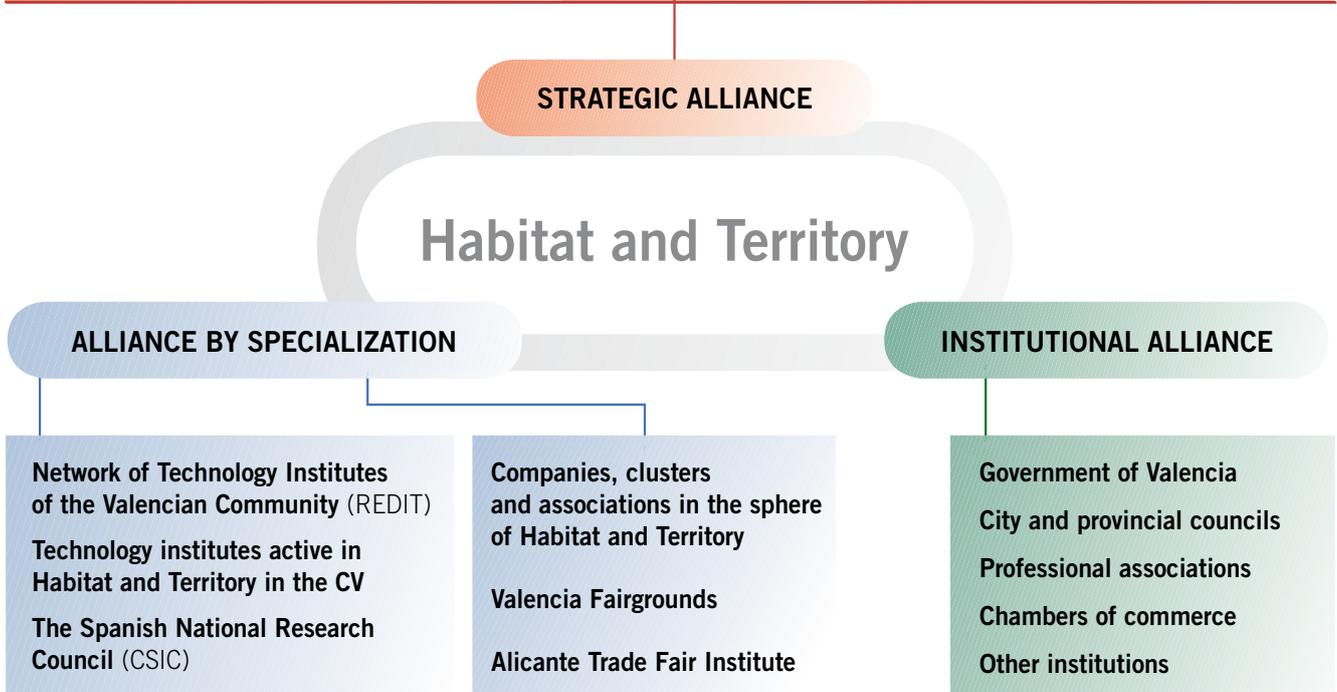


CAMPUS **HABITAT5U**

Area 2.5 **Alliances**

2011 Campus of International Excellence call for proposals

Universitat de València (UV)	Faculties and Schools	Science Park (UV)
Universitat Politècnica de València (UPV)	Departments	Polytechnic City of Innovation (UPV)
Universitat d'Alacant (UA)	Groups and R&D	Science Park of Alicante (UA)
Universitat Jaume I (UJI)	University institutes	Technology Park (UJI)
Universidad Miguel Hernández de Elche (UMH)	Joint centres with the CSIC	Business Science Park (UMH)
	Chairs	



Introduction: The Valencia Science and Technology System (SVCYT)

In keeping with the primary indicators related to scientific research, technological development and innovation, by 2015 the Valencian Community (CV) is forecasted to rank among the top five regions in Spain and to exceed the European Union average.

The importance of the **Valencia Science and Technology System (SVCYT)** and its ongoing positive development is helping to sustain policies that are stable, coordinated and effective for the development of a new economic system based on knowledge, and the development of a creative, multidisciplinary and innovative environment focused on well-being and quality of life.

This is the purpose of the **CAMPUSHABITAT5U** project, through the SVCYT, in which public universities and other entities associated with the project play an extraordinarily important role, promoting a more dynamic and competitive productive base that represents the fruit of collaborations between research centres and the private sector.

The following is a brief overview of the primary stakeholders involved in the SVCYT:

- The **five universities** that make up the **Valencian Public University System (SUPV)** and which together comprise CAMPUSHABITAT5U and their departments and university research institutes. The **92%** of students attending university in the Valencian Community who are enrolled in the SUPV.
- The **twelve** public research bodies, including ten Spanish National Research Council (CSIC) centres located in the Valencian Community.
- **Eight** healthcare centres and research foundations.
- The **fourteen** technology institutes that make up the **Network of Technology Institutes of the Valencian Community (REDIT)**. Of these, eight carry out their activities in the sphere of Habitat and Territory.
- Organizations that support technology transfer and the diffusion and sharing of research results in science and technology, including: the **Research Results Transfer Offices (OTRIs) of the R&D&i centres**, the **five science parks linked to public universities**, a technology park and four European business innovation centres (CEEIS centres in Alcol, Elx, Valencia and Castellón).

The ability of these stakeholders to provide research results and contribute both to science and to society will be strongly enhanced by the sharing and coordination of all of the resources and capabilities of these organizations. What is most important, however, is that through interaction under the cooperative structure of **CAMPUSHABITAT5U**, new, more ambitious projects can be undertaken, with greater scope and more extensive positive impacts.

Levels of CAMPUSHABITAT5U alliance

The framework of alliances of **CAMPUSHABITAT5U** is established on three levels:

- **Strategic alliance:** the five universities that make up the SUPV: the Universitat de València (UV), the Universitat Politècnica de València (UPV), the Universitat d'Alacant (UA), Universi-

tat Jaume I (UJI), and the Universidad Miguel Hernández de Elche (UMH)

- **Alliances by specialization:** The most significant agents in the area of Habitat and Territory currently involved with the five SUPV universities:
 - Network of Technology Institutes of the Valencian Community (REDIT)
 - Technology institutes in the Valencian Community
 - The Spanish National Research Council (CSIC), via institutes in the area of specialization
 - Businesses and business clusters in the area of specialization
 - The trade fair institutions of Valencia and Alicante
- **Institutional alliances:** the public administrations of the CV, institutions providing support for R&D&i activities who are involved in the sphere of Habitat and Territory, as well as economic, social and cultural stakeholders:
 - The government of Valencia (Generalitat Valenciana)
 - The city and town councils of all the municipalities in which the five SUPV universities are active, and where collaborative projects are carried out (university extension programmes, local development programmes)
 - Professional associations in the CV and their regional organizations
 - Business confederations in the CV and their regional organizations
 - Chambers of commerce in the CV
 - Leading museums and cultural entities

Strategic alliance

The strategic alliance made up of the five universities has two objectives:

- **To specialize in a sphere of activity that contributes to:**
 - a change in the productive model of the CV;
 - the development of a regional strategy for the CV;
 - and the implementation of science, technology and innovation plans in the CV.
- **To foster international orientation and contribution through:**
 - the creation of a coordinating **hub in the Mediterranean Arc region**;
 - membership in **international networks** related to the campus's sphere of specialization, which will act as forums for the exchange of talent.

