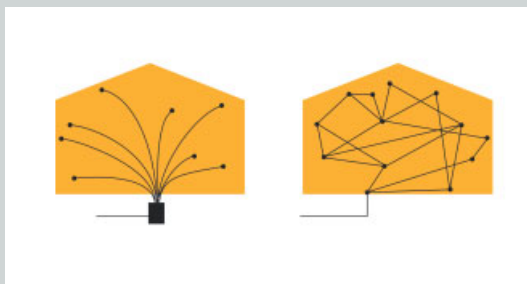


# Media House Project: the House is the Computer, the Structure is the Network

A multidisciplinary team of more than a hundred people developed the Media House, a prototype of a domestic living space unveiled in Barcelona in 2001, writes Lucy Bullivant. The project is a technologically advanced interface for interaction that is a benchmark of its kind.

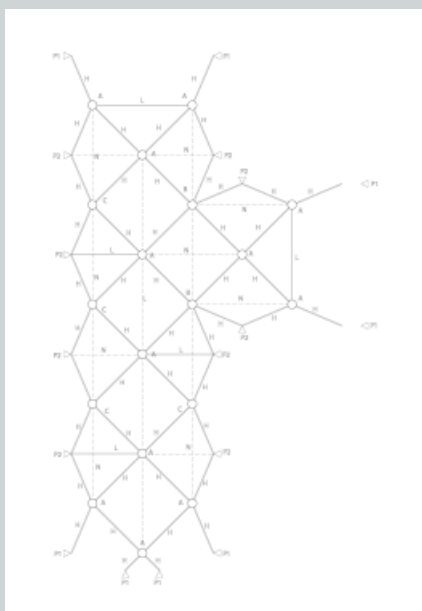
Spanish architect Vicente Guallart, director of the laac (Institut d'arquitectura avançada de Catalunya) and the Metapolis architectural studio, argues that the new technologies of information and communication have already transformed the home into a microcity, a genuinely multifunctional environment from which the global village can be reached. Soon, he says, 'the passive physical world defined by purely functional structures which give people shelter, and in which we consume products and interact with the world by way of screens, will be rendered obsolete by intelligent environments'. A key feature of these will be the fact that 'everyone and everything – people, objects and spaces – will both generate and consume information, and ideally, transform it into knowledge'.

The Media House' is an attempt to build a prototype of a domestic living space in which both physical and digital space exist simultaneously, 'in a process of constant feedback in which both worlds learn from each other's and their own potentialities and limitations'.



Top  
A house with a computer (left), and the house as the computer (right).

Bottom left and right  
The structure of the Media House needed to be a system integrating structure and infrastructure, as well as the information network. The team devised sidwis, a hybrid system meaning Structure Infrastructure Data-Way Integrated System, in the form of a very slender geodesic form, easy to assemble, dismount and transport. A profile of a EUTRAC data bus track, a wooden and aluminium structure incorporating data and electrical networks, is doubly hybrid, including two lines for the low-speed transmission of information.





Top and bottom left  
In order to display the environments in operation, the team decided to stage a performance – 'Digital Day' – at the Mercat de les Flors in Barcelona on 27 September 2001, directed by Enric Ruiz Geli, showing visitors the prototype house functioning with real inhabitants.

Top and bottom right  
Some specific environments were defined to link the physical space and its contents, and made with transparent plastic borders so they could be viewed from the outside for the 'Digital Day' presentation in the hall of the Mercat de les Flors. These focused on teleworking, children's play, a kitchen and vegetable garden, relaxation, bathing and video conferencing. The children's space included a large-scale blackboard on the floor that they could draw on. The drawing could be recorded and projected in actual time on the screen, communicating to the child that all the space was theirs, and open to experimentation. Audiovisual content appropriate to the child's age was shown by the parents to stimulate him or her.

It aims to be a platform facilitating culture, education and common sense, as team member Enric Ruiz Geli describes it. Architecture, he feels, as an organiser of human activity through the construction of space, 'has the potential to play a key role in this new, hybrid situation by redefining itself as an interface for interaction'.

The team included the Metapolis architectural studio, the IaaC, Elisava design school, the I2CAT consortium and the Media Lab at MIT – architects, computer programmers, audiovisual-makers, physicist Neil Gershenfeld (at the time director of the Things that Think consortium at MIT's Media Lab), and the UPC anthropologist Artur Serra – and later expanded to over a hundred people<sup>2</sup> inputting ideas, technologies and resources.

The intention was to test information technologies beyond the sphere of the computer and integrate them into everyday life, without creating a space cluttered by technology. According to Josep Ferrer I Llop, rector of the Universitat Politècnica de Catalunya: 'This involved thinking about how the media could be integrated into the physical space, what services could be supplied to the domestic space via the Internet, and the relationship between physical and information structure.' The team wanted to build computers from the components of buildings, so that 'the logical intelligence of a structure can grow with its physical form'. By means of a single microprocessor, multiple tiny computer chips were inserted inside different objects and elements of the house.

