Merging our capabilities to multiply excellence.

Strategic Viability and Conversion Plan for the Campus of International Excellence

ALLIANCES
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I. Description of BKC Alliances

a. Strategic alliance between the UB and UPC

The Universitat de Barcelona (UB) and the Universitat Politècnica de Catalunya (UPC) are jointly presenting the Campus of International Excellence project, the Barcelona Knowledge Campus (BKC).

The BKC’s ambition is to become the primary driver of scientific, social and business activity in its region, acting as a magnet for attracting talent on an international level.

The alliance of these two universities to create the BKC establishes a key framework of strategic collaboration to provide the area with a solid scientific and technological project – an international benchmark that will transform the region through a socially integrated model based on innovation and sustainable development.

The set of scientific and technological disciplines that the campus brings together covers a broad spectrum of fields that goes from architecture and fine arts to biotechnology and pharmacy, and from civil engineering, computer sciences, telecommunications, industrial engineering and experimental sciences to law, economics and business. So, the activities of the campus coincide with the majority of the activities of the productive sector that give life to the region, which is why the campus is taking an active part in making the changes to the economic and productive model which will be so necessary in coming years.

The campus is located in the midst of one of the largest concentrations of human resources in the region with great academic, scientific and technological potential clustered around the university buildings and facilities – some of the most active and powerful organizations of their kind in southern Europe.

The BKC is set at the entrance to the city of Barcelona. Its premises encompass 227 hectares on either side of the busy thoroughfare Avinguda Diagonal. With over 515,000 square metres of building space, the campus is made up of 16 teaching centres between faculties and schools, 90 university departments, more than 15 libraries and learning resource centres, two science and technology parks, and specialized support centres, in addition to administrative offices, university community support and services offices, and institutional and representative offices.

More than 42,000 undergraduate students come together in this setting every day – beneficiaries of a campus offering more than 50 different EHEA bachelor’s degree programmes – along with 6,700 postgraduate students. There are also approximately 3,700 professionals on the permanent teaching and research staff and 2,250 members of the administrative and service staff.
The alliance of the UB and the UPC to create the BKC is built around three fundamental areas:

1. Scientific and technological development and the promotion of knowledge transfer

2. International visibility and scope

3. The full urban integration of the campus as a true environment of knowledge

**Area 1: Scientific and technological development and the promotion of knowledge transfer**

The BKC consists of centres, departments, companies and university research groups that have achieved excellence in both R&D&I and knowledge transfer and is one of the primary centres of scientific and technological development in Spain and Europe. One of the primary objectives of this project therefore consists of aligning the strategies of all these stakeholders to position the campus in the international arena.

The campus boasts 314 research groups and about 6,800 researchers, 23 research centres and 47 spin-offs. And the presence of the Barcelona Science Park (PCB-UB) and the UPC Research and Innovation Park (Parc UPC) on campus draws the constant attention of researchers, scientists and specialized technicians from all over the world.

The UB and the UPC are universities with recognized enterprising capacity that are highly involved in the scientific and technological development of the country. As generators of knowledge, research and innovation, they have considerable social and economic impact in the region. Its substantial activity in the transfer of technology and knowledge to the business sector and society places the BKC at the centre of scientific and technological innovation, research and development.

**Area 2: International visibility and scope**

The campus is an international benchmark in the spheres of knowledge in which it specializes. As a whole, the BKC offers the most recognized Erasmus Mundus master’s degree programmes in all of Europe (nine in total) and 19 degree programmes are taught entirely in English, making it among the top campuses in Europe. Furthermore, the BKC now welcomes about 3,000 international students every academic year and sends about 900 students to study abroad.

The campus will focus its activity both on the regional setting and the international sphere, concentrating mainly on the east-west axis of Asia and
South America, but without neglecting the countries of Europe and other emerging geographical areas, such as North Africa and the Middle East.

The international scope of the campus’s teaching, research and knowledge transfer will be a strategic axis of the BKC to make it a magnet for international talent, both because of the quality of its master’s and doctoral programmes and its excellence in research in its spheres of specialization.

