use of new technologies.

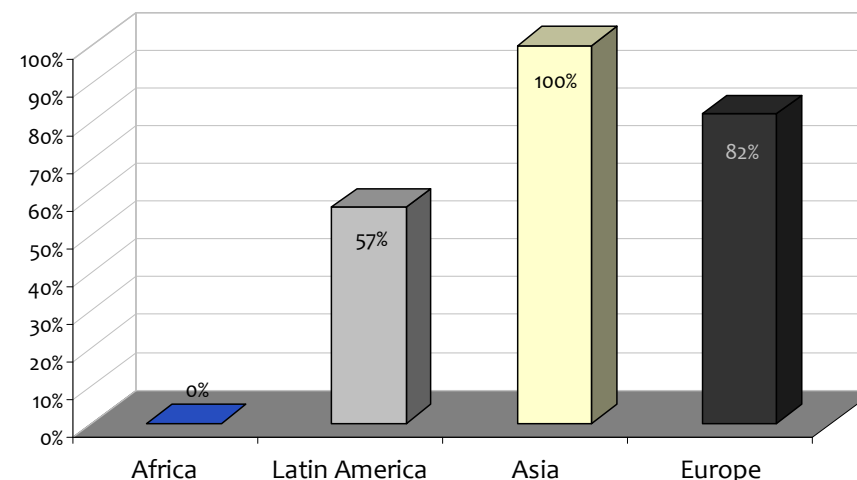
Regarding the analysis of the information, it is noteworthy that in the case of **Africa, none of the cities** that responded to the question has developed any initiative. In the case of **Latin America, 57% of cities** have used new technologies to improve security. The percentage of cities rises to **82% in Europe**, where most cities have developed a public safety system based on the use of ICT. **Taipei** has also implemented a system.

**Below are some experiences developed by cities.**

Has your city implemented a system to improve public safety based on ICT systems?



% of cities that have implemented a system to improve public safety through the use of ICT by region



## Barcelona

The City Council of Barcelona has made intensive use of new technologies to improve safety. These include the following:

**PDAs** for municipal police officers. The most important features relating to security are:

- o Access to the NIP (Police Information Core), which provides on-line access to the background of people and vehicles.
- o Access to the DGT (Traffic Department) that provides on-line access to driving licenses (type, withdrawal ...) and vehicle data (insurance, MOT ...).
- o Municipal reports and SCT of infringements detected and on-line transmission to the databases.

**Mycelium:** renewal of the computer system used to handle incidents and emergencies in Barcelona by the City Police and Fire Department.

**Kepler Project:** Installation of PCs in police vehicles. It provides the vehicles with the same information available from the NIP.

**Surveillance cameras:** video surveillance cameras for prevention purposes in relation to public safety in different parts of the city.

**Red Photo:** installation of fixed devices to capture violations of drivers failing to respect red lights at the points with the highest accident rates in the city.

## Bilbao

Bilbao has **surveillance cameras** in 15 areas of the city. Some have double lens, covering two angles with a single recording device. The quality of the recorded images, with a resolution of 3 megapixels, allows the identification of people or objects at a distance of between 25 and 50 metres, since the sequences can be expanded up to 400% digitally without losing sharpness.

The images are transmitted using encryption techniques and through optical fibre connections. Therefore, they cannot be lost or be manipulated, since a fingerprint system used during storage of recordings prevents any changes to them.

The recordings are archived for seven days at the Data Processing Centre of the Municipal Police and can be transferred to the courts of justice, the prosecution, the Ararteko and to other police forces, but only for the sole purpose of identification in the event of criminal acts. Only the Bilbao city police can use this surveillance system, but the City Council has already taken steps to transfer the information obtained to the Joint Police Coordination Centre that coordinates the municipal police and the regional police (Ertzaintza).

<http://bilbaopol.blogspot.com.es/2011/01/videovigilancia-policial.html>



#### Mexico City

**Bicentennial Project - Safe City.** This system consists of surveillance equipment, emergency button and speaker, to interact with the public. It will improve the level of surveillance and policing, as it coordinates the efforts of all government areas resulting in a response time of 5 minutes from the time that the authority becomes aware of an emergency or crime.

**Police Performance Assessment.** The purpose is to institutionalise and systematise the assessment of police actions at all command and operational levels. Its design facilitates conducting meetings that, chaired by the Secretary himself, are used to analyse information on the crime rate in the regions, branches and sectors in which police work is organised in Mexico City.

**Monitoring Police Operations.** It features mechanisms for information visualization that, with the support of georeference systems, enables the continuous monitoring of daily operations and the evolution of specific police operations in real time.

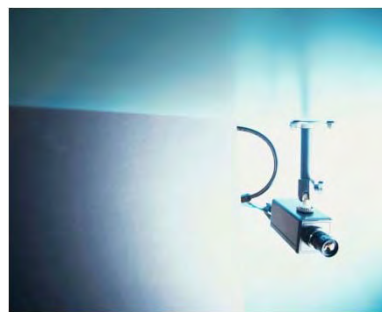
#### Katowice

**Video surveillance system.** The City of Katowice has established a video surveillance system that monitors vital city areas: a city center, the main Katowice car tunnel and regional Silesian Intercity Road. The video streams are displayed and analyzed online by Municipal Police assisted by representatives of State Police, municipal fire brigade and health service. The communication infrastructure used by the monitoring system includes both fibre channel and wireless WilMax links.