The universities that make up the SUPV are the primary institutions of higher education and research activity in the Valencian Community (see details in section 2.1 *Improving Teaching Activities* and 2.2 *Scientific Advancement*).

The following figures relate to research and innovation activities at the five universities in the strategic alliance in the specialized area of **Habitat and Territory**:

- 2,595 academic personnel involved in research activities
- 97 R&D groups
- 39 university institutes
- 3 centres working in conjunction with the CSIC
- 36 chairs
- 1,614 publications with ISI impact in 2010
- 150 projects of excellence have been participated in (European, Consolider, Avanza, CEN-IT and PROMETEO)
- 14 spin-offs generated in the last four years

- 32 patent applications filed in 2010
- 30 annual technology licensing contracts
- More than 40 international events organized each year
- 5 science and technology parks at the five universities in the SUPV (**see details in section 2.2**)

Some of the main university institutes, centres and observatories dedicated to the area of Habitat and Territory are listed below:

- The Institute of Chemical Technology (ITQ)
- The Inter-University Institute of Local Development (IIDL)
- The Institute of International Economics (IEI)
- The University Well-Being Institute (IUP)
- The University Institute of Water and Environmental Sciences (IUACA)
- The Environmental and Territorial Impact Observatory (OIAT)
- The Centre for Mediterranean Environmental Studies (CEAM)
- The Institute of Robotics and Communications and Information Technology (IRTIC)

• The Institute of Chemical Technology (ITQ)

The ITQ is a joint institute created in 1990 by the **UPV and the National Scientific Research Council (CSIC)**. It is a targeted, dedicated research centre, provided with the necessary means for carrying out research in the field of chemical and materials technology. The ITQ maintains direct contact with industry by means of research contracts and the development of patents and educational courses. Also worth highlighting is the training of technical and research personnel through the production of master's and doctoral theses, class projects and post-doctoral positions.

The ITQ carries out its activities along two primary lines:

- Chemical and photochemical processes in **sustainability** and life sciences
- Structured materials for the generation of **renewable energies** and clean fuels. A specific example in this line is **Bionictile**: It is an innovative solution in ceramics due to its design, the materials it is comprised of, the ease with which it can be used on façades and because it is a decontaminating media. **Bionictile** is the result of a joint development project between two private companies, the ITQ and the Centre for Environmental Studies of the Mediterranean (CEAM-UMH). **Bionictile** ceramic pieces are unique in that they contain a catalyst enamel that in the presence of sunlight and environmental humidity react with pollution (NO_x and HNO₃) in the air of cities and urban centres and transform them into substances that are innocuous to human health (nitrates). Furthermore, as it does not harm the environment, the effect is maintained in the pieces throughout their lifecycle.

The ITQ is responsible for administering two **inter-university master's degree programmes (UPV-UV)**, one in sustainable chemistry and the other in experimental and industrial organic chemistry, as well as the corresponding doctoral programmes. Numerous **doctoral theses** and **final projects** are therefore carried out at the ITQ. Furthermore, conferences led by international scientists are regularly organized for all of the personnel to attend, and participation in important national and international congresses is encouraged.

Over 15 projects are currently underway at the ITQ which have been funded by public institutions in Spain (the Ministry of Science and Innovation (MICINN), the Generalitat Valenciana, the CSIC, UPV, etc.), and is also a partner in seven of the Seventh Framework Programme (VII PM) projects funded by the European Commission.

However, the large number of projects contracted with the private sector must also be highlighted. The ITQ is currently developing more than 25 projects funded by some of the industry's most important multinational corporations. In fact, approximately **50% of the ITQ's total**

annual budget comes from private sector contracts, which demonstrates the importance the ITQ places on applied research.

This contracting with the private sector makes the ITQ **a model example for the transfer of technology** to the business sector. It has a portfolio of patents with more than 150 pending, but what is more notable is the number of **licensed patents it holds (25), 10 of which are now in use commercially and various others are at the prototype or pilot project stage**. The ITQ also participates directly in patents that have been submitted through the companies with which it collaborates in developing them (over 70). The ITQ conducts its scientific activities with the participation of almost **200 members**.

The **centres working with the ITQ at the national, European and international levels** include various institutions from the CSIC (most notably the IQO), the CNRS, the University of Ottawa, Cardiff University, the Max Planck Society, King Saud University and the Universitat de València (with almost 100 joint publications).

- **The Inter-University Institute of Local Development (IIDL)**

The IIDL is an inter-university institute focused on specialized research in the field of local development. It has affiliations with the **UV** and **UJI**. The objective of the IIDL is to act as an **interdisciplinary and inter-university research centre**, internationally recognized for the generation of ideas, as well as for the design of public policy strategies and support for policy-related decision-making. Special attention is also dedicated to projects with a territorial aspect related to the local environment, to generate effective responses for the demands of society related to a territorial and localized focus for sustainable development, in all of its economic, social and environmental aspects.

The IIDL is made up of a **multidisciplinary** team of more than 80 individuals (60% with doctoral degrees), who are experts in the various subjects related to the concept of sustainable development. These experts have a wide range of backgrounds in economics, geography, psychology, sociology, history, political science and social work.

Activities

The IIDL is mainly involved in developing research activities (basic and applied) and educational programmes.

Research

The IIDL's research activities are organized into four main areas:

- Area I: Territorial Governments, Territorial Organization, and the Environment
- Area II: Local Development
- Area III: Tourism and the Economy of Culture
- Area IV: Social Cohesion

Education

The IIDL is responsible for the administration of two master's degree programmes and their corresponding doctoral programmes:

- *Inter-university master's degree in the management and promotion of local development*
- *Inter-university master's degree in cooperation in development: these have resulted from a coordinated effort among Valencia's five public universities*

Internationalization

The IIDL has coordinated five Inter-University Cooperation Programmes, establishing inter-institutional relationships with various Latin American universities to promote the education of specialists in local development.

The IIDL has its own fellowship programme for the master's degree in cooperative development, focused on scholars from lesser developed countries. Funding is provided by the government of Valencia (Generalitat Valenciana) and the university.

The institute also maintains close relationships with a series of European and Latin American universities through creation of the **University Network for Local Development** (see section 2.8 *Networks and Alliances*).

- **The Institute of International Economics (IEI)**

The IEI is a specialized research and educational centre. It was created in 1995 by the **UA**, **UJI**, and **UV** and exists within the structure of all of these as an inter-university institute. The Institute's main priority is to provide a **platform for top-level academic research**, open in nature, within a broad framework of analysis of the economy and international relations.

