Bilbao: The revitalisation of a City
Sanchez S., Zulueta A., Barrallo J.

The city of Bilbao has suffered in the last decade a deep transformation. After a glorious industrial past, Bilbao was in 1990 a depressed city, and the strategies necessary to transform an industrial city into a service capital were no simple due to the high level of pollution and unemployment rate. The “Bilbao Metropoli-30” Association was created to coordinate the synergetic action of all the involved institutions: City Hall, Basque Country and Spanish Governments, financial institutions, transport companies, airport and port, etc. But it was also necessary the acceptance of the public opinion to recover the illusion and the lost pride of the city. The desolated social scene was not adequate for revolutionary designs like the winding Frank Gehry’s Bilbao Guggenheim Museum, or the cavernous Norman Foster’s underground. This work pretends to show the means and strategies, especially computational, that allowed the transformation of Bilbao with an enthusiastic citizen support.

Keywords: Metropolitan Bilbao, City Revitalisation, Architectural Computer Simulation

Bilbao, the city

Bilbao, is the most important city from the Basque Country, a historical territory placed in the North of Spain close to the French border, and the heart of a metropolitan area with over 1,000,000 inhabitants. Since it was founded 700 years ago, it has been the central point for socio-economic development and the fundamental factor for the modernisation of the Bay of Biscay.

From Bordeaux to La Coruna, the hegemony of Bilbao is undeniable. No other city has so many reasons to be the economic, financial, cultural and tourist centre of the whole area. But only during the last years Bilbao has recovered its importance in the area due to a deep transformation, changing from an industrial city to a financial and service city complemented by an important cultural and architectural offer.

For centuries, Bilbao has been one of the industrial supports of Spain. The harbour and the steel industry modified the shape of the city along the river that crosses it: the Nervion.

With the crisis of the 70’s, the industry decayed, the pollution became unsustainable and the Nervion River, heart and soul of Bilbao, became extremely contaminated. Smoke, and a progressive industrial desert landscape is the image remaining from those years.

The decade of the 80’s wasn’t better: the unemployment rates became higher and the political situation, marked by the violence of ETA and the hardness of the Police, avoided any inversion of external capital into the city.

The 90’s appeared as the last occasion to transform Bilbao into a service city before the final
collapse. For this task, we had only four advantages:

- The strong and labourer character of the Basque people.
- The progressive changes of the political and social situation allowing for the first time in many decades the cease of violence and, as a consequence, the inversion of capital.
- A very valuable terrain in the city centre, converted in an industrial desert, but ready to be transformed into the soul of the new Bilbao.
- The privilege position in the North Atlantic: well linked with Madrid, Barcelona, Paris and London, and important contacts with Europe, America and Africa by sea and air.

**Bilbao Metropoli 30**

Metropolitan Bilbao is constituted by a set of 44 municipalities around the Nervion River. Although they have their own administrative entities, all are joined by an intense common industrial tradition, and considered as a single demographic and economic nucleus.

The association “Bilbao Metropoli-30” was created to develop and coordinate the actions of the private sectors and the public administrations of the City (Bilbao), Province (Bizkaia), Region (Basque Country), Country (Spain) and European Union.

This association was composed by the following sectors:

- Bilbao Port and International Airport
- Bus and Train Companies
- Universities and Investigation Centres
- Communication Companies
- Financial entities
- Associated enterprises
- Public administration.

The main task of “Bilbao Metropoli-30” is to design and execute the Strategic Plan for the Revitalisation of Metropolitan Bilbao, defined as a social and economic reality without precise geographic limits. The Plan is executed in regional, national and international environments.

In second place, the Association studies and investigates the actual situation of Metropolitan Bilbao and promotes the synergetic action of the public and private sectors.

The recovery of the metropolitan estuary is one of the key goals of the Strategic Plan for the Revitalisation of Metropolitan Bilbao. The Nervion estuary is the main axis of the conurbation and, as a result, the industrialisation process heavily polluted it.

For this reason, the Bilbao Bizkaia Water Authority started the design of an Integral Clean-Up Plan in the 70's, which was directed to resolve the existing pollution in rivers, estuary and sea waters caused by industrial and household waste. First stages of the Plan were implemented in 1981 and we can today see the effects in our environment of this Project due to be finalised in the first years of the next century. Today, projects to recover and regenerate riverside urban sites are under way in the framework of the revitalisation of Metropolitan Bilbao.

**Bilbao: Cultural and architectural city**

The first step in the transformation of Bilbao into a service city was to increase the offer of cultural activities, and the construction of the necessary infrastructure. The building for the Bilbao Guggenheim Museum was considered as the most emblematic building of this revitalisation process. But it was not going to be an easy process.

Bilbao has an astonishing architecture in a rich urbanistic ensemble, with modernist and rational buildings mingling together. The monumental and historical area of the old quarter, restored after the floods of 1983, becomes the reference for reconstructing the history of the city since its origins, in the early Middle Ages, and it is an example of urban
regeneration.

With this environment, the first prototype of the Bilbao Guggenheim Museum presented did not have a good welcome by the citizenship. Actually, the building looked very strange and probably the scale model did not show it efficiently.

Spanish architects also questioned Frank O. Gehry, an architect whose buildings always have had many problems with delays in the construction schedules, surpluses from the initial budgets and the very expensive maintenance of his buildings.

On the other hand the cultural equipment for the city was going to substitute the factories, cranes and warehouses where people had worked for years. For unemployed citizens the inversion for these buildings was no reasonable. The change from an industrial city into a cultural service city was not going to be easy, while fully immersed in a social and economic crisis.

A change of strategy was necessary. People needed to “fall in love” with the idea of the new Museum, to express enthusiasm and support to the project. Computers were able to reproduce realistically the complexity of the Bilbao Guggenheim Museum building: the materials, the shapes, the light, and the interior in a very different way, compared with the previous scale model.