#### Taipei

**Intelligent Dispatch System.** On January 7, 2010, a total of 543 sets of mobile devices were deployed for all of Taipei City's police districts and offices. It integrated many of the existing systems, including the 110 Emergency Service Automated Dispatch System, a dispatch command and control system, a supervision and management system and a mobile information management system.

**Video Surveillance System.** The Taipei City Government has planned a comprehensive installation of video surveillance systems for distance monitoring, recording and e-patrol with video-conferencing capabilities.



## Culture and identity

The use of ICT can contribute to the cultural transmission of and to maintaining and strengthening cultural identity in the widest possible terms, particularly of minority languages and cultures.

A learning society must make special efforts to transform its history, customs, languages and values, its peculiarities and diversities into information and disseminate it by making use of the revolution in information and communications technology.

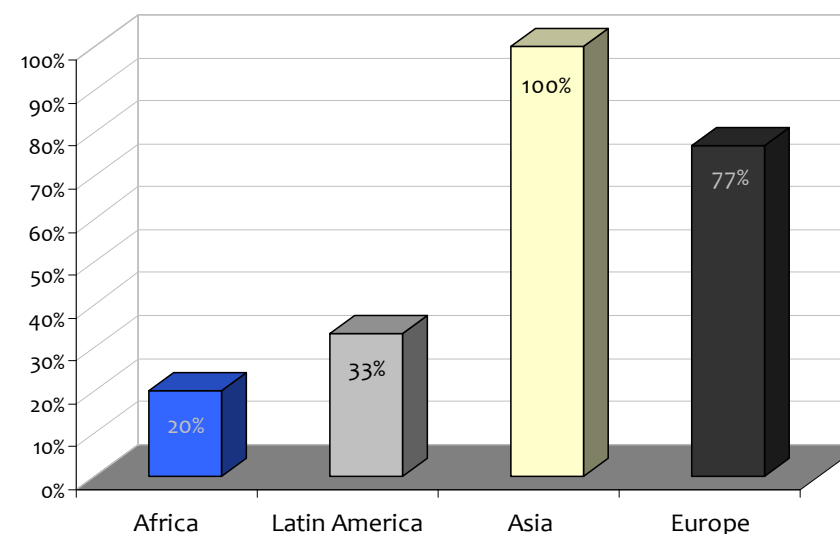
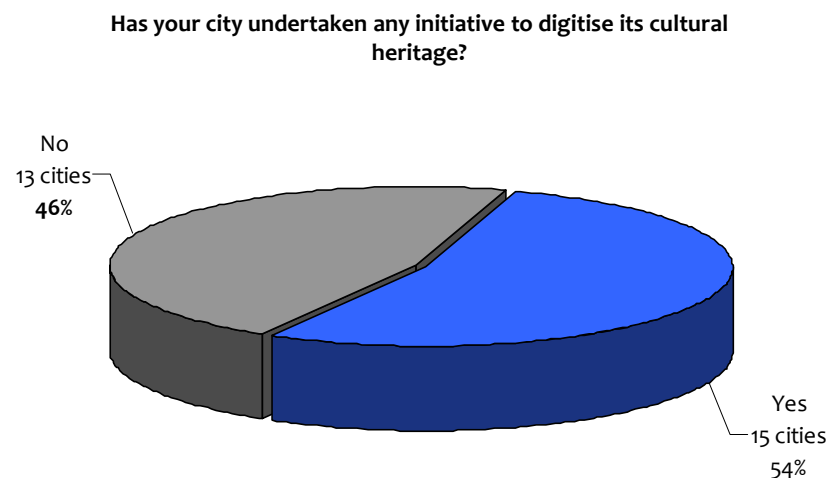
This new reality is encouraging the diversity and promotion of cultures considered as minority cultures - ethnic, religious, cultural and intellectual minorities - in an environment where the potential audience is not limited to discoverers of strange and picturesque editions, but extends to the whole universe of people connected to the net.

Of the 28 cities (5 in Africa, 9 in Latin America, 1 in Asia and 13 in Europe) that answered the question, 54% have implemented some type of initiative to digitise the city's cultural heritage.

Regarding the analysis of the information by region, there is a gap between Africa and Latin America in comparison with Europe and Asia. In the case of Africa, only 20% of cities have developed some type of initiative. This percentage rises slightly in Latin America, where 33% of the cities have carried out some initiative to digitise their heritage. Still, this figure contrasts with the case in Europe, where most of the cities (77%) have implemented some type of initiative. The Asian city of Taipei has also digitised part of their cultural heritage.

