THE URBANISATION OF INNOVATION ENVIRONMENTS. ARCHITECTURE AND URBANISM IN THE POST-FORDIST ECONOMY

SABRINA PUDDU

Università degli Studi di Cagliari

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Innovation environments: a visual portfolio

View of Nankang Software Park from Getac Corporation Headquarters, Taipei. Picture by the author.
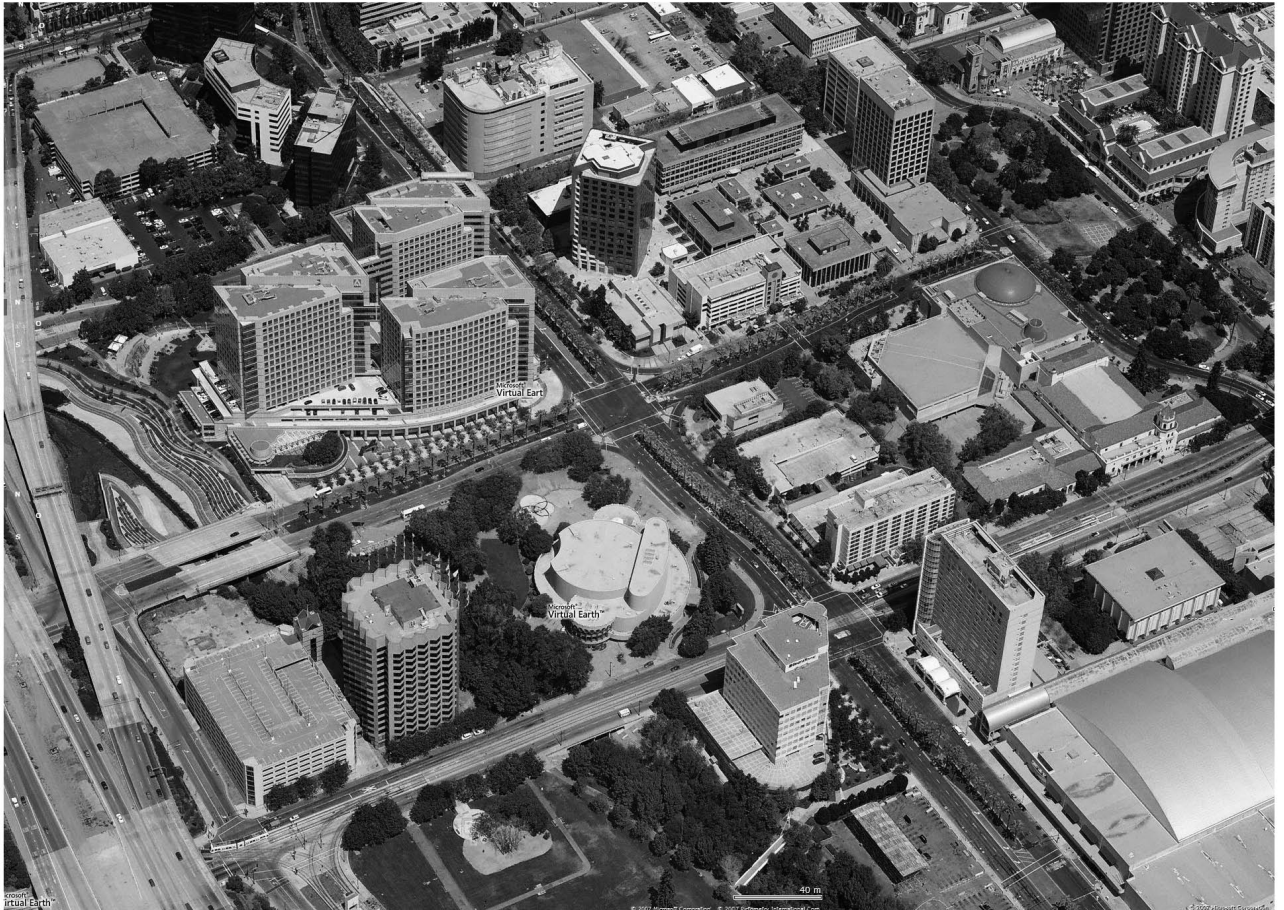
Parco scientifico e tecnologico Polaris, Sardinia.
Picture by the author.

Housing and student residence, Orestad North, Copenhagen.
Picture by Francesco Zuddas.

Tiscali Campus, Sardinia.
Picture by the author.

Novartis Campus, Losanna.
From The New York Times' gallery.

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INTROD

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Abstract

Ogni volta che un nuovo sistema produttivo viene messo in atto si assiste a dei cambiamenti relativi alla formazione e crescita della città e del territorio, nonché ad un'opportunità evolutiva – di crisi e ridiscussione - per la disciplina dell'architettura e per i metodi dell'urbanistica. Nella strategia integrata e onnicomprensiva posta in atto dagli attori decisionali per l'economia basata sulla conoscenza e l'innovazione, al progetto urbano è richiesto un ruolo attivo. Questo è chiamato a riconoscere e diagrammare il sistema in cui si muove e rispondere a questo con l'architettura. Se la posizione di partenza è che all'interno delle trasformazioni socio-culturali-economiche il compito dell'architettura è comunque sempre quello di definizione spaziale/formale, la tesi si pone come obbiettivo un'operazione di 'traslazione'. La traslazione a cui ci riferiamo consiste nel tentativo di inserirsi in un fenomeno – quello dell'economia dell'innovazione – attraverso una 'disciplina altra'. In altre parole, nel tentativo di restituire la dimensione 'spazio' alle questioni sollevate dall'economia. La tesi qui discussa si fonda principalmente su due ipotesi. La prima ipotesi afferma la natura urbana delle nuove forme di economia, e quindi la centralità del progetto dei tessuti di relazione nella formazione di ambienti (environments) favorevoli alla crescita e alla proliferazione della nuova economia. Da sempre alla base del progetto urbano, il progetto dei tessuti di relazione assume oggi una rinnovata rilevanza come parte di una strategia economica che tende ad informare l'intera realtà. La seconda ipotesi riconosce come associati alle nuove forme di economia degli assetti spaziali che, ancora in evoluzione, riconfigurano il rapporto tra città e isole produttive/di consumo/abitative disperse, all'interno di un'entità di progetto metropolitana o regionale caratterizzata da un'estesa tendenza urbanizzante. Se l'ultima fase dell'economia industriale fordista aveva portato ad una geografia di decentralizzazione in una suburbanizzazione estrema che non mostrava alcun bisogno di città, le nuove forme di economia attivano una riconquista dell'urbano. Questa si esplica nella effettiva rioccupazione del 'downtown' della città tradizionale attraverso una gentrificazione selettiva. E' però una riconquista della città tradizionale all'interno dell' 'anti-urbano' costruito dall'ultima fase del moderno. Quindi, a causa di un'estensione dell'intelligenza dell'urbanità alla dimensione regionale suburbana, suburbio e città si riconfigurano al di fuori del loro tradizionale significato dicotomico. L'urbanizzazione dei luoghi per l'innovazione è quindi da leggere all'interno dei processi economici (urbanizzanti) da un lato e della ridefinizione stessa dell'urbanità dall'altro.

Each time a new production system is introduced it brings along the transformation of the modes in which city and territory are shaped and grow. Concomitantly, it represents an opportunity for the evolution – intended as crisis or re-discussion – of the discipline of architecture and of the methods of urbanism. Within the integrated and all-embracing strategies projected by the stakeholders of the Knowledge-Based Economy, Urbanism is called to take an active role. However, it should make sure not to fall into naive – functionalist – responses as the output of a simple cause-effect chain caused by the pressures of the rapid changes in the economic – hence social/political/institutional/ programmatic – structure and merely aimed at the fulfilment of requirements as predicted by the specialist literature. Moreover, it should manage not to surrender to the substantial challenges posed by the new economic climate, that is, the development of cities and regions to accelerate the transition from post-war modern economy to the new forms of capitalism based on globalisation and flexible specialization. In other words, it should avoid falling into a 'lassaiz-faire' attitude. Rather, urbanism is called to diagnose and diagram the system within which it operates and respond to it through architecture.

"The planning of cities is not supposed to serve a given flexibility but it has to contribute to constructing it along with its built urbanity and social compromise. What is asked of urban planners today is not to represent a given order of ideas or values, but to invent urbanities for flexible economies and information-based technologies."[1]

The study of the Innovation Economy, intended as a specific branch of the wider discipline of Economics, has produced over the last decades a remarkable body of knowledge represented by wide specialist literature asking for some sort of selection. Such a selection is even more relevant if one was to attempt an operation of 'translation' as the one proposed by this dissertation. We are referring to the challenge of approaching a specific phenomenon – the Innovation Economy – through a discipline 'other'. In other words, the aim of this thesis is to give back a spatial

I. The worker and the space of the new industry. From www.sipa.gov.tw

1.Nicos Komninos, Intelligent Cities. Innovation, Knowledge, System and Digital Spaces., Spon Press, London and New York, 2002.

dimension to the issues raised by a mostly economics-centred debate.

By the time the research underlying this thesis was started, the state-of-the-art of an urbanism of innovation environments was markedly poor. Conversely, as research was being developed, mainly through the observation and analysis of case studies, it appeared increasingly more convincing the argument for a serious consideration of the urban implications of innovation environments, pushing towards the attempt to take a projectual and spatial approach to the phenomenon. Seen from a methodological perspective, the research here presented is built through a discourse emerging from the encounter of two bibliographies, hence two specific registers and vocabularies. On the one side is a selection among the vast economic literature on innovation and the knowledge-based economy; on the other side, a selection among the equally vast body of critical positions and theories on the architecture of the city. These are, therefore, our two main references.

The objective of the dissertation is to bring forth some reflections, both at a theoretical and a projectual level, about the spatial and disciplinary outcomes of the processes associated to the new economic climate over architecture. At the same time, also the opposite aim is considered, that is, to show what the active contribution of architecture and urbanism can be in shaping, allowing and counterbalancing those processes. If our starting point stems from the consideration that architecture necessarily operates through spatial/formal studies within given socio/cultural/economic transformations, the thesis here discussed is grounded on two main hypotheses.

The first hypothesis states the urban nature of the new economy. Several authors have reflected on the concept of 'cultural milieu', that is, the set of conditions constituting the cultural background which acts as a supportive and enabling framework provided by a specific locale to its economic structure. More recently the concept of 'collective learning' has contributed to further explain the mechanisms of the new economy

that are based on the continuous projection of shared knowledge that
is under constant processing. Other scholars, particularly from a socio-
political background, have indicated the professionalization of social
practices – hence of relational practices – as both basic condition and
output of the new economy. If we accept those observations, all deriving
from disciplines other than ours, we cannot but agree on the centrality
of the project of the patterns of relations as the necessary condition
for the creation of favourable environments for the proliferation of
the economy. The project of the patterns of engagement, a central
aspect of urbanism and the project for the city, is charged with renovate
relevance as part of an economic strategy that permeates every aspect
of our contemporary condition. This is therefore the reason for which
a large part of this dissertation will be devoted to a discussion of spatial
conditions such as 'campus', 'quarter', 'field condition', and 'landscape',
intended exactly as design instruments for spaces of relation that are both
controlled and marked by an emerging nature.

The second hypothesis recognises the coupling – although not as a simple
cause-effect relation - of some specific spatial arrangements to the new
forms of the economy. These arrangements, still under evolution, operate
to reconfigure the relation between city and dispersed 'production/
leisure/residential islands' within a metropolitan or regional scale of
design which is subject to extensive pressures of urbanisation.

The last stages of modern industrial economy - still embedded within
Fordist procedures – have concurred to the creation of a geography of
decentralisation that has led to the emergence of regional economies.
Production, leisure and housing patterns have thus been decentralised
in a process of extreme suburbanization that did not seem to show any
need of city. The traditional city, as it consolidated from the 19th century
onwards under the label of 'industrial city', was considered inadequate to
the social, economic and political conditions of the modern age and thus
abandoned in favour of more favourable territories – encompassing both
a real and a theoretical space. [2]

2.Charles Waldheim, observes the way in which Hilberseimer's New Regional Pattern "offers a profound critique of traditional urban form and of the inadequacy of traditional city planning in dealing with the social and technological conditions of modern age." Together with other two paradigmatic proposals of that period, 1935 F.L. Wright's Broadacre City and 1939 Norman Bell Geddes' Futurama, the New regional Pattern was constituent of a new form of landscape, different from the 'industrial city', that better interpreted the second stage of Ford's production programme (decentralization). Charles Waldheim, 'Urbanism, Landscape, and the Emergent Aerial Subject' in Landscape Architecture in Mutation, ed. Institute for Landscape Architecture, Zurich, 2005, 117-135.

The new economy suggests procedures and ambitions that are different – albeit maybe superimposable - from those of Fordism, introducing a new degree of freedom in cross-national, or better, cross-regional relationships. Therefore, from the 1970s onwards an unexpected phenomenon started to occur, namely the recovery of the 'downtown' of the traditional city through a process of selective gentrification.

However, this does not simply mean an uptake of the traditional city as the ultimate winning paradigm over the suburban quality that marked the urbanised territory of the second half of the last century, shaping novel patterns of living and working. Rather, what seems to be happening is a reconfiguration of suburb and city beyond their consolidated and widely agreed dicothomical urban meaning. In other words, we are witnessing a recovery of the traditional city within the 'anti-urban' left as legacy from the last stage of Modernism.[3]

The innovative region commonly known as Silicon Valley in California, widely considered as an advanced 'urban laboratory' by scholars of the geography of innovation, offers an interesting insight within the process we have briefly described. Indeed, the recent renovate interest over the restructuring of one of the region's main urban centers, San Josè City, is representative of the strategies that are currently being deployed by the knowledge-based economy in terms of the recovery of downtown. This is been considered as the favourable environment to realise intense patterns of interaction and exchange in a logic of collaboration with the dispersed regional network of firms and institutions of the new economy. The case of San Josè stands as evidence that the paradigms of the new economy ask for a switch from 'thinking sub-urban' to 'thinking urban', or better, for the embracement of a multiscalar combination of the two resulting in a new pattern of urbanisation.

Therefore, our second hypothesis – the recovery of urbanity – offers a twofold reading. On the one hand, we are witnessing the actual re-colonisation of the city-centre, as is demonstrated by the accelerated

3.Patrik Schumacher and Christian Rogner follow urban geographer Edward Soja noticing how "Soja's postmodern geography (spread city) differs markedly from the process of post-war suburbanisation. It is best described as 'an amorfous regional complex that confounds traditional definitions of both city and suburb.' This postfordist landscape integrates a loose and open network of research, production and service systems, interspersed with leisure environments and alternating expensive residential developments with enclaves of cheap labor." Patrik Schumacher and Christian Rogner, 'After Ford' in Georgia Daskalakis, Charles Waldheim, Jason Young (eds.), Stalking Detroit, Actar, Barcelona, 2001.

growth of cities and the concomitant rising market values of buildable
land and floor areas – both in terms of housing and office developments
– in central city locations. On the other hand, we can acknowledge
the extension of an 'urban intelligence' over the suburban regional
dimension. In the article titled 'Le territoire comme palimpseste'[4],
published in the early 1980s, Andrè Corboz noticed how the triumph
of 'city' over 'territory' was to be intended as the homogenization of
life styles due to the diffusion of mass-media. In other words, both city
centre and rural and suburban dwellers had started to acquire an 'urban'
life-style. In our view, we could broaden Corboz's reflection by starting
to consider the tendency towards urbanisation of a vast territory and the
re-colonisation of city-centres as part of the contemporary production
patterns that are, according to our first hypothesis, inextricably urban in
nature. In other words, we can better understand those phenomena if
we associate them to the parallel tendency towards the urbanisation of
innovation environments.

'Urban' is therefore the term that ties together all that will be discussed in
this dissertation.

To reiterate, despite the fact that the urban essence of the innovation
economy is often acknowledged by the part of other disciplines, what
is evident and stands as point of departure for our research is that both
urbanism and architecture have long lagged behind in contributing to
define what such urban character is. In other words a spatial perspective
has not yet been sufficiently and comprehensively addressed. In fact it
cannot be denied that the new economy is marked by some well-defined
spatial aspects that have given birth to a series of accepted canonical
forms and spaces. It is through a critique of those spatial canons which
have given birth to a proliferation of islands of innovation worldwide
that, we think, architecture can learn and position itself within the wider
debate on innovation.

To be sure, there are some very recent signs hinting at the urbanization of

4. Andrè Corboz, 'Il territorio come
Palinsesto' in Casabella n 516, 1985
(first published as 'Le territoire com-
me palimpseste', in Diogéne, n 121,
JanvierMars 1985).

innovation environments, as is demonstrated by the emergence of new vocabulary. 'Innovation Hub' or 'Mega Research Park'[5] are alternative terms that have been created to surpass the more canonical ones such as 'Science and Technology Park', 'Industrial Park' and 'Technopole'. What they share is exactly a common focus - thus showing an awareness of its relevance — on the urban condition of innovation.

[Dissertation's Structure]

These brief introductory notes will be followed by what is to be regarded as the proper introduction to the thesis, derived from a review of the specialist literature on the economy of innovation. Chapter 1 is thus devoted to a selection of those aspects and issues that are relevant for firing an architectural/urban discourse. The chapter offers therefore a sort of synthetic summary of an incredibly vast body of knowledge mainly coming from Economics. However, in order to make clear from the beginning the relevance of space and matter for our research, the economic literature's review will be followed by a descriptive focus on one of the most relevant case studies that is hinting - or maybe has opened the way - to the (re)urbanisation of innovation. We are referring to the district of One North that is being currently developed in Singapore.

The main body of the thesis is organized into three sections each of which containing different chapters.

Section 1 aims to provide an abrupt insertion of architecture within the domain of innovation. The best way to do it, we thought, was by taking on board what is maybe the most profound essence of the discipline: type and typology. Thus, Chapter 2 provides an attempt to recover typological discourse by expanding on the relation between type and the requirements of the new economy, flexibility and intensification in particular. Typological discourse is considered to be the contribution that research can provide to real practice. The chapter provides a

theoretical speculation based on references to disparate case studies, that is counterbalanced with a more 'practical' discussion based on two projects as described in Chapter 3. The first of the two projects is one of the paradigmatic buildings of Fordism: Fiat Lingotto in Turin. In particular we are interested in the intelligence of type as represented by the ways in which the Turin factory has managed his presence in the city fabric over time, running parallel to the switch from industrialization to post-industrialization. The second is a student project that we are here considering for the design procedure that underpinned its generation allowing it to distance from a simple 'shell' approach to the project of a production building. The value shared by the two projects (without any presumption to compare them in terms of their respective significance) is that they do not neglect to the 'factory' the opportunity of acting as a piece of architecture and urban artefact.

The opening image for Section 2 is a collage of plans randomly collected from the web by typing 'Science Park' on a search engine. The collage demonstrates the proliferation of a preponderant spatial belief for 'innovation environments' applied worldwide. Hence the attempt of this section to begin a line of reasoning beyond the campus model. In particular, the section highlights and describes 'three beliefs' that, defined as spatial-economic systems, are widely taken by planners as sources of an oversimplified inspiration and unscrupulously replicated. The first is the emerging system of small-medium enterprises within a condition of extendible sprawl; the second is represented by a branching system of monocultural islands kept together by a longitudinal infrastructure; and the third is the urban quarter and its extension in the form of 'urbanity'. In order to avoid the sheer continuation of a model-based line of reasoning and practice, the reflections presented in Section 2 aim at extracting from the specificities of some of those models – as applied in some of the most successful examples around the globe – the spatial operative instruments that can be handled once the challenge of a novel design for innovation is embraced. Chapter 4, 5, and 6 are thus devoted to three chosen 'operative instruments', respectively 'Quarter', 'Campus', and 'Landscape'.

Section 3 has to be conceived as a continuation of the previous section, for it presents three case studies that are to be read through the lens of the arguments sustained in Section 2. We will thus focus our attention on the Cambridge Phenomenon, the urban innovation environment of Central London and the peripheral system of innovation that is longed for metropolitan Hanoi. Those three main case studies have been selected on the basis of a more direct knowledge of them by the part of the author. However, the dissertation continuously makes use of a wide set of references to different cases either planned, built or just theorized that are considered as much important as the more canonical literature in order to construct a discourse on the architecture and urbanism of innovation. Among these, we can anticipate here (in no particular order): KIC in Shanghai, Zurich Science City, Copenhagen Orestad, Mission Bay San Francisco, San Josè City in Silicon Valley, Boston's Route 128, Taipei-Hsinchu region in Taiwan.

The putative conclusion to the work could then have been the forecasting of a new generation of innovation environments that, based on their proved necessary re-urbanization, are able to realize a 'win-win' scenario, both satisfying the requirements of the innovation stakeholders and the ambition of contributing positively to urban living and city space.

Nevertheless, it would be contradictory, from our side, to delineate the new generation of Science Park as this could easily fall into what is one of the aspects that are most criticized in the whole thesis: a model-based reasoning. In other words, we would not want a conclusion to be a set of norms and rules of good practice, neither another fascinating image for investors. So, rather than closing the thesis, the conclusion is presented in the form of a footnote that is a sort of a backstage reflection on what discussed in the dissertation, and that aims at raising questions for further reflection that consider issues other than just those coming from the economic literature.

Chapter 1
The urban essence of the innovation economy

Abstract

L'economia per l'innovazione pone all'urbanistica e all'architettura delle sfide, includendole all'interno di una strategia socio-economica-politica mirata alla costituzione del nuovo sistema produttivo. La tesi non mira ad affermare che una 'corretta' pratica urbana e architettonica sia capace di generare l'evento dell'innovazione, perché, noi crediamo, l'architettura non può causare in modo diretto alcun evento. Tuttavia, in accordo con parte della letteratura sull'economia dell'innovazione, l'innovazione è una 'condizione ambientale' (environmental condition). L'obiettivo del progetto è quindi la costruzione di tale ambiente favorevole. Nel capitolo introduttivo selezioniamo e descriviamo sinteticamente quelle questioni, sollevate dalle strategie economiche, che risultano rilevanti e quindi approcciabili dalla nostra disciplina. Il progetto architettonico e urbano può innanzitutto intervenire in pratiche di 'intensificazione' – intesa come la collaborazione sinergica di masse critiche selezionate per innescare dei processi innovativi – costruendo tessuti di relazione e di regolazione tra le masse critiche differenziate. Inoltre, il progetto architettonico e urbano può contribuire al discorso, indispensabile per la nuova economia, di flessibilità e resilienza. Può cioè capire quali strutture urbane (o di landscape) abbiano capacità di sopravvivere e rispondere a cicli produttivi e cambiamenti repentini perché, per esempio, differenziati in forma, tipo, funzione. La terza questione è quella legata all'attrattività di città e regioni nei confronti di compagnie, mercati e soprattutto della forza lavoro contemporanea: un insieme cosmopolita di talenti altamente educati per cui è necessario costruire un facile accesso alla vita lavorativa e collettiva. Dalle tre questioni emerge chiaramente la rilevanza di considerare seriamente la ri-urbanizzazione dei luoghi per l'innovazione.

