

## Campus to City: Urban Design for Universities

The 'campus' is a phenomenon of increasing relevance to modern urban planning. In Europe, universities are reconsidering their position in society and taking on extensive reorganisations and expansions of their physical structures. The postwar university campus as an isolated community of scholars is subject to thorough revision. In Asia, on the other hand, new campus-style universities are shooting up like mushrooms. Global companies build campus-style factory sites for their international headquarters or for their research-and-development departments. The controversy over the desirability of openness and interaction with the urban environment versus the increasing popularity of the 'gated community' and restricted access, demonstrates the need for a radical debate on the shape and the position of the campus in relationship to its context.

An interesting archetype for the relationship between the university and the city is Cambridge University in Great Britain. Here, cloister-like 'colleges' in the shape of more or less closed compounds surrounding an inner courtyard are scattered in clusters all over the city. Although Cambridge is one of the oldest universities in the world, this constellation may well be highly relevant to the present search for the ideal accommodation of today's university: an 'interconnected deconcentration' of specialised clusters, which together constitute a network of knowledge and individually function as catalysts for their immediate surroundings. This complementary symbiosis of the ivory tower and everyday life is expressed in various ways: in the architecture of the buildings, in the dress code and lifestyle of the Cambridge students and in the famous map of Cambridge pubs, which serves as a diagram of social activity.

### Size Matters

In Cambridge, the intimate relationship between 'town and gown' did not result from a deliberate avoidance of functional segregation. It developed from the limited size of the historical city, from its spatial structures, which



are based on walking distances, and from the limited scale and complexity of teaching and research at that time. Likewise in Leyden, home of the oldest university of the Netherlands, virtually all the university buildings and even the private residences of the professors were originally situated along a single canal, the so-called Rapenburg.

The increase in scale which led to our contemporary problems concerning functional and social segregation and mobility did not begin until the second half of the nineteenth century. In the nineteenth century, the ramparts surrounding European cities were demolished. Under the influence of the industrial revolution and the emergence of social awareness, large urban institutions were founded. In Zurich, the train station and the polytechnic school designed by architect Gottfried Semper were built on the edge of the city in the area of the former ramparts.

From an ideological point of view, these interventions were equivalent to the creation of a postwar campus in the 1960s: both involve the outplacement of huge monofunctional entities to an isolated location beyond the city limits, as can be seen in a late nineteenth-century map of Zurich. Contrary to the original intentions, however, Zurich's ETH Zentrum and the adjacent University are now being praised for their inner-city locations and their close interactions with the city. As a matter of fact, the city caught up with the university and eventually integrated it into the urban spatial structure. Nowadays, an implicit aim of ETH Zurich's Science City project is to embed the ETH even further and to reconcile it with its context, while simultaneously preserving a certain autonomous identity.

### Islands of Quiet

In a way, this is also what happened to the postwar university campus of the 1960s. The EPF in Lausanne is a prime example of such an isolated extra-municipal campus. In its structuralist urban planning concept, the various faculties, lecture halls and laboratories are arranged like modules along a central spine. In the middle of the spine is an 'agora' which provides a wide range of collective facilities. This geometrical shape, pressed into the sloping banks of Lake Geneva, perfectly reflects the idea of a knowledge centre in the midst of nature, geared to provide a maximum of quietness and concentration.