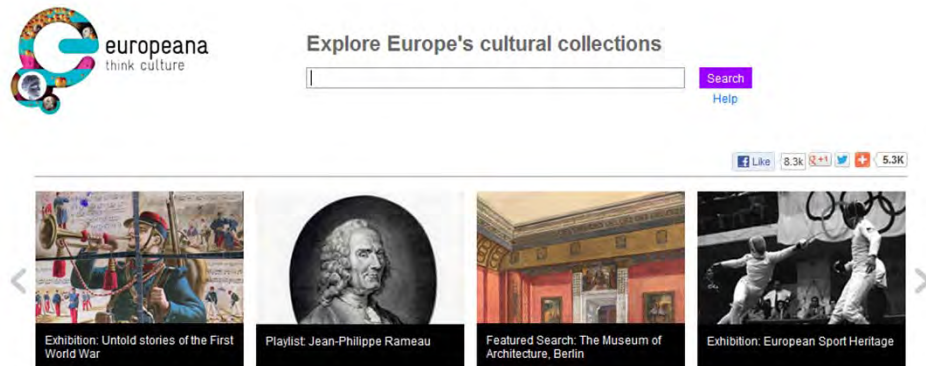
**Below are some experiences developed by cities.**

% of cities that have undertaken initiatives to digitise their cultural heritage, by region



## Helsinki

Most initiatives are carried out by the Finnish State. The City Museum and the City Archive have digitalized for example thousands of photographs and other items from their collections and save them to their databases. The City also participates in international initiatives, like: [www.europeana.eu](http://www.europeana.eu)



## Roeselare

Scanning of heritage documents in order to make them available for public in the future.

## Mexico City

In its fifth year, the forum entitled: "The Archives: memories of the people, heritage of humanity" held in August 2011, addressed issues such as Cultural Heritage Conservation Policies. This forum was organised by the Ministry of Culture of the Federal District in coordination with the National Autonomous University of Mexico and the Old College of San Ildefonso.

## Bordeaux

Using augmented reality that allows people to visit the city in a bygone era. QR codes are also used to provide information on the main UNESCO Heritage sites in the city.

<http://www.heritage-prod.fr/Bordeaux-en-3D/le-projet-b3d.html>



## Taipei

The Taipei in the Making project endeavors to digitize and create a value-added information retrieval system for parliamentary documents authorized by Taipei City Council.

The outcome includes 255,982 digitalized pages of parliamentary journals, 266,644 pages of parliamentary gazettes, and over 65 thousand minutes of the Council Chamber video recordings, dated since 1969. The project builds a web site with a multitude of search capacity and provides an instant messaging reference service basing on the digitized content. It demonstrates an holistic view of the representative democracy of Taipei



## Barcelona

The City Council has launched various Cultural Heritage digitization projects:

**Digitizing real estate collections belonging to the municipal museums:** the inventory, documentation of assets includes digitised photographs (preferably saved in two formats, storage and dissemination). These images are accessible and searchable through the on-line collections section of each museum's website. Example: <http://www.bcn.cat/museupicasso/ca/colleccio/cataleg.html>

**On-line publication of single catalogues for each museum and group of libraries and documentation centres of municipal museums:** The second phase of the project involves the digitization of book covers, hand sheets, invitations, etc. <http://catalegbibliotequesicub.bcn.cat/>

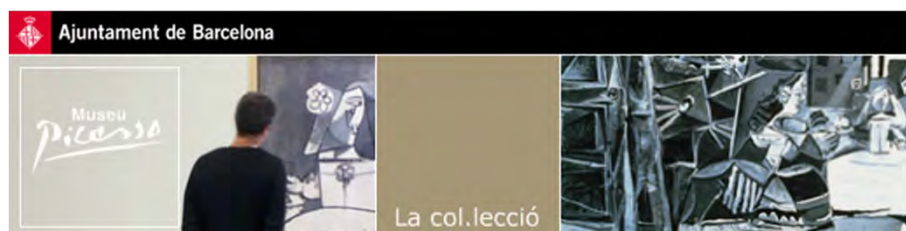
**Collaboration of the Arxiu Historic de Barcelona (Historic Archive of Barcelona) with various entities for the development of joint digitization projects:** such as the Ark of digitization project and the public consultation on the collection network of historical journals <http://www.bnc.cat/digital/arca/index.html>

**On-going project for the deployment of Media Asset Manager** that provides quick and easy access to audiovisual content, automates work flows, and allows the efficient reuse and sharing of content. Deployed to date in communication, broadcasting media and press to manage images linked to public events and programmes of the ICUB (Barcelona Institute of Culture).

**Barcelona Archaeological Map:** map representing archaeological work in the city, linking documentation related to the site (plans, reports, pictures ..). GIS visualisation that will soon be available on the network via Geoportal.

**Other specific digitization projects** developed especially on certain occasions:

- o Exposición Murals sota la lupa (Mural Exhibitions). Les pintures de la capella de Sant Miquel (Paintings in Sant Miquel Chapel). Museu d'Història de la Ciutat (City's History Museum).
- o Barcelona en gòtic (Gothic Barcelona). Project developed in the History Museum and led by Barcelona Media. 3D implementation of part of the Ciutat Vella district that allows real time viewing of Gothic benchmarks in the area:
- o Virtual exhibitions of the Barcelona Photographic Archive <http://www.bcn.cat/arxiu/fotografic/expos.html>
- o Consultation and sale of images from the Barcelona Photographic Archive <http://www.bcn.cat/arxiu/fotografic/>
- o Project being disseminated (2.0) regarding the Ramon Marull philatelic collection of the Barcelona City Council via a specific website.