Knowledge Economy

"A situation where value lies increasingly in new ideas, software, services and relationships"[1] Scottish Enterprise

"Production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence. [...] The key component of a knowledge economy is a greater reliance on intellectual capabilities than on physical inputs or natural resources."[2] Walter W. Powell, Kaisa Snellman

"The share of national income and employment produced by innovating organisations combining ICT and highly skilled labour to exploit global scientific, technological, and creative knowledge networks"[3] Working definition, The Work Foundation

"A Knowledge region is a territorial unit with abundant human and social capital, containing structures, organisations and people actively engaged in generating [social and economic] development through science, technology and innovation, and whose interaction results in a high concentration of technology-based firms and highly skilled knowledge workers and entrepreneurs"[4] Luis Sanz

Innovation

"[...] the entrepreneur and his function are not difficult to conceptualize: the defining characteristic is simply the doing of new things or the doing of things that are already being done in a new way (innovation). [...] it is particularly important to distinguish the entrepreneur from the 'inventor'. [...] The inventor produces ideas, the entrepreneur 'gets things done', which may but need not embody anything that is scientifically new. Moreover, an idea or scientific principle is not, by itself, of any importance for economic practice. [...] Hence it seems appropriate to keep 'invention' distinct from 'innovation'."[5] Joseph A. Schumpeter

"Knowledge Innovation is the creation, exchange, evolution and application of new ideas into marketable goods and services for the success of an organization, the vitality of a nation's economy, and the advancement of society as a whole."[6] Debra Amidon, IASP Dictionary

"Innovation is a process, involving multiple activities, performed by multiple actors from one or several organizations, during which new combinations of means and/or ends, which are new for a creating and/or adopting unit, are developed and/or produced and/or implemented and/or transferred to old and/or new market-partners."[7] Joerg Gemuenden, IASP Dictionary

"Innovation is clearly an 'environmental condition'; it is less an individual achievement than the joint effort of communities of people working together, interacting, and sharing common goals and visions."[8] Nicos Komninos

By definition, a 'knowledge-based economy' is that which relies on 'knowledge'- its creation and exchange – as the basic resource, both instrument and output of contemporary production. According to some scholars, the roots of the new economic model can be found in the 1970s in coincidence with both the energy crisis and the harsh remonstration of social classes against the Fordist economy. The former appeared as the demonstration of the risk of an economic collapse once the consumption of its basic resources would have occurred. Knowledge shows instead the attributes of an unlimited resource, provided that incessant invention and innovation are guaranteed. Knowledge is a stimulus for continuous invention to be applied to new and traditional economic sectors – agriculture, manufacture, services, etc. Hence, the 'event' of innovation can happen. Innovation, based on the inexhaustible resource of knowledge rather than on material resources and capital accumulation, is the engine that keeps the contemporary economy running. Innovation, both technical and social, either this being product/process/organizational innovation[9], is at the base of a process that does not follow a linear chain of production like Fordism used to do. It is rather an often chaotic process that includes a multitude of actors and institutions in a networked logic where sharing and exchange are the main 'operative procedures' to realize the basic condition labelled as 'collective learning'. For this reason, and to distinguish it from a previous 'outdated' canon, many scholars refer to the contemporary economy as post-Fordism.

While the first term – knowledge-based economy – is extensively used to describe in general the 'new form of economy', the second term –'innovation economy'- is more 'harsh' and specialist. It is more specialist in the sense that it recognizes the difference between knowledge creation and innovation, and by focusing on 'innovation' as the driver of contemporary production thus better understands its 'working' mechanisms. The third term (post-Fordism), the one that can be most commonly found also within an 'architectural literature', is charged with a much more ideological and political understanding of economic

1.From http://www.scottish-enterprise.com/sedotcom_home/help/help-glossary.htm

2.Walter W. Powell, Kaisa Snellman, The Knowledge Economy., Annual Review of Sociology Vol. 30: 199-220 (Volume publication date August 2004), first published online as a Review in Advance on February 20, 2004.

3.From www.theworkfoundation.com

4.Luis Sanz, 'The future role of science parks in metropolitan science regions'. SSES and ESBRI Research Seminar, Stockholm, 10th March 2004.

5.Joseph A. Schumpeter, 'The Creative Response in Economic History' in The Journal of Economic History, Vol. 7, No. 2, November 1947, published by Cambridge University Press on behalf of the Economic History Association, pp. 149-159.

6.From http://www.iasp.ws/publico/index.jsp?enl=8

7.From http://www.iasp.ws/publico/index.jsp?enl=8

8.Nicos Komninos, Intelligent Cities and Globalisation of Innovation Networks, Routledge, London, 2008, p.80.

9.For a definition of the three typology of innovation see Nicos Komninos (2008), op.cit.

phenomena. It recognizes a shift within the political-cultural realm which happened in coincidence with the switch from one economic phase to the other (from Fordism to post-Fordism). The term 'post-Fordism' clearly implies a historic perspective for it is the contrasting model to – or the evolution of – Fordism; the economic-socio-political system whose paradigm is the production line of Henry Ford's factories - in which workers are employed in repetitive specialized tasks - but whose effects step out of the factory's walls accompanying the cultural-political and ideological restructuring of an era. What actually is emerging today is a cross-regional system where Fordism and post-Fordism – as economic practices – coexist in a networked logic. Post-Fordism, however, has affirmed itself as a cultural-political attitude overcoming its predecessor and thus demarcating the shift.

The central term underlying the whole dissertation is 'innovation environment'. This highlights the location of the dissertation within the 'innovation economy' debate. If we agree with the assumption that the main purpose of innovation economy's strategies is that of pushing the stakeholders- either firms, clusters, cities or regions - to be efficient and inventive, and with the belief in the unpredictability of innovation, then the attention needs to be shifted from the 'production line' to the 'innovation environment'. Indeed, an innovation environment is that one able to continuously create new knowledge and to transfer this knowledge to production and distribution thus affecting the society as a whole. Such environments strongly rely on the combination of institutional conditions and, to some extent, of physical infrastructure.

10.See both Komninos' recent works: Nicos Komninos, Intelligent Cities. Innovation, Knowledge, System and Digital Spaces., Spon Press, London and New York, 2002, and Nicos Komninos, Intelligent Cities and Globalisation of Innovation Networks, Routledge, London, 2008; and the website www.urenio.org.

For our purpose of depicting a general picture of the phenomenon 'innovation', while leaving to the economists a deeper capacity of insight within their disciplinary domain, it can be useful here to refer to the contribution to debate on innovation environments provided by Nicos Komninos[10], professor of Urban Development and Innovation Policies as well as consultant in many research-programmes on regional innovation strategies.

According to Komninos[11] what make an innovation system are: Elements, Relationships, and Governance. The elements are the institutional entities (firms, research organizations, funding, technology intermediary organizations) that constitute the basic building blocks of the system. It is through the Relationships between these institutional entities that innovation emerges, for these relationships are those that work to exchange, disseminate, record, transfer, assimilate, transform and evolve knowledge. In other words, knowledge is meant as the 'cohesive substance' that connects the basic elements of the system. Governance, understood as the collection of emergent or imposed formal/informal rules and norms, is the mechanism ensuring the system to operate and reproduce itself.

Komninos points out how the attention is shifting from the process of 'innovation' per se to the 'innovation environment', his main argument being that while innovation cannot be predicted and thus cannot be planned what can be planned is the innovation environment understood as that environment capable of nurturing possibilities for innovation to happen[12]. Innovation is therefore described as an 'environmental condition' and its geographical manifestation, the 'region of innovation', is that one which amplifies human intellectual capacity, cooperation capabilities and human intelligence.

The most competitive innovative regions today are those which have managed to keep a relation with places of production, either located in the region itself of scattered globally, for innovation could not exist without production but it is the conversion of "scientific knowledge into new products and services"[13]. An innovation environment is basically made of three 'levels of resources': creative people and organizations, innovation support institutions and cutting edge technologies (and digital innovation spaces). The first two components constitute the social capital of the local environment. What is relevant here to notice is that there has always been, within the evolution of innovation theory, a physical dimension associated to it. Komninos' envisaging of a new

11. Nicos Komninos (2008), op.cit.

12. Nicos Komninos (2002), op.cit.

13. Nicos Komninos (2008), op.cit.

generation of innovation environments, which he calls 'Intelligent Cities', is yet another spatial manifestation of the processes of innovation which follows the previously theorized models of 'Industrial Districts' and 'Learning Regions'. The Learning Regions' theory adds to the previous one (which was mostly based on physical proximity as a means to reducing costs) elements that are institutional and organizational in character, thus introducing the hypothesis of innovation meant as a 'collective learning'. Intelligent Cities are the result of further layering: the digital component provided by new communication and information technologies is superimposed over the physical and institutional layers, thus constituting a System of Innovation that fully approach the global dimension of cross-regional co-operation.

Architecture and Urbanism are indeed a constituent part of the strategies pursued by regional and national governments towards the creation-implementation of innovation economies, although often considered as given clichés and overwhelmed with false responsibilities that transform 'design' in the practice of 'providing a form in order to achieve a social-economic effect' . Therefore, we would like to state from the beginning that the present dissertation does not hint at giving the generic sense of an architectural urbanism capable of generating innovation and efficient economic processes. This is not our concern, although this is the hope of many clients. For this reason, the attempt is made to provide a selection among the wide economic literature through the individuation of those few specific issues that our discipline might address.

It is therefore relevant here to provide a selective choice of few issues that, within the innovation economy, can be grasped by, and thus are relevant for, urbanism and architecture. Their relevance derives not only from the widely accepted historical relation between urbanism and external socio-political-economic conditions but, above all, from a recognition that the knowledge-based economy is urban in its very essence, absorbing in its modus operandi traits of urban living. Collectiveness, networking, clustering are among these traits.

We have selected three main questions that we feel architects can contribute to, both in theory and in practice. The first one is related to the quest for intensification of innovation environments, the second to their necessity of been flexible and resilient, and the third to their challenge of being and remaining competitive and appealing.

[Intensification][14]

The knowledge-based economy is fed by a necessary continuous innovation. Innovation is an outcome of invention when this is shared – applied, commercialized or diffused: therefore it is more likely to occur in a more intense and diversified environment, where 'sharing', exchange and interaction are favoured. For this reason we are going here to discuss the issue of Intensification that will appear in several parts of this work because, we think, is a question addressable with architectural urbanism's instruments.

In principle intensification is based on 'quantity', for it is much easier to have an intensified environment once you have achieved a certain critical mass. The critical mass for innovation is the quantity of private and public institutions (the institutional infrastructure), firms and companies (the entrepreneurship flag), human resources (the talented workforce) and material resources (physical infrastructure) that find themselves as parts of a networked structure - thus sharing common knowledge and codes, rules and conventions that make them working as a coordinated symphony. Thus the 'critical mass' for innovation is that necessary to trigger a 'phenomenon'.

The nature of innovative networks derives from a combination of dispersion and agglomeration. For instance, the 'global IT network' is constituted of highly concentrated regional cores (Silicon Valley, the Shanghai Region, and the Hsinchu-Taipei Region) that stand as evidence

14. The quest of intensification contains the whole range of issues (social learning, urban learning and network) more extensively discussed in a previous work . See Sabrina Puddu, Strategies of Intensification. Workspace and the 3D Neighbourhood, unpublished thesis, supervisor: Lawrence Barth, Housing and Urbanism Programme, Postgraduate School, Architectural Association School of Architecture, September 2008.

of the relevance of clustering for the innovation economy.

Indeed, if the agglomeration of firms and industries as a geographic phenomenon has always existed, its confirmation and strengthening during the last decades - when the faith in the new information and communication technologies was expected to undermine the importance of both location and of physical proximity- sounds absurd. The myth of an unavoidable urban dissolution subsequent to the replacement of the real space with a virtual electronic one has been subverted.

If we follow Saskia Sassen[15] - whose focus on the agglomeration of 'producer services'[16] can be easily transposed to other innovative sectors - three points help to explain the paradox. Firstly, the local concentration – at the scale of districts and cities – is directly related to the global dispersal of activities (mainly manufacturing): the more the activities are dispersed, the more complex is to manage them, the more important becomes the role of central coordination and control. Secondly, only a certain amount of information and knowledge at the base of the new economy can be easily shared and transmitted through the web, while a large part requires face-to-face interaction of talented informed people gathered together in the same place. Saskia Sassen follows Michael Storper when she refers to two kinds of information. "One is the datum, which may be complex yet is standard knowledge [...] and the other is a more difficult type of information, akin to an interpretation/ evaluation/judgment."[17] While the first type can be easily shared and transmitted through the web, the second necessitates of a complicate mix of elements. There is then a distinction between codified knowledge as opposed and complementary to tacit knowledge.

The sharing and continuous upgrading of tacit knowledge is an important precondition for innovation. Its complexity requires face to face contact and spatial proximity between talented, informed people. Therefore, and this is the third point, to make the network work we need to concentrate the economic activities in one place where the material and human

15.Saskia Sassen, 'Locating cities in global circuits' in Environment & Urbanisation, vol.5, n.1, 2002, and Saskia Sassen, Cities in a world economy, Pine Forge Press, Thousand Oaks, 2001.

16.'Producer services cover financial, legal, and general management matters; innovation; development; design; administration; personnel; production technology; maintenance; transport; communication; wholesale distribution; advertising; cleaning services for firms; security; and storage. Central components of the producer services category are a range of industries with mixed business and consumer markets. They are insurance, banking, financial services, accounting, and professional associations.' from Saskia Sassen (2001), op.cit., chapter 4.

17.Saskia Sassen (2002), op.cit., pg.26.

resources for the elaboration of complex data are present and can work together. In this light, the city is historically the best environment where the connectivity between those resources is naturally to be found: the city already contains some features of an intelligent environment[18]. However, the clustering phenomenon can be also manifested in different ways - or following alternative acceptations of the 'urban'.

Therefore, for the purpose of intensification not only is the quantitative datum important but also the differentiation and characterization of people, functions, institutions that are gathered together. For instance, there are congested places that are not able to produce any innovative process or product. This is due to the fact that knowledge-based business ecologies are urban in essence but produce a sophistication of urbanity by means of selection.

Summarizing, whereas density is a quantitative term, referring to numbers, dimensions and proportions, intensity cannot ignore density but also presupposes a qualitative position. In fact, we can achieve intensification the moment we predispose intelligent relationships among certain kinds of critical masses. Therefore, intensification relies on quantity and on diversification in quantity as well as on qualitative synergies. In urban planning, 'intensification' does not follow a linear means-end process: it is a kind of chemical formula, yet the result is not always predetermined. In fact, quantity can be calculable but quality is something always relative. However, architectural devices - employed to design pattern of clustering and infrastructure of communication and sharing -, planning phases and programmatic combinations can help in achieving intense environments.

If we then start to consider not only technical innovation but also social innovation, not only a critical mass of 'specific stakeholders' for innovation is needed but also a critical mass for 'urbanisation' is necessary. In fact, If we define innovation as an event, thus as a local incident that has global consequences, it is less useful to consider only a

18. "In an intelligent environment, the user and the environment work together in a unique manner, the user indicates what he wishes to do, and the environment recognizes his intentions and helps out however is appropriate." Hammond as quoted by Komninos (2002), op.cit., chapter 9.

single laboratory where a bunch of clever scientists are going to discover some kind of revolutionary medicine. In fact, any discovery will never be innovative unless it enters into a production system and has proper legal and media support for a welcoming market where it can be accepted and spread. The point is that innovation didn't happen when the fire was discovered but once it was stolen and this knowledge, distributed to people, had been absorbed as essential to urban leaving. For this to take place, a social infrastructure crossing diverse strata of the society needs to be activated. All these highlighted tendencies, can be described as urban learning. The collective learning process of innovation is indeed a loop, both a precondition and result of innovation that is to be considered as an unpredictable collective process.

Apart from a selective diversified clustering of critical masses (programmatic and quantitative choices), architecture can help by materially defining spatial patterns likely to encourage and promote prosperous synergies of sharing and exchange (porosity, permeability, hierarchy regulation are the key words here) while also regulating the coexistence of these critical masses. In other words, architects are called to design the material infrastructure that supports the working environment either directly or indirectly. By 'infrastructure' we are here referring not only to transportation systems but also to the collective and housing realms.

Moreover, we may argue that intensification can be achieved at different scales. Even at the scale of the building. This is probably true for those buildings whose size is consistent enough to allow a significant quantity of people/institutions/firms to inhabit it and a large range of spatial configurations to be created. It is probably at the scale of the cluster and of the quarter that the question of intensification can be addressed more straightforwardly. Hence, the preferred worldwide tendency for campus and science park planning can be understood. And, hence, also our attention to the scale of the 'quarter' as the possibility for an intensified office neighbourhood, as discussed in a previous work[19] and further

19.Sabrina Puddu, Strategies of Intensification. Workspace and the 3D Neighbourhood, unpublished thesis, supervisor: Lawrence Barth, Housing and Urbanism Programme, Postgraduate School, Architectural Association School of Architecture, September 2008.

I. Detroit is the paradigm of an urgent resiliency for urban areas and the urban economy. Photography by Sean Hemmerle, from The Times' gallery.

developed in the present thesis, can be appreciated.

Finally, the scale of the region, apparently less apt to be handled through 'architectural moves' is anyway still liable to intensification. Besides being a matter of planning policies, communication infrastructures, and the deployment of virtual infrastructures, to us the scale of the region is a 'territory of architecture' that has widely been theorized and is still under discussion within the debate around 'landscape urbanism'.

[Flexibility and Resiliency]

"Flexible: able to change to suit new conditions or situations" Oxford Dictionary

"Resilient: [1] able to feel better quickly after sth unpleasant such as a shock, injury, etc. [2] (of a substance) returning to its original shape after being bent, stretched, or pressed" Oxford Dictionary

There are many reasons for which architecture, cities and regions are asked to be resilient - to climate change, to wars or catastrophic events, to overpopulation or depopulation. What interests us here is the ability of spatial frameworks to positively react to economic changes.

The recent economic crisis just reminded us how volatile the contemporary system of production is and how the capacity of a spatial framework to be elastic is crucial for both business ecologies and the regions or cities in which they are located.

If the crash exploded in 2008 was of a dramatic and, fortunately, unusual scale, peaks of success and crisis are peculiar of innovative networks in their frenetic search for the most brilliant and effective inventions. Thus, flexibility is an embedded requirement for any innovative network, whose attitude is that of changing continuously. 'Obsolete' is the word that scares stakeholders more than 'bankrupt' and, at the same time, acts as

the challenging condition. An employer, a machine, a working procedure cannot incur in the risk of being obsolete in an economy based on innovation. In addition to that, shifts in working procedures might cause different requirements in size, topological configurations, and location of industrial buildings.

If we broaden our view, the migration of factories from one destination to another, usually cheaper, and the increasing simplicity with which this migration is happening today, is a further warning for thinking 'resiliently': buildings, quarters, cities, regions that are suddenly abandoned by factories and investors risk to collapse if alternative exit strategies were not been put in place and if the economic networks were not agile enough to re-adjust themselves to novel configurations.

Therefore, the second challenge for architects asked to contribute on projects for the new economy is that of predisposing flexible urban structures which are capable of accommodating – reacting and absorbing - the incredible instability of networks and the concomitant effects this instability can have on the 'urban' realm in general.

If a first step can thus be that of designing - mainly at the scale of the quarter or at the scale of the building - flexible spatial arrangements capable of accommodating the changing nature of industries, the step forward is to push for a resilient landscape or urban fabric (according to the condition we have to deal with).

If flexibility is probably the right word to use for firms, people, and procedures and it implies an evident activity of change (changing practices and procedures, changing corporative organizational structures, etc.), resiliency is a much more comprehensive term. Learning regions, innovative neighbourhoods and creative cities, in order to be resilient, have to consider in their life-span multiple exit strategies and accommodate the possibility of multiple patterns of living/working. Urban patterns and architecture, it will be argued later, respond to

'external' shifting pressures by modifying their structure or by being able to absorb changes in the same immobile structure. Resiliency is the property that comprehends both this possibilities.

In the shift from flexibility to resiliency we want to stress the shift from a necessary 'flexibility' of the single building – office building, factory, laboratory – to that of an urban area. On the one hand, the building – here considered as type – is flexible not only for its internal configuration but mainly for its being in relation with the urban condition in which it is inserted. On the other hand, there are some primary elements in the urban area – such us the street pattern, the organization of voids, the articulation of the ground, the variation in plot dimension and orientation – that ensure companies and firms a degree of flexibility they would never achieve in a single building.

Consultant Lora Nicolaou pushes further the argument for a 'City as an Office'[20]. According to this, the attention of designers should not stop on the interior of the single building but broaden to the project of effective patterns of circulation, interaction, networking for the outdoor or indoor areas among buildings. The area she refers to is not likely to be typologically homogeneous, but it would better perform as a composition of a wide range of diversified networked accommodation types - indeed the actual need of companies and firms is not to occupy a single building but to have accessibility to these diverse types. "Where traditionally workplace design aimed at consolidating organization into single headquarters buildings or campuses, business park or corporate estates, twenty-first century accommodation strategies are based on a network of accommodation types each providing the most appropriate environment for a given function or corporate activity [...] the functional and organizational needs associated with the efficiency and the effectiveness of organizations depend less on particular building and more on the flexibility of generic building forms combined with high-amenity local area context. [...] While building types are becoming simpler and fewer, accommodation solutions and alternative business environment are

20.Lora Nicolaou, 'Emerging building forms and accommodation solutions: new building typologies or distinctive place-making.' in John Worthington DEGW (Ed.), Reinventing the workplace., Architectural Press, London, 2006 (first published in 1997).

becoming more diverse and part of a more highly differentiated urban structure."[21] This argument expresses a way of conceiving flexibility that is totally delegated to the urban area as provider of diverse building types, while buildings are impoverished in specificity in order to become more urban. However, if the task is to create a differentiation within the 'environment' for the knowledge-based economy, we believe this is also possible in relation to a typological investigation much more inventive and specific then basic workspace 'shell typologies'.

According to some, resiliency is essentially related to the mix of uses: a monocultural quarter is more likely to become highly deteriorated once the specific kind of use or function or sector upon which it is based loses its appeal or is invested by a crisis   According to other starting points, in order to avoid monoculturality a programmatic phasing is not enough if not supported by a resilient 'urban fabric'. Resiliency is also an 'urban fabric' issue, therefore related to the choice of type, size and mass proportion.

An attempt to embrace a strategy through design for a new balanced spatial framework encompassing city and regional scales is represented by the work of German planner Ludwig Hilberseimer[22]. In his view, before industrialization regions were places of balanced production, where industry (craft) and agriculture were developed at the same time. Industrialization and the invention of efficient transport systems (railroad first and automobile later) have destroyed a well-balanced regional economy. Thus, although remembering the essential requirements for local networks to be specialized – and thus collaborative and competitive at a global level – we may want to accept Hilberseimer's warning against the overspecialization that makes regions monocultural and thus vulnerable to economic cycles. Hence, Hilberseimer's attempt for a new regional spatial pattern where this balance can be again achieved.

The issue today is thus to find ways of promoting specialized regions where, nevertheless, [1] the system of production – as a system of

21.Lora Nicolaou, op.cit., p.207-209-210.

22.Ludwig Karl Hilberseimer, The New Regional Pattern. Industries and Gardens. Workshops and Farms., Paul Theobald, Chicago, 1949.

innovation - is agile enough to quickly move to other markets, sectors, products and services in moments of economic shifts/downturns and [2]the economy of the whole region – although mainly characterized by one sector of production – does not abandon the other economic sectors and promotes multicultural 'urban' environments based on multiple 'income sources'. The city, and by means of extension the region, is the size where monoculturality can be avoided.

In conclusion, an economic crisis or an economic boom may cause a shock. Some urban fabrics well react to this kind of shocks getting benefit or sufficient relief from it, some others don't. In general monocultural strong industrial cities have shown less capable of maintaining their status than cities where industry/manufacture was better integrated with the wider urban condition. In the following sections, we will widely discuss this issue trying to understand what is – from an urban-architectural point of view - that has allowed some places to survive crisis and others to miserably collapse.