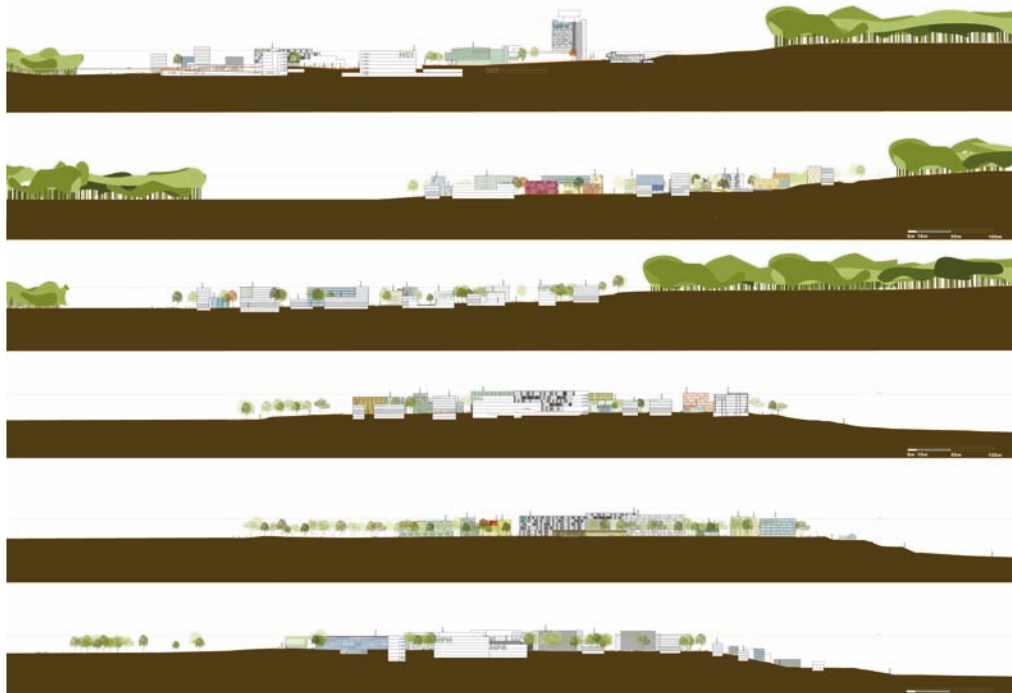
However attractive and pure this idea may seem, thirty years after its widespread implementation it is evident that this type of university campus does not lead to a desirable sociocultural and urban environment. It is hampered by its isolated location, its monofunctional disposition and its remoteness from mixed urban structures. Revisions generally aim at adding living quarters for students and staff, providing high-quality public transport and attracting commercial and cultural functions, such as spin-off enterprises, shops and a library or a theatre, which are also open to the inhabitants of the surrounding suburbs.

These suburbs are in fact the selfsame city which, like nineteenth-century urban expansions, has encircled and swallowed the university. Despite their flaws, the suburbs show the modern city's true appearance, which has virtually the same shape all over the world. This is where the greater part of the population lives and a major part of economic production takes place.

If the campus is not surrounded by suburbs, adding non-university functions to encourage functional diversity and social interaction is likely to

**Model of Science City with the existing buildings (white) and a potential development scenario (grey).**





Sections through Science City showing the relation between existing and new structures and the context.

increase the risk of further isolation. The campus of Twente University in the Netherlands, for example, offers such a complete range of amenities for living, working, shopping and leisure and is so far removed from the city, that it is turning into an autonomous compound with all the characteristics of a gated community or an Asian campus.

In Silicon Valley, however, no city had formerly existed to catch up with the university. Here the spin-off activities around Stanford University generated such a boost that it made an Edge City expand into a veritable urban conglomeration, which in turn now determines the socioeconomic life of an entire region.

### Inner-city Campus

However, the ideal model in the head of many planners for the campus revisions that are taking place all over Europe is not a university of deconcentrated clusters of various sizes, positions and characteristics, reconciled



Master plan with the different elements of Science City: the congress and meeting boulevard (dark red), patios and courtyards (yellow), green chambers and gardens (green), and the all-connective path network (red).

with the city on the scale of polycentric conurbations. Their ideal is the illusion of the inner-city campus within walking distance from the city, as it is embodied in the Technical University of Berlin (TU), Harvard University in Cambridge, Massachusetts, or the London School of Economics (LSE).

The TU Berlin is a mono-functional campus, whose mono-functionality is compensated for by its central position in the middle of the city. Situated on the interface between a city park, the Tiergarten, and the nineteenth-century district of Charlottenburg, the TU Berlin enjoys the advantages of a traditional campus as well as the perks of a university that blends in with the city. Due to the ravages of World War II, there is still sufficient space for expansion.

In Cambridge, Massachusetts, the opposite is true. Here, the heart of this former suburb now consists of Harvard Yard and Harvard Square, the oldest parts of Harvard University, and the development of the city has kept up with the growth of the university. It is a convincing example of a har-

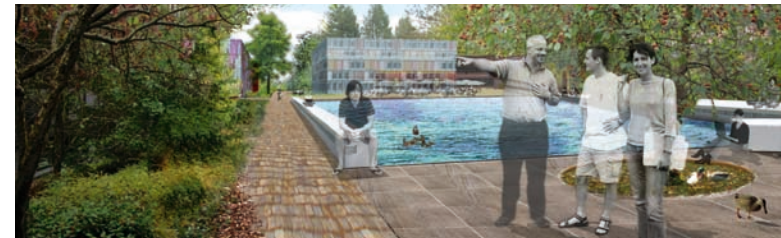
monious exchange between university and city, with central functions (Harvard Square), a city park (Harvard Yard) and a university centre at its heart. Our third example, the LSE in London, occupies a historical city district. It consists of a network of alleys and squares and a collection of large and small, old and new buildings that are placed within the original allocation pattern. Over the years, premises have been joined together, enlarged or replaced. The result is a university nestling in the city district as if by mimicry. The formidable urban qualities of such an unplanned university raise the question as to whether we should actually design universities at all, or perhaps rather allow them to infiltrate and transform a city district through improvisation and embroidering existing structures.