## 3.6 Smart Living

---

Talking about **Smart Living** is to compile several aspects that substantially improve the quality of life of citizens, such as culture, health, safety, housing, tourism, etc.

Developing each of these aspects leads to a more satisfactory, full and harmonious life.

Smart living is characterised by the following factors:

- e-Health.
  - ✓ Electronic health card.
  - ✓ On-line medical services.
  - ✓ Remote home control or alarm systems for patients.
- Accessibility and e-Inclusion.
  - ✓ Development of digital inclusion programmes for groups at risk of exclusion.



## e-Health.

### Electronic health card.

e-Health is defined as the application of Information and Communication Technologies (ICT) to issues affecting health care, from the diagnosis to monitoring patients, including the management of the organisations involved in these activities.

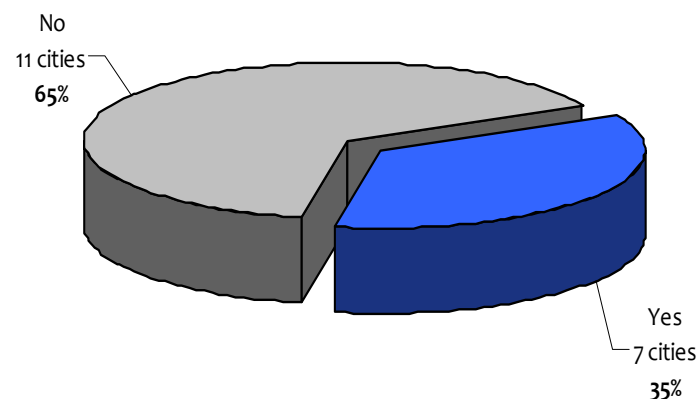
e-Health provides citizens with considerable advantages in terms of information and it even promotes the attainment of alternative diagnoses and of remote assistance.

Among the advantages of e-Health systems, we can mention the increased feeling of confidence in patients, who see an improvement in their quality of life, reduced costs for medical institutions in terms of resources and time, on-going support and the reduction of access barriers to health care.

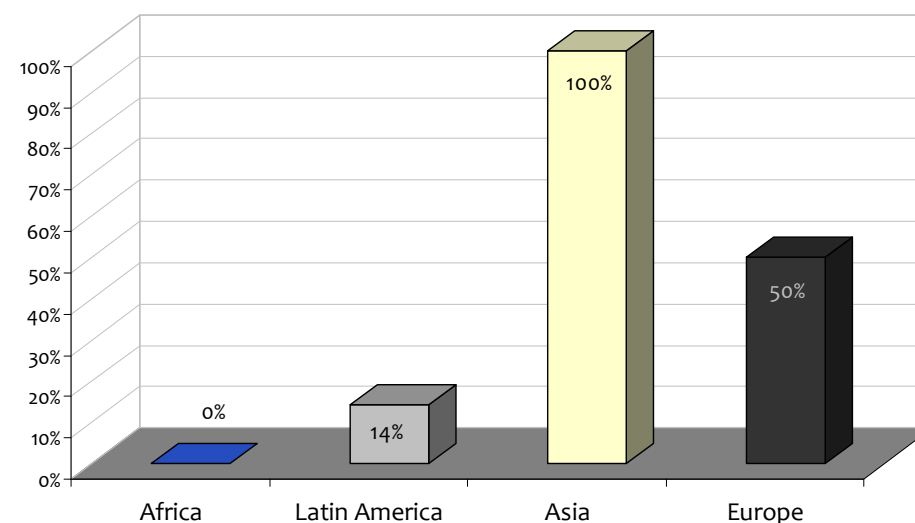
Asked about the availability of electronic health cards in their cities, of the 17 cities (1 in Africa, 7 in Latin America, 1 in Asia and 8 in Europe) that responded to the question, **only 35% have electronic health cards in place.**

In the case of **Africa**, **none** of cities have implemented electronic health cards. In **Latin America**, only **17%** of the cities have this system in place; such as the city of Colima. The percentage of cities increases in **Europe**, where **half** of the cities have some sort of electronic health card. This is the case in the cities of Helsinki, Bilbao, Katowice and Malmö. Meanwhile, in Asia, **Taipei** also has some type of electronic health card.

Does your city have some type of electronic health card?



% of cities that have some form of electronic health card, by region



## On-line medical services

Consulted on the [major on-line medical services](#) available to citizens (on-line appointments, electronic prescriptions and digital dossier), of the [27 cities](#) (5 in Africa, 9 in Latin America, 1 in Asia and 12 in Europe) that answered the question, the most widely available medical service is the possibility of requesting an [appointment on-line](#), as [19% of cities](#) offers such a possibility. It is closely followed by the availability of [medical records in digital format](#); available in [15% of the cities](#).