It has eight specialized areas of research, with highlights including those directly related to Habitat and Territory:

- **Environment:** evaluation and socio-economic analyses applied to the management of natural resources and the infrastructure associated with them
- **Tourism:** tourism planning and development, designing of tourism information systems, tourism and territory analysis, education and tourism training policies, sustainability in tourism, access to innovation and new technologies, study of regulations and legislation, impacts of tourist activity
- **Transport and logistics:** research in the field of the economics of transport analyzing, among other things, the socio-economic impact of infrastructure measures as well as their efficiency and productivity

- **The University Institute of Social Policy and Well-Being (Polibienestar)**

This is an interdisciplinary research institute specializing in the study and application of social policy, with the mission of achieving improvements for society in terms of well-being and quality of life.

It performs basic research in the field of primary healthcare, as well as applied research on the economic, social and political sustainability of social and healthcare systems. It advises the government regarding the development of new healthcare resources for people dependent on others, and provides consultation services to companies that have decided to invest in and/or use such resources.

The topics that the Polibienestar Institute researches include:

- The creation and application of social technology.
- The development and implementation of social policies to improve the well-being and the quality of life of society in general and of Valencians in particular.
- The study and analysis of the supply and demand of housing for people with mental and physical disabilities, the elderly and chronically ill and other specific groups that require differentiated, adapted housing solutions in the CV.
- The diagnosis of housing available for people with disabilities and chronic illnesses – analysis of the architectural design, functionality, habitability and accessibility.

It is currently involved in the “Smart technologies for self service to seniors in social housing” (HOST) project. The HOST project will be funded by the European Ambient Assisted Living programme (AAL-2010-3 call for proposals) until 2013. Its goal is to design digital infrastructure for use through television and is aimed at the elderly to foster their independence and participation in society. The digital infrastructure will be easy to use and will be available in social housing, creating a new European model of “connected houses” for the elderly. Institutions from four European countries are participating in the project: France, Italy,

the UK and Spain. Several different entities are involved: providers of social housing (OPAC du Rhône, which is the coordinator of the project; Finabita; Nottingham Community Housing Association); SMEs (Adama; TriplePlay Services; BioResult S.r.l); and research centres (the ERI-Polibienestar Research Centre of the Universitat de València; Erasme; the University of Grenoble; the National Research Council Construction Technologies Institute; the University of Loughborough).

- **The University Institute of Water and Environmental Sciences (IUACA)**

The IUACA is an institute at the **UA** whose mission is to **provide a better understanding of water resources** and their use and heighten awareness of related aspects of environmental conservation and improvement. The institute's lines of research include:

- The pre-treatment of drinking water
- Treatment of waste water using membrane bioreactors Quality assurance for water treated using nanofiltration and reverse osmosis
- Identification and elimination of emerging micro-contaminants in water
- Odour reduction for treatment of industrial waste water
- Evaluation of the environmental impact of desalination plants
- Activities undertaken in ports and on the sea floor
- Experimentation with reuse of waste water for irrigation
- The Tajo-Segura and Júcar-Vinalopó river diversions: associated benefits and economic aspects.

The institute also administers the official master's degree programme in sustainable water management and technologies, in which teaching staff from the UA, UPV and UMH, among others, are involved.

- **The Environmental and Territorial Impact Observatory (OIAT)**

Created as a flexible, multidisciplinary working group within the UA's Ramon Margalef Multi-disciplinary Institute for the Study of the Environment (IMEM), this observatory is made up of lecturers and researchers with interests and experience in the various subjects related to environmental impacts.

Its projects consist of documentation and compilation of information related to **human environmental impacts on ecosystems and landscapes in the territory**, and the corresponding analysis and study of these, as well as creation of management or action plans in this area. It also promotes greater awareness of these issues among the general public. As such it serves as a vehicle for communication and dialogue among academic-technical experts, government agencies, socioeconomic organizations and the general public.

- **The Centre for Mediterranean Environmental Studies (CEAM)**

The CEAM is an applied research centre associated with the CSIC and **affiliated with the UMH**.

This centre's activities range from basic research oriented towards **solving environmental problems** identified as high priority, to the **development of new technologies and applications**. It also initiates pilot projects that can demonstrate new advances to management. Exploratory R&D projects are also carried out, where environmental engineering activities based on established procedures are explicitly avoided. By means of these R&D activities, scientific consultation is also provided regarding the centre's subjects of specialization. Contributions are made specifically to the development of environmental management policies at a variety of levels, ranging from the Spanish autonomous communities to the European Union.

The CEAM is set up as a **multidisciplinary centre**, with activities centred on a complementary set of thematic areas where researchers have a recognized level of international experience.

It is currently participating in eight European projects. These activities are carried out through research projects that are classified into four programmes:

- Atmospheric Pollution: Atmospheric Chemistry and the Dynamics of Pollution;
- The Effects of Pollutants;
- Forestry Research;
- Meteorology and Climatology.

The CEAM conducts its scientific activities with the participation of more than 80 members.

- **The Institute of Robotics and Information and Communication Technologies (IRTIC)**

The **IRTIC** is a **university research centre at the UV**, created in the early 1990s. It includes 115 researchers, who represent a variety of disciplines associated with the field of **information and communication technologies**.

The IRTIC primarily performs applied research activities and develops custom solutions, emphasizing activities that provide benefits for society. These activities focus specifically on projects and contracts involving information management systems, communications applications for traffic and transport management, access systems for the disabled, heavy machinery simulation, network and computer security services and the development of simulators for the prevention of workplace risks for companies in the sector, and the development of virtual models and prototypes for the rail sector and the ceramics sector.

The IRTIC has nine licensed patents and has also generated a spin-off company, while developing around 20 technology transfer projects each year with private companies.

Furthermore, it participates in the international inter-university master's degree programme in advanced sciences of modern communications, among others.

Alliances by specialization

The Network of Technology Institutes of the Valencian Community (REDIT)

The Valencian Community has an effective support system for industrial R&D and business innovation. This includes the technology institutes (IITT) in the Valencian Community, which together form the REDIT network. This network has proved itself a driving force for improving business competitiveness. The main data related to the 2010 fiscal year for the technology institutes in the network as a whole includes:

- **Turnover: 123 million euros**, 55% of which derived from R&D activities carried out in collaboration with companies in the private sector, and with the remaining 45% coming from public funding from a variety of public entities, obtained through the competitive bidding process.
- Staff: the technology institutes employ **more than 1,700 scientific-technical professionals**.
- Activities: services were provided for **more than 12,000 business clients in over 1,260 R&D&i projects** (600 private, 170 European projects, 227 national projects and 242 projects with Spanish autonomous communities)..
- The technology institutes in the REDIT network contribute 1.64% to the growth of the Valencian Community's economy, and almost 8% to the development of internal R&D projects by companies.

Of the 14 technology institutes in the network, eight are involved in activities in the sphere of Habitat and Territory:

- The Institute of Ceramic Technology (ITC)
- The Technological Institute of Construction (AIDICO)

- The Technology Institute of Furniture, Woodwork and Packaging (AIDIMA)
- The Valencia Biomechanical Institute (IBV)
- The Institute of Information Technology (ITI)
- The Technology Institute of Energy (ITE)
- The Metals and Mechanics Technology Institute (AIMME)
- The Textile Technology Institute (AITEX)

The alliance created among these technology institutes is a key element in the development of the **CAMPUSHABITAT5U** project as **an international benchmark in the areas of research and technology transfer**.