To accomplish this goal, every effort will be made to forge relationships, generate professional networks and recruit research staff from other countries to create strategic international alliances and consolidate the mobility of the student body, academic personnel and administrative and service staff.

Area 3: Urban integration

The BKC is a clear example of how universities can contribute to the urban transformation of a city, making the city itself an educational model at the service of society. The Portal del Coneixement Master Plan, approved by the Barcelona City Council in 2001, establishes four main areas of work in line with this model: improving accessibility, systemising open spaces, streamlining initiatives for large organizations and structuring the distribution of new buildings.

Based on a convergence of interests, the UB, UPC and the Barcelona City Council have set a goal to share the talent and potential of all the areas of knowledge in the region and to showcase this knowledge at and from the campus itself. This will ensure a model of interaction with the city to demonstrate that respect and harmony with the environment can be compatible with the most advanced technology and progress in innovation.

The campus’s dedication to continuing improvements in sustainability, urban development, accessibility and mobility will make it a space of exchange and communication through promoting and opening museum spaces, creating new university halls of residence and improving sports facilities in a natural setting within the campus itself. The campus will be totally adapted to facilitate people with disabilities and will be an international benchmark in the development of assisted technologies.
b. Alliance with the Generalitat de Catalunya

The Generalitat de Catalunya and the Ministry of Innovation, Universities and Enterprise, through the Commissioner for Universities and Research, have approved the proposals of the BKC, which they are familiar with as a result of descriptions supplied in various multi-year university investment plans.

c. Alliance with the Barcelona City Council

The BKC is a clear example of how universities can contribute to the urban transformation of a city, making the city itself an educational model at the service of society. The Portal del Coneixement Master Plan, approved by the

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### Strategic alliance summary table:

<table>
<thead>
<tr>
<th>Item</th>
<th>2009 figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students studying towards EHEA bachelor's degrees, diplomas, undergraduate degrees and engineering degrees</td>
<td>42,720</td>
</tr>
<tr>
<td>Postgraduate and doctoral students</td>
<td>6,700</td>
</tr>
<tr>
<td>Teaching centres</td>
<td>16</td>
</tr>
<tr>
<td>EHEA bachelor's degree, undergraduate degree, diploma, and engineering degree programmes</td>
<td>53</td>
</tr>
<tr>
<td>University master's degree programmes</td>
<td>119</td>
</tr>
<tr>
<td>Annual number of university graduates</td>
<td>5,329</td>
</tr>
<tr>
<td>Number of Erasmus Mundus master's programmes</td>
<td>9</td>
</tr>
<tr>
<td>Number of programmes taught entirely in English</td>
<td>19</td>
</tr>
<tr>
<td>Number of international students</td>
<td>2,886</td>
</tr>
<tr>
<td>University departments</td>
<td>90</td>
</tr>
<tr>
<td>Science and technology parks</td>
<td>2</td>
</tr>
<tr>
<td>Researchers</td>
<td>6,800</td>
</tr>
<tr>
<td>Published theses</td>
<td>768</td>
</tr>
<tr>
<td>Research groups</td>
<td>314</td>
</tr>
<tr>
<td>Affiliated research centres</td>
<td>23</td>
</tr>
<tr>
<td>European and international projects</td>
<td>46</td>
</tr>
<tr>
<td>Spin-offs created in the past 5 years</td>
<td>47</td>
</tr>
<tr>
<td>Annual income generated by transfer activities</td>
<td>35,428,098</td>
</tr>
<tr>
<td>Patents generated in the past 3 years</td>
<td>192</td>
</tr>
<tr>
<td>Libraries and learning resource centres</td>
<td>15</td>
</tr>
<tr>
<td>Permanent teaching and research staff</td>
<td>3,700</td>
</tr>
<tr>
<td>Administrative and service staff</td>
<td>2,250</td>
</tr>
<tr>
<td>Total constructed area</td>
<td>515,000 m²</td>
</tr>
</tbody>
</table>

¹ 2008 figure
Barcelona City Council in 2001, establishes four main areas of focus in line with this model: improving accessibility, systemizing open spaces, streamlining initiatives for large organizations and structuring the distribution of new buildings.