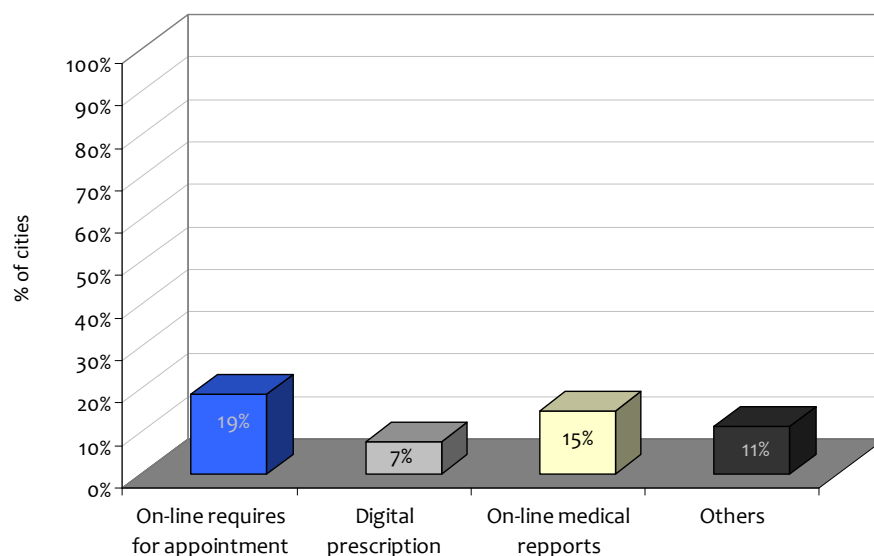
When analysing the information by region, we must mention that the on-line medical services considered in the study [were not available in any of the cities in Africa and Latin America](#).

In the case of [Europe](#), the most frequently available on-line medical services are [on-line requires for appointment, available in 33% of the cities](#), and the [on-line medical records, available in 25% of cities](#). Only 8% provide the possibility of electronic prescriptions. On the other hand, in the [city of Taipei](#), citizens can make [use of the three services consulted](#).

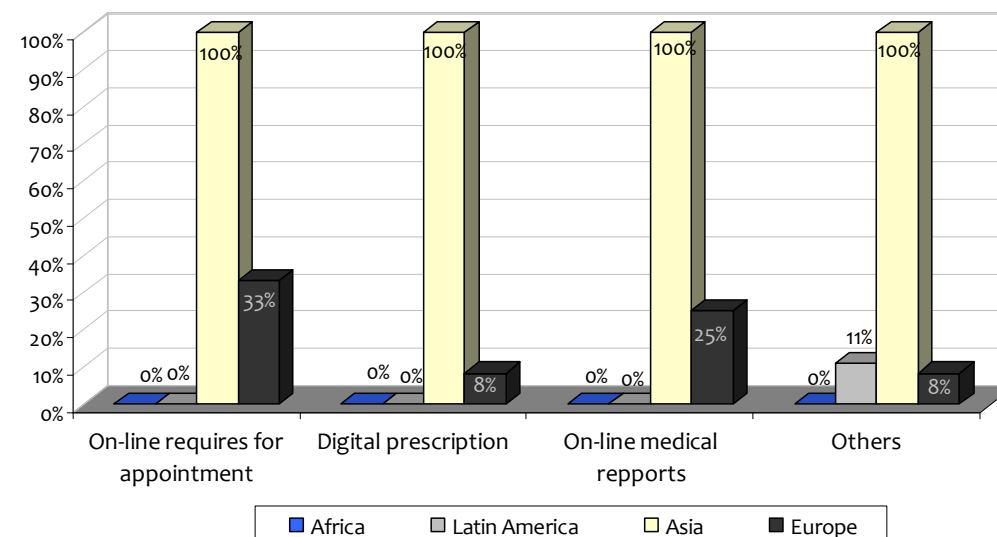
Besides the services surveyed, [11% of the cities](#) provide [other on-line medical procedures](#), such as:

- Requesting diagnosis certificates, birth certificates and other medical records.
- Payment of medical expenses.
- Request for change of physician.

On-line medical services available to citizens



% of cities where citizens can make use of on-line medical services, by region



## Remote home control or alarm systems for patients

Other e-Health benefits include the possibility of remote home access services, tele-alarm systems (particularly useful in the case of elderly patients) or TV patient monitoring, used to control vital signs.

Of the **23 cities** (4 in Africa, 7 in Latin America, 1 in Asia and 11 in Europe) that responded to the question, **only 35% of them** offered citizens access to a remote home control or tele-alarm system as a measure to monitor patients.

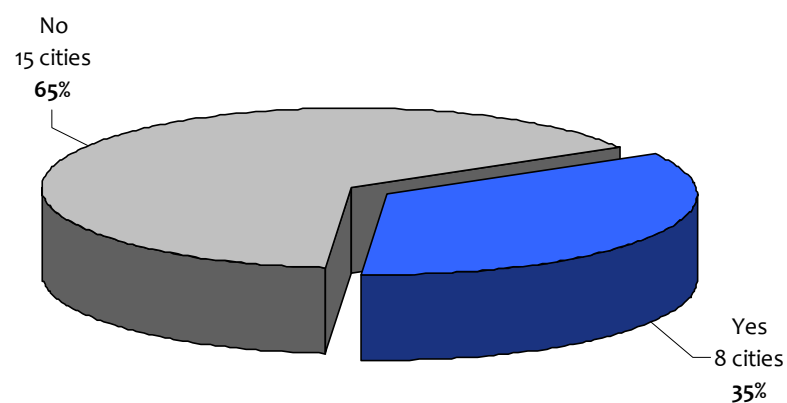
Regarding the analysis of the information by region, it is noteworthy **that none of the cities in Africa** offer its citizens these services.