Technology institutes in the CV in the sphere of Habitat and Territory:

The primary characteristics of these eight institutes are briefly described below:

• **The Institute of Ceramic Technology (ITC)**

The ITC is a joint institute created in 1969 through an agreement between the Industrial Ceramics Research Association (AICE) and Universitat Jaume I. It now has **340 associated businesses**, with the majority of these being manufacturers of tile, flagstones, glass, enamel, ceramic colourings as well as machinery and equipment used in the ceramic tile industry.

The ITC relies upon the support of the Institute of Small and Medium Industry (IMPIVA) and the Valencian Council of Industry, Commerce and Innovation.

The ITC boasts a total of 8,000 m² of floor space devoted to research and employs some 150 people organized into qualified R&D&i teams. Its scientific and technological infrastructure include a 600 m² facility devoted to technical equipment on a semi-industrial scale, which can be used by ceramics companies to test their prototypes in order to detect any possible problems that could cause economic losses if production were to take place on a larger scale.

– Activities of the ITC:

R&D&i: The lines of work and research carried out at the ITC are established based upon the needs of the ceramics industry:

- lines that seek to improve competitiveness in the sector.
- lines for research, development and innovation strategies.

Technological consulting: Through personalized consultation related to technology, quality and environmental management, it is possible to transfer the technical-scientific knowledge generated at the ITC, which also makes its facilities and the use of its equipment and infrastructure available to businesses.

Architectonic design and applications (ALICER): In response to the current trend towards a global conception of design that provides a coherent and synergistic response to company policies and strategies, ALICER has collaborated with businesses in a variety of industries. The ultimate aim has been to elevate product quality in ceramic materials used for paving and resurfacing, while at the same time promoting an integrated culture of design.

Education: The chemical engineering university degree programme offered at UJI is the only one in Spain offering a specialization in ceramic technology. Most of the classes (80%) are taught by lecturers who are also on the ITC staff.

The ITC has been providing doctoral courses and supervising research theses for several decades. With the adaptation to the EHEA, UJI participates in the master's degree programme in the science and technology of ceramic materials and the master's degree pro-

gramme in energy efficiency and sustainability in industrial and construction applications. Furthermore, through research performed by the technical personnel at the ITC, new knowledge is acquired and shared as practical know-how among professionals in the ceramics industry.

Dissemination of scientific results: Since first beginning its activities, the ITC has disseminated the results of its research work through publication. This has resulted in the publication of more than **600** scientific articles in specialized national and international journals, more than **700** national and international conference presentations and the coordination and production of **51** doctoral theses between 1976 and the present.

- International alliances
 - The **Bologna Ceramics Centre** in Italy is also dedicated to research on ceramics technology and specific aspects of the industry. The ITC has maintained, and continues to maintain, a long-term relationship with this centre, which these days dedicates a large portion of its research work to issues of environmental management in the ceramics industry.
 - The ITC is a founding member of **CERlabs, the International Network of Ceramics Laboratories**, and has participated in this alliance for decades. It also participates in various national and international committees organized for the standardization and certification of ceramic products.

- **The Technological Institute of Construction (AIDICO)**

AIDICO is a private, not-for-profit association formed by businesses in the sector. It was founded in 1990 by the government of Valencia through IMPIVA, with the support of companies active in the construction sector.

It is a specialized R&D centre that provides services to companies working in various areas of the construction industry: from development and optimization of material specifications, to the improvement of energy efficiency, to the development of nanomaterials for construction and for the habitat, the evaluation of materials for new uses in the habitat, etc.

Through the Nanotechnology Research Network (RENAC), **AIDICO has notably broadened the collaboration taking place along specific lines of research among research groups from the five allied public universities:**

- **UV:** The Supramolecular Chemistry Group and Nanomaterials Group
- **UPV:** The Technology Institute for Materials, Concrete Science Research Unit, the Monophotonic Technology Centre, the Sensor Design and Development Group
- **UJI:** Solid-State Chemistry
- **UA:** Dept. of Inorganic Chemistry, Laboratory of Adhesion and Adhesives (UA-LA) and the Polymer Pyrolysis Processing Group

RENAC is a renowned national network focused on the use of nanomaterials and nanotechnologies in construction and habitat.

AIDICO also oversees the Natural Stone Network (PNAT), which has 14 members among universities and technology centres throughout Spain. This network has the objective of resolving the technological needs of the industry and improving the competitiveness of natural stone companies through the transfer of results of the research projects it carries out. The participating Valencian research groups are:

- **UV:** Materials Chemistry Group; Materials Sciences Institute; Industrial Minerals and Rocks; The Department of Geology
- **UPV:** The GS-Signal Treatment Group
- **UA:** Dept. of Inorganic Chemistry; Laboratory of Adhesion and Adhesives (UA-LA); the Laboratory of Applied Petrology

- **UMH:** Systems Engineering and Automation

AIDICO has a Fire Centre, a Nanomaterials R&D Centre and a Technical Unit for Marble, the last strategically located in Novelda. There are also chapters in China, Panama and Romania, which ensures the centre's international presence and visibility.

- **Technology Institute of Furniture and Woodworking (AIDIMA)**

AIDIMA was founded in 1984. Its mission is to increase the competitiveness of businesses in the furniture, woodwork, packaging, and transport industries in all of their aspects related to technological innovation, education, information, safety and the environment.

AIDIMA's areas of research include:

- materials and products;
- environment, safety and packaging;
- management, design, manufacturing processes and logistics;
- organizational management and engineering;
- ICT;
- socio-economic research involving the furniture and woodworking industries.

It actively and permanently collaborates with the five universities of the SUPV in R&D projects:

- UV: Faculty of Chemistry, Faculty of Economics, Faculty of Psychology
- UPV: ETSID, University School of Agronomic Engineering, University School of Industrial Engineering, the Inter-university Institute for Bioengineering and Technology Intended for Humans
- UA: Faculty of Economics
- UJI: Faculty of Psychology.
- UMH: Advanced Polytechnic School of Elche and Orihuela

The institute has worked, and will continue to work, in active collaboration with the five SUPV universities in R&D projects. Internationally, it has developed projects with the University of Lisbon, Henri Poincaré University (France), Michigan State University (USA), the University of Melbourne (Australia), Swinburne University of Technology (Australia), Stanford University (USA), Oxford University (UK) and the University of Turku (Finland). The institute is also a founding member of INNOVAWOOD (The European Association of Research and Education in the Lumber, Wood, and Furniture Industries). Close cooperation is also maintained with the European Furniture Union and the European Confederation of Wood Transformation Industries. The institute actively participates in the Lumber Technology Platform, leading numerous European R&D&i projects. It has been recognized by the EU as a centre of excellence in R&D.

- **Biomechanical Institute of Valencia (IBV)**

The IBV is a technology centre that studies the behaviour of the human body and its relationships to the products, environments and services that people use. Founded in 1976, this institute is a dedicated centre with shared oversight by the Valencian Institute of Medium and Small Industry (IMPIVA) and the UPV.