[Competitiveness and Attractiveness]

Some of the arguments expressed above in favour of intense and resilient innovative environments are strengthened by the necessity of their locations to be appealing and attractive towards competitive firms and investments on the one hand and talented workforce on the other.

In order to attract firms and investments, regional and national governments have frequently recurred to the set up of special spatial and 'financial' enclaves, able to guarantee a certain security of the investments, advantageous fiscal incentives for firms, and proximity to appealing partners or to convenient markets.

In order to attract the brightest and experienced workforce, companies and regions have to struggle beyond the direct 'financial' advantages:

0

-1

dining room

-2

-3

-4

swimming pool

cells

main entrance

court
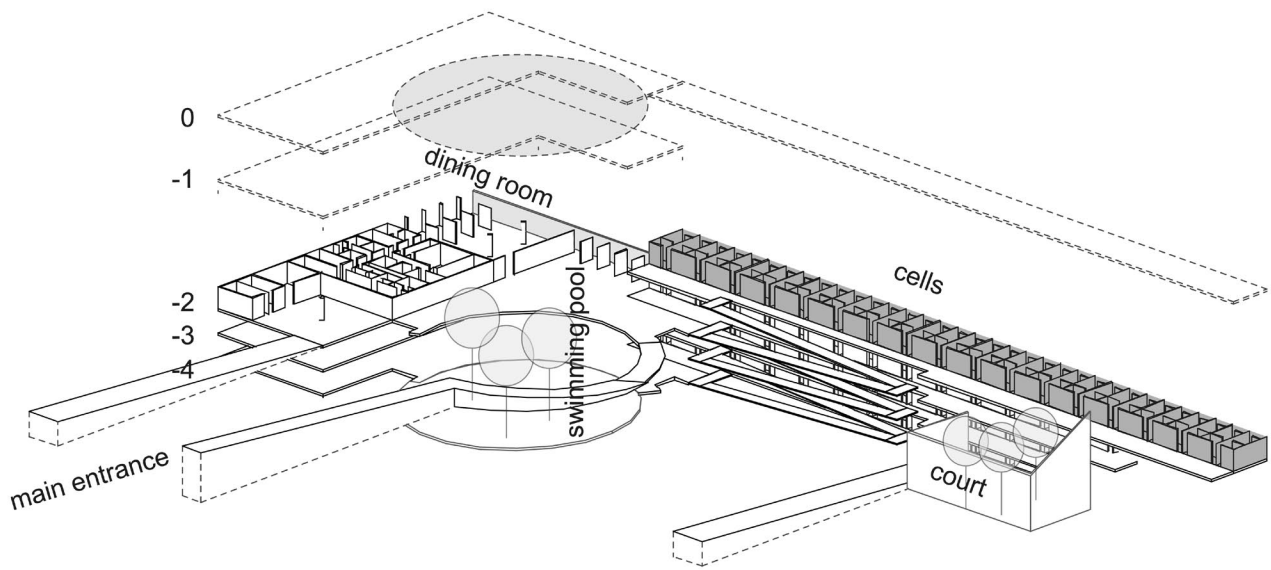
higher salaries and better professional conditions have proved of not being enough to attract and retain the best talented people, as shown by many Asian countries.

In order to understand the roots of these challenges we can take as a point in case the extreme situation of the Eso Hotel in Cerro Paranal, Chile, by architects Auer+Weber. The building is not taken here as an 'exemplary' case study for architecture, but rather as a starting point to discuss the challenge of attractiveness as materialized in this self-contained domestic and collective infrastructure for a group of scientists employed in the European Southern Observatory in the middle of the Chilean desert.

In order to deliver a 'pleasant stay' in the middle of the desert to a selected group of migrant talented high-skilled international scientists, thus with different backgrounds, languages, cultures and ages, an hyper-valorization of the communal facilities is opposed to the simple serialization of the bedroom as the private individual realm – almost in a monastic way. Moreover, the passage from private to common space is abrupt, so that the scientist is immediately exposed to the community and pushed to interaction.

II. A domestic and collective infrastructure. Eso Hotel in Cherro Paranal. Axonometric drawing of the internal organization by Sabrina Puddu and Francesco Zuddas; Aerial view of the wider area, ©2008Google.

If we had to transpose this 'diagram' onto the urban condition of 'quarters' for innovation, what would be the nature of the dwelling that can be imagined for this kind of migrant population in order to try to integrate them in the working life and in the urban life?

Cambridge, one of the examples we will consider in Section 3, has proved itself an 'exemplary' urban realm for achieving the aim we are discussing. However, while traditionally excellent in supporting its talented community, it is recently suffering of the same problem of many other innovative clusters: how to attract and retain the best talented workforce to work for their laboratories, universities, firms and how to deal with their unstable transnational mobility?

This is a particularly relevant problem in Asian countries and in emerging business networks[23]. Taiwan, for instance, has a strong economy and a striking number of collaborations with foreign enterprises – mainly from US – that have established some local branches in Taiwan. However, the number of foreign students at Taiwanese universities or of foreign workers in the island's renowned Science Parks is incredibly low, despite the job and salary opportunities. Even the Taiwanese workers employed in Hsinchu Science Park are mainly short-term workers and commuters: they prefer to keep their residence with their family in more lively urban environments like Taipei.

Conversely, Cambridge is a highly attractive place, in particular for foreigners. This is due both to the quality of academic and research opportunities and to the lively pleasant environment of the city. However, the city has missed in the past the opportunity to activate processes of densification or of improvement of its communication infrastructure: the result is the unbearable rate of rental fee and the chaotic traffic congestion in its metropolitan area. All these factors are decreasing the availability of talented people for the local industry because they are repelled out of the city.

In synthesis, high salaries and professional satisfaction in competitive inventive environments and prestigious companies are necessary but not sufficient to attract the best minds. Indeed, the global 'market' of minds is also based on the quality of the living environment where those people are asked to move, either on their own or with their families.

Thus, if the favourable conditions of science parks, campuses and other special zones as conceived in the first generation of innovation environments design have shown to be effective in attracting firms and companies to certain locations they do not always provide considerable reasons for scientists to settle down.

In other words, workspaces, offices and factories have to be appealing

23. See The world turned upside down. A special report on innovation in emerging markets, The Economist, April 2005.

as well as the district where they are located. The residential and leisure components have to be appealing too and to satisfy higher standards. The quality of cultural and entertainment facilities have to be improved. In short, science parks have to be supported by an every-day quality environment, beyond the ideal model of the self-sufficient compound.

Thus, this is the other strategic point where urbanism can take an active part, since living standards are not only based on the technological features of a single flat but also on the collective and public environment respectively of an area and of a city.

Focus: The case of One-North, Singapore

"Our aspiration is to create an exciting place of vision and inspiration.
Imagine an environment bounded only by imagination itself. Where you can work, live and be inspired by leading scientists, researchers and technopreneurs from around the world. Where groundbreaking ideas are born from a stroll in the park and conventions challenged over coffee at a sidewalk cafe. Where anything is possible. Welcome to One-North - a vibrant place and a lifestyle choice for the most creative minds of the new economy. A small piece of Singapore with a big part to play in shaping the future.

[...] One-North will be a dynamic community for the new dynamic generation. A fun place that is always pulsating, never dull and never short of ideas, chic apartments, open green spaces, arts and culture, sports and recreation. One-North has a creative atmosphere which seamlessly integrates all the elements of the mix.

Focusing on the biomedical sciences, infocomm technology (ICT) and media industries, One-North is a meeting place of minds. An exceptional place for exceptional people to live and work, relax and learn. Where you can inspire and be inspired to push the boundaries of knowledge and turn ideas into groundbreaking innovations."[1]

"A place where great minds come together to do great science, Biopolis and Fusionopolis are part of a greater eco-system in One-North, where working, living, and playing comes together as one."[2]

"We wanted to create not a science park but a science 'home', a home of the future [...] where scientists can work, live, learn and play." [...] "We have set up certain hubs: [...] Biopolis, which is focused on biomedical sciences, which today hosts about two thousand researchers, both public and private sector collaborating and working together; Fusionopolis which is the physical science and engineering counterpart of Biopolis, likewise with seven public sector research institutes and about thousand over public sector research scientists; and a third hub called Mediapolis which looks at info-communication and media.

All of this provides for an exciting environment and, of course, the fact that we allow residences as well creates two opportunities: [1] is that scientist never live their work and [2] we create 'homes' for a future when we can roll out applications in the real life environment." [...] "Our thinking is of Singapore as a living laboratory [...] increasingly in the future many cities in Asia will probably grow [...] and Singapore could perhaps be a model of success in terms how we address urban solutions, how we address health and wellness issues, how we address life style requirements." [3]

1.www.one-north.sg

2.http://www.a-star.edu.sg/tabid/934/default.aspx

3.Yeoh Keat Chuan (executive director for biomedical sciences for the economic development border in Singapore) interviewed by Pete Engardio for BusinessWeek. Video from 'The Global Economy's Latest Weapon: The Mega Research Park' Special Report in Business-Week , June 2009 from http://www.businessweek.com/innovate/di_special/20090601research_parks.htm

I. Zaha Hadid Architects' masterplan for One-North is a megaform characterized by continuity of mass and roofscape, segmented and articulated by a bent thin grid. Top view; © Zaha Hadid Architects

In 2001 Singapore's SHDG (Science Hub Development Group) and JTC (Jurong Town Corporation) held an urban masterplan international design competition for the development of a 200-hectar area in central Singapore. The site, located in close proximity to the National University of Singapore and the National University Hospital, was designated for becoming an 'industrial' innovative district, the home to a cluster devoted to the biomedical, ICT and new media sectors that, when completed, would have a living-working population of about 130,000. This massive intervention that is due to reconfigure a large chunk of Singapore's urban land in a 20-year strategy, is involving both private and public investments and institutions under the guidance of Singaporean quasi-governmental developer of industrial space JTC.

The project, in its initial concept as defined by Zaha Hadid Architects, can be summarised as a megaform characterized by continuity of mass and roofscape, segmented and articulated by a bent thin grid. The patterns of engagement rely on a street-based system that works together with a strategy of voids conceived on the basis of a clear hierarchy.

In March 2004, Lawrence Barth and S333 Architecture + Urbanism were commissioned to develop the urban design guidelines for the ICT media and Nepal district, two of the seven districts that compose the general masterplan. In accordance with the masterplan, these design guidelines add a layer of detail with the aim of defining rules for the actual materialization and occupation of spaces by the different stakeholders.

In particular, most of the efforts were put on clarifying the pattern of voids and its significance for enhancing the porosity of the urban fabric, and thus for predisposing those patterns of relation between research and business and between industry and city. The hierarchy of voids, as already defined by the masterplan, contemplates primary, secondary and tertiary voids. The primary void is the central landscaped spine, Buona Vista Park, a 16-hectar green area designed by West 8 and touching all the seven districts of One-North. The park constitutes an important 'void' condition within the dense urban carpet. It is thus supposed to act as an essential component of the leisure realm to ensure the good 'social' performance of the whole district. Secondary voids are defined as the collective spaces for the knowledge community that encompass a whole
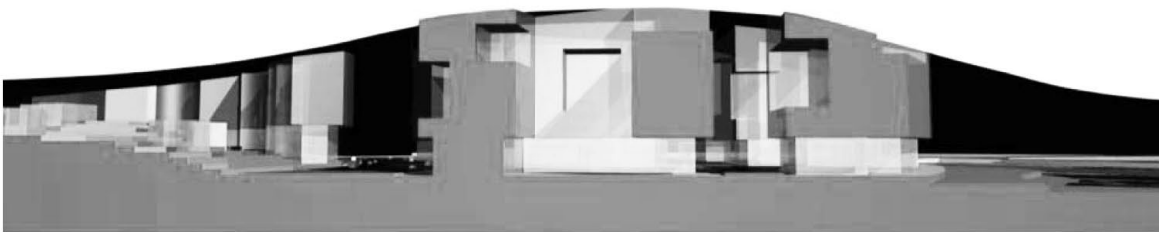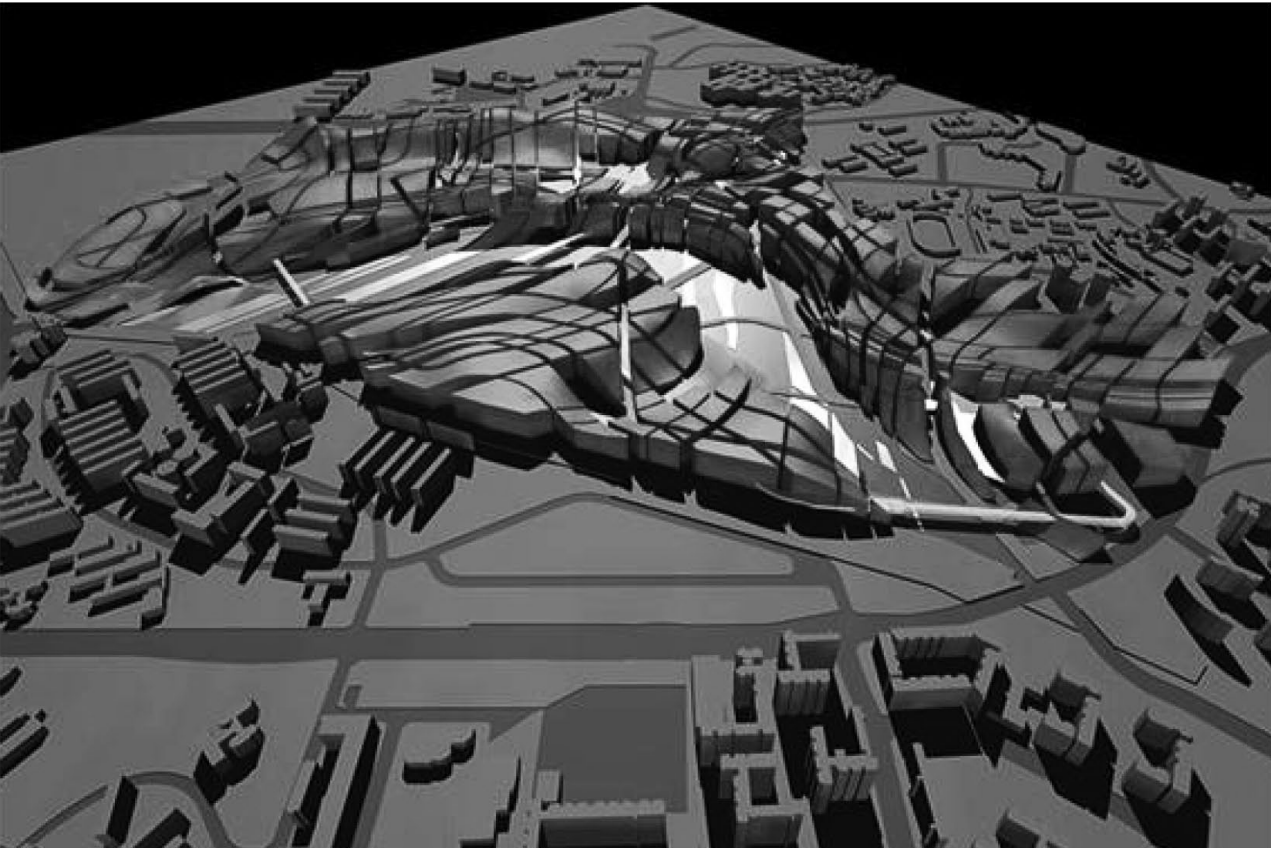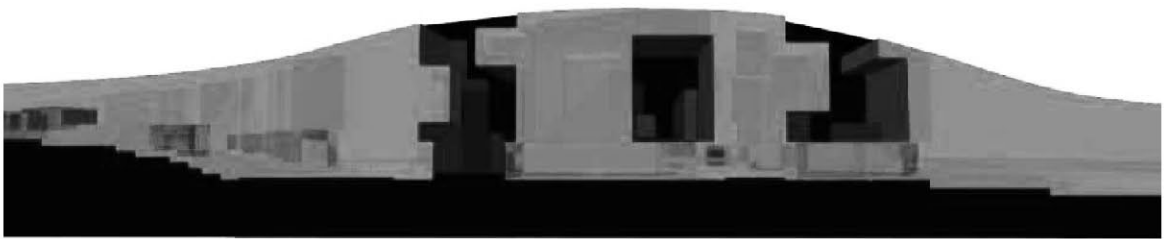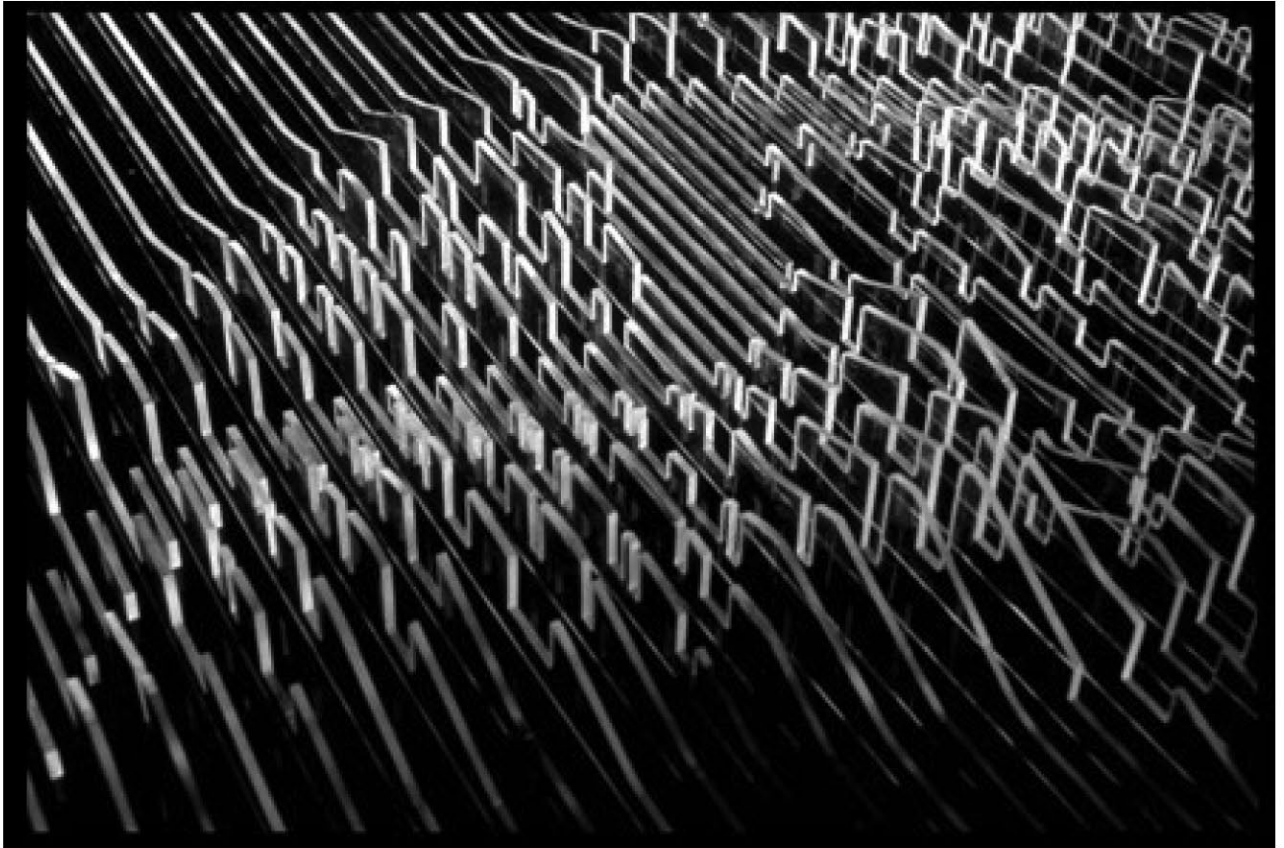
4.Yeoh Keat Chuan interviewed by
Pete Engardio for BusinessWeek.

series of interior urban spaces conceived as spaces of 'privilege'. The 'hall' is probably the paradigmatic example of such spaces. Tertiary voids are all those courtyards, gardens, housing courts, and pocket parks that work as a complement, albeit at a smaller scale, to Buona Vista Park to foster social life and give specific identity to each district.

Apart from the strong formal definition of the urban fabric as defined by the masterplan, the strengths of the spatial strategy deployed in One-North that make it an exemplary case among the thousands of Innovation Environments developed all over the world, stand in its inextricable urban nature. In other words, in order to understand the spatiality of this 'unusual' science park — purposely defined 'Science House' by one of its stakeholders[4] in order to differentiate it from canonical models — it is necessary to recover a whole set of concepts that normally apply to 'traditional' urban areas.

Therefore, we can once again talk about a carefully designed transport system, beyond the mere 'ring-road principle' and 'single-access principle', and recovering a wider set of relationship with the other pieces of the city as well as an internal hierarchy of movement that concurs in building up to a complex and rich environment. Secondly, One-North demonstrates that it is possible to think about housing not as a simple gated compound clustered around a landscaped central area and therefore conceivable form the inside-out, but as a primary component of the wider innovation strategy. Housing has a capillary presence throughout most of the built fabric thus contributing to the formation of a vibrant urban environment together with the facilities usually associated to urban living. From the beginning, almost obsessively, the district was conceived as a mixed-use, 24/7 urban area able to encourage a balanced pattern between living and working. Urban Living — either in the form of hotels, apartment blocks, semi-detached houses, home-office lofts, etc — is enriched by a carefully defined retail strategy. From the outset, shopping was understood as an important component, not only to be concentrated in shopping malls, but also scattered throughout the urban fabric, contributing to ground-floor life. Finally, a further element that distinguishes One-North to other similar developments can be summarised as the principle of 'non-contiguous growth'. Usually, a science park grows through the addition of new compounds that are juxtaposed to one another. Conversely, One-North purposely

decides to individuate a few hubs that will act as anchors for the development of the clusters of the district.

So, One-North is the prove that through the deployment of formal moves, such as the urban carpet, the bent grid, the porous urban fabric, and of a hierarchical transport system, an attention to programmatic mix and institutional combination, a strategy of integration between urban life and today's research-driven industry (business and research) can be sought.

The character of exemplarity that One-North brings with itself invests many disciplines and sectors. If we consider, first of all, One-North for its supposed 'exemplarity of urbanity for the rest of Asia[5]*, this was already embedded in the preliminary choices of the institution that prepared the competition and indicated the location. The chosen localization was raising the possibility to challenge the usual Asian 'peripheral industrial island pattern' (we will discuss this in section 3, Vietnam). The winning proposal took on board this challenge and amplified it through a district-design that would have redefined the way of conceiving 'planned' science parks. In other words, the winning proposal was able to interpret the opportunity for a science park when this is offered the possibility to be introduced in the urban fabric and in the urban social structure.*

This intention, as developed in the masterplan proposal, made possible for One-North in Singapore to achieve a higher degree of complexity than usual 'science parks enclaves': the complexity derives from thinking the science park as a component of a city of quarters. One-North belongs to the innovation ecologies but also to the city, thus it is supposed to be able to realize a cross-over between city and Science Park.

We previously described the risk for urbanism and architecture, in many 'innovation environment' projects, to be unable of been genuinely propositional once they are overwhelmed with the unbearable requirements of the new economy. Conversely, what Zaha Hadid's One-North project does is testing and taking decisions which derive from architectural considerations. It expresses an architectural-graphic approach more than getting lost in 'innovation' theories. It does not simply respond to external requirements but also proposes and projects.