The Barcelona City Council along with UB and UPC has set a goal to share the talent and potential of all the areas of knowledge in the region and to showcase this knowledge at and from the BKC itself. This will ensure a model of interaction with the city to demonstrate that respect and harmony with the environment can be compatible with the most advanced technology and progress in innovation.

d. Alliance with the Barcelona Chamber of Commerce

The Barcelona Chamber of Commerce participates very actively in collaboration with the UB and UPC in developing and implementing various activities:

• **Business Innovation Stimulation Programme**: The global objective of the programme is to support the stimulation of technological innovation processes in SMEs through the incorporation of human capital trained in innovation management (qualified professionals, bachelor’s degree holders, engineers, graduates, Master’s degree holders, doctoral students and doctors) into the productive fabric. The project is structured in two stages: a training stage and an in-company innovation stimulation stage.

• **Barcelona Research and Innovation Programme**: This programme aims to disseminate and promote research, innovation, research appraisal and the transformation of knowledge as a tool for business innovation.

• **Company University Programme**: This programme aims to detect business and knowledge transfer opportunities as well as institutional support to drive knowledge transfer projects.

http://www.cambrabcn.org/web/cambra/empreses/formacio/universitat_empresa

e. Alliance with the Spanish National Research Council (CSIC)

The CSIC has 22 centres in Catalonia and a team of more than 1,400 professionals working in very diverse research fields, grouped into six scientific-technical areas:

- Humanities and Social Sciences
- Biology and Biomedicine
- Natural Resources
- Physical Science and Technologies
- Chemical Science and Technologies
- Material Science and Technologies

Of the 22 centres, eight are located within the BKC:

- Research and Development Centre (CID)
- Institute of Advanced Chemistry of Catalonia (IQAC)
– Institute of Environmental Assessment and Water Research
– Institute of Molecular Biology of Barcelona (IBMB)
– Centre for Agrigenomics Research (CRAG)
– Jaume Almera Earth Science Institute (ICTJA)
– Space Sciences Institute (part of the IEEC)
– Institute of Robotics and Industrial Informatics (IRI)

http://www.upc.es/bupc/hemeroteca/2006/b93/07-12-06.pdf

Two of the most noteworthy of the eight centres located within the **BKC** are the Institute of Robotics and Industrial Informatics (CSIC-UPC mixed centre) and the Institute of Molecular Biology of Barcelona (IBMB), whose headquarters are in the Barcelona Science Park.

The CSIC is very actively involved with universities and multiple specific research agreements are drawn up every year between the centres of the CSIC and the centres, institutes and research groups of the **UB** and **UPC** located on the **BKC**.

### f. Other strategic alliances

The **UB** and the **UPC** play an active role as co-coordinators and network builders for virtual institutes, scientific observatories and all types of national and international alliances. Some of these strategic alliances are described below.

1. The **UB** and the **UPC** have developed an extensive international policy through a series of networks of universities of excellence that respond to different goals and that centre their efforts on the joint work of prestigious institutions for the purpose of obtaining results that put them at the forefront of their areas of activity and that are governed by the interests and strategies of those top-level institutions. Some of these include:

   – **Eurolife** (Network of European Universities in Life Sciences)
   – **Atomium Culture** (Red Europea de Divulgación de la Investigación)
   – **Red Emprendeia** (University Network of Business Incubators)
   – **Enterprise European Network, CESAER** (Conference of European Schools for Advanced Engineering Education and Research)
   – **CINDA** (Interuniversity Development Centre)
   – **CLUSTER** (Consortium Linking Universities of Science and Technology for Education and Research)
   – **EUA** (European University Association)
   – **GUNI** (Global University Network for Innovation)
   – **RMEI** (Réseau Méditerranéen des Écoles d’Ingénieurs)
   – **UNITECH International**
   – **TII** (Technology, Innovation, Information)
   – **ProTon Europe** (European Knowledge Transfer Association)
   – **IASP** (International Association of Science and Technology Parks)
2. On the national, Spanish level the UB and the UPC are also members of several networks of universities of excellence:

- Network of University-Company Foundations - REDFUE
- Network of Research Results Transfer Offices – OTRI Network
- Catalan networks: Network of Technological Trampolines and Network of Technological Innovation Support, both from the agency ACC1Ó-Cidem-Copca of the Generalitat de Catalunya
- The Spanish Association of Science and Technology Parks (APTE), which currently consists of 51 members in 16 different autonomous communities making it an innovation network that acts as the keystone in the country's science-technology-business system. Created in 1988, the APTE works toward the renovation and diversification of the productive sector, technological progress and economic development by means of promoting and expanding science and technology parks. The Barcelona Science Park has held the position of vice-chair of the association since 1998.
- Xarxa de Parcs Científics i Tecnològics de Catalunya (XPCat) (Network of Science and Technology Parks of Catalonia): the network consists of 11 production, transfer, promotion and knowledge use centres. The network acts at the point of contact between the research and innovation communities, making infrastructure and specialized services available to them. Its goal is to respond to international technological challenges and the economic and social needs of the country.
- Xarxa de Centres de Suport a la Innovació Tecnològica (Network of Technological Innovation Support Centres - XIT-CIDEM) sponsored by the Centre for Business Development (CIDEM) of the Generalitat de Catalunya: the XIT network is made up of research units and groups with the capacity to provide technological innovation services to companies in Catalonia and aims to strengthen the R&D outsourcing market in Catalonia to increase the innovative capacity of companies.

3. Furthermore, through the UB and/or UPC the campus participates in collaboration projects and agreements with several very important leading organizations in research and knowledge transfer.

- Institute of Bioengineering of Catalonia (IBEC), a mixed UPC, UB and Generalitat de Catalunya centre specializing in bioengineering – from the most basic research to medical applications – with an open, transversal mentality. Its main lines of research concern cellular biotechnology, biomechanics and cell physiology, nanobiotechnology, biomaterials and tissue engineering, medical instrumentation, robotics and biomedical imaging.
- Supercomputing Centre of Catalonia Consortium (CESCA), a group sponsored by the Generalitat de Catalunya through the Catalan
Foundation for Research and Innovation with the collaboration of universities and the CSIC. The basic goal of the CESCA is to manage a wide array of calculation and communications systems to serve the university and the research community based on five specialized areas: a) communication networks; b) portals and repositories for university information; c) scientific calculation and data storage systems; d) promoting the use and benefits of these technologies and e) the operation and maintenance of all centre infrastructure.

- The UB and UPC are also members of the BioRegion of Catalonia, an organization that stimulates the biotechnology sector with the mission of contributing to the creation of an appropriate environment to add value to the research of Catalonia through an efficient and dynamic knowledge transfer system, consolidating biotechnology as an economic sector of relevance and strengthening its role in society.

Through the UB the campus participates and/or collaborates in different projects with the following institutions:

- Institute of Biomedical Research (IRB)
- Institute of Biomedical Research of Bellvitge (IRB)
- Plant Biodiversity Documentation Centre
- La Fundació Clinic
- August Pi i Sunyer Institute of Biomedical Research (IDIBAPS).
- Private Foundation Energy Research Institute of Catalonia
- Institute of Space Studies of Catalonia (IEEC)
- Catalan Foundation Institute of Climate Sciences of Catalonia (IC3)
- Antoni de Capmany Centre Observatory on Economics and Economic History
- Observatory on Bioethics and Law
- Observatory on the Penal System and Human Rights
- Grupo Santander (through the Marcelino Botín Foundation and Banco Santander)
- Parc de Recerca Biomédica of Barcelona (Biomedical Research Park of Barcelona - PRBB)
- The ESADE and IESE business schools, and
- CIBER-BBN (Networking Biomedical Research Centre in Bioengineering, Biomaterials and Nanomedicine) sponsored by the Ministry of Science and Innovation