The IBV combines knowledge from the fields of biomechanics, ergonomics and emotional engineering, and applies this knowledge to a very diverse range of fields for the purpose of improving the competitiveness of the region's businesses through improving personal well-being.

The main spheres of action of the IBV include:

- Habitat
- The elderly and care for people dependent on others
- Rehabilitation and personal autonomy

- Workplace health
- Tourism and leisure

In terms of education and training, the IBV is active in providing strategic official postgraduate programmes in its area of specialization:

- Inter-university (**UV** and **UPV**) master's degree programme in biomedical engineering belonging to the official postgraduate programme in technologies for health and well-being
- Official master's degree programme in workplace risks belonging to the official postgraduate programme in technologies for health and well-being (**UPV**)
- Master's degree programme in social and healthcare and the elderly (**UV**).
- Official inter-university master's degree programme in psychogerontology (**UV**)
- Official master's degree programme in social and health care in people dependent on others (**UV**)

The main areas of activity of the IBV include habitat, care of the elderly and the disabled, rehabilitation and personal independence, workplace health, and tourism and leisure

- **The Institute of Information Technology (ITI)**

Created in 1994, the ITI is a technology centre specializing in R&D&i in information and communication technologies (ICT).

In relation to **Habitat**, the ITI carries out its activities with a focus on the development of Smart Optimization Solutions, which are meant to contribute to the generation of the concept of the **Smart City and Smart Home**. In this approach, improvements in service quality are combined with sustainability, mobility and advancements in convenience and quality of life for residents. This work is mainly focused on the level of smart and efficient management, through the application of information and communication technologies.

The ITI works closely with the **CAMPUSHABITAT5U** universities, and has developed a multitude of joint projects in the following areas, among others:

- Artificial vision: analysis of biometric characteristics and therefore, the identification of people and behavioural patterns in buildings
- Energy efficiency through alternative and renewable alternatives.

- **The Institute of Energy Technology (ITE)**

The Institute of Energy Technology (ITE) is a private, not-for-profit association with a national scope, which orients its services, products and technological projects towards national and international companies and public organizations in the energy, electricity, electronics and communications industries.

The ITE was created in 1994 as an association of technology companies with the support of the Valencian Institute of Medium and Small Industry (IMPIVA) and the **UPV**.

The ITE works in the industrial energy, electrical and equipment sector.

R&D&i is one of the basic pillars on which the ITE is founded. The various areas focused upon by the institute are:

- Energy efficiency
- New energy generation technologies
- Energy demand management
- Energy storage and network manageability
- Transmission and distribution of electrical energy
- Equipment
- Consumer goods; product design and certification
- Environment and safety

The ITE carries out R&D&i projects with groups and institutes of the **UPV, UJI** and **UA**.

- **The Metals and Mechanics Technology Institute (AIMME)**

AIMME is a private, not-for-profit association with a national scope, created in 1987. Its membership currently includes more than 600 companies from throughout the metal transformation industry.

Two research groups exist within the institute, covering the following areas:

- **Building Structure and Coverings Group:** technological developments in the design, construction and operation of resistant construction systems with low energy consumption and sustainable costs. This research is applied to all types of concrete structures as well as those built using other materials. The focus of their work is on:
 - Performance of surfaces under hot and humid conditions.
 - Behaviour of roofing and insulation systems
 - Concrete materials and structural technologies
 - Research facilities
- **Interior Environment Group:** development of technologies, tools and recommendations for the design and operation, with sustainable costs, of energy-efficient interior environments that optimize the comfort, satisfaction and health of building occupants. Work is being performed in areas including acoustics, illumination, ventilation and interior air quality.
- **The Building Science and Technical Centre (CSTB):** performs four key activities: research, assessment, testing and dissemination of knowledge. These activities respond to sustainable developmental objectives for construction products and buildings and integration of these into neighbourhoods and cities.

The AIMME develops R&D&i projects with groups and institutes of the **UPV, UJI** and **UA**.

- **The Textile Technology Institute (AITEX)**

AITEX is a technology centre dedicated to research involving areas of scientific knowledge that have applications in the textile industry. It is made up of 924 companies in the textiles industry and related fields, whose primary objective is to improve competitiveness in the market and offer textile-based solutions to society that will contribute to the well-being, health and quality of life of the public.

AITEX possesses a high level of specialization in textiles, as well as a high capacity for applying scientific advances and integrating new technologies in textile production processes in order to develop products with higher added value for the **habitat sector**.

To do this, the institute **carries out R&D projects involving new advanced and smart materials that can be applied to Habitat projects:**

- Fire-resistant materials
- Textile materials for use in construction reinforcement
- Composites
- Smart textiles for use in home automation
- Smart textiles for use in remote home services
- Home décor (draperies, wall coverings, bedding, etc.) with new features (anti-stain, easy to clean, healthier, etc.)
- Nanotechnology and biotechnology applicable to textile products for the home
- Technical textiles

The AITEX develops R&D&i projects with groups and institutes of the **UPV, UJI** and **UA**.

In addition to these technology institutes located in the CV, the alliances by specialization of **CAMPUSHABITAT5U** also include the technology institutes of Spain's National Scientific Research Council (CSIC) related to habitat and territory, businesses and business clusters, the trade fair institutions of Valencia and Alicante as well as observatories. Some of these are briefly described below:

- The Eduardo Torroja Institute for Construction Sciences (CSIC)
- The Ceramics and Glass Institute (CSIC)
- Porcelanosa Group
- Actiu
- The Habitat Trends Observatory (OTH)
- The Valencia Trade Fair Centre

• **The Eduardo Torroja Institute for Construction Sciences (CSIC)**

This is a scientific-technical research and assistance centre working in the field of construction. The institute employs 253 people and has an annual budget of 15 million euros. Its lines of research are focused in the following areas:

- Habitability, energy and environment
- Structural and mechanical engineering using compound materials
- The physical-chemical properties of construction materials
- Synthesis, characterization and recycling of materials
- Building construction systems

• **The Ceramics and Glass Institute (CSIC)**

This institute boasts 144 people, and has an annual budget of 6.5 million euros. Its role is to conduct research related to the science and technology of ceramic and glass materials.

The projects that the centre carries out are primarily funded by Spain's National Research Plan, the European Union and the Autonomous Community of Madrid as well as by industry. The CSIC has strong ties to the industrial sector and regularly organizes classes and seminars. The institute also offers technical, documentary, and library assistance services to the other centres and industries in the sector. It also houses the Spanish Ceramics and Glass Society (SECV), a not-for-profit association that has the objective of disseminating scientific and technical knowledge regarding ceramics and glass to its membership, which includes researchers, technicians, artisans and businesses in the industry.

Lines of research:

- Ceramic and glass materials that are energy saving, easy to transport and environmentally friendly
- Phase equilibrium diagrams for systems involving ceramics Applications for the design of materials and preparation of bioceramics and high-temperature structural ceramics
- Ceramics and glass with social and industrial impacts

• **Porcelanosa**

Porcelanosa Group is a Spanish ceramics and tile company, specializing in bathroom fixtures, accessories and tile. The company was founded in Villareal in 1973 and has an annual turnover of over a thousand million euros, of which 70% comes from the international market and 30% from Spain. By categories, 70% of these sales involved ceramics, 11% bathroom and kitchen fixtures, 10% marble, terracotta, parquet flooring and installation materials, and the other 9% bathtubs, hydromassagers, faucets, sinks, etc. The company has a presence in more than 80 countries on five continents, with almost 5,000 employees.

The policies of Porcelanosa Group at **CAMPUSHABITAT5U** are centred on values such as innovation, quality and attention to the social environment, and coincide closely with the objectives of the **CAMPUSHABITAT5U** project itself. Since its founding, a concern with car-

ing for and protecting the environment has been a constant priority. Porcelanosa Group's activities related to the environment go beyond streamlining their production systems and are centred as well on the effort to design products that contribute to reducing water and energy consumption in homes, such as flow-limiting faucets, or on designing construction systems that allow a reduction in the amount of energy consumed in the heating of buildings.

- **Actiu**

This is a private company specializing in the production of furnishings for the workplace. It is active in more than 60 countries. Its annual turnover exceeds 50 million euros. The company employs 185 people, with 12 of these positions in the R&D department. A permanent collaboration has been established with the Technology Institute of Furniture and Woodworking (AIDIMA) for research projects.

In 2008, the company inaugurated its new facilities, known as the Actiu Technology Park, which features the following main characteristics:

- A corporate office building, a large logistics building and three production buildings.
- Only 30% of the land has been built upon: an area of 200,000 m² remains, including 130,000 m² of forested areas.
- The park is not just a production facility, but a space created to:
 - allow business innovation to grow through collaboration with the academic world;
 - make technology transfer more effective between Actiu and its collaborating companies;
 - Allow different departments to engage in discussions regarding organization of employees and equipment, in order to later transfer this knowledge to the company and to the market.

The new Actiu Technology Park has received international awards for its architecture, sustainability, signage system and best practices.

The Technology Park represents a symbol of leadership in environmental and energy-efficient design:

- Cisterns hold 12,000 m³ of rain water
- Solar energy system: 8,000,000 kWh each year
- Savings on CO₂ emissions of 8,300 tonnes/year

Actiu is the first Spanish company from its sector to join the **Spain Green Building Council®** (SpainGBC-CCVE®). The Green Building Council is the first national association for leading companies in the construction industry, and works to promote the design and construction of buildings that are environmentally responsible, economical and healthy places to live and work. SpainGBC-CCVE® is one of the eight LEED councils in the world and is part of the USGBC (US Green Building Council), a group that has approximately 18,000 member companies and organizations from all over the world in the construction sector, and which works to promote the transformation of the constructed environment towards sustainability.

The values and objectives of Actiu coincide clearly with those of the **CAMPUSHABITAT5U** project.

- **The Valencia Trade Fair Centre**

The Valencia Trade Fair Centre (Feria Valencia) is Spain's oldest institution dedicated to the organization of commercial trade fairs. Founded in 1917, it was the first Spanish trade fair venue to be certified by AENOR with ISO standard 9002 (currently ISO 9001/200). The Valencia Trade Fair Centre also holds a QAFE certification from the Spanish Trade Fair Association, as well as the commitment-to-quality certificate from the Tourism Destination Quality System (SICTED).

The Valencia Trade Fair Centre is a co-founding entity of the UFI (The Global Association of the Exhibition Industry), the AFE (Association of Spanish Fairs) and the MTFA (Mediterranean Trade Fairs Association). It is also a full member of the EMECA (European Major Exhibition Centres Association), the AFIDA (International Association of Fairs in the Americas) and the IAEE (International Association of Exhibitions and Events).

As far as exhibition space, the Valencia Trade Fair Centre boasts one of Spain's largest and most modern exhibition halls, which is in fact one of the ten largest in the world: 231,000 square metres of indoor exhibition space.

Each year, the Valencia Trade Fair Centre holds more than 30 major events, more than half of which are international in scope and recognized by the National Secretary of Commerce and the UFI. Among these, the events that can be highlighted as related to Habitat and Territory include:

- CEVISAMA: An international ceramics convention related to architecture, kitchen and bath fixtures, natural stone, raw materials, glass production, coloured enamels and machinery
- EGÉTICA-EXPOENERGÉTICA: An international fair related to energy efficiency and new technological solutions involving both renewable and conventional energy
- ECOFIRA: An international fair related to water, soil, air and waste management services and technologies
- EFIAQUA: An international fair for the efficient management of water
- TVC: The Valencian Community International Tourism Fair
- BIOCULTURA: A fair dedicated to organic products and responsible consumption
- LABORALIA: The integrated fair of workplace risk prevention and health and safety
- URBE: The Mediterranean real estate fair
- THE VALENCIA HABITAT FAIR: An international fair for furnishings, decorating, lighting, household textiles, leisure, upholstery, offices and technological innovations for the home of the future
- MADERALIA: An international fair for suppliers in the woodwork and furniture industries.

In the last year, the Valencia Trade Fair Centre has received **more than 1.3 million visitors** from all over the world, and **more than 12,000 exhibitors** participated in its events (whether directly or through representatives). The economic impact of the Valencia Trade Fair Centre is estimated to be around **700 to 800 million euros each year**.

• The Habitat Trends Observatory (OTH)

The OTH is a pioneering organization in Spain. It was created in 2005, and is made up of:

- The Ceramics Technology Institute(ITC)
- The Textile Technology Institute(AITEX)
- The Technology Institute of Furniture, Woodwork and Packaging (AIDIMA)

The observatory's work is focused on the observation, analysis and study of trends related to habitat. It promotes the idea that, in order to respond effectively to the real needs of residents, it is essential to know about how people live, their lifestyles, their needs and the surroundings they inhabit.

The OTH works to achieve innovation as a strategic competitive tool for businesses. It is **multidisciplinary** in nature, with a team made up of professionals and experts from a variety of industries in the production sector. In this way, cooperative synergies and alliances can be established among the parties involved, in order to provide a broad and objective vision of what is actually happening in the subject or field being studied.

Part of the OTH's work also centres on the **continual study and analysis** of three complementary factors that drive the generation of habitat trends, and which contribute to offering a broader and more realistic vision of the current condition of the habitat as well as changes in its condition: these are **aesthetic, socio-cultural and consumer** factors.