### Campus Revisited

While the postwar university campus of the 1960s is presently undergoing an identity crisis and major revision in Europe, this is certainly not the case in other parts of the world, as recent developments in Asia indicate. In many Asian countries the extra-municipal, monofunctional campus of quietness and concentration is not perceived as a problem, but as a symbol of progress (and social control). The University City Guangzhou in China even consists of a 'city of campuses'. Here, about ten university campuses form a conglomeration where students and staff virtually spend their lives, well provided for by all kinds of infrastructure.

Global enterprises have also adopted the campus as a blueprint for their international headquarters or their research-and-development departments. Companies like Microsoft, Novartis, Volkswagen, Benetton, Adidas and Nike each have their own way of using the campus concept as a leitmotif.

In reaction to severe criticism of Nike's deployment of child labour in sweatshops in low-wage countries, the company made a radical turn towards a policy of sustainable production techniques and social responsibility. One of the new techniques allows for sneakers to be recycled as ground material for floor-coverings in gyms. In Guangzhou, Nike developed Shoe-City, a production campus inspired by the garden cities built by philanthropic entrepreneurs in the nineteenth century, where employees can find affordable housing and send their children to school. By comparison, the Nike World Campus in Beaverton, Oregon, is a less inspiring project. In-



**Impressions of Science City: congress and meeting boulevard, patios and courtyards, and entrance and access road.**

stead of using a former industrial area to build a headquarters within walking distance of the city centre, like Benetton did in Italy, Beaverton Campus is a quintessential gated community, with white, Richard Meier-like buildings that look like ships run aground in the green belt. Instead of offering a multiple network of footpaths and bicycle tracks within an urban environment, the area is only accessible by car. The layout of the campus is defined by parking lots rather than by jogging tracks.

Far more interesting are the developments of Benetton in Treviso and of VW in Wolfsburg. Both projects inject new life into a run-down city centre by generating interaction with new functional clusters.<sup>1</sup>

### Catalytic Enclaves

In many urban and architectural situations, redeveloping existing structures leads to more interesting results than building virginal new premises.<sup>2</sup> The



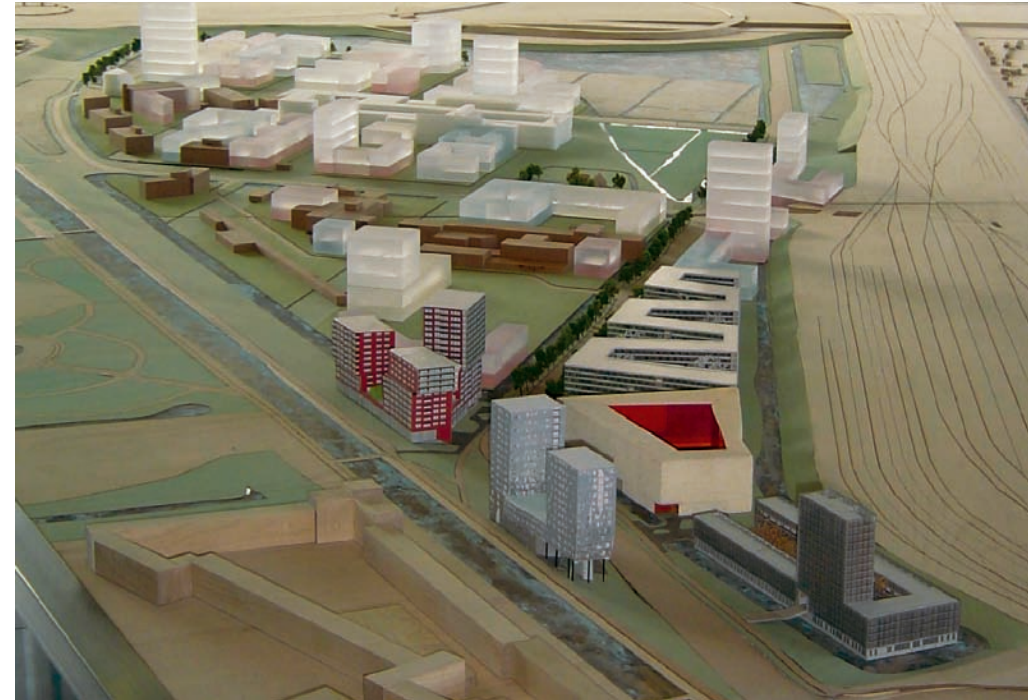
archetype of a university working as an instrument of revitalisation for derelict industrial sites is the project Potteries Think-belt by Cedric Price, which was never built. In this concept, the faculties, laboratories, lecture halls and student dormitories are situated far apart in disused ceramic factories, which are connected by a railway system originally built for transporting raw materials and ceramics. Lectures were to be given in the trains while students and staff commuted between the various locations.