5.Ibid.

IV. Building the 'housing' component for a renovate live-work pattern. One-North housing building site, from www.onenorth. biz.

central Xchange

Life Xchange

Fusionopolis

1

phase 1: 3 Xchange as centre for reaearch and
business which start the process of urbanization

2

3

20 years
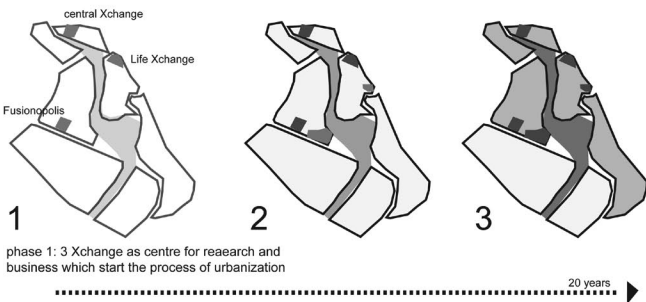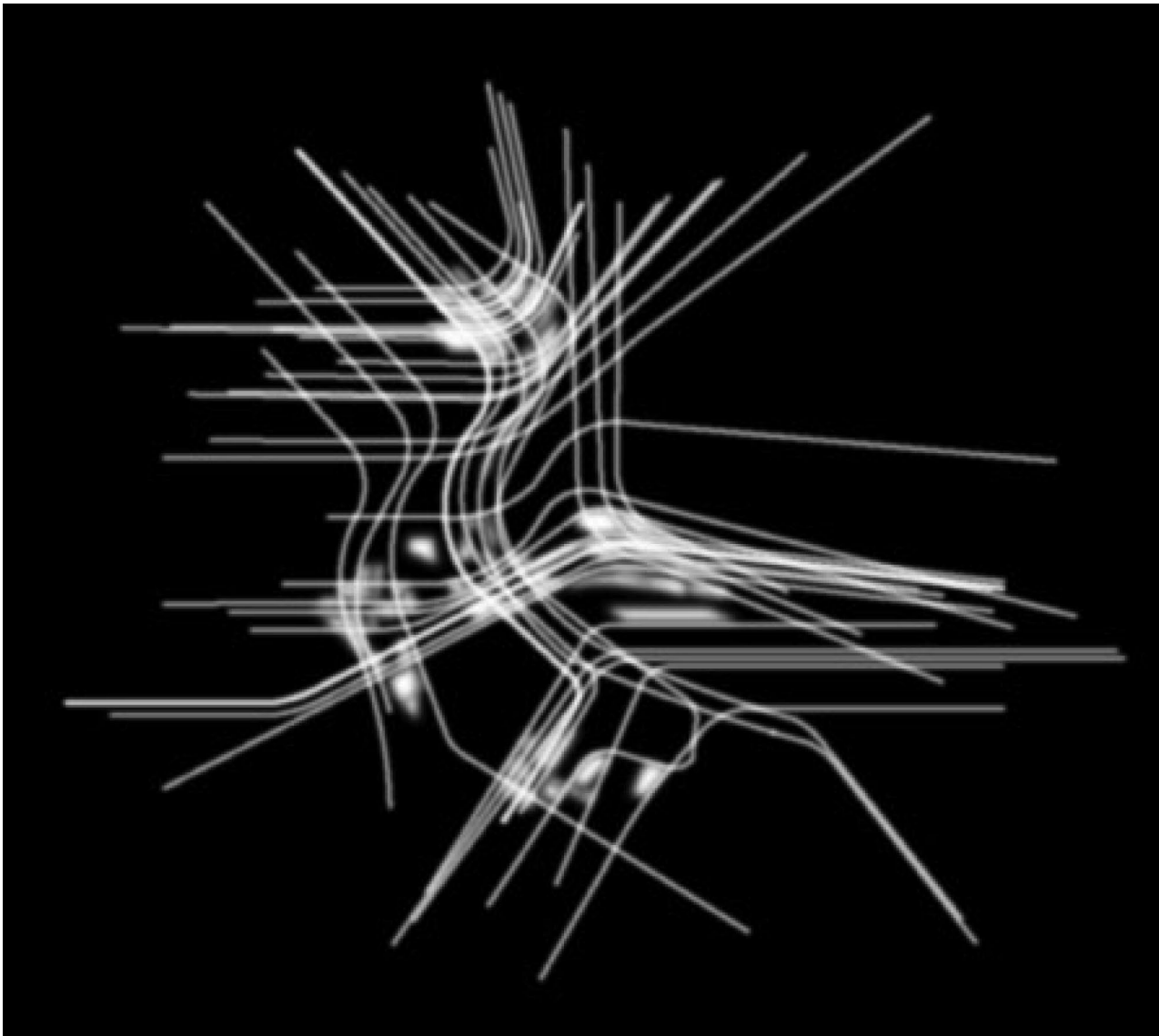
1.Vista Xchange:
personal services

2.Rochester park:
leisure, shops, restaurant, galleries +
reuse of heritage

3.Biopolis or Life Xchange:
biomedical research

4.Central Xchange + Nepal Park:
media, entertainment, ICT companies+
residential, education, retail

5.Wessex estate:
residential estate and reuse of
heritage+ studio lofts

6-7.Future Xchanges:
opportunity for new expansion

1
2
3
4
5
6
7
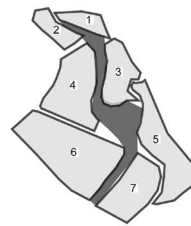
V. Bent grid and hubs are the guidance for non-contiguous growth. Top: conceptual Lines and Hubs © Zaha Hadid Architects; bottom: phasing strategy, shemes by the author.

VI. (following spread) A strategy of integration between urban life and industries. General plan ©Zaha Hadid Architects, and ©Google 2008; collage by the author.

6.http://www.zaha-hadid.com/mas-terplans/one-north-masterplan

The reason why we decided to build this short paragraph of focus on the One-North case through some opening quotations by the stakeholders followed by an 'all-architectural' synthetic account is precisely to underline how a strong 'architectural' approach - as exemplified by the vocabulary used: artificial landscape formation, urban quarter, squares and alleys, mega-form, pattern of lines, formal coherence, massing, fabric, urban carpet - if apparently strident with the 'economic' intentions, actually realizes them by means of its attention to urbanity. The architect's proposal thus acquires a stronger sense within the economic strategies for a vibrant, attractive, resilient and integrated environment for innovation, as clear in the quotation with which we close this paragraph:

"The proposal for the Vista master plan – for the first time – applies the concept of artificial landscape formation to the articulation of the whole urban quarter. The advantages of such a bold move are striking:

Strong sense of identity – The scheme offers an original urban skyline and identifiable panorama visible from without as well as from the park in the heart of the new urban quarter. The rich diversity of squares and alleys engenders a unique sense of place within the various microenvironments.

Unity in difference – The concept of the gently undulating, dune-like urban mega-form gives a sense of spatial coherence that has become rare in the modern metropolis.

Integrating heterogeneity – The softly swaying pattern of lines that defines the streets, paths as well as the built fabric allows the mediation and integration of the various heterogeneous urban grids of the adjacent areas. The curvilinear pattern is able to absorb and harmonize all the divergent contextual orientations.

Flexibility without chaos – The proposed morphological system allows for infinite variation within the bounds of a strong formal coherence and lawfulness. The form is 'free' and therefore malleable at any stage of its development while traditional interpretations of Platonic figures (squares, circles, strict axes etc.) are too exacting and therefore vulnerable to corruption and degradation by later adaptations. The proposed natural morphology is no less lawful and cohesive than the Platonic system; but it is much more pliant and resilient, always able to absorb adaptations into its system of natural beauty."[6]

" Following an international competition in April 2001, Zaha Hadid was awarded the commission for the planning and first-phase design of this major new development, a next-generation model for the integration of business, research, and urban living. The masterplan presents an important further step in Zaha Hadid's work, extending to current questions of urban planning her many years of research into the manipulation of groundforms and the experimentation with dynamic form and spatial quality. This research stood as the basis for the competition victory, offering a rich palette of spatial responses to pressing questions of urban strategy. The achievement contained in the completed plan is the application of this spatial language to the challenges presented by a new urban condition. Today, we are called upon to plan for the densification and intensification of the city, to integrate living space with a changed industrial landscape, and to think adaptively and flexibly about the future of the built environment. Zaha Hadid's *one-north* masterplan has been guided by an attention to these new conditions.

The location for this forward-looking project explains the necessity for forceful innovation in planning. The site covers 190 hectares adjacent to the National University of Singapore and the National University Hospital, and occupies a key location in Singapore's technology corridor. It also stands at an important intersection of existing and forthcoming Metropolitan Rapid Transit lines, and so will be immediately integrated into the larger Singaporean metropolis. The significance of *one-north* to the nation's economic and metropolitan strategies can hardly be exaggerated, and for this reason the plan must have a vision reaching well beyond the science parks dotting the world's urban industrial landscape in recent decades. Zaha Hadid's masterplan radically departs from the isolation and mono-dimensionality of those developments, acknowledging and incorporating the powerful synergies between urban life and today's research-driven industries.

Over the coming twenty years, *one-north* will become home for an anticipated 50,000 new residents, and will accommodate 70,000 workers in a mixed and layered development of great diversity. The traditional two-dimensional land-use plan is insufficient for managing the spatial complexity of such a project. To respond to this problem, Zaha Hadid modeled numerous spatial scenarios in three dimensions and at a variety of scales, adapting the land-use planning process to the intensification of a complex urban environment. Next-generation technopoles will depend upon a vital public life and a culture of innovation, because today's research-driven industries succeed through novel associations and shared ideas. The kind of environment that sustains new-economy relationships is one that offers variety, intensity, and inclusivity, and this is achieved through the mixing and layering of land-uses. Bringing multiple activities close together maximizes social connections and increases the opportunity for those informal meetings that promote forward thinking. By modeling these new spatial relationships, Zaha Hadid was able to define the key zones of intensity in an effective distribution of land-uses.

As a part of Singapore's economic and urban development strategy, the *one-north* plan targets key new-economy industries, especially in the areas of Biomedical research and development, Information and Communications Technology, and New Media production. First-phase development will emerge around three tailored centers for research and business collaboration, designed to accommodate and shape industry growth while optimizing the accessibility of shared resources and services. These centers, called Xchanges in the *one-north* plan, also act as catalysts for urban intensification, integrating the site and organizing local development.

The resulting urban constellations are well suited to the patterns and lifestyles in which the boundary between home and work has become blurred. We no longer insist on exaggerated divisions between residence and workplace. In fact, the city increasingly drives new intersections of domestic life and productive activity. Home culture and leisure time have become resources for the new economy, and it is in the heart of urban life that these new relationships are most richly concentrated. *one-north* facilitates the effective transformation of the urban landscape, accommodating a vital mix of living and working. In addition to establishing the seeds and expansion areas for new-economy industries, a variety of residential, retail, and leisure developments are incorporated into the very heart of the business terrain. These serve to bring a sustained presence to the site and encourage a committed and consistent patronage. Additionally, live/work typologies are promoted as new residential forms that correspond well with new-economy business development, and adapt well to changing business demands and emerging technologies.

The plan for *one-north* emphasizes spatial balance and urban amenity, reconciling land intensification with high-quality open space. The guiding feature of the open space plan is Buona Vista Park, a continuous, multi-purpose spine of landscaped spaces running the length of the site. Its sinuous form provides a strong counterpoint to the sharp edges of future building, and will give a clear identity to the emerging urban environment. Beneath the elegant charm of Buona Vista Park, however, its design meets many demands. While the park edge lends definite shape to new-economy growth, that same edge softens paths linking key concentrations of business development. While the park's calm emptiness balances the vitality of the Xchanges, it also becomes the venue for informal gatherings and spontaneous events. Its constructed terraces multiply potential uses, and give landscape at *one-north* a distinctive urban quality. Similarly, the park contains much of the infrastructure for surface water management, converting necessary engineering into opportunities for the visual play of light and water. The distribution of hard and soft surfaces helps define the spatial rhythm of the park, encouraging patterns of movement and rest according to season and time of day.

A key decision embedded within the plan was to integrate high-rise development with an active street life, and the system of open spaces presents a key part of this spatial strategy. Through a variety of paths and spaces, Buona Vista Park establishes a web of interactions among the densely built forms of the new economy. The resulting pedestrian system knits together subtly different patterns and textures of movement. The park's reservoir of green has been drawn into the business developments, promoting networks of calm and introspective locations across the site. Similarly, covered walks doubling as

showcases, activity zones, and meeting places extend the built environment into the park.

The system of open spaces not only guides movement and activity at ground level, but also shapes the patterns of urban growth. Future development at *one-north* is built up around a collection of linked parks, plazas, paths, and linear atria. These are designed to promote a dense web of ground-level activity, encouraging a vibrant social life containing opportunities for both work and play. Together, they present a defining landscape of new-economy opportunities in Singapore.

Local topography and heritage are strategically linked to the patterning of open space and incorporated into the masterplan, promoting a built environment of distinctive character and a clear sense of local identity. The heritage areas at Rochester Park, Nepal Park, and Wessex Village present natural counterbalances for the intensity of the Xchange districts. Adapted to new uses, their richness will enliven a sense of local history and landscape even as new built forms are introduced around and among them. The spatial pattern of the heritage elements at one-north suggest the feel of a relaxed order, allowing the masterplan to juxtapose calmer and more vibrant urban areas. At Rochester Park, the adaptation of black and white bungalows as a compact collection of shops, restaurants, and galleries creates a leisurely terrain linking housing and corporate towers. At Nepal Park, the reuse of heritage elements around the hill-top help establish the "village-common" amongst the live/work studios, media companies, and rooftop terraces which enliven the slopes below. At Wessex Village, clusters of flats become adaptively reused as local services for a predominantly residential intensification. Similarly, the winding path of Portsdown Road provides not only a reminder of a local cultural heritage, but an ideal path for more relaxed modes of transport to bring residents of Wessex Village conveniently to Central Xchange and its new MRT station.

Taken together, the heritage areas offer themselves both as intriguing destinations and as local resources. This dual character helps enable one-north to perform well at different scales. The heritage elements also permit flexibility in the timing of development, for they perform equally well as a spatial response to local intensification and as a catalyst for new investment. Through the pattern of the urban districts, the masterplan incorporates these potentials, for it is a pattern emerging as a natural response to the local heritage and the business development strategy.

Cities present a kaleidoscope of spatial patterns, continuously evolving according to local circumstance and changing conditions. The differentiation of one-north into seven urban districts accommodates this pattern of organic development, responding equally to local heritage and topography and to the rhythms of business investment. The non-contiguous distribution of the three Phase I Xchanges is a key part of this strategy of organic development. Their distribution accommodates growth while concentrating shared, industry-specific resources and associations. The masterplan has sought a balance between ensuring critical mass in Phase I and optimizing the resources and synergies for specific industries. Each of the three Phase I Xchanges responds to a particular

business ecology, while also providing the catalyst for the residential, commercial, retail, and leisure development which will sustain the vitality of the Xchanges. The resulting pattern distributes sites for business development and simultaneously links them together through an urban web of activity. This pattern both promotes urban vibrancy and optimizes the opportunity to make strategically attractive space available for targeted businesses in a timely way. Ongoing growth should not detract from the amenity of initial investors, but should enhance their sense of centrality.

Toward this end, growth is shaped and organized through the pattern of the districts, each bordered by Buona Vista Park and existing urban fabric. This directs the growth of each of the constellations along an edge rich in amenities. Future development serves only to further develop the richness and clarity of these edges. To heighten the sense of local, ground-level linkage between later building and the original business epicenters, the plan establishes a network of parks, plazas, and linear atria orienting local life. Through this hierarchy of spatial controls, the research and business constellations are allowed to grow while maintaining their clear character and amenity.

The subtle differentiation of *one-north*'s seven urban districts supports fluid adaptation to changing conditions of investment and development. Together with the land-use plan, the open space and landscaping plans, and detailed design strategies for each of the Xchanges, the urban guidelines for each of the seven districts have generated a masterplan that promotes both spatial control and adaptability. Zaha Hadid's *one-north* plan presents a model for urban intensification under changing conditions, a richly conceived system of groundforms suited to the shaping of new relationships and intersections, and a forceful strategic response to a development of international significance. **"**

Zaha Hadid Architects

Sect Typology: Archit to the Challen

ION I

ECTURE'S RESPONSE

GES OF INNOVATION
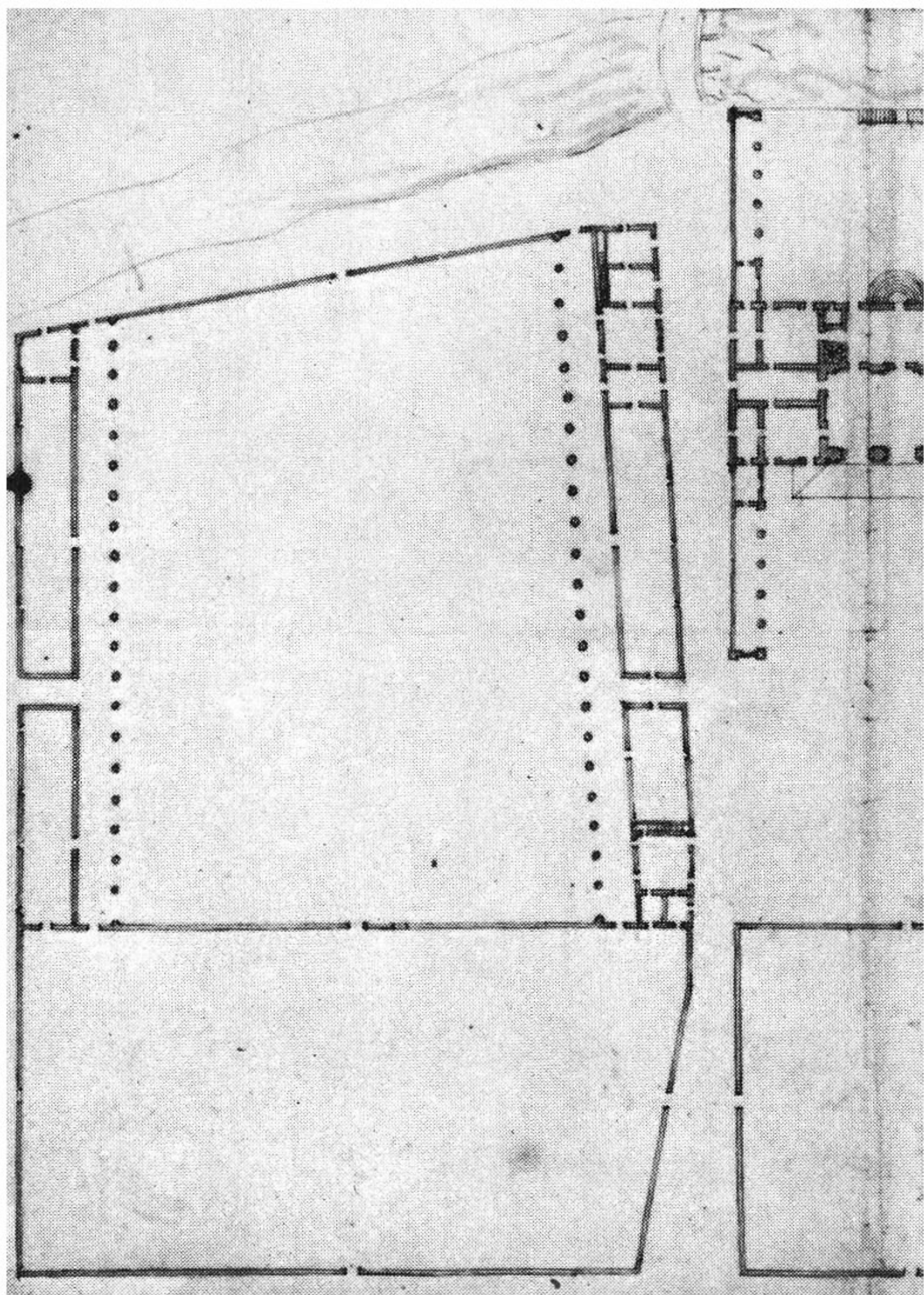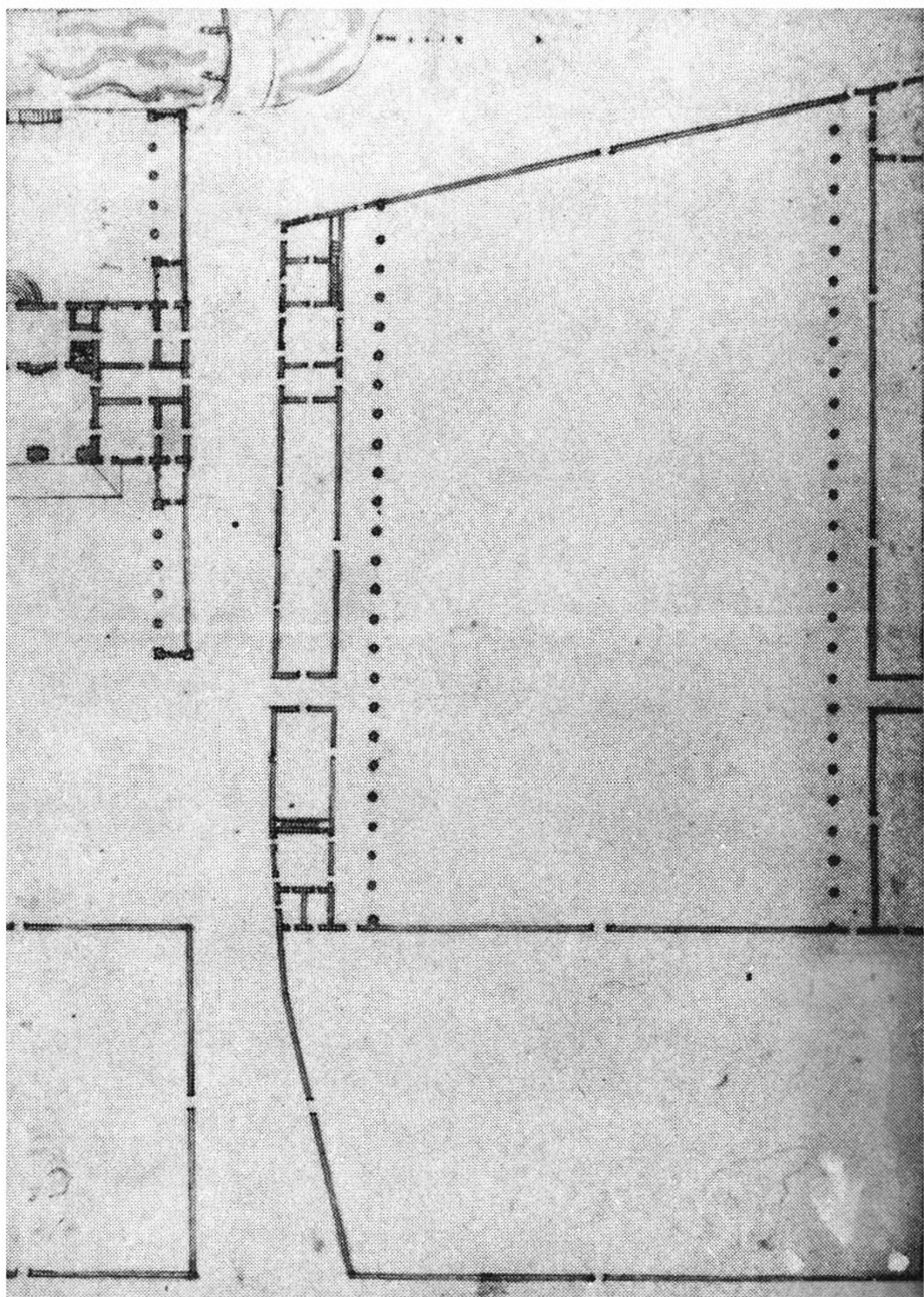
Abstract

Nel ragionare sui mutamenti delle condizioni economiche e sui luoghi per l'innovazione propri dell'economia basata sulla conoscenza dal punto di vista – spaziale, formale, proiettivo - dell'architettura è stato indispensabile riesumare la tipologia come strumento progettuale. Infatti, il dinamismo interno al discorso tipologico può reagire alle pressioni delle forze economiche, sociali e politiche. Reagire significa o rispondere attivamente a tali forze registrandole nel primo momento di generazione di un progetto (da qui l'evoluzione tipologica come contributo attivo alla disciplina) o assorbire tali forze registrandole in un processo di adattamento a lungo termine (da qui la flessibilità del tipo). Sollevare il dibattito sulla relazione tra forma e contenuto programmatico (dai diagrammi funzionali per il singolo edificio alle zonizzazioni funzionali di quartieri e città), ovvero tra forma e condizioni socio-economiche esterne ed extradisciplinari, è rilevante per mettere in crisi il progetto inteso come pura trasposizione di un brief programmatico o come ripetizione di modelli, una costante dai primi esempi di architettura industriale fino al trapianto di parchi scientifici e tecnologici a cui si assiste nel contemporaneo panorama dei luoghi per l'innovazione.