In the case of **Latin America**, these services are not yet widespread and are **only available in 17% of the cities**; Mexico City. By contrast, in **Europe**, this service is becoming more accessible, as **55% of the cities** offer its citizens these services, such as Madrid, Helsinki, Lappeenranta, Bilbao, Malmö and Le Havre.

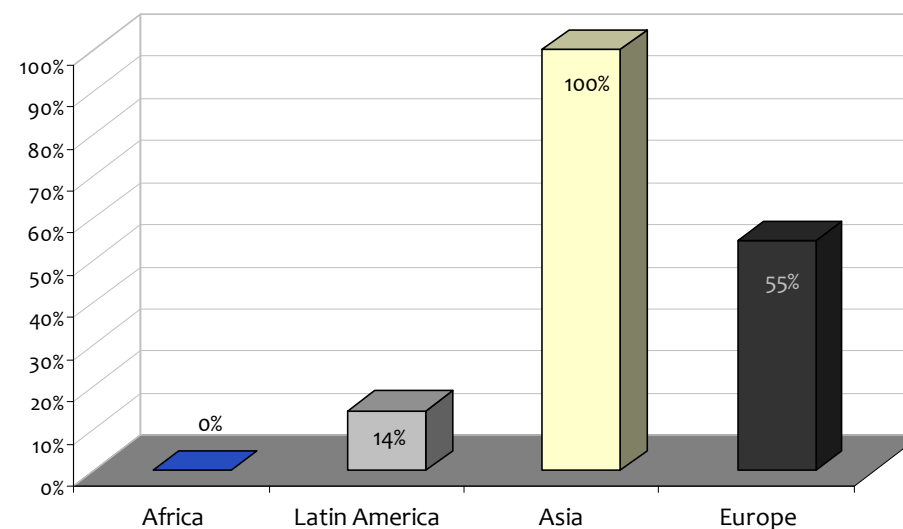
In **Taipei**, this service is also **available** to the public.

**Below are some experiences developed by cities.**

Does your city offer any remote home monitoring or alarm system to oversee patients?



% of cities in which some type of remote home monitoring system is available, by region





<b>Helsinki</b>	In some nursing homes, the floor features an alarm that is triggered if there is no movement in the room.
-----------------	---

<b>Lappeenranta</b>	Safety phones and alert bracelets.
---------------------	------------------------------------

<b>Bilbao</b>	<p><b>O-Sarean Project (Osakidetza on the Net).</b></p> <p>The goal of the O-Sarean Project is to develop a remote relationship and service model, "a distance system", focused on the needs of patients, health professionals and citizens.</p> <p><a href="http://www.osakidetza.euskadi.net">http://www.osakidetza.euskadi.net</a></p>
---------------	---

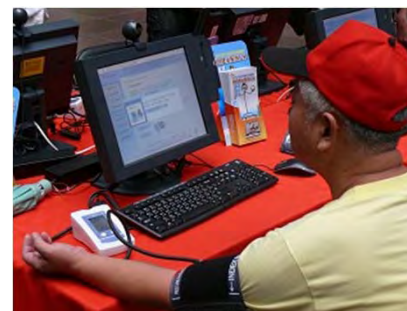


<b>Havre</b>	<p>The Municipal Social Action Centre of the city of Le Havre has developed a remote alarm system. The programme aims at providing services to people with disabilities through a medical listening device at any time 365 days of the year.</p> <p><a href="http://lehavre.fr/dossier-annexe/la-telealarme">http://lehavre.fr/dossier-annexe/la-telealarme</a></p>
--------------	---

<b>Malmö</b>	Personal security alarm and surveillance in case of emergency of personal health.
--------------	---

<b>Mexico City</b>	The <b>"Help button" programme</b> , which focuses on assisting the elderly who live alone, provides them attention to any emergency over the telephone. It makes use of support networks and medical and security services in Mexico City. It is currently a pilot project provided to 100 users.
--------------------	--

<b>Taipei</b>	<p><b>Taipei Telecare</b> takes advantage of information and communication technology such as telemedicine and telecare, mobile applications and localized services. Taipei citizens —particularly those who live in remote areas, the elderly who live alone, as well as middle-and low-income households — may use the 1999 Citizen Hotline to access medical video conferencing service at the Healthcare Customer Center for distance measurement on blood pressure, blood sugar, body temperature and cardiac rhythm, and able to print out their physiology measurements at convenient store kiosks.</p> <p><a href="http://english.doit.taipei.gov.tw/ct.asp?xItem=4194579&amp;ctNode=45812&amp;mp=121002">http://english.doit.taipei.gov.tw/ct.asp?xItem=4194579&amp;ctNode=45812&amp;mp=121002</a></p>
---------------	---



## Accessibility and e-Inclusion

ICT can enhance the capabilities of people with special needs, providing them with autonomy, independence and access to services that had not always been available to them. This is why the use of ICT should focus mainly on two objectives: solving deficiencies and enhancing capabilities.