The UPC participates actively in the creation of research centres with independent legal status, partly due to the university’s limitations for growth in its stable cores of research and partly due to the Generalitat de Catalunya’s policy to promote the creation of independent centres or partnerships:

- Centre for Mathematics Research (CRM)
- International Centre of Numerical Methods in Engineering (CIIMNE)
- International Coastal Resource Research Centre (CIIRIC)
- Institute of Robotics and Industrial Informatics (IRI)
- Catalan Plastics Centre (CCP)
II. Specific Agreements and Commitments for the Development of the BKC

a. Primary specific commitments for the development of the BKC

• Generalitat de Catalonia
  The Generalitat de Catalunya and the Ministry of Innovation, Universities and Enterprise, through the Commissioner for Universities and Research, have approved the proposals of the BKC, which they are familiar with as a result of descriptions supplied in various multi-year university investment plans.

• Barcelona City Council
  The Barcelona City Council along with UB and UPC have set a goal to share the talent and potential of all the areas of knowledge in the region and to showcase this knowledge at and from the BKC itself. This will ensure a model of interaction with the city to demonstrate that respect and harmony with the environment can be compatible with the most advanced technology and progress in innovation.

• Barcelona Chamber of Commerce
  The Barcelona Chamber of Commerce participates very actively in the UB and UPC through the development of multiple university-company programmes including programmes to stimulate business innovation and to disseminate and promote research, appraise research, and transform knowledge as a tool for business innovation.
• **Spanish National Research Council (CSIC)**
  The CSIC has 22 research centres in Catalonia and a team of more than 1,400 professionals. Two of the most noteworthy of the eight centres located within the BKC are the Institute of Robotics and Industrial Informatics (CSIC-UPC mixed centre) and the Institute of Molecular Biology of Barcelona (IBMB), whose headquarters are in the Barcelona Science Park. Furthermore, the CSIC is very actively involved with universities and multiple specific research agreements are drawn up every year between the centres of the CSIC and the centres, institutes and research groups of the UB and UPC located on the BKC.

b. **International commitments for the development of the BKC**

• **Consortium Linking Universities of Science and Technology for Education and Research (CLUSTER)**
  This is a network of European technology universities. It was founded in 1990 and represents 13,500 lecturers and researchers, 120,000 students and 13,000 doctoral candidates. The network’s goal is industrial and social development on a European level.

• **Coimbra Group**
  This is an association of prestigious international European universities which fosters special academic and cultural connections in order to promote – for the benefit of its members – internationalization, academic cooperation, excellence in both education and research, and services to society.

• **Tordesillas Group**
  This is an association of Brazilian, Spanish and Portuguese universities. The association promotes cooperation between the universities in the fields of science and education.

• **International Association of Science Parks (IASP)**
  The International Association of Science Parks is a global network of science and technology parks. It brings together professionals from science parks throughout the world and provides services for all its members.
• **ProTon Europe. Innovation from Public Research**

This is a network of knowledge transfer offices and businesses affiliated with universities and public research centres. The goal of ProTon Europe is to provide support for the development of European knowledge transfer offices through the exchange of good practices and staff and through the provision of training tailored to meet the needs of these offices.

**Conclusion**

In conclusion, the strategic alliance between the UB and the UPC in forming the BKC of the city of Barcelona is the primary strongpoint of the proposal presented here. The UB and the UPC have demonstrated their capacity for valuing research and innovation as well as for advancing the educational and research needs required in the productive sector. Their involvement in the generation of new economic activities resulting from the city-business-university partnership has made the BKC an engine for change in the economic model.

With the sum of capacities of these two universities, the administrations that back the proposal (the Barcelona City Council and the Generalitat de Catalunya), the allied research and innovation organizations (CSIC) and the social stakeholders who give their support (the Barcelona Chamber of Commerce) in addition to international university networks, the BKC will be able to:

- become actively involved in changing the economic and productive model through the generation of new activities based on innovation and knowledge;
- attract and stimulate talent based on full internationalization;
- develop an integrated model of a sustainable campus committed to its environment with a clear student-centred orientation.