It happens that when strong changes invest the space and architects are called to react to them, functionalism comes as a solution. The answer to a contingent need or to a given brief becomes more important than space formation itself, denying architecture and urbanism the opportunity for a true moment of invention. On the one hand we may incur into a lack of a projectable vision, on the other into a lack of 'spatiality'.

These risks are confirmed in the designs proposed for the New Economy, particularly in places – like East-Asia – where things happen so fast that private and public clients seem to get easily satisfied with the replication of spatial models they consider exemplar for the excellent performance they proved in some other location.

The dynamism of Innovative networks – the network being the most recurrent pattern underlying successful experiences in the New Economy - is based on the challenge to continuously solve a series of contingent problems and, at the same time, to produce a forward-looking vision towards often yet unknown ends. Given this, the word 'model' stands against any logic of contemporary ways of production, the latter being continuously hunting for innovative ways of working, innovative products, innovative services to deliver to markets and clients. If we may extend this recognition to the architecture of innovation, our argument is that a design process based on the direct implant of models should also be banned from any processes of architectural creation.

To this extent, we cannot avoid to consider the relevance of diagrammatic reasoning as an inextricably embedded characteristic of urbanism and architecture. More specifically, we are referring to the need to consider the relation between 'type' and 'diagram' as two fundamental categories of thought for our disciplines. Diagrams have been widely reviewed in the past decades for their role as instruments in contemporary planning. Innumerable positions concerning the use and the role of the diagram have blossomed enthusiastically in symposiums books and publications[1]. Among the debate that has thus been originated

I. (previous spread) Andrea Palladio, Villa Thiene. Plan from Bertotti-Scamozzi, tomo II, tav. XXIX.

1. To cite but one we can refer to the latest publication edited by Mark Garcia and collecting some of the most thoughtful insight on the subject: Mark Garcia (ed.), The Diagrams of Architecture, John Wiley and Sons Ltd., Chichester 2010

2.Peter Eisenman, Diagram Diaries, Thames & Hudson, London 1999

3.The reflection on the renewed relation between type and diagram, and between architecture and urbanism, follows the argument developed in Lawrence Barth, 'The Complication of Type',contained in Typological Formations: Renewable Building Types and the City , Edited by Christopher C. M. Lee & Sam Jacoby AA Diploma, AA publication, 2007.

4.Ibid.

around the diagram, we want to consider those positions that argue for its capability of providing architecture with the possibility, paraphrasing Peter Eisenman's vocabulary, to open its material organization – its 'interiority' – to an 'exteriority' – term encompassing all those conditions that are 'outside' of architecture per sé [2]. In this way it becomes possible to reconfigure a relation between architecture and urbanism, not by means of continuity or 'scaling' but by means of the diagrammatic possibility – revealed through type - to organize matter and external, extra-disciplinary information[3].

 "Diagrams, as we are thinking about them here, work to constitute and organize decision-making fields, and by this we are not referring simply to making choices among known ends. Instead, diagrams are the collective name given to the patterning of materials and functions that cluster around reasoned reflections in a domain of action and experiment. This makes them especially relevant to urbanism, as a domain in which action places the subject itself in question. Diagrams lend structure and consistency to the ways specific material constellation or media, such as architecture, address a general field of problems, issues and practices, such as those of urbanism. As Stan Allen has pointed out, 'the diagram does not point towards architecture's internal history as a discipline, but rather turns outward, signalling possible relations of matter and information'. Since architecture cannot be simply the tool of any one discursive field – and, correspondingly, neither is the urban governed and instrumentalised through any one technical discipline – architecture's disciplinary density and autonomy serves its ability to respond to complexity and plurality."[4]

Hence, the argument is developed that architecture responds through typological reasoning. The result is an incorporation of diagrammatic thinking into typology.

Typological reasoning shows up in two ways, or better in two different times. By 'responsiveness of architecture' we can therefore either

understand the process of 'original creation' in which architecture works to register external information into the provision of new types (typological evolution); or, we can refer to the capacity of absorption of external information, a process that is diluted over time, in the building's life-span (type's adaptability and flexibility).

To expand on the former point (typological evolution) and leaving momentarily aside the issue of flexibility (that will be extensively discussed in the following chapters), we can start by acknowledging the fact that typological evolution can happen at different speeds. Firstly, there is a slow typological evolution, a long-diluted evolutionary path that belongs mainly to vernacular architecture. Here architects are –or better were - substituted by the action of common people, by the 'maestranze' and, in particular, by the effect of time and experience. The succession of attempts and mistakes in constructing or restructuring buildings has led, for example, to the progression from the one storey mono-cellular house – the elementary matrix - to the multi-story row house and thus to the 'house in line'[5]. New types were subsequently created almost unconsciously.[6] The lesson we can learn from the evolutionary path of vernacular architecture is not simply the relevance of 'history' in typological processes, but the confirmation of an intelligence inherent in the form of architecture without architects, as an active intelligent interior realm of the discipline.

We can contrast this with the process of an aware typological evolution, that implies either a strong architectural decision-making action by an identifiable professional figure – the architect - or by an external set of suddenly reformed conditions – decisions that, however, have always to deal with the possibilities or resistances of the intelligent form. An aware typological evolution aims at significantly defining a typological 'leap', a moment of invention that concentrate within a limited period of time – that proper to a reasoned design – the diluted time of spontaneous evolution.

5. See 'Tav. 12. Firenze, Roma, Geno-va: schema ricostruttivo delle princi-pali mutazioni diacroniche del tipo di base nelle tre aree in comparazione' that presents a comparison between the typological mutations from the mono-cellular house to the party-wall house in three Italian urban areas. Contained in Gianfranco Caniggia e Gian Luigi Maffei, Composizione Architettonica e Tipologia Edilizia. Lettura dell'Edilizia di Base., Mar-silio Editori, Venezia 1979, p 100

6. See Gianfranco Caniggia e Gian Luigi Maffei, op.cit.

By diagramming external conditions new types can emerge and typological evolution can be pushed more dramatically, both in terms of the interior configuration and of the relation to the outside. If we had to take an example, the Palladian Villa – its design and construction – can be considered as what we defined above a typological 'leap'. The Palladian Villa was the material manifestation of a type able of diagramming the new socio-political-economic conditions of the Venice Republic in the XVI century, by being inserted into the field of reforms that was shaping that point in history – the strategic economic and political move from mercantilism to agriculture, from sea to inland territory - while at the same time answering to the precise contingent requirements of its clients – the rich 'business-class' of the Serenissima.

The result was the emergence of a new type, that for its being diagrammatically conceived, will be redrawn, analysed and replicated in other times and conditions. Curiously enough, the first who went through this process was Palladio himself. Indeed, during the elaboration of his 'Quattro Libri' Palladio redraw his own projects that by the time were already built. The act of redrawing implies the inclusion of subtle modifications through the act of re-making. In other words, Palladio's 'redrawings' reveal the possibility for the modification of his villas while abstracting their diagrams. Further exemplification of the diagrammatic nature of Palladio's projects is provided by the famous 'Capriccio' painted by Canaletto in 1759. This is not just an exaltation of Palladio's genius, neither is it an idealized image of his architecture[7]. Rather, it represents an expression of a work which was always in a state of delicate and never really fixed balance between reality and the idea of a continual project. Thus, the Capriccio is not just an idealization of reality, neither is Palladio's re-drawing activity just normative and codifying in nature[8]. Conversely, they are manifestations of a conscious exploration that leads to the definition of dynamic drawing as instrument of the act of designing. What we are describing is a staged process that encompasses observation, understanding and measuring while at the same time assuring invention and projection. To sum up, we can decisively state the

7. As explained by Werner Oechslin in the lecture 'The reason for Palladio's success' given at the Architectural Association on 5 February 2009.

8. Ibid.

diagrammatic attitude of Palladio's working habit.

Given what has been discussed above, it should not come as a surprise the 'critical analysis' provided by Peter Eisenman on Palladio. Eisenman, in fact, can be seen as the last representative of a tradition developed in the XXth century around the reconsideration of the architectural figure of Palladio, that goes back to Colin Rowe (Eisenman's own mentor) and Rudolph Wittkower (not by chance, Rowe's teacher)[9]. Moreover, the relevance of Palladio for Eisenman can be fully understood if we consider that Eisenman is one of the most convinced supporters and influential theoreticians of the role of the diagram in the process of architectural conception.

Today, reading and rereading Palladio within a more aware understanding of type, form and diagram is significant for reinforcing what his villas represented: they registered the conditions of their time and, in doing so, they constituted a new type which proved also capable of embedding a diagram within itself.

Pier Vittorio Aureli's recent essay[10] on the 'Geo-Politics of the Ideal Villa' is built on the argument that aims at reasserting the Palladian Villas as inescapable from an 'idea of city and territory' in relation with precise geo-political conditions. Given this perspective, Aureli takes distance from Wittkower's and Rowe's abstractions of Palladio's architectural forms and geometrical schemes as they are independent from any specific geo-political circumstances.

What we argue here is the importance of not splitting the two positions (Wittkower's/Rowe's and Aureli's). The Palladian Villa(s) are exemplary of the capability of a type to register 'geo-political' conditions while at the same time delivering a richness of formal material that can be handled 'disciplinary' and independently from history and place (encompassing Palladio's 'redrawings', the schematic analyses by Wittkower and their reinterpretation by Rowe, and the diagrammatic understanding set up by

9.Chronologically, the 'tradition' around the Palladian diagrammatic relevance that leads to Eisenman's contributions can be traced back through two fundamental texts: Rudolf Wittkower, Architectural Principles in the Age of Humanism, Norton & Company, New York 1971 (first published in 1949); Colin Rowe, The Mathematics of the Ideal Villa, The MIT Press, 1976.
Regarding Eisenman's analysis of Palladio, see Peter Eisenman, 'A Critical Analysis: Andrea Palladio' in Silvio Cassarà, Peter Eisenman.Feints, Skira, Milano 2006 (that presents an excerpt from P. Eisenman, The Representation of Doubt: At the Sign of the Sign, contained in Eisenman Inside Out: Selected Writings 1963-1988, Yale University Press, 2004).
For a more recent account on Palladio, see also Pier Vittorio Aureli, 'The Geo-Politics of the Ideal Villa. Andrea Palladio and the Project of an Anti-Ideal City.', in AA files n°59, AA Publications, London 2009.
We refer also to the exhibition 'Andrea Palladio: His Life and Legacy', on display at Royal Academy of Arts, London, January- April 2009.

10.Pier Vittorio Aureli, op.cit.

Peter Eisenman).

Another lesson we may learn from considering both approaches concerns the relation between type and landscape, between type and city. On the one hand, as explained by Aureli, we should notice the capacity of Palladio to establish links between his new type and a wider geo-political context as well as defining a new vision of the relation between countryside and city. The villa includes in itself, in its internal organization and orientation toward the outlying territory, a way of conceiving the then contemporary territory made of city and countryside both taken as 'civilized' places. On the other hand, the villa(s), in its small size if compared to the vastness of the countryside, participates to the creation of a 'landscape' of and for the new agricultural-based economy that was emerging in the Venice region. If we focus on Palladio's representations of the villa within the countryside estate, we can immediately get a sense of a diagram capable of working organizationally at different scales. That is, a diagram that manages to carry the whole and the parts, the general scheme and the meticulous details of the architectural elements in a coherent system without losing the sense of scale and size. In other words, the Palladian villas work consistently to inform a landscape conception – grounded on the material layer made of existent topography and the subdivision of agricultural fields - which is driven by a set of economic and political reforms. "In all his work, the encircling territory is not a passive ground to be activated by the imposition of a figure, but a specific site made of existing natural and artificial elements of which the object – the villa- becomes a theatrical frame. In this sense, Palladio's villas are [...] specific objects that frame and redefine the existing landscape as an economic, cultural and political counter to the city."[11]

11.Ibid.

To sum up, what we have been trying to suggest are two modes – to be understood as the two sides of the same coin - for reframing the relation between type – as expression of the interiority of architecture - and the external extra-disciplinary conditions. The first side considers the

formation of type as a response to a diagramming of external conditions; the second suggests the employment of type as a testing operative instrument within an urban area or a landscape (re)formation.

For the reasons explained above, the dissertation will spend some time to investigate type as an instrumental way to address the project of architecture – and thus of urbanism - without surrendering to the dictates of contingency (i.e. the external economic dynamics). This section of the thesis is thus to be understood as a 'material' attempt to bring architecture back to the debate on innovation environments and the knowledge based economy, the latter being regarded as the peculiar conditions of our time. Once the instrumentality of the type will be clear, we will further explore, in the following sections, the spatial instruments of the 'quarter' and of the 'landscape'.

Our position about the relevance of type and its disciplinary responsibility within a realm of changing economic practices can be better understood by considering three lenses of exploration: the first one is a typological discourse as developed in an earlier research (taking the skyscraper as the typological object of reflection); the second concerns the observation of the life-span of a particular type as exemplified by the factory Fiat Lingotto and, in particular, the proposals developed for its possible reuse; the third is the illustration of a possible generative design process conducted through the pedagogic experience of an academic design studio.

Chapter 2

Recovering typological discourse

Abstract

Il grattacielo è uno dei tipi meno usati dalle istituzioni/compagnie dell'economia dell'innovazione, nonostante il suo enorme potenziale di generare picchi di intensificazione e di reinserimento nei centri città. Quando viene usato, il verticalismo non sembra in grado di riproporre le qualità di intensificazione aspettate. Si esplorano quindi le caratteristiche architettoniche e urbane — flessibilità, fluidità e porosità - che potrebbero amplificare le potenzialità del tipo e, attraverso una sua evoluzione tipologica, superarne i limiti per la creazione di sinergie tra le funzioni contenute e tra queste e l'esterno.

Questo insieme di questioni è stato sviluppato in modo discorsivo all'interno di un precedente lavoro di ricerca che riportiamo qui, rivedendolo. L'intenzione è di mostrare a posteriori, e al di là della specificità del tipo scelto, la possibile efficacia di un discorso tipologico come contributo della teoria alla pratica architettonica. Un discorso tipologico individua le questioni rilevanti e argomenta le possibili scelte architettoniche, dopo averle selezionate. Lo scopo è quello di avviare un processo mentale verso la costituzione di un tipo 'evoluto' che esprima — nella sua organizzazione interna e nel suo relazionarsi con l'esterno — il nuovo modo di concepire la città che emerge all'interno dell'economia basata sulla conoscenza.

'**Discourse:** *2 [U] (linguistics) the use of language in speech and writing in order to produce meaning*'

1.Sabrina Puddu, Strategies of Intensification. Workspace and the 3D Neighbourhood., unpublished thesis, supervisor: Lawrence Barth, Housing and Urbanism Programme, Postgraduate School, Architectural Association School of Architecture, September 2008.

In this chapter we will focus on a review of research work developed for the MA thesis[1] presented at the Architectural Association in London in 2008. We will consider this as an initial attempt of an investigation on the divide between a pure architectural discourse and the framework established by an extra-disciplinary reasoning. The main goal of the thesis was to highlight the necessity of considering typological formation as a key contribution that can possibly come from the discipline of space. This task was pursued through an investigation of a particular and purposely chosen type: the skyscraper.

We will consider as givens the motivations that moved us to pick the 'skyscraper' among the variety of types available for a similar exploration. To briefly sum this up, we were driven by the observation that after 'Delirious New York' a 'void' has grown noticeably in the research/ literature about the contemporary relevance of the skyscraper within the urban field. More precisely, there has been a visible shift towards categories of thought commonly nameable as 'iconic' and 'bioclimatic'. Secondly, the largely agreed assumption that the event of innovation is more likely to happen in environments that allow for a great quantity of highly diversified functions and activities, further elected the skyscraper as that building type that, for its shear 'bigness', is capable of accommodating them. Finally, the evidence that whereas companies and institutions of the New Economy are inclined to return to inner cities, their effective reinsertion is usually hard to achieve given the lack of, narrowness and high value of urban land, has lead to an unconditioned use of the skyscraper as the easiest speculative solution for densification.

The skyscraper was therefore selected for its peculiar features that proved to fit comfortably within our domain of research as well as for the questions/explorations that it could open beyond the particularity of the type.

What we will do here is to redirect our interest from the peculiarities of the skyscraper and to consider it for its potential of proving the relevance

I. *Changing working patterns: MLC Corporation Sidney Headquarters in the 1950s and after the refurbishment in 2000. Photography by Anthony Browell, © 2010 DEGW*

2.Alan Colquhoun, Essays in Architectural Criticism: Modern Architecture and Historical change., MIT Press, 1981.

3.Grahame Thompson, 'The firm as 'dispersed' social agency.', in Economy and Society, Volume 11, Number 3, Routledge & Kegan Paul Ltd., London, August 1982.

of typological discourse. That means that it does not matter, here, whether we choose the skyscraper or any other type.

Secondly, the MA thesis exploited the skyscraper in a Le Corbuserian way (according to Alan Colquhoun's insight in Le Corbuser's work[2]): a place of discovery of principles applicable to other types and, perhaps, other scales. The skyscraper, in its being 'excessive' under many points of view, allowed us to discuss questions of flexibility at different scales and to reflect on the relation between form and function in the design processes. Moreover, it kick-started an enquiry over the possibility of a '3-D Urbanism' through the instrumentality of the urban section and the thickened ground, while at the same time enabling to reframe the relevance of the relationship between urban area and type, in an oscillation among the assemblage of generic types and the juxtaposition of the singularity of monuments. To reiterate, without affirming that the skyscraper has lost the aspect of stimulus that moved our exploration, we are re-introducing it here just as an experience of research a posteriori. Moreover, some of the points raised in the MA thesis by means of 'skyscraping' constitute now the foundations for the present dissertation.

Any research project needs to find its own questions. To a certain extent, a typological evolution is a process that can happen spontaneously and gradually, but an aware typological evolution, such as that attempted in the thesis, has to identify the relevant questions. In this case, an aware typological exploration on skyscrapers sprung out of both the will of surpassing its own limitations and by the ambition of reinforcing its qualities, in order to respond to the field of conditions being constituted by the economic arrangements of our time. According to scholars[3] who theorized in the 1980s the shift occurring in the contemporary ways of production, firms have to be regarded as 'dispersed social agencies' and not as unified entities with a precise line of production, not as entities with a precise hierarchical organization and a definite set of tasks. Instead, contemporary production has to be intended as networked organization were sub-agencies of variegated and internally dynamic
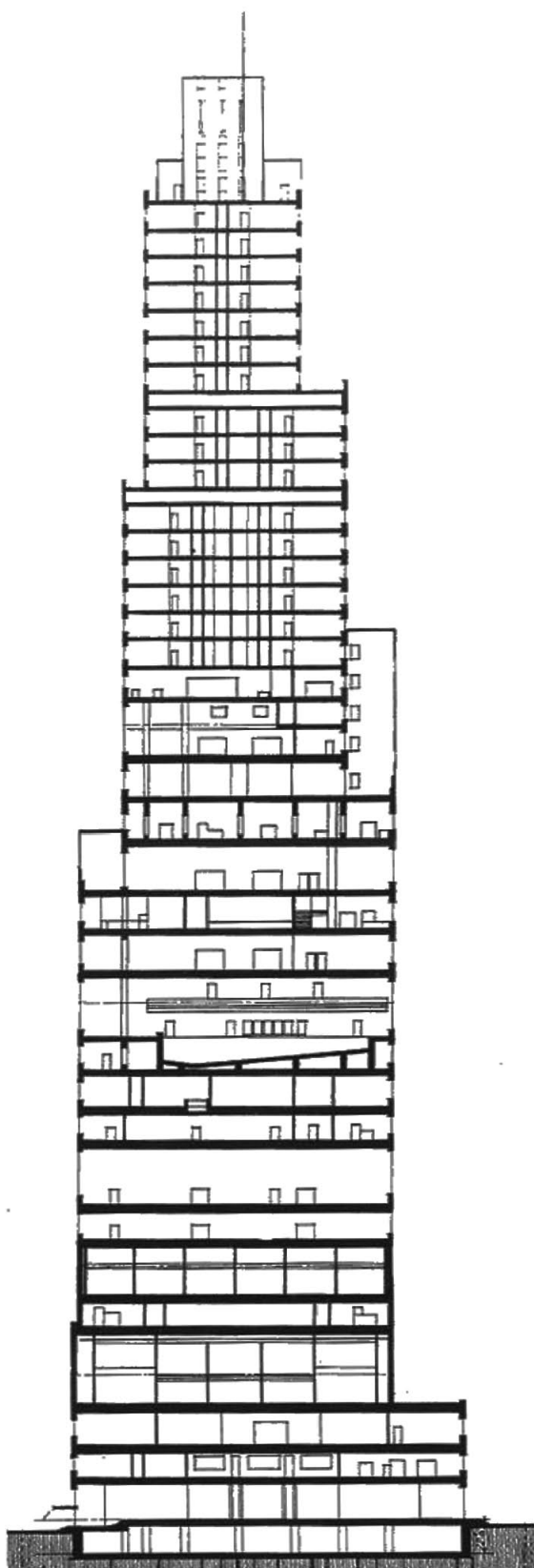
groups of people work temporarily to achieve always new and rearranged tasks. These sub-agencies work inside a company in a non-hierarchical relation and are independent enough to establish relationships either with other internal sub-agencies or beyond the firm's boundary. The novel flexible organization that thus materializes out of transversal groups that interact among themselves in continuously shifting combinations – as registered as an architectural question - raises the relevance of an urban approach (either dealing with the single building or with the quarter) begging for innovative interior topological and typological organizations. There is a need for a collaborative environment appropriate to team-work in which workers can also work/think/produce individually while feeling part of a wider company.   To reiterate, the pressure of the new production patterns on the domain of the spatial disciplines asks for a disciplinary redefinition of the boundary between architecture (as the practice of building) and urbanism (as the practice of city making). In short, we are referring to the relevance of an architectural urbanism.

The sub-agencies of the production process develop within the whole organization – the company or the wider network – functions that are strictly interrelated to each other by virtue of competitiveness, specialization or collaboration – rather than hierarchy. Moreover, functions, tasks and procedures – and thus also sub-agencies - are highly volatile and dynamic.