ICTs are valuable tools to solve problems considered as basic group problems, and also as instruments to ensure inclusion in cultural, artistic, sporting and leisure environments.

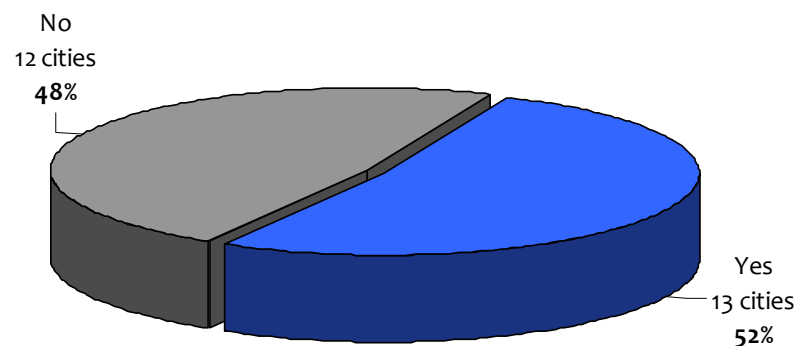
e-Inclusion is a social movement whose goal is to eliminate the digital divide; i.e. the separation between people using Information and Communication Technologies (ICT) as a routine part of their daily lives and those who have no access to them and who, even if they did have access, would not know how to use them.

Of the 25 cities (4 in Africa, 8 in Latin America, 1 in Asia and 12 in Europe) that answered the question, 52% have developed some type of digital e-Inclusion programme.

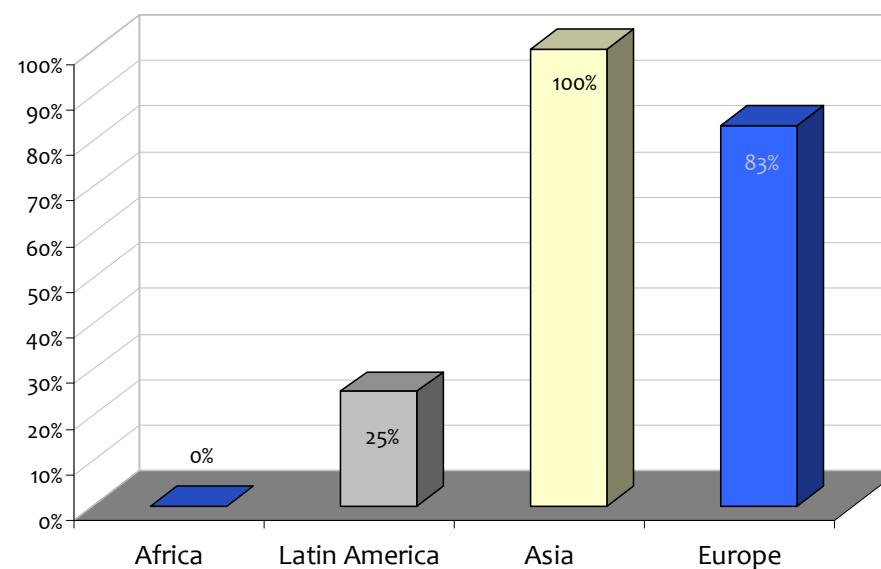
Note that when performing the analysis by region, we found that none of the African cities that responded to the question had developed a programme. In the case of Latin America, the figure rises slightly, as 25% of the cities had developed a programme. This contrasts with Europe, a region where the vast majority of cities (85%), has implemented a programme. Taipei has also implemented digital inclusion programmes.

**Below are some experiences developed by cities.**

Has your City Council implemented a digital inclusion programme for groups at risk of exclusion?



% of cities that have implemented digital inclusion programmes, by region



## Barcelona

**Digital Literacy Plan of the Barcelona City Council:**

Approved in 2010, it was created as a tool for improving competitiveness and labour inclusion. The Plan seeks to define a strategy for global digital literacy and training for the entire city of Barcelona for the 2010-2015 period. It aims to coordinate actions that directly depend on the structure of the local government, as well as actions performed by other agents, whether public or private.

<http://w144.bcn.cat/cibernarium>



## Mexico City

**The "Actions for Inclusion and Equality in Education"**

**Programme:** The idea is to install community centres in the 160 micro-regions identified that have the highest number of illiterate people in Mexico City. At the end of the 2011 fiscal year, 200 centres would be in operation.

Regarding the installation of these community centres, priority will be given to the micro-regions identified as having high illiteracy levels and other areas inhabited by persons with disabilities (hearing, visual, intellectual, movement, emotional), Indians (all Mexican indigenous groups), people living in the streets, vulnerable families, children and adolescents at risk or economically active, etc.

## Malmö

Specific programs and initiatives in low social economic areas in the city.

City page [www.malmo.se](http://www.malmo.se) is designed from a high interactive and intuitive perspective - ex. for older people with low IT-experience.

## Helsinki

There are over 700 computers for the use of citizens in the public libraries and different service units of the Social Services Department. There are IT courses for the elderly and other groups at risk of exclusion.