This utopia, which reverberates in projects like IBA-Emscherpark in Germany, is an early version of the concept that universities can serve as networks of dispersed concentrations which activate weaker areas. It also tallies with the idea that traffic infrastructure can structuralise the economics of knowledge. In accordance with this idea, the universities and colleges of Rotterdam have arranged themselves along an 'axis of knowledge', the subway which traverses the city. The faculties are concentrated around three subway stations. This stimulates urban development in the areas, as students are the social group most willing to engage in urban activities.

One of the most radical and impressive examples of a university that stimulates urban activity is Bilgi University in Istanbul, Turkey. The institution buys and restores former industrial buildings in less developed areas of the city in order to provide adequate and affordable premises for its own growing activities, while at the same time giving a huge socioeconomic boost to the surrounding city quarters. Most notably the Santral project, involving a former power station on the peninsula at the source of the Golden Horn, demonstrates a degree of commitment and ambition comparable to the zeal of Zeche Zollverein in Essen, Germany. The peninsula is being transformed into a city park at the Golden Horn. In this park, the power station is converted to accommodate the main building of the university. Such a catalytic enclave creating a network across the city reflects not only the spirit of Cedric Price's Potteries Think-belt, but also that of the time-honoured Cambridge colleges.

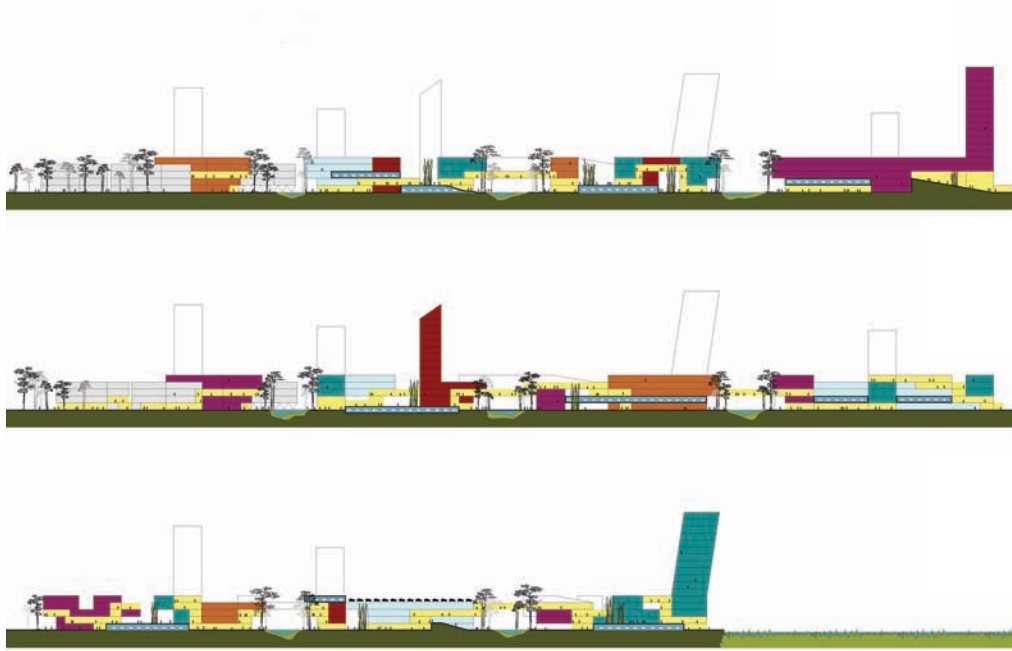
#### Science City, ETH Zurich

The Hönggerberg campus of the ETH in Zurich is a standard university complex from the 1960s, when the creation of large-scale universities led to expansion outside the city. The campus was built as an isolated enclave on