Given these preliminary assumptions regarding the new patterns of production, the focus can promptly switch towards what we could name here as 'archetypical' architectural responses, both coming from Koolhaas' appraisal of the skyscraper: the Downtown Athletic Club and the Waldorf-Astoria.

In Koolhaas' own words depicting the climbing of social activities on the skyscraper's section represented by the Downtown Athletic Club, this emerged as "a Constructivist Social Condenser: a machine to generate and intensify desirable forms of human intercourse."[4] Here, it is the

II. The hyper-specific articulated section. Downtown Athletic Club, New York, from Rem Koolhaas' Delirious New York.

4.Rem Koolhaas, Delirious New York, 010 Publishers, 1994 (first published in 1978), p.152.

STARLIGHT ROOF

TOWER SUITES

TOWER SUITES

JUNIOR LEAGUE

PALM BAR

CANADIAN CLUB

CANADIAN CLUB

TRANSIENT

TRANSIENT

CENTER COURT

RADIO & TELEVISION

LIGHTING

WEST COURT

EAST COURT

TERRACE

SERVICE

WEST GALLERY

WEST GALLERY

BALL ROOM

EAST GALLERY

SILVER GALLERY

ASTOR GALLERY

FOYER

LOCKERS

LOCKERS

GALLERY

PEACOCK ALLEY

BARBER SHOP

PARK AVENUE

MENS BAR

DRIVEWAY

SHOP

SHOP

BANK

LEXINGTON AVENUE

BAKERY

KITCHEN

STORAGE

HEATING

EMPLOYEES LOCKERS

LIGHTING

VENTILATING

VENTILATING   NEW YORK CENTRAL TRACKS   EXPRESS LEVEL   EMPLOYEES LOCKERS   STORAGE   BANK   KITCHEN   BAKERY   SHOPS   DRIVEWAY   MENS BAR   GALLERY   FOYER   KITCHENS   PEACOCK ALLEY

BARBER SHOP   EXECUTIVE OFFICES   ASTOR GALLERY   SILVER GALLERY   EAST COURT   EAST GALLERY   BALL ROOM   WEST GALLERY   WEST COURT   SERVICE   TERRACE   SENT ROOM   RADIO & TELEVISION

TRANSIENT   TRANSIENT   JANSEN SUITE   STARLIGHT ROOF   PALM BAR   CANADIAN CLUB   CANADIAN CLUB   JUNIOR LEAGUE   TOWER SUITES   TOWER SUITES   PARK AVE.   50TH ST.   LEXINGTON AVE.

sheer co-presence which guaranteed congestion, intended as a special kind of urban interaction which is 'personified' in Manhattanism. It will be this same understanding of co-presence that will underlie the strategy of juxtaposition in OMA's proposal for La Villette – described by the authors themselves as the Downtown Athletic Club turned horizontal.

The path from the Downtown Athletic Centre to OMA's sophisticated projects shows the need of a high degree of programmatically driven design in order to multiply and diversify uses and functions inside the skyscraper. However, this approach shows a limitation: as the tall building moves towards great programmatic and material specificity, it moves far away from the ability to understand a wider general logic. In other words, the challenge becomes to reach a balance between the hyper-specificity of the interior and the general organization of the building in particular in relation to the wider urban area. Within an innovation economy and the constitution of networked firms, skyscrapers can incur in the risk of soon becoming obsolete. Such programmatically driven spaces can fail to satisfy the necessity for a continuous reshuffling of functions inside a single corporation as well as the birth-collapse-resurgence or expansion-contraction cycles of firms within the network. The tendency for obsolescence and instability can be however stabilize by the properties of continuity that an urban area can guarantee.[5]

We can therefore argue that a building – a skyscraper - is flexible, first of all, in its capacity of been urban. An enhancement of the Downtown Athletic Club's spatial configuration and operational approach can be achieved by way of complementarity with the diagram embedded in the archetype of Waldorf-Astoria. The Astoria organizes its diverse functions in a super-serialized and compartmentalized layering of floors. These floors are so generic that every function or use can fit inside them. Moreover, since each floor is not dependent from any other, they can be randomly distributed within the vertical organization. However the Astoria's section demonstrates that the banality and generality of the upper levels contribute to amplifying the potentiality of the podium as

III. The podium and the thickened ground. Waldorf-Astoria, New York, from Rem Koolhaas' Delirious New York.

5.This is not just confirmed by the literature of architecture and urbanism who refers to the property of 'resiliency', but also by the experience of architects who have been working as consultants for New Economy's firms (See Lora Nicolaou, 'Emerging building forms and accommodation solutions: new building typologies or distinctive place-making' in John Worthington DEGW, Reinventing the workplace., Architectural Press, London 2006 (first published in 1997)

IV. Plan configuration to accomodate differences. Max Kahlen, student project for a tower in Singapore, 2007-08. Courtesy of the author.

a higher and articulated ground. The podium is the key for a relevant relation with the general ground, intensifying the quality of the urban environment by being able of multiplying the functions present in the urban area.

These two archetypes were taken as starting point for the material typological exploration of the skyscraper, the first proposing an intensification through the whole section of the self-contained hyper-specific social condenser and the second proposing the significance of the podium for an enhanced networked approach. The necessity of intensification at the scale of the cluster emerges clearly: in the new economic and social ecologies the skyscraper cannot be conceived as a self-contained building.

A trajectory for typological investigation can be that of reasoning on a multifunctional tower, to be substituted to the overestimated category of mixed use. Within contemporary economic business strategies – and thus in order to make a building or an area active and intense in space and time - we can decide to just rely upon a mono-use but multi-functional environment[6]. This does not mean that the mixed-use projects are not appealing anymore and that they are not valuable. Architects Abalos and Herreros, for example, keep on insisting in experimenting on mixed-use high-rise typologies[7]. However, for a mixed use skyscraper, the risk is that of taking to the extreme the self-contained character already embedded in this 'big' type.

In the multi-functional tower the dynamism of innovation ecologies is registered in a new practice of cross-dis-trans-programming - as theorized by Bernard Tschumi[8] - delivered through proper architectural devices. The first step is therefore that of 'breaking' the compartmentalization of the interior organization. If we were to consider the query for interaction among the diverse functions – or among the sub-agencies – of the New Economy the sectional approach of the Downtown Athletic Club would need a review: a monolithic elevator core would not be enough to foster

6.See Lora Nicolaou, op.cit.

7.Abalos and Herreros keeps on considering the skyscraper as a valuable machine for agglomeration and juxtaposition of different uses by means of stratification, juxtaposition, and superimposition. (See Inaki Abalos and Juan Herreros, Tower and Office. From Modernist Theory to contemporary practice., The MIT Press, Cambridge Massachusetts, London England, 2003) This discussion should be confronted with Bernard Tschumi's attempt to reframe the relation between architecture and programme.

8.Bernard Tschumi, 'Abstract Mediation and Strategy' in Architecture and Disjunction, The MIT Press, Cambridge Massachusetts, London England, 1996.

interaction.

The second step is the search for an interior organization able to accommodate differences. In fact, innovative networks are constituted of large corporations and institutions as well as small-medium firms – sometimes spin-offs of larger companies – that gain benefit from locating close to each other and, sometimes, from sharing common spaces. In order to achieve this task it becomes paramount to reason on a morphological differentiation of spaces, which includes the possibility of combining and dividing spaces, defining degrees of permeability and penetration, investigating the spatiality of collectiveness and individuality (simultaneous dimensions of the new working patterns), either in plan or in section. Architectural moves and devices encompass the possibility for floors to diverge in floor ratio, in height, in shape and dimension in a sclerotic succession of differences; alternatively, we could opt for differentiation pursued through the replication of similar floors that are conceived from the outset as more formally complex. Then (in the MA thesis) we elected as one of our case studies a student project[9] that, among other things, proposed an articulated plan that reveals the possibility of diversified kinds of spaces. In each floor (see the image on the left), that can be equally repeated level after level, the two slabs and the external surface can be combined differently. This potentiality for plan differentiation inside the vertical organization is exponentially enhanced by the fact that the sinuous surface changes form and position floor after floor. Besides planimetrically, diversification can be pursued thorough a sectional operation consisting in the varied combination and slicing of overlaid floors kept together in a coherent structure through an inventive articulation of local and general circulation.

Floors' differentiation is a first answer to the requirement of flexibility of networks characterized by firms which diverge in dimensional and managerial/organizational terms. However, this is not enough to cope with what results as one major problem of the new business ecologies. We are referring to the recurrent cycles of intensification and 'dis-

V. Vertical diversification: Packages of floors. Erno Goldfinger, Trellick Tower, 1968–1972, London, picture by the author.
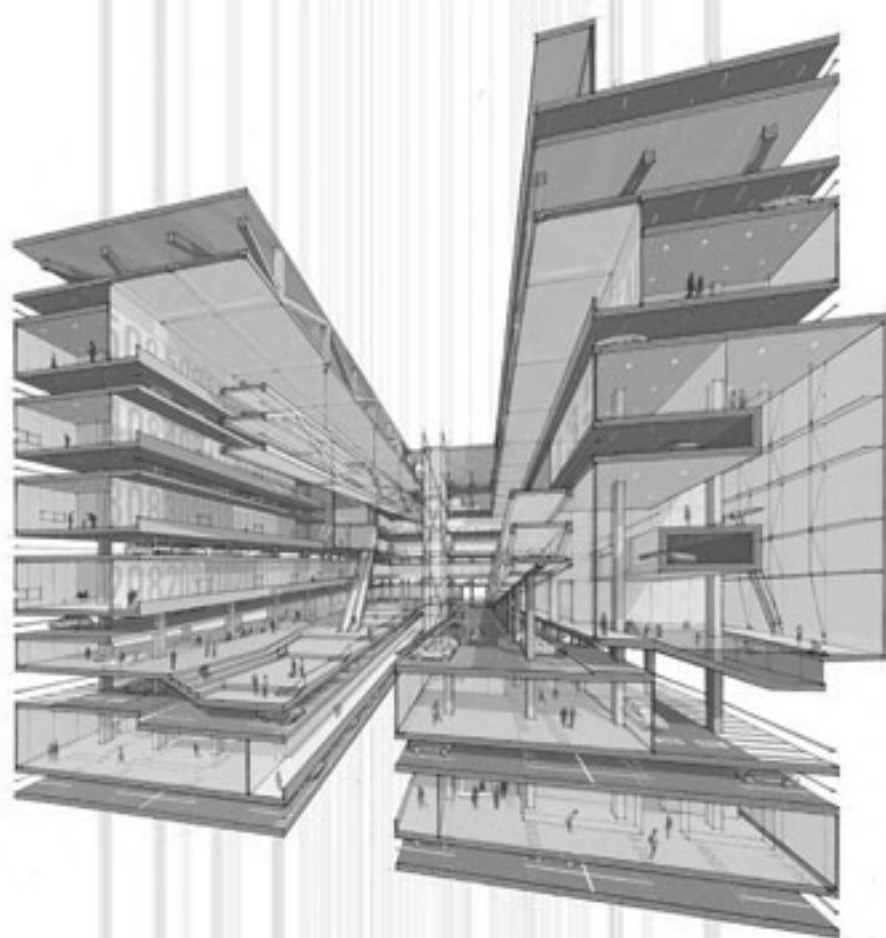
9. Max Kahlen, project for a tower in Singapore, Diploma 5 2007-08, Unit Master: George L. Legendre, Architectural Association School of Architecture.
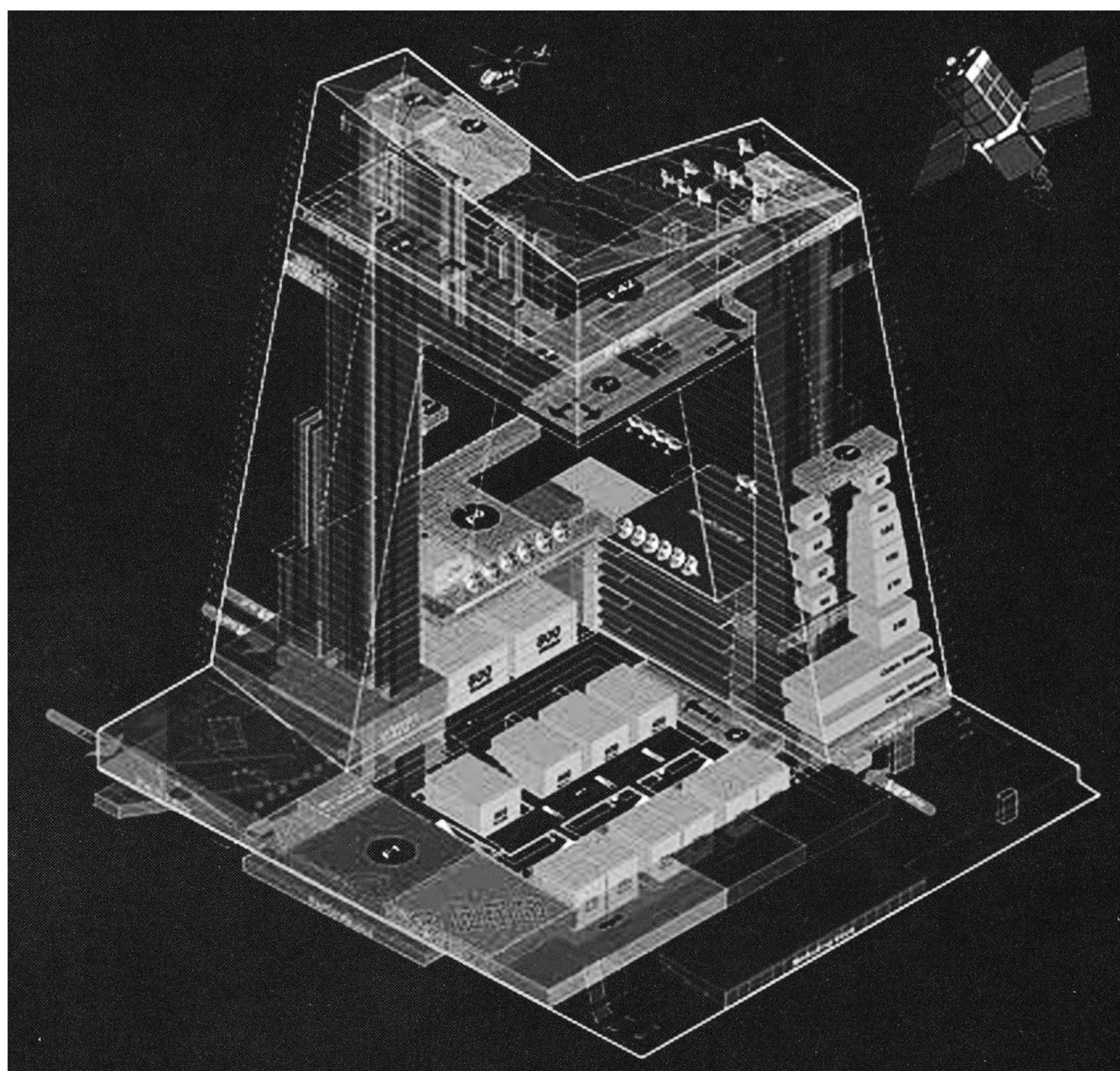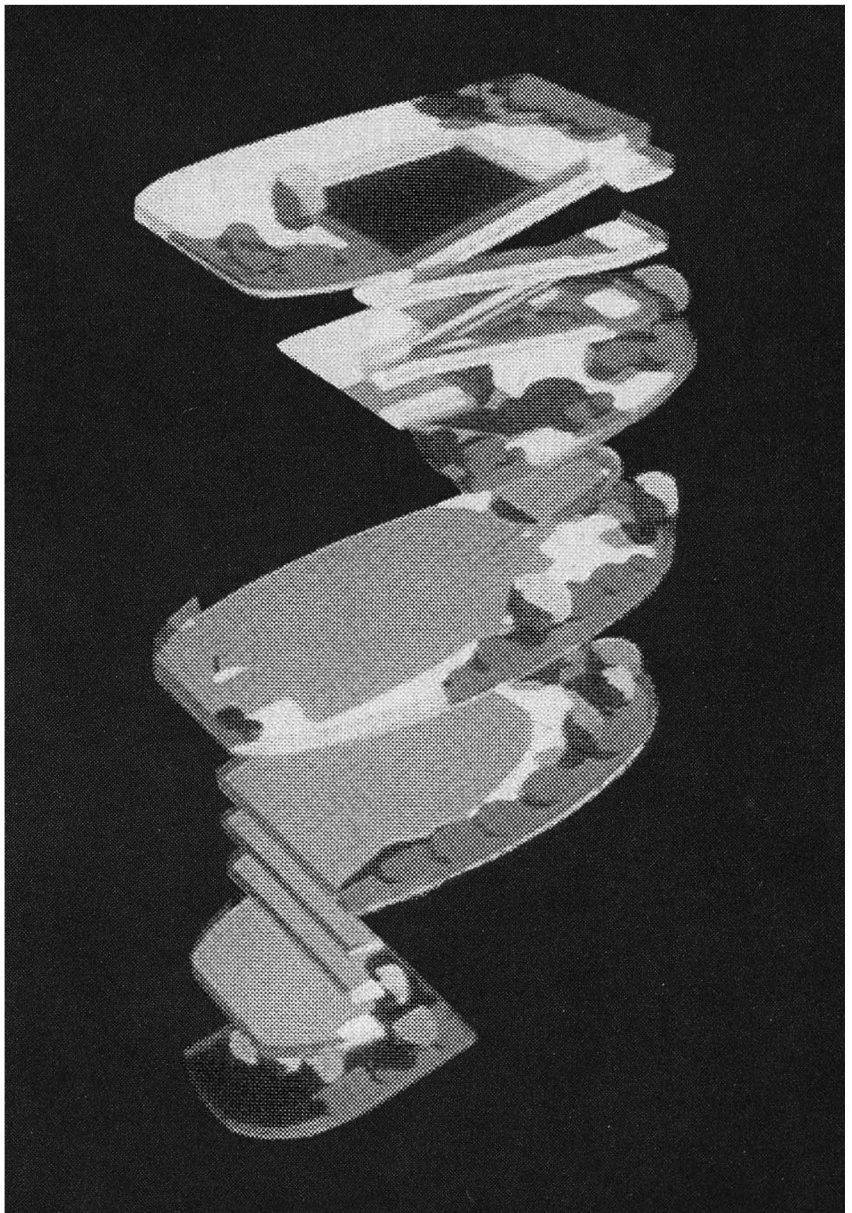
VI. (Left) Multidirectionality. CCTV
Headquarters, Beijing, 2002, © OMA

VII. (Right) The closed diagram.
Hitechniaga Tower, Kuala Lumpur by
Tengku Robert Hamzah and Ken Yeang.

intensification' that is to the volatile nature of economic growth and crisis. This incapacity inherent in the practice of floors differentiation is due to the monodirectionality of the skyscraper's diagram. To explain this point, we can compare the organizational diagram embedded in the verticality of the skyscraper with that which organises the urban ground: the grid.

Despite the capacity to mix large numbers of people and functions, the skyscraper does not ensure the same freedom in movement if compared comparison to horizontal campuses or quarters organized by grids. Not only every single piece of the grid (the plot) can be differently configured (capacity of accommodating differences) but even when a piece of activity is missing, the grid does not incur into crisis: the functioning of the wider area is still ensures. This is possible because the grid works as a multidirectional infrastructure and the possibility of inhabiting and moving through it over time are multiples. Conversely, skyscrapers are characterized by a single point of entrance from which their internal organization usually develops into a closed diagram. Some projects tend to stress this closed diagram by basing the design on an internal 'promenade', a trajectory that crosses different floors in a succession of collective or green or break out spaces. This shows an attempt of multiplying the ground in a sequence of collective places arranged hierarchically from the bottom to the top. These generally programmatic-driven projects are likely to fail in moments of crisis, that is when a piece of the 'domino' sequence falls (i.e., a firm going bankrupt). However, there are also few typological explorations that have aimed to surpass the limitation in the traditional type of skyscraper by exploring the possibility of including within it a multidirectional diagram. OMA's CCTV tower in Beijing, the objective here not being that of adding further critical reflections (in bad or good) around its widely recognized iconic status, mixes verticality with horizontal and diagonal directions (direction intended here as movement but also in terms of organization and spatial sequence) thus multiplying accesses and choices of fruition of the spaces. This choice not only modifies the interior of the building but also its
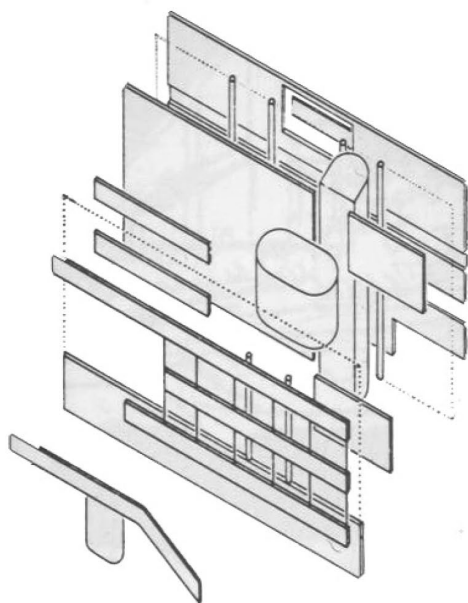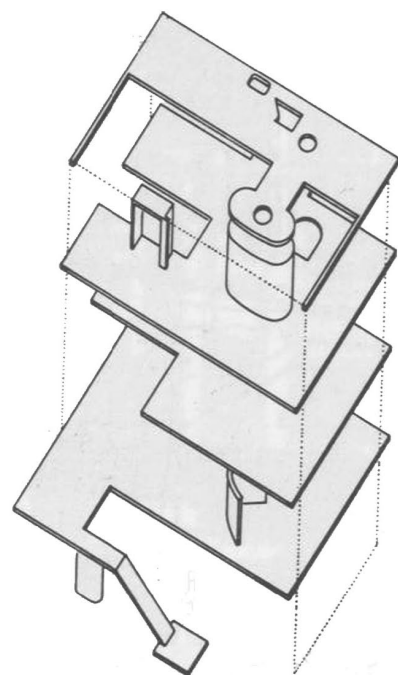
VIII. Local and total circulation. Park Tower, 2004, © Lewis Tsurumaki Lewis.

relation with the outside, thus the nature of congestion itself. The CCTV loop can be seen as an attempt to overcome the clogged spiral diagram of projects like the Kuala Lumpur tower designed by Ken Yeang.

An alternative, or complementary option, to this search for multidirectionality is that of working with different affiliations of internal circulation: a global and a local circulation made of lifts, ramps, stairs, and bridges. This is also helpful in surpassing sectional spatial segregation and, therefore, enhancing internal fluidity (intended as possibility of moving-through in multiple ways) and internal porosity (defined as possibility of engagement between spaces). In order to enhance fluidity, lifts and mechanical devices (escalators) are not enough as they risk of resulting in redundancy and over-expensiveness.