List of Alliances

Alliances by specialization

- **The Network of Technology Institutes of the Valencian Community (REDIT)**
- **The technology institutes in the Valencian Community**
 - The Institute of Ceramic Technology (ITC)
 - The Technological Institute of Construction (AIDICO)
 - The Technology Institute of Furniture and Woodworking (AIDIMA)
 - The Institute of Energy Technology (ITE)
 - The Institute of Information Technology (ITI)
 - The Biomechanical Institute of Valencia (IBV)
 - The Metals and Mechanics Technology Institute (AIMME)
 - The Textile Technology Institute (AITECH)
- **The Institutes of Spain's National Scientific Research Council (CSIC)**
 - The Eduardo Torroja Institute for Construction Sciences (CSIC)
 - The Ceramics and Glass Institute (CSIC)
- **Companies, clusters and associations in the sphere of Habitat and Territory**
 - ACCIONA
 - ACTIU
 - AQUAGEST LEVANTE, S.A.
 - The Spanish Ceramic Tile Manufacturers' Association (ASCER)
 - CEMEX
 - FCC
 - FERROVIAL, S.A
 - GRUPO CÍVICA
 - Hormigones Martínez
 - IBERDROLA, S.A.
 - INDRA
 - Porcelanosa
 - VIAS Y CONSTRUCCIONES S.A.

- **The Valencia Trade Fair Centre**

- **Alicante Trade Fair Institute**

Institutional Alliance

- **Government of Valencia**
- **City Councils**
 - Ayuntamiento de Alcoy
 - Ayuntamiento de Alicante
 - Ayuntamiento de Altea
 - Ayuntamiento de Aras de los Olmos
 - Ayuntamiento de Burjassot
 - Ayuntamiento de Carrícola
 - Ayuntamiento de Castellón
 - Ayuntamiento de Elche

- Ayuntamiento de Gandía
- Ayuntamiento de Orihuela
- Ayuntamiento de Paterna
- Ayuntamiento de Sant Joan
- Ayuntamiento de Valencia
-

- **Professional Associations**

- AVCA. Associació Valenciana de Crítics d'Art
- AVVAC. Artistes Visuals de València, Alacant i Castelló
- Colegio de Arquitectos CV
- Colegio de Arquitectos Técnicos CV
- Colegio de Geógrafos CV
- Colegio de Ing. de Obras Públicas CV
- Colegio de Ingenieros Agronomos CV
- Colegio de Ingenieros de Caminos de la Comunitat Valenciana (CV)
- Colegio de Ingenieros Técnicos Agrícolas CV
- Colegio Doctores y Licenciados en BBAA y Profesores de Dibujo CV
- Colegio Oficial de Abogados CV
- Colegio Oficial de Biólogos CV
- Colegio Oficial de Economistas CV
- Colegio Oficial de Psicólogos CV
- Colegio Oficial de Químicos CV

- **Other Institutions**

- Acció Ecologista - Agro
- Asociación de Empresarios l'ANDANA
- Asociación de Empresarios Textiles de la CV
- Asociación de Promotores de Vivienda de Alicante y Provincia (PROVIA)
- Asociación de Químicos de la Comunitat Valenciana
- Asociación Valenciana de Empresarios (AVE)
- Autoridad Portuaria de Valencia
- Confederación Empresarial de la Pequeña y Mediana Empresa de Alicante (CEPYME)
- Confederación Empresarial de la Provincia de Alicante (COEPA)
- Confederación Empresarial Valenciana (CEV)
- Confederación Hidrográfica del Júcar
- Consejo de Cámaras de Comercio de la Comunidad Valenciana
- Consell Valencià de Cultura
- Consorci de Museus de la CV
- Federación de Obra Pública de Alicante (FOPA)
- Federación Empresarial del Metal de la Provincia de Alicante (FEMPA)
- Federación Valenciana de Empresas Cooperativas de Trabajo Asociado
- Forum UNESCO Universidad y Patrimonio UPV
- Fundación Premios Rey Jaume I
- Fundación Valenciana de Estudios Avanzados
- Instituto Valencià D'Art Modern_IVAM
- Instituto Valencià de Conservació i Restauració de Bens Culturals
- Instituto Valenciano de Investigaciones Económicas (IVIE)
- Mármol de Alicante, Asociación de la Comunidad Valenciana
- MUVIM
- Paterna Innova 5, A.I.E (Asinvalco)
- Real Academia de Bellas Artes de San Carlos de Valencia
- Real Sociedad Económica de Amigos del País de Valencia

Governance and management of CAMPUSHABITAT5U

CAMPUSHABITAT5U has been created to promote and act as a catalyst for, on a long-term basis, a growth process that is smart, sustainable and inclusive, based on knowledge, innovation, the efficient use of resources, employability and social and territorial cohesion.

To accomplish this, the creation of a legally recognized entity was considered essential. One that can:

- initiate and execute the strategic objectives and measures established in the CEI conversion plan;
- make **CAMPUSHABITAT5U** a key element in the process of territorial revitalization and growth;
- establish **CAMPUSHABITAT5U's** position as an international benchmark in the sphere of Habitat and Territory.

For these reasons, the five universities have agreed to create a consortium. This is seen as the most appropriate type of legal structure for a stable governance system and a management configuration with executive powers that will allow agility and flexibility in undertaking the measures proposed.

The **CAMPUSHABITAT5U** Consortium, which has resulted from the aggregation of the five universities in the SUPV, will allow combination of efforts and pooling of resources to improve the habitat and revitalize the territory's well-being. The creation of a consortium is an essential foundation for coordinating excellence in the development of the strategic objectives, and for carrying out the measures established in the CEI Conversion Plan for the improvement of Habitat and Territory.

At the same time, the **CAMPUSHABITAT5U** consortium will provide an environment of “permeability” among the universities, technology centres, and participating businesses, while also allowing relationships to be forged with other leading international institutions in the sphere of Habitat and Territory. The primary areas of action of the Consortium as a legal entity are as follows:

- Teaching:
 - Excellence in teaching programme
 - Internationalization of teaching
 - Coordinated platform for entrepreneurship, employability and lifelong learning
 - Inclusive higher education environment
- R&D&i:
 - International Doctoral School
 - The Institute of Habitat and Territory (research, assessment, internationalization and communication)
 - CreInCube
 - Platform for interdisciplinary cooperation
- Transformation of the campus towards a socially inclusive model and interaction with its local environment:
 - Coordination between the university campus and the city
 - Art as an interdisciplinary platform
 - Innovative and accessible infrastructure
 - Promoting quality environments
- Internationalization:
 - Attraction of talent
 - Mobility