Model of Science Park Amsterdam.

a green hill. In the 1960s, it still stood outside the city; now it is a mono-functional island in the middle of the archipelago formed by the Zurich agglomeration. Just as the city has evolved into an agglomeration, the atomisation of the university has resulted in its development into an agglomeration within the city or, to put it more positively, the university has become interwoven with the city despite separation and specialisation. Proceeding from this interpretation, we can try to bring the suburban campus into contact with surrounding city districts, generating a communal basis capable of supporting new activities. A basis for commercial functions like shops, cafés and restaurants is achieved by a densification of the campus with, alongside additional university buildings, residential buildings where live/work combinations and spin-off business activities are possible as well as complementary amenities like a primary school. Thanks to lecture halls and foyers also being used for events and community activities, there is a sociocultural exchange with the city. While it is true that no inner-city



Typical sections through Science Park Amsterdam showing the flexibility of the building rules.

urbanity will evolve here, it does provide fertile ground for a gradual development towards a well-balanced environmental quality. This attempt at an integration of city and university constitutes the true significance of the term 'Science City'.

### Science Park Amsterdam

While Science City in Zurich was a pre-existing campus on a beautiful site, the Science Park planned for Amsterdam's Watergraafsmeer, originally a polder, is an urban bathtub. Surrounded by water and dikes, a railway yard and Amsterdam's orbital motorway – all the elements of contemporary, closed spatial systems – it is self-contained. It is of little consequence for the rest of the city whether a residential district, an industrial area, a quarantine terrain or a university campus is located here. This shocking conclusion is alas no longer unusual. It applies to most suburban enclaves, except that these are generally not perceived as being so extreme because they have



Master plan of Science Park Amsterdam with exemplary building configurations.

softer edges. On the one hand, there is something attractive about the idea that the city can consist of interchangeable 'patches'; on the other hand, the insularity, concentrated access and monofunctionality of such areas leads to a lack of social control, uneven daytime and nighttime rhythms, a lack of multiple relationships, an increase in mobility – in short to primitive, one-dimensional systems.

In this area, which is only accessible at three points, the Science Park, the scientific cluster of the University of Amsterdam (UvA), is being developed. Construction zones run from east to west, interspersed with wide bands of green. The construction zones are subject to a building code that is characterised by a labyrinthine structure that establishes a system of successive public and semi-public spaces. Situating communal amenities at junctions fosters concentrations of public activity. Instead of standing like bonbons on the grass, the buildings 'fold' themselves around the courtyards and interweave with adjacent buildings. It is not the form of the actual buildings



that dominates, but the system of spaces between the buildings: this 'anti-hierarchical network' reflects the idea of 'university'. The system for non-motorized traffic, meandering through the courtyards and atria like a network of rabbit runs, can expand and contract, depending on the intensity of use and the day-and-night rhythm. The public green strips also serve as a logistical zone for goods deliveries and as a cable route, where fibre-optic cables, nitrogen pipes or central heating for the blocks can be laid, as desired. Thus all the laboratories enjoy flexible access to the technical infrastructure.

Housing, cafés and restaurants, a public transport facility, a hotel, and sports facilities will also be developed in the Science Park. But unlike Science City, these functions do not mix. Within the polder bathtub they form a miniature archipelago of monofunctional islands, because the faculty buildings and laboratories produce emissions and must be able to expand and contract. This situation is illustrative of the dilemma between the desire for functional interaction and the imperative of programmatic criteria.

With this design concept we try to provide an instrument to enable non-mixable entities in the urban archipelago to function in complementary ways, by designing their interactive and relational structures rather than forcing an unfortunate integration.<sup>3</sup>



**Impressions of Science Park Amsterdam: pedestrian network by the landscape architects Karres en Brands; Faculty of Natural Sciences and Informatics of the University of Amsterdam by the architects Rudy Uytenhaak, Meyer en van Schoten, and Herman Hertzberger, with public space by KCAP with Karres en Brands.**

#### References

- 1 Kees Christiaanse and Kerstin Höger, 'Corporate Urbanism and Sustainability', in *Built Identity – Swiss Re's Corporate Architecture*, Basel, Boston, Berlin (2006), pp. 134–37.
- 2 Kees Christiaanse, 'Fuck the Program', in *Archis*, July 2000, pp. 79–80.
- 3 Kees Christiaanse et al. (eds), *Situation – KCAP Architects and Planners*, Rotterdam 2005.