A conclusion we can reach a posteriori from what argued in the MA is that fluidity can be achieved at its best within local packages of levels in which each floor becomes part of the package while belonging also to a wider whole – the skyscraper itself. This formal configuration can be further elaborated, on the one hand, through the manipulation of local circulation and, on the other, by means of architectural devices that interrupt segregation between floors aiming at vertical transparency. We are here referring to the understanding of transparency which was originally theorized in Colin Rowe's critical analysis of some 'canonical' Modern buildings[10]. Through a comparison of some of the most celebrated materializations of Modern Architecture by two of the 'masters' of that time, Le Corbusier and Gropius, Rowe identified in a transparency a discriminating category of analysis that could overcome sheer labels of 'modernity' and provide a useful operative tool for spatial aggregation. While the transparency embedded within the glass-curtain of the laboratories in the Bauhaus building in Dessau contained an idea of 'literality' (literal transparency, that is, the possibility of seeing through, something immediate to grasp), Le Corbusier's use of planes and volumes arranged in a layered sequence was loaded with a phenomenological transparency that could only be seized through what Peter Eisenman,

10. Colin Rowe and Robert Slutzky, Transparency (with a commentary by Bernhard Hoesli and introduction by Werner Oechslin), Birkhauser, Basel, 1997.

Rowe's own disciple, would name 'close analysis').

We hinted at the possibility of pursuing phenomenological transparency so as to introduce a concluding point that emerges out of the typological discourse we attempted to develop. This refers to the regulation of porosity and permeability as relational – perhaps urban - qualities. We argued that in the quest for strategies promoting innovation-led development, architecture can predispose patterns of porosity that enhance the synergies among actors and functions. We must recall, in fact, how the new economic ecologies that are currently being sought are inextricably based on exchange and social learning. Internal porosity, within the building, thus needs to be mediated. In other words, the need emerges of selection, in terms of spatial arrangements, of moments of total exposure as differentiated form moments of inclusiveness. The sequence of horizontal plane and vertical patio comes out as an effective spatial element to be experimented within the section of a skyscraper. Then, there is also a porous attitude which operates on the interior/exterior relation. Such relation has materialized as a prominent feature of corporate towers which have strongly relied on the glass curtain wall as their envelope. We want here, instead to reposition the role of a 'transparent' (declined in the sense of phenomenological transparency rather than literal[11]) podium as essential for its mediating the exchange with the exterior through porosity and three-dimensional orientation. In a cluster of companies in the knowledge-based economy, the social condenser originally identified by Koolhaas in the self-contained and 'lobotomised' skyscraper becomes a piece of the wider quarter amidst which it sits. This is due to a podium fed by the organization of intense functions and synergies happening in the upper floors.

11. Ibid.

What we have tried to build through words – derived from built examples, designs as well as theoretical contributions – is, in conclusion, an imaginary skyscraper that is yet to come. The way in which this may have, hopefully, started to take shape in the mind of the reader took advantage of a procedure that, once again, we consider of paramount

importance in the process of definition of a discourse that builds up to an architectural argument. This is what we referred to as 'typological evolution', that is, the co-action of adaptation/modification/reduction over an established type – the skyscraper being our point in case – that concur to the definition of a new 'prototype' that contains in itself – both in its internal organization and in its behaviour towards the exterior - the novel way of conceiving the organization of the city that springs out of the knowledge-based economy. This argument is what our research wishes to leave to the realm of practice.

*Chapter 3
The
unpredictable
qualities of type
(or a production
machine as space)*

Abstract

La fiducia nell'approccio tipologico corrisponde ad una fiducia nell'architettura stessa, e quindi nelle inaspettate proprietà che una struttura formale –pur soddisfacendo i requisiti programmatici di una data funzione produttiva – può manifestare. Una fabbrica, se costruita con un approccio tipologico e non solo funzionalista, può garantire qualità superiori a quelle di una 'macchina'destinata ad un'inevitabile rapida obsolescenza. Questo accade nell'edificio Fiat Lingotto di Torino ed è evidente nella molteplicità di proposte pervenute agli organizzatori della 'Consultazione di idee sul riutilizzo del Lingotto' del 1983: il Lingotto è stato progettato come una fabbrica di auto, ma è per noi, innanzitutto, un tipo a blocco con corti centrali e caratteristiche spaziali e organizzative fortemente caratterizzanti. Queste qualità spaziali consentiranno al Lingotto di sopravvivere al tempo, al variare di usi e di utenti (reali o immaginati nei progetti del concorso). Allo stesso modo, nell'esperimento didattico 'monumento produttivo', una precisa ambizione produttiva – quella della produzione, trasformazione, stoccaggio del vino e della ricerca applicata al settore vinicolo – richiede una precisa qualità spaziale – il buio. Il tipo scelto – una piastra in questo caso - garantisce questo requisito ma rivela di continuo altre opportunità spaziali, in un'articolazione complessa ma mai ridondante tra forma e funzione: la funzione 'stuzzica' la forma, che reagisce con le proprie qualità. Il tetto piano della piastra si configura così come uno spazio collettivo del tutto nuovo e il solaio diventa la superficie di scambio con la componente produttiva, conferendo all'intero edificio la dote di 'monumento' contemporaneo. Il progetto è una finestra sulla possibilità di un processo generativo che, in un rapporto mai di semplice causa-effetto tra funzione e forma, testi le argomentazioni qui presentate sulla flessibilità degli edifici industriali.

Arles. In alto: l'anfiteatro in un'incisione del 1686. In basso: veduta aerea del teatro e dell'anfiteatro.

If we were to provide a motto for modern and contemporary workplace's design this would be – according to many - 'change' - and the related flexibility. This is the argument sustained by Gilliam Darley in his study on the history of factory as a building type. Here he argues that "Change is the only certainty in manufacturing and the fast forward button is permanently engaged"[1]. This position can be easily proved right by the long-established short life-span of many industrial plants due either to the shifting nature of working practices and procedures or to the recurrent subsequent migration of factories to more convenient locations – other districts, other cities, other continents. At the same time it is an argument confirmed by the fast growing and shrinking cycles of an innovation-led economy, whose networked organizations accept the coexistence of disparate systems of productions. As pointed out by Paolo Virno's 6th thesis of his Grammar of the Multitude, "In one way, post-Fordism is characterized by the co-existence of the most diverse productive models and, in another way, by essentially homogeneous socialization which takes place outside of the workplace." Then, he goes on: "Differently from the Fordist organization of labor, today's organization of labor is always spotty. Technological innovation is not universal: more than determining an unequivocal and leading productive model, it keeps a myriad of different models alive, including the resuscitation of some outdated and anachronistic models. Post-Fordism re-edits the entire history of labor, from islands of mass labor to enclaves of professional workers, from re-inflated independent labor to reinstated forms of personal power. The production models which have followed one another during this long period re-present themselves synchronically, as if according to the standards of a World's Fair. The background and the hypothesis behind this proliferation of differences, this shattering of organizing forms, is established, however, by the general intellect, by computerized data communication technology, by productive cooperation which includes within itself the time of non-labor." [2]

It will be argued elsewhere in this dissertation that it is 'the district' the right scale for copying with the abovementioned 'sclerotic' behaviour

1. Gillian Darley, Factory, Reaktion Books, London 2003, p.12.

I. The unpredictable qualities of atypological reasoning. This 1686 reproduction of the theatre in Arles was used by Aldo Rossi in L'architettura della città.

2. Paolo Virno, A Grammar of the Multitude, Semiotext(e)(distributed by MIT Press), Los Angeles 2007, p.105.

of contemporary business ecologies. Nevertheless, since we are building here an argument about a single 'factory' building we would like to start – in disagreement with Gilliam Darley – by stressing the possibility of permanence/adaptation related to the intelligence of 'type' rather than focusing on changeability as a feature. We take this as an approach that can enable the abandonment of naive design procedures that merely transform factories in machines and abdicate the project to the engineering design, by their being based on flexibility conceived as shuffling/short term arrangement/precariousness of architectural elements. What we aim here is to restate the workspace as a problem in architecture and not merely a technical functional question. That is, a project able to deliver to the client as well to its users unexpected results and spatial qualities of either restructured or brand-new building types. We will do this by taking as object of reflection what can appear to be two very different, and perhaps incomparable, projects: the cycle of design- utilization-redesign-reutilization through which the Fiat Lingotto building in Turin (by all means a paradigm for factories) has undergone over time; and a student project, 'Monumento Produttivo', designed by diploma students in architecture that came out from one of the academic courses we conducted[3]. The inclusion of the latter wants to highlight the importance of the generational process of design activity in our argument.

The architectural intelligence underlying Fiat Lingotto's building emerged clearly in 1983, when an international 'Consultation on ideas' was launched asking for proposals for the building's re-utilization. The competition's guidelines did not pose any particular constraints on the participants, resulting in twenty projects offering a wide range of both programmatic and spatial alternatives. The point we want to raise here is that we can read such a variety and richness of the proposals as evidence that the Lingotto was thought and designed – more or less consciously - as a piece of architecture rather than just a flexible/functional/ efficient factory. In other words, the Lingotto, has proved capable of accommodating a wide set of uses, programmes, activities diverging from

▤	lavorazione su banchi o su macchine singole
═	lavorazione in linea
○	giostre
→	itinerario ideale del processo produttivo
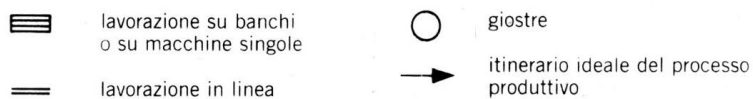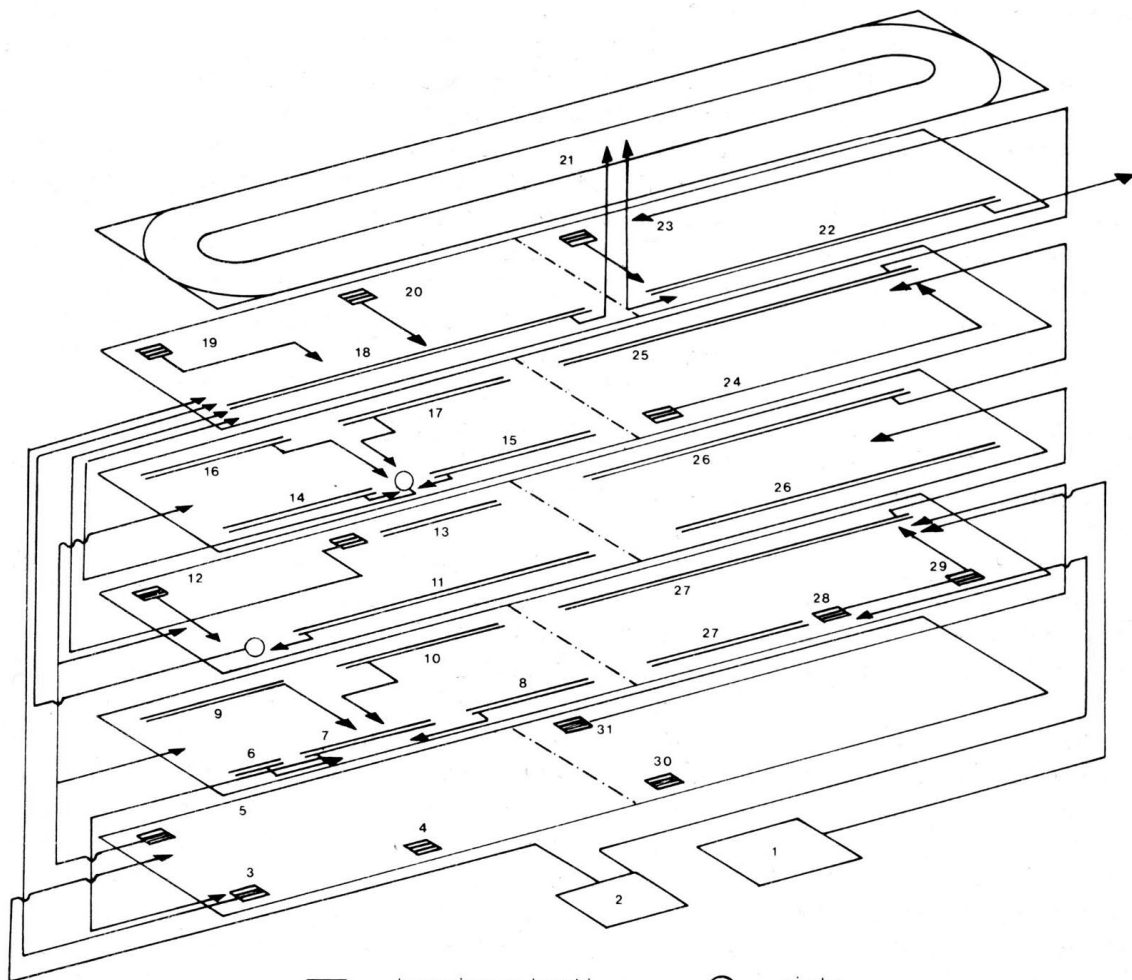
1	Lavorazione legnami	13	Lavorazione e montaggio apparecchi elettrici	22	Carrozzatura, collaudo e finizione
2	Stampaggio			23	Polmone scocche
3	Sala prova motori	14	Lavorazione alberi e gruppi differenziali	24	Preparazione selleria
4	Settore esperienza			25	Sellatura
5	Prima lavorazione	15	Lavorazione e montaggio ponti posteriori	26	Verniciatura
6	Lavorazione bielle, pistoni ecc.			27	Lastratura
7	Montaggio motori	16	Lavorazione freni	28	Preparazione elementi metallici di carrozzeria
8	Lavorazione blocchi cilindri	17	Lavorazione e montaggio assi anteriori		
9	Lavorazione alberi a gomito			29	Verniciatura a fuoco
10	Lavorazione alberi a camme, valvole ecc.	18	Montaggio châssis	30	Utensileria e calibri
		19	Lavorazione radiatori e serbatoi	31	Lavorazioni meccaniche di carrozzeria
11	Lavorazione alberi, guide, frizioni	20	Trattamenti galvanici		
12	Lavorazione ingranaggi	21	Pista di prova		

III. The automobile industry assembly line as applied to Fiat Lingotto in 1927-1928. From Venti progetti per il futuro del Lingotto, ETAS Libri.

4."the economy of time and space, and the insistence upon cleanliness, lighting and ventilation [...] were the fundamental principles of the Ford-ist rationale of space. [...] This co-herent development of principles re-lated to labor management was fully applied in the architecture of Albert Kahn." From Federico Bucci, Albert Kahn. Architect of Ford, Princeton Architectural Press, New York, 1993 (Italian edition: Federico Bucci, L'architetto di Ford. Albert Kahn e il progetto della fabbrica moderna, Città Studi, Milano, 1991), p. 41.

5.Gillian Darley, op.cit.,p.82.

the specific one – the automobile production chain – for which it was designed. This observation is nothing but a confirmation of something which had already been noticed, among others, by Aldo Rossi. In 1966, referring to the 'Palazzo della Regione' in Padua, he stressed precisely that the building had gone through a variety of uses over time despite its being, inevitably, a physically 'fixed' space. This approach clearly contrasts with the diametrically opposed 'conception of flexibility' paradigmatically embodied in a project like Cedric Price's Fun Palace.

Fiat Lingotto was built in the early 1900s according to a project designed by Giacomo Matte' Trucco. The engineer had conceived a compact five-storey factory (more than 500 meters long and just 80 meters wide) organized around four internal longitudinal courtyards (each 100 m long), whose inner spaces, thanks to a minimal structural skeleton, achieved high levels of naturally lighting - with 1936 windows measuring 5,40 by 3,20 m -, and provided with a test track on its roof which emphasized a European search for compactness. Trucco claimed having took inspiration from the industrial buildings designed by Albert Kahn in the U.S.

The Ford plant at Highland Park (1908) was the earliest example of what was going to be defined as 'The Model Factory'. The 'model' ambition of both Albert and Moritz Kahn was oriented towards the optimization and application in space of the very principle ruling the organization of work as defined by their principal client: Henry Ford. In this way flexibility and standardization, time and space economy as well as daylight delivery efficiency (thanks to the Daylight System), cleanliness and ventilation became peculiar features of modern factories.[4] Moritz Kahn – Albert's brother – "identified three types of industrial building: a single-storeyed roof-lit model [...]; a variant with long-span roof trusses and overhead travelling cranes; and the multy-storeyed factory, the cheapest option, which was suitable for light products or wherever land was expensive or restricted."[5]

· NORTH · ELEVATION ·
SCALE ½" = 1'-0"

Highland Park plant belongs to the third category. If we had to attempt an exploration of the new building type as materialized in this plant, we should probably start off from the facade, an immense longitudinal system marked by a light regular skeleton and a matrix of wide windows. Federico Bucci's words offer a comprehensive description of the plant:

"The new assembly workshop in Highland Park was a four-story factory, with a relatively reduced width in relationship to the exceptional total length (about 22.8 x 262.1 meters, or 75 x 860 feet). While the building was based on the Packard Building no. 10 and the Mergenthaler Linotype Company, it was not without significant innovations: the great dimension, the distribution characteristics, the attention to construction details (in particular, the brick-covered towers for vertical communications), and the total formal design itself.

The weight-bearing structure was reinforced concrete with six-meter spans (20 feet) between the columns: there were no interior dividing walls. The vertical communication structures, pushed to the exterior of the workshop, rose up at regular intervals along the longer side of the building. They housed all of the auxiliary facilities (changing rooms, bathrooms, etc.), as well as the hydraulic freight elevators which transported materials to the work floor.

The resulting open space was ideal for continual changes in the placement of machinery, and above all, made possible the completion of experiments on the continuous assembly line for standardized production, which was finally implemented on October 7, 1913.

The elementary arrangement of the Highland Park plant was the solution for the assembly line production of the Model T: well-lit floors laid out horizontally and joined effectively. Thanks to an integrated system of conveyors, the piece-work underwent different operations in various departments on the top floors; the assembled parts, by way of numerous opening in the floors, were then transferred to the body assembly lines

6.Federico Bucci, op.cit., p.39-40.

V. Beyond the replication of the 'Factory Model' or the materialisation of the assembly line: Lingotto as a 'Finite Work'. Picture from one edge of the roof, © Enzo Isaia.

7.Reyner Banham, 'Lingotto: un punto di vista transatlantico' in Casabella n. 500, 1984.

8."Il 17 novembre la Giunta approvò il progetto, dando prova di lungimiranza. "L'edificio progettato per la sua vastità e per destinazione speciale può ritenersi di interesse pubblico e perciò pare che possa ricorrere l'applicazione dell'articolo 40 del Regolamento edilizio" il quale consente di autorizzare un'altezza superiore ai limiti … per gli edifici monumentali e per quelle altre opere … che per ragioni di necessità pubbliche o di pubblico ornamento debbano avere maggiore elevazione." http://www.museoauto.it

(on the second floor) and to the chassis assembly (on the first floor). At a station outside of the factory, the frame was lowered and mounted on the chassis: the car was then complete and ready for testing." [6]

The 'model factory' was being advertised as the 'product' capable of materializing the efficient Fordist work pattern. The Fordist model – but this is the very fundamental nature of any model - was therefore vastly copied and replicated around the world, even in the form of prefabricated factories built in the UK and then shipped to the new industrial destinations. Distinctively, within the factories' historical reconstruction by Gillian Darley, the Fiat Lingotto deserves to be highlighted among the countless reproductions of the Highland Park model. The Lingotto, whose main features are probably bigness, density and compactness, courtyard organization and lighting performance, has probably proved able to deal with the Model in a typological way thus delivering an evolution of the model itself. Like its American relatives the Lingotto, thanks to the modular skeleton of 6 by 6 meters, could have been extended indefinitely in principle and whenever necessary; however, the formal structure of the building does not seem to confirm this possibility as one of Lingotto's vocations: rather it looks as a 'finite work'. Reyner Banham notes how the Lingotto "was a dialectical European realization of a pragmatic American programme, raised to the level of a dream (or even manifesto) by the infusion of a sensibility that had no place in American industry"[7]. Even the contemporaneous local city authority, asked to deliver the necessary authorization for the project, recognized the public and monumental status of the Fiat factory[8].

Paradoxically, soon after its construction the building began to reveal signs of inefficiency whereas it started to be acclaimed as an architectural masterpiece around the world. Only the requirements for an increase of production raised by World War II rescued the Lingotto from being transformed into a University. The discussion for its reutilization was resuscitated only in the 1980s when the building was considered inevitably obsolete for the automobile industry.

Most of the proposals submitted for the 1983 ideas consultation followed the postmodern apprehension for a cultural/leisure programme (from museums to archives, from conference and exhibition centers to urban parks) or the contemporary necessity of workspaces for new kinds of industries or for academic institutions (offices, incubators, laboratories, teaching spaces). A multifunctional mixed-use center would be eventually realized according to a design elaborated by Renzo Piano Architects[9].

Rather than focusing on the actually realized project we want here to consider one of the twenty proposals submitted for the ideas consultation as we believe it can help explicating our main argument. The project we are referring to is that submitted by a design group headed by Italian architect Gae Aulenti[10]. The proposal advanced the idea of turning the Lingotto into a residential building, a huge condominium of 1365 units (5000 inhabitants) with the necessary related commercial and collective facilities. Bernardo Secchi in a review he wrote for Casabella considered Aulenti's proposal a 'project of discontinuity' alluding to its radical programmatic change: it 'transform(s) this place of work and manufacture of products for mass-consumption emblematically into a residential quarter for the masses'[11]. Nothing in the proposal was even close to evoking the original industrial functions (as conversely happened, for example, in the automobile museums proposed by James Stirling, Michael Wilford and Associates and by Denys Lasdun, or in Gregotti Associati's proposal for a workspace devoted to industrial design). Given this 'discontinuity' – concept that we related to what Bernard Tschumi has defined 'crossprogramming'[12] - we put here our attention on Gae Aulenti's proposal that, more than others, stresses the very essence of the Lingotto as an adaptable type – before than as a factory. In other words it shows how Fiat Lingotto could have shifted with minor adjustments from the Fordist production functions to organising collective living.

The project aimed at achieving its results of radical programmatic change by focusing on a discreet series of identifiable key moves, a set of minor adjustments. Firstly, it relied on the refurbishment of the

9. Fiat Lingotto "[...] is as good place as any to ponder the unpredictable fate and form of the factory. [...] The modern conference delegate, jet-lagged after a lengthy journey across time zones, is probably unaware that his or her smart hotel not far from the piazzas and elegant streets of Turin was once a car factory. The open production floors are now subdivided into hundreds of comfortable hotel rooms, self-contained offices, shops and art facilities, while the internal courtyards have become thickly planted exotic groves.[...] The rooftop roadway is now a jogging track for international business folk, shaking off the tensions of the day's meetings with a kilometre or two run at a pace which better suits the tight corners of this odd circuit." Gillian Darley's account on the contemporary 'image' of Fiat Lingotto, in Gillian Darley, op.cit., p.11.

10. The design team was composed by: Gae Aulenti, Italo Rota, Luigi Mazza, with Marco Buffoni, Giuseppe Raboni, Silvana Sermisoni, Takashi Shimura, Chiara Vitali, and with Luca Beltrami Gadola (consutant).

11. Bernardo Secchi, 'Il Lingotto "vuoto"', in Mirko Zardini (ed.), 'Venti idee per il Lingotto' in Casabella n.501, 1984.

12. "Crossprogramming: Using a given spatial configuration for a program not intended for it that is, using a church building for bowling." from Bernard Tschumi, 'Abstract Mediation and Strategy.' in Architecture and Disjunction, The MIT Press, Cambridge Massachusetts, London England, 1996, p.205.

13.This observation comes from Renato Pedio's description of Gae Aulenti's proposal, in Venti progetti per il futuro del Lingotto, ETAS Libri, Milano, 1984.

14.Giovanni Klaus Koenig (in 'Architettura delle proposte: analogie, differenze, finalità.' in Venti progetti per il futuro del Lingotto, op.cit.) insists on the pragmatic aspects of Aulenti's proposal, which is defined as a detailed and calculated spatial and functional project.