## Taipei

### 1. Computer Donations and Subsidies for the Underprivileged:

The Taipei City Government joined hands with Microsoft Taiwan Corp., Acer, Symantec, Trend Micro etc. to help the financially underprivileged obtain computers. For the year 2010, the private sector helped subsidize 600 households in computer purchases. They also helped low-income households obtain ADSL access at a discount, and offered complete sets of software, training and certification package courses.

### 2. Free Internet Training for Citizens:

Lessons including training for beginners, e-mail, blogging, image processing etc.

<http://english.taipei.gov.tw/ct.asp?xItem=1102305&ctNode=8516&mp=100002>



## Bilbao

The Social Action, Equality, Cooperation and Citizenship Departments and the Bilbao Ekintza Municipal Agency have worked in recent years to develop **digital literacy programmes for groups at risk of exclusion**.

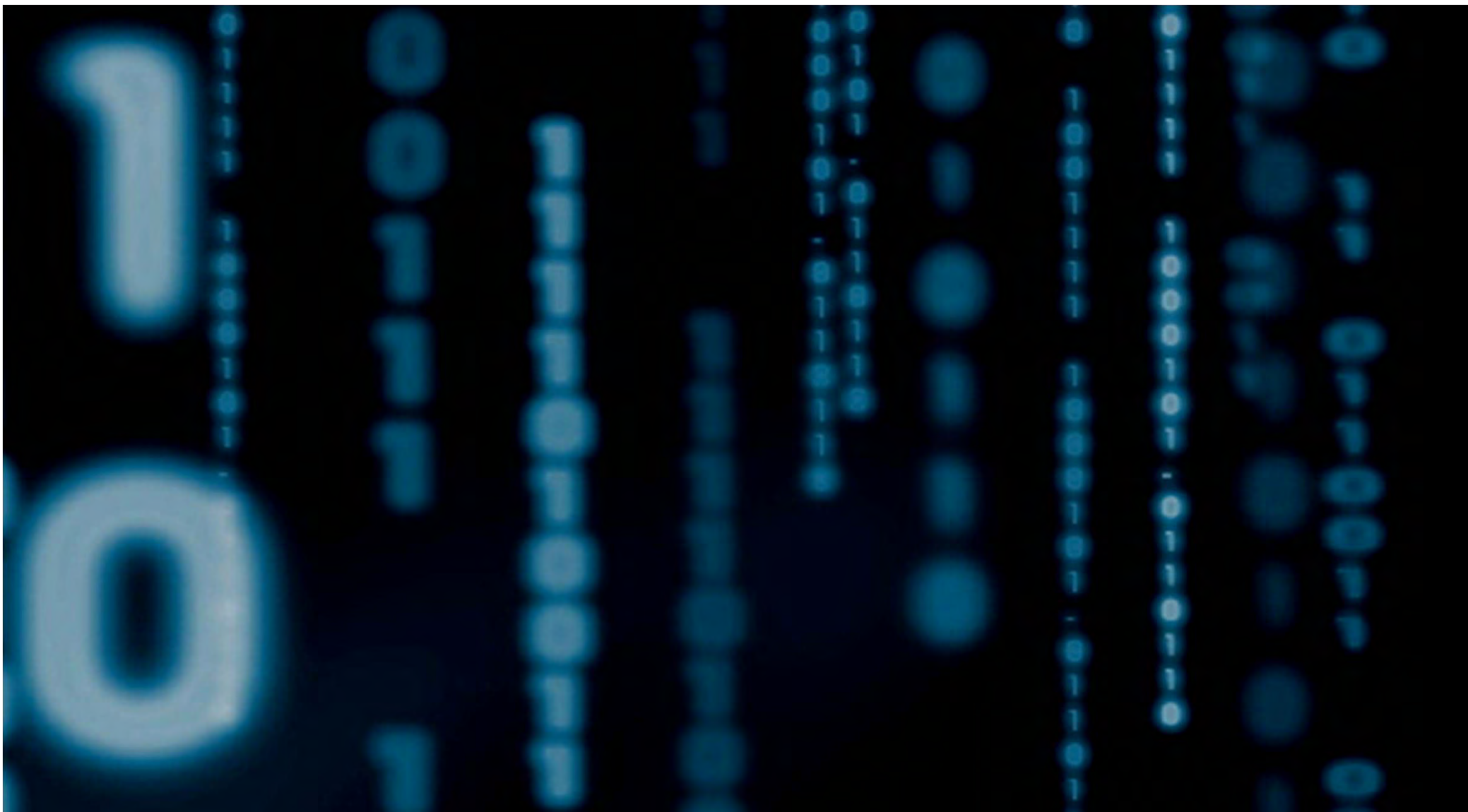
Many courses are geared to beginner levels in computer use (Windows and Word) and to the most advanced computing skills (internet, email and blogs) as well as to the computerization of Curriculum Vitae and other measures to support access to employment through New Technologies.

In Bilbao there are also several KZGUNEa centres, where new courses on e-Government are offered to teach the users, among other things, how to apply for a standard inhabitant registration slip, access jobs, track official gazettes, process documents with the Provincial Treasury Department or obtain traffic information.

<http://www.kzgunea.net>







Comisión de *Ciudades Digitales y del Conocimiento*  
Committee of *Digital and Knowledge-Based Cities*  
Commission des *Villes Numériques et de la Connaissance*