- International visibility and recognition
- Cooperation in development

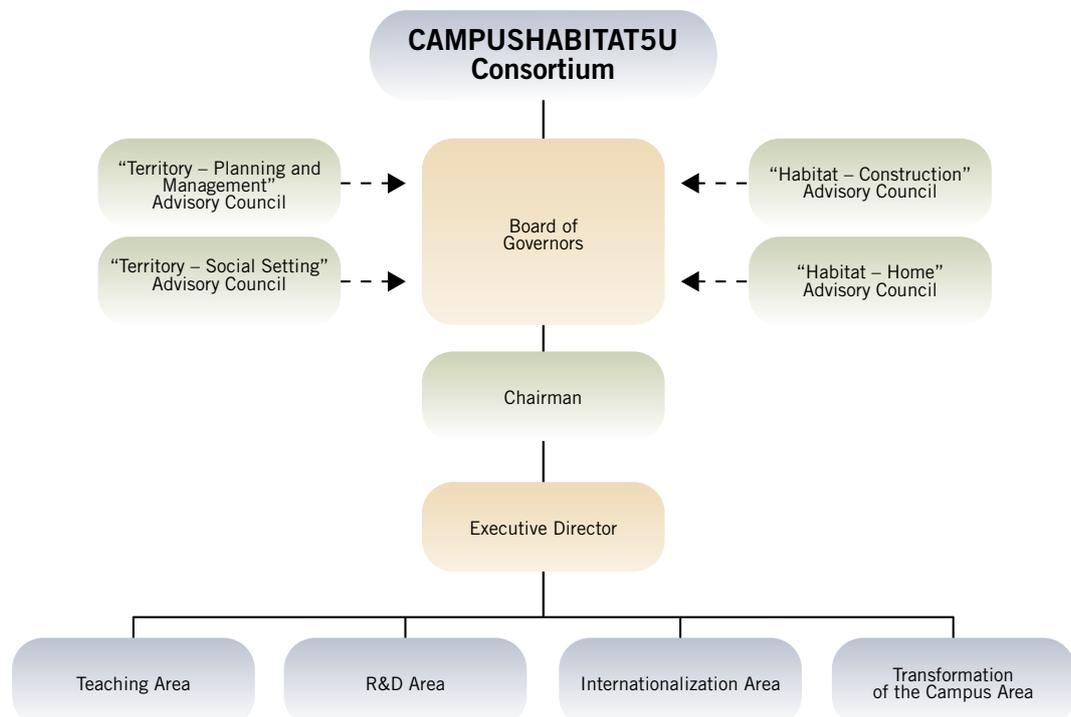
The **CAMPUSHABITAT5U** Consortium will carry out three types of functions:

- **Promotion functions:** actions designed to promote and provide incentive for the measures established in the **CAMPUSHABITAT5U** CEI Conversion Plan.
- **Execution functions:** actions for the purpose of organizing, managing and/or coordinating the measures.
- **Evaluation functions:** actions for the monitoring and periodic analysis of the measures and the presentation of accounts.

The accounts will be presented in two ways: internally and externally. The internal presentation of accounts is intended for the entities that make up the strategic alliance. The external presentation of accounts is intended for Ministry of Education.

Regardless of whether each of the entities that make up the **CAMPUSHABITAT5U** alliance carry out evaluation actions in relation to the measures that each of them undertake, the Consortium will monitor and will present accounts for each and every measure proposed in the CEI Conversion Plan, as well as for any new measures proposed and put into action.

The following model of governance is proposed for these purposes:



Governing bodies

The Consortium will be made up of the five universities of the SUPV. The proposed model will be made up of:

- **A Board of Governors**
- **A Chairman**
- **Advisory councils for each area of action**

The **Board of Governors** is the highest governing body in the Consortium and will be made up of the rectors of the five universities of the strategic alliance.

Of the various different functions it will perform, the following are some of the most important:

- To ensure that the principles of good corporate governance are upheld.
- To establish guidelines for transparency in the external and internal information issued by the entity.
- To coordinate the general lines of action to be taken by the Consortium as well as the general organization and operation of the Consortium, including the creation and discontinuation of Areas and other units.
- To approve the budget and the strategic plan.
- To establish general personnel hiring conditions.
- To accept new members or founders into the alliance and establish the conditions for their membership

The **Chairman** is chosen by the Board of Governors from among its members for a term of two years, and can be elected for a total of two terms. The Chairperson is assisted by the Executive Director. The Chairperson is responsible for carrying out the directives established by the Board of Governors.

Furthermore, **four Advisory Councils** are proposed, which will act as consultation bodies:

- **The “Habitat-Construction” Advisory Council**
- **The “Habitat-Home” Advisory Council**
- **The “Territory-Planning and Management” Advisory Council**
- **The “Territory-Social Setting” Advisory Council**

The Advisory Councils will be made up of people of recognized prestige in each of the areas of action of Habitat and Territory:

- teaching and research staff from the five universities that form the **CAMPUSHABITAT5U** strategic alliance
- internationally recognized research teaching staff from internationally relevant universities and research centres
- representatives of the entities that make up the alliances by specialization of the **CAMPUSHABITAT5U** project (REDIT, technology institutes of the CV, CSIC, companies, clusters and associations active in the sphere of Habitat and Territory, the Valencia Trade Fair Centre and the Alicante Trade Fair Institution)
- representatives of the entities that make up the institutional alliances of the **CAMPUSHABITAT5U** project (the government of Valencia, town and city councils, professional associations, chambers of commerce and other institutions).

Organizational management structure

The **Executive Director** will be named by the **Board of Governors** at the request of the Chairperson of the Consortium. The post of **Executive Director** will be appointed to a person selected by means of a competitive application process and will have a distinctive professional profile,

international standing and experience in the sphere of Habitat and Territory and will have ample authority to implement and develop the project.

The **Executive Director** will be responsible for the following aspects, among others:

- Supervising and ensuring the quality of the programmes in each of the four areas of action:
 - Teaching
 - R&D&i
 - Internationalization
 - Transformation of the campus towards a socially integrated model and interaction with its local environment
- Managing the budget of the entity
- Ordinary monitoring of the actions defined in the CEI Conversion Plan.

The management structure of the Consortium will be organized through Areas. The Areas will be the units that lead and carry out the measures for the group of entities that make up the strategic alliance:

- **Teaching Area**
- **R&D&I Area**
- **Internationalization Area**
- **Transformation of the Campus Area**

Each Area will be made up of:

- a director, appointed by the Board of Governors at the proposal of the Chairperson
- a technical team responsible for implementing the measures described.

Furthermore, each Area will have an **Area Council**. It will be a consultation and advisory structure for the Area. The Area Council will be made up of:

- The Area Director
- A representative of each of the five universities of the strategic alliance
- The Executive Director of the Consortium.

Each of the Areas will carry out **promotion, execution and evaluation** functions for the measures in their area in accordance with the CEI Conversion Plan.

In terms of evaluation functions, the monitoring and presentation of accounts system must be coordinated using a method defined by the organization (the periodic drafting of reports, specific sessions on management bodies, reporting sessions) and must consider the results achieved by the indicators specified in the **CAMPUSHABITAT5U** Conversion Plan.

Therefore, every **Area** must regularly compile the results yielded by the development of their action for their submission to the Executive Director in a structured manner.

CAMPUSHABITAT5U will develop a monitoring system that will allow the progress of each of the measures carried out in the project's areas of action to be tracked. Each Area must, as an initial task, establish the variables for information and control for each measure, which will facilitate the transformation of the proposed measures into facts. Therefore, each measure must have the following information associated with it:

- **Point of departure:** describes the state which the action is in at the starting line – this is the initial scenario.
- **Accomplishment:** describes the ideal situation once the action has been satisfactorily carried out – this is the final scenario.

- **Completion time:** identifies the time at which a certain action should be finished.
- **Indicators:** a measurement method that allows the degree of implementation of an action to be evaluated neutrally and objectively.

Having this information available is key in knowing the degree to which each of the measures has been implemented and will act as a support system in the decision-making process which will allow possible variations to be corrected in a timely manner during the development of the measures to ensure that the objectives set are met.