VI. (Following Spread) Cross Programming: a new residential building for 5000 people. Typical floor of the project proposed by Gae Aulenti, from Venti progetti per il futuro del Lingotto, ETAS Libri.

courtyards reconfigured as pieces of the framework of a collective living environment, also through the establishment of a hierarchy of movement and a hierarchy of space; secondly, fragmenting the monolithic block of the Lingotto enabled further variation and differentiation between the parts as well as enhancing its permeability with the exterior through carefully detailed thresholds. By fragmenting, creating hierarchy of spaces, enhancing the permeability and cross-programming the relationship was to be re-established with an external city fabric that the Lingotto itself, as monument – intended in a 'Rossian' way - had contributed to generate[13].

The living environment that was envisaged depended on the coexistence of different housing layouts – ranging from apartments to hotel, from residences to duplex villas – that were to be housed both within the Lingotto's 'Officine' building and the 'Centro Presse'. The differentiation of living units within a collective framework of inhabitation was proposed on the basis of recognized changing living patterns among Turin's population. As Giovanni Klaus Koenig has pointed out, a growing demand was emerging from Turin families of novel housing solutions that could prove easier to maintain and could provide all the necessary collective services through a centralised system[14]. An articulated ground floor – articulation achieved in plan through the courtyards, the main longitudinal path and the transversal paths, as well as in section through the deployment of porticos and staircases - contributed to build up to a hierarchy of spaces while at the same time being able to collect the set of public and collective facilities needed for a living environment: indoor and outdoor sport facilities, a civic centre, shopping facilities and a 'street market', and some tertiary-sector and artisanal workspaces.

We can argue that the intervention proposed by Gae Aulenti not only reveals the qualities of the Lingotto as 'type' - in terms of its flexibility but also in terms of expressing the formal capability of its reinforced concrete structure. In her proposal the 6-by-6-meter three-dimensional frame – made of beams and pillars jointed in continuity- is not a neutral empty structure to be filled freely with spaces of various shapes. It is
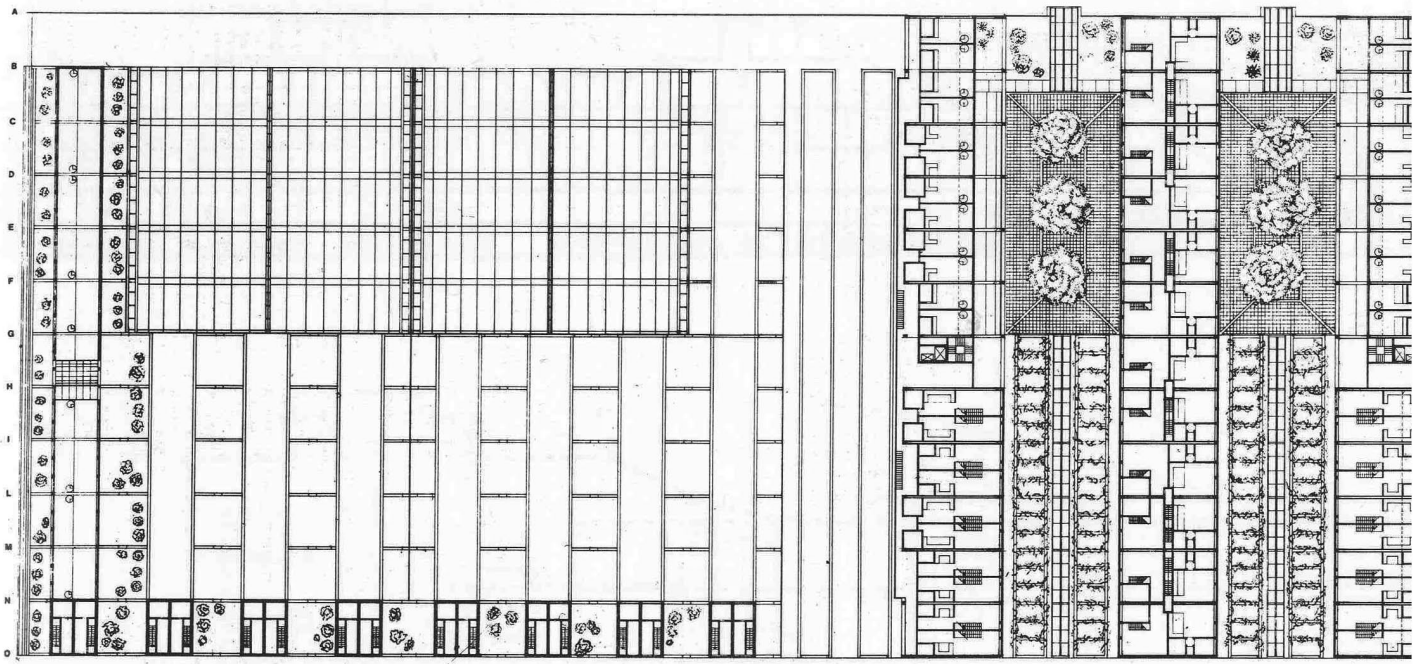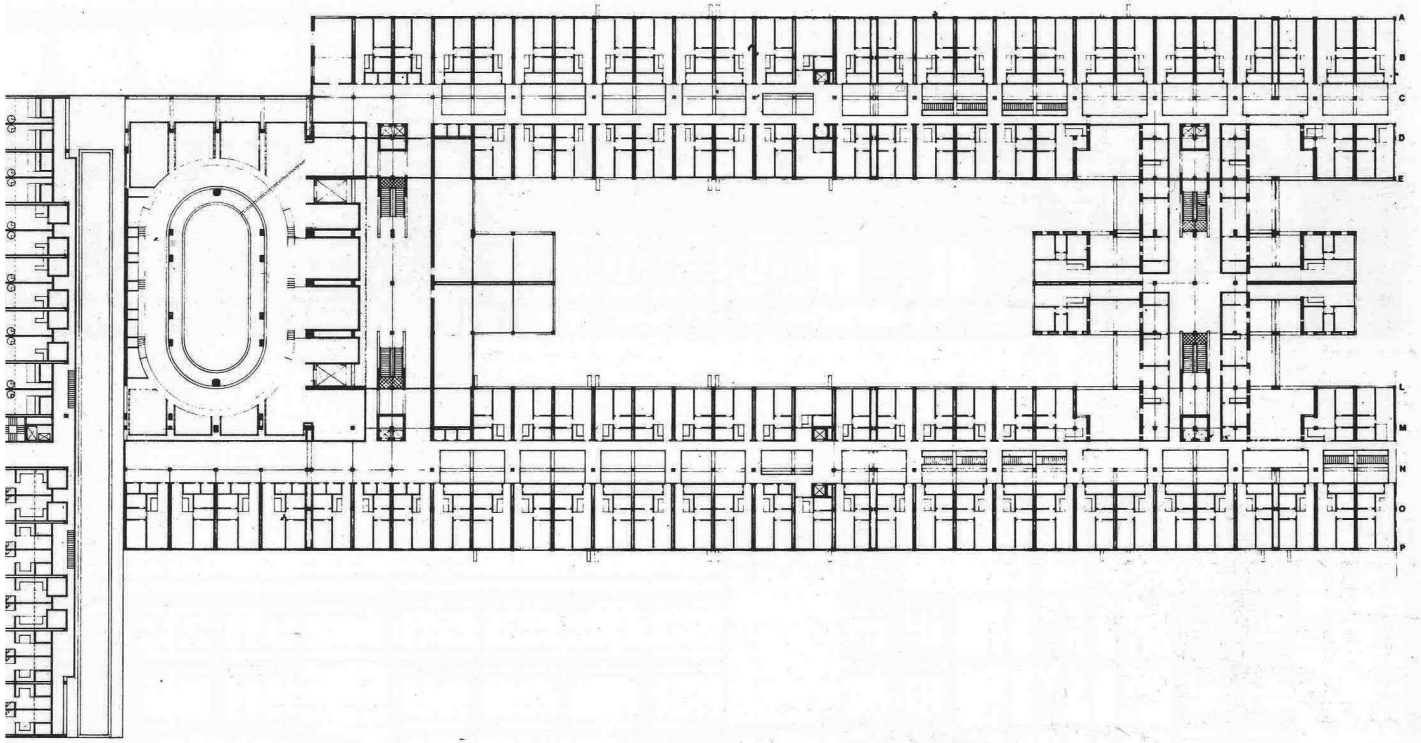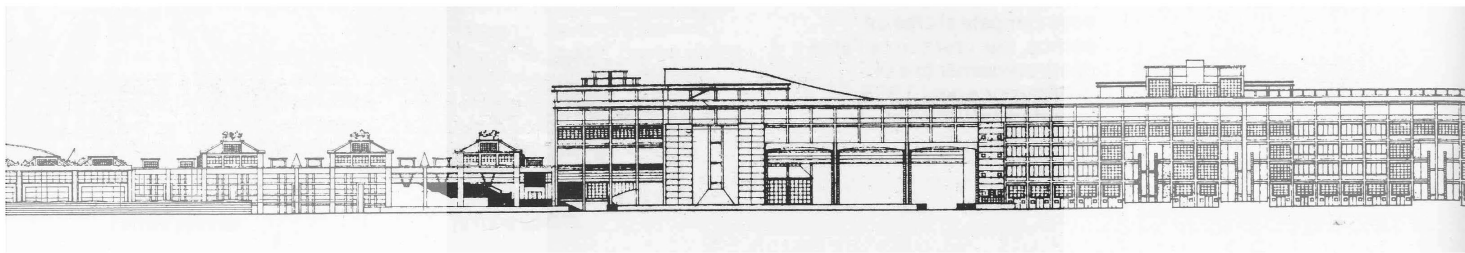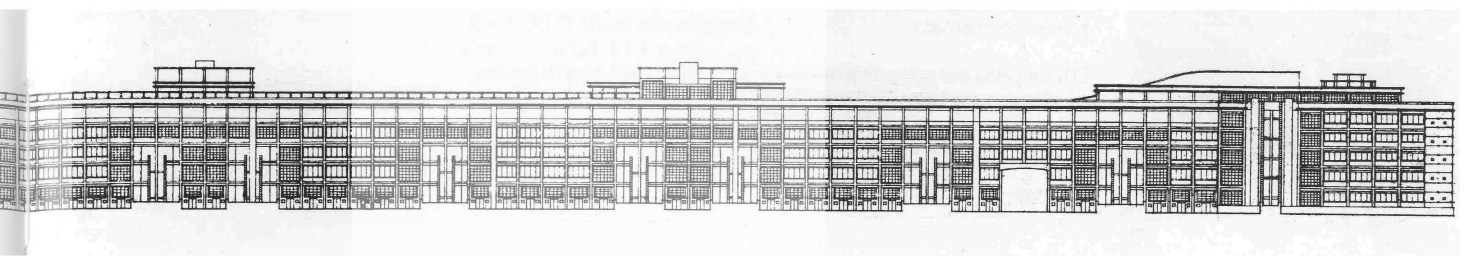
VII. (previous spread) Attempt to re-establish the relationship with the external city fabric that the Lingotto itself, as monument, had contributed to generate. Elevation of the project proposed by Gae Aulenti, from Venti progetti per il futuro del Lingotto, ETAS Libri.

15. Rafael Moneo, 'L'avvento di una nuova tecnica nel campo dell'architettura: le strutture a telaio in cemento armato.' in La solitudine degli edifici ed altri scritti, Andrea Casiraghi and Daniele Vitale (ed.), Umberto Allemandi & C., Torino, 2004 (first published in spanish as 'La llegada de una nueva tecnica a la arquitectura: las estructuras reticu-lares de hormigon' in Catedra de Elementos de Composicion, Monography, n° 11, Ediciones de la ETSAB, Barcelona, May 1976).

16. Ibid.: our translation from the Italian.

VIII. Formal manipulation of the structural frame. The importance of the intermediary space - porticos, tresholds, atrium. View of the project proposed by Gae Aulenti, from Venti progetti per il futuro del Lingotto, ETAS Libri.

17. Venti progetti per il futuro del Lingotto, op.cit., p.107.

rather a stronger structure that we can manipulate and use to define and generate spaces. This design manoeuvre is comparable to what Raphael Moneo[15] recognises in the historical shift from the work of Albert Kahn to that of Giuseppe Terragni. According to Moneo, in Albert Kahn's factories the concrete structure is directly translated into architecture, without any formal mediation by the Architect: the resulting image of this pragmatic operation will be consecrated as a formal and stylistic quality by modernist masters like Walter Gropius. Terragni's elaboration of the concrete frame is informed in a period of complete understanding of the technique underlying concrete structures, almost in a mannerist period. Instead of working with the image of the concrete structural system as revealed in factories, he managed to transform this technique into a formal element. With that we mean — as always in our intentions when we use the word 'formal' — that the concrete frame not only is elevated to a figurative and stylistic element but in particular to a resource for a spatial architectural definition.

"The frame structure, turned into primary architectural element, loses the neutrality, homogeneity and isotropy pursued by Le Corbusier, to qualify space beyond making it possible, but also by characterizing and defining it".[16] This shift in the conception of the structure from the Modern Movement to Terragni is resumed, we think, by Aulenti in her design operations on Lingotto.

The act of unveiling discretely the nakedness of the skeleton is not to be perceived within a purpose of 'industrial archaeology'. The naked skeleton is unveiled as a potential element of space definition while juxtaposed with massive volumes and horizontal or vertical planes. Aulenti's proposal and, in particular, the way they handle the elevation of Lingotto is completely different from that proposed by, for instance, Denys Lasdun. The latter, in fact, treated the external facade of the building as a flat, impenetrable shield beyond which new activities can blossom[17].
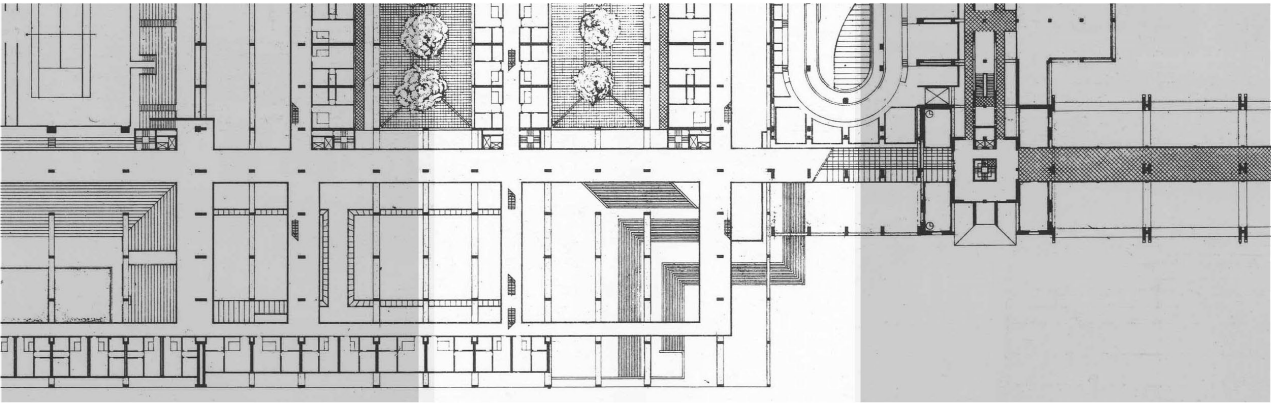
IX. Formal manipulation of the structural frame. Vertical Transparency. Top view of the project proposed by Gae Aulenti, from Venti progetti per il futuro del Lingotto, ETAS Libri.

Once recognized as a formal element, the 6 by 6 frame can become object of architectural manipulation encompassing digging, scaling, imprinting, repetition and intersection. By the interaction of a dug frame with shifted walls and ceiling the project by Aulenti could achieve what, in the previous chapter, we noticed to be a highly sought-after quality for boosting engagement: vertical and horizontal transparency. By scaling she builds a sort of 'giant order': porticos of wide spans and heights introduce elements of differentiation in plan and elevation while establishing a scale relation with the external urban pattern (the same device, we could add, that Denys Lasdun himself will use in the Institute of Education in Bloomsbury, London). The most noticeable among these operations is the 36-meter long portico on one edge of the building that marks the main distributive transversal corridor for Lingotto. To conclude and reiterate, Gae Aulenti's proposal recognizes the expressed and unexpressed formal features – typological and of space definition – of Fiat Lingotto and, by revealing and manipulating them, demonstrates that the building already had a diagram embedded in its form.

Here we come to the point of connection between the two case studies considered in this chapter. What we claim they have in common is the fact that they both were conceived to satisfy a specific productive programme – that is also beautifully revealed in their aesthetic and specific components (the ramp in Lingotto, the Silos in the Wine Testing industry of the students' project) – but without denying for themselves the pleasure of a typological formation. In its capacity of surviving to the passing of time, users and functions the Fiat Lingotto is, first of all, a longitudinal courtyard block type characterized by the quality of those intermediary spaces – the courtyards - that can either be proper for a collective working or living environment; the Monumento Produttivo is in its essence a horizontal underground slab type, with the value of the spatial relation between the level 0 roof and the underground area.

The Monumento Produttivo is an exemplary project - but long from being complete, as in the essence of a student project, because of the
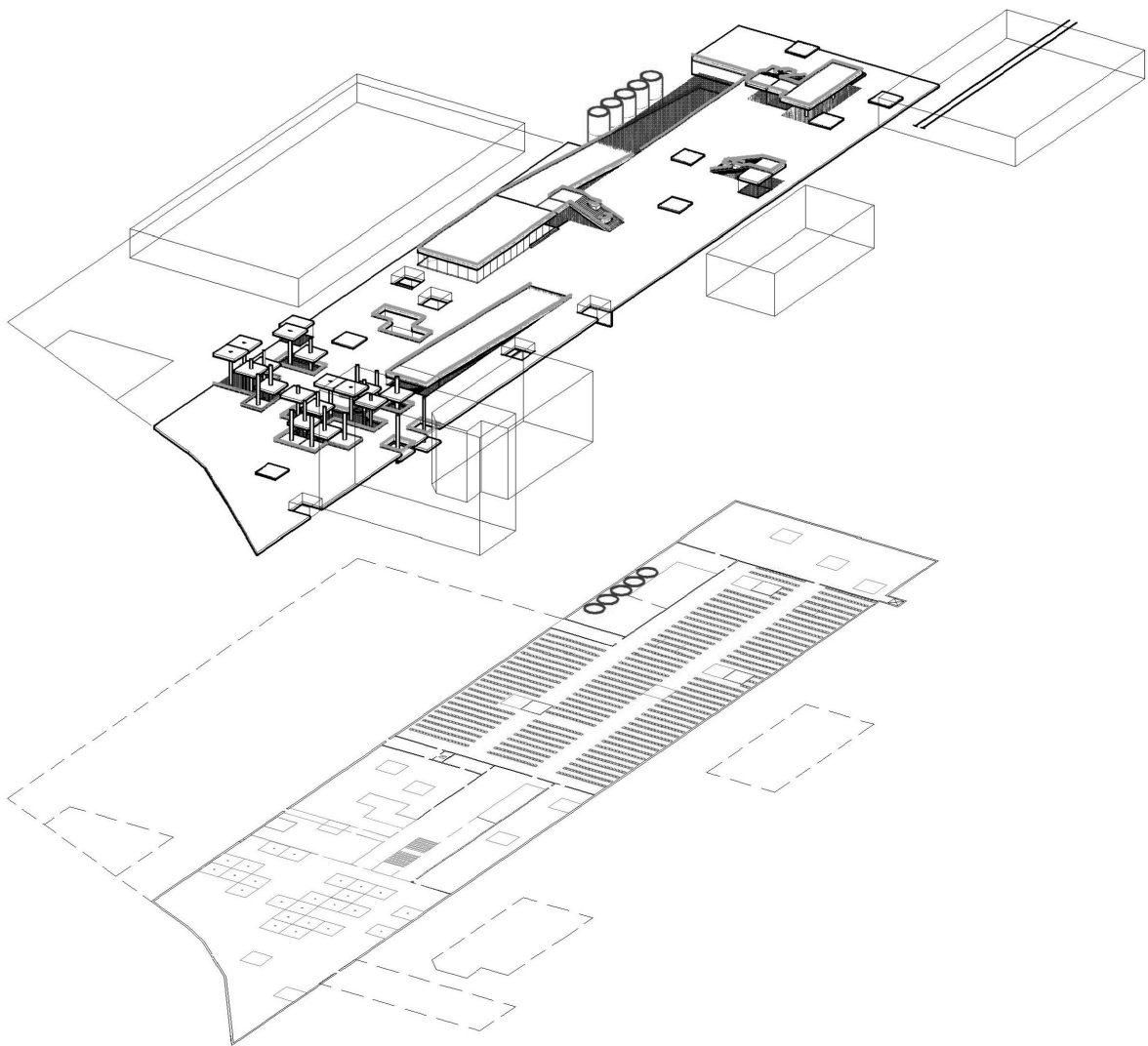
typological exploration it proposes in relation to the requirements and the ambitions of the new forms of production. Within this, the aim is that of intensifying synergies and exchanges among a certain number of stakeholders at multiple scales. The intelligence of the type is precisely expressed in its multiple abilities: answering to the contingent needs of the productive loop/system without been overarched by programmatic requirements; creating spaces of controlled interaction between given a programme – research and production related to wine industry – and the collective realm in a hierarchy of spaces that is mainly realized in section; creating a differentiation of spaces and experiences; building a relation between indoor spaces and outdoor spaces as well as between the architecture of the building and its being an urban entity; manipulating the space in order to bring together existing buildings with a future possible expansion.

The project attempts to realize this while also maintaining a representative – and therefore attractive – character proper of a traditional way of conceiving the 'monument'. Monumentality here is not meant as related to the 'image' of the building but to the processes that happen inside it. The 'work-related' processes, housed in the underground level, manifest themselves in the roof thus contributing to the configuration of a wider collective space at the street level. The students' starting point was Aldo Rossi's definition of monument. According to Rossi, the monument is that powerful element that can play a determinant role in urban processes, by either accelerating or stopping them. Thanks to its inner formal intelligence it is able to survive over time: its spatial arrangement shows the ability of been adaptable to different subsequent activities and functions in accordance with the renovate conditions of each time.

For the benefit of the argument's clarity, we summarize here some of the features of the cited student project, leaving then space to the words of the authors themselves (which haven't been translated into English but are in the form of the original text as extracted by the students' design booklet).

X.Function tickles form, the latter - the underground slab - reacts with its inner qualities. The roof's collective space is informed by the various elements re-emerging from the backstage of the real production. Exploded axonometric view of the student project 'Monumento Produttivo', by Anna Rita Taccori and Marco Moro.

XI. *The hydroponic testing areas emerges as terraced gardens in the collective space of the roof. From the student project 'Monumento Produttivo', by Anna Rita Taccori and Marco Moro.*

Among the concerns at the base of the design for the 'Monumento Produttivo', are those related to the challenges of the chosen specific programme and to the vocation of the site and as well as those coming from the students' personal research on the instruments of the discipline. A precise ambition towards the development of a productive sector – that of cultivating, processing, transforming, storage, testing, packaging, marketing for the wine industry with the associated activities of research and development – opens first of all the necessity for this sector to include and mobilize a wider territory than the limited plot elected as 'study area' for the academic project. The brief asked for the design of a building that could show relevant for its contribution to reshaping the site in which it was to be located, but also able to exert repercussions on the city of Cagliari as a whole and capable of configuring novel relations between the city and its wider agricultural district. Multiscalarity was already a vocation for the given site, located in an infrastructural hub on