The information structure, thanks to distributed computing, incorporated the physical structure, electrical and data networks. The house's objects, elements, space, people and networks are, via information protocols – such as nerve cells in the human body – able to communicate with each other in what Enric Ruiz Geli calls a



'common language', using the actual structure of the building as a data support. As a result, the house became the computer, the structure the network. 'All the architecture finds itself in a kind of electrical synergy,' Geli adds. 'It's not the software industry that creates, from the outside, a juxtaposed system to the house but, on the contrary, it is the house, the inhabitants and the objects – the ones who work, dialogue, relate to randomness, chaos, to control and to all the complexity that we may wish.'

The project included an analysis of the properties of the different environmental layers of the house: users, space, objects, networks, limits and contents (for example, light, music, video, painting). This meant there was scope to make the information in the structure as expressive as its physical form. Field research analysed the relationship between inhabitants, dwelling units and time, considering degrees of complexity in the ways in which spaces responded to occupation. This then gave the project the scope to 'define the concept of movement as a key factor in the



Top and bottom right  
The Home Web provides the status of all the elements in a home, shown as a digital world equivalent with data or as a virtual representation of physical space, and is able to link them using logical phrases. In the digital world, the hierarchies of the physical world do not exist – the structure is flattened out, so the properties of objects can be linked, directly affecting the property of the whole home or city. 'In the future we should be able to qualify the relationships that we create between things.'

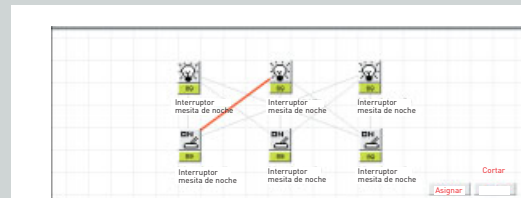
#### Notes

- 1 *Media House Project: the House is the Computer, the Structure is the Network*, was published as a book by the IaaC, Barcelona, in 2004.
- 2 Media House directors: Vicente Guallart, Enric Ruiz-Geli, Willy Müller. Structure: Max Sanjulian. Coordinator: Ariadna Cantis. Collaborators: Neil Gershenfeld (director, Center for Bits and Atoms, MIT Media Lab), Pau Roig (Fundació Politècnica de Catalunya), Artur Serra (I2CAT), Nuria Díaz (director of the interfaces masters course, Elisava), Manuel Gausa (president of Metapolis), Mercè Sala (president, Fundació Politècnica de Catalunya). gRAM: Susana Noguero. Nodes and integration: Michel Oltramare. Housing X-ray: Laura Cantarella. As the team in total numbered over a hundred, for a full list of credits see *Media House Project*, op cit.
- 3 For background information on Internet 0, see <http://cba.mit.edu/projects/i0/i0.pdf>

generation of new spatiality', as team members Silvia Banchini, Maurizio Bonizzi and Giovanni Franceschelli (responsible for structural typologies) put it.

The space of the house, once understood as relations in metric or anthropological dimensions, becomes 'identifiable in social, psychological and sensorial dimensions', and needs 'ever more reactive fields or surfaces that provoke tactile, olfactory, visible and auditory sensations'. One spatial structure can house a LAN (local area network) that can read and recombine all the bits of information present both inside and outside the space.

The Media House, presented for the first time to the public in a 'Digital Day' staged at the Mercat de les Flors, Barcelona, on 27 September 2001, broached many lines of research of high prospective value to the way people may think about, construct and inhabit dwellings in the future. These include the value of distributed computation systems; the model of a future house being more akin to a tree than a building in the way its various structures relate to each other and to the context; and using materials in the house that incorporate intelligent systems in their actual mass, and thereby cease to be inert – rendering the house a place that can potentially continue to manufacture itself. It also encompasses the issue of the space of the house as a potential open system of plug-and-play activities, networked neighbourhoods, the physicality of a mediatised space, space-to-space video conferencing, and sensorial



interfaces making the dwelling aware, learning to react to the requests of the environment.

After the launch, the Media Lab at MIT created a research group called Internet 0,<sup>3</sup> directed by Gershenfeld, and members of the team made further smaller-scale projects dealing with the theme of the informational house. Sociópolis, a new residential community being developed by Guallart in Valencia, will share some of the Media Lab's resources, including a website for the residents. Media House was clearly one of the most major initiatives of its kind. It would be well worth looking at its approach in a few years' time to evaluate what aspects prove the most desirable, and which could be replaced for reasons of changing needs or technological advances. ▮

The IaaC, an institute born out of an active collaboration between the government of Catalonia and the civic association Metapolis, has a core interest in interacting with institutions, organisations and companies on the local, national and international levels. It operates as a polyvalent centre of international reference, oriented towards research development, education and the diffusion of an advanced architecture. Theoretical approaches range from an interactive vision of architecture and technology to dynamic large-scale proposals. The impact of new information technologies on living space is explored in the media architecture course. Real-scale prototypes are constructed in order to experiment with the integration of communication technologies into the physical spaces of the domestic environment by means of new interfaces using advanced data networks, integrating information into everyday life and approaching the construction of new spatial and information structures through the optimum combination of intelligent logic and physical form. [www.metapolis.com](http://www.metapolis.com)