So a video was created to show the CAD model, but it also included many images of the steel structure similar to the ships that were constructed in the same ground years before. Images of people working the steel, using cranes, welding, etc. gave a dynamic image that soon made the Bilbao Guggenheim Museum very popular.

Guided visits for all the Bilbao citizens were organised every day while constructing the Museum. Pins, T-shirts, bags, books, etc. were given to all the visitors. People and the Basque companies working in the Museum got really excited about the daily transformation of the building, from the steel structure to the titanium sheets that cover the surface.

In fact, the Bilbao Guggenheim Museum is the first of Frank O. Gehry’s buildings finished within the foreseen budget and time schedule.

The cultural equipment was successfully completed with other buildings, featuring the Euskalduna Music Palace by Federico Soriano and Dolores Palacios.

**Communications**

The last challenge of the Metropolitan Bilbao was the improvement of the communication infrastructure.

Metropolitan Bilbao boasts competitive port facilities up to standard with ports in other major metropolitan areas. The Port of Bilbao is already Spain’s premier port in terms of shipping volume and water depth. An extension of the port is underway to
Figure 3 (top right). Pictures from the Bilbao Guggenheim Museum promotional video. The video mixes real images of the constructive process with computer generated images of the final building.

provide more space for activities and to transfer port facilities from their old inner city riverside.

Bilbao airport offers more than 600 flights per week to the main cities of Spain and Europe. The steady increase in air traffic and the deregulation of air transport are among the factors that have led to an extension and modernisation project at Bilbao Airport by the architect Santiago Calatrava.

The development of the interchange transport knot for high-speed, suburban and long distance trains, urban and intercity buses, metro and car-parking, will be completed by the future Intermodal Station, still under project by the architect: Michael Wilford (successor of James Stirling).

But the most difficult task was the construction of the new Bilbao Metropolitan Railway. City planners and project managers designed several kinds of railways (surface and underground), perfectly distributed along the city. An ecological light tramway crosses the cultural Bilbao over a green garden, whilst a modern underground traverses the business centre.

Sir Norman Foster and his team were commissioned to design and plan the underground stations on the city centre. In addition to the central ideas of originality, simplicity and efficiency ever-present in Foster’s work, the Bilbao Metro incorporates the positive core concept of integrating architectural and engineering features to create the smooth flowing lines and spaces which is so characteristic.

From the beginning of the project development special attention was given to the design and architecture of the stations. This approach should not merely centre on aesthetic considerations but should cover such aspects as functionality, commuter convenience and comfort.

The following three elements relate to the structure of the stations: A gigantic cavern with a cross-section measuring 160 m² where track bays, platforms and mezzanines are located. The access walkways with halls into and from which stairs lead to platforms and the street. The halls and mezzanines hang from the station ceiling.

The overall result is one of beauty and functionality. The Metro architecture also finds unique expression in the street as what are now termed “fosteritos”. The visual impression is of extraordinary spaciousness where the passenger does not feel trapped and can find whatever he needs close at hand.

Again, as with the Bilbao Guggenheim Museum, the underground project had many difficulties with the initial design. Foster’s idea of the treatment of the interior as a cavern was initially not well received. But a computer model showing a virtual journey dissipated all doubts and showed the luminosity and space sensation of the cavern.

One station and one underground wagon unit were opened in advance to the public. Citizens visited them and gave their suggestions about the design. Some of them were accepted and introduced as part of the final project.

**Bilbao City Centre: Abandoibarra**

Abandoibarra is a huge space of 350,000 m² placed
in the city centre of Bilbao. Converted in an industrial desert during the 80’s, is now considered as the most valuable terrain in Bilbao, between the Guggenheim Bilbao Museum and the Euskalduna Music Palace. Cesar Pelli was elected in an international contest to revitalise this space.

The main challenge of this project was to reorder the spaces eliminating the trails of the old industrial infrastructures, and the configuration of a new urban space in harmony with the Bilbao city centre.

The project of Cesar Pelli is composed by 200,000 m² of green zones and free spaces along one Kilometre of the Nervion River. The green zones will save the difference of height (nine metres) between the river and the city centre by means of soft ramps. Office buildings will constitute the major use of Abandoibarra, around an emblematic tower of 30 storeys. A commercial centre and residential buildings complete the project.

Abandoibarra was presented to the citizenship with several computer models and photo realistic images. A stand of 300 m² was erected in the city to show the Plan of Abandoibarra and to answer questions related to the project. The participation of people was enthusiastic, with debates, workshops and even a free newspaper dedicated to the latest news and activities about Abandoibarra.

A Maritime Museum is also under construction. Several ships in a dike, a lighthouse and a big crane...
complete the ensemble that will remember seven centuries of marine tradition in Bilbao.

Conclusions

In 1998 the economy of Metropolitan Bilbao raised 5.5%, and 10,000 new jobs were created, basically sustained by the private sector. We can say now that the revitalisation of Bilbao has been a complete success.

The absolute support of citizenship to the project is basically one the keys of this success. Probably this is due to the continuous urbanistic and architectural formation that people has received during the last years from media and to the presence of projects and ideas from first class architects (Gehry, Foster, Pei, Stirling, Wilford, Bofill, Calatrava, Fernandez-Ordóñez...).

In the international contest for Abandoibarra, won by Cesar Pelli, a parallel non-vinculante contest was made between the people from Bilbao. As result, they selected the same project as the international jury. Citizens could understand the projects and take decisions based on computer simulations and photo realistic images.

After that experiences the question is: may citizens be involved in the development of their cities, supported by realistic computer aided architectural designs? Probably we have underestimated the capacity of citizenship to choose the kind of city they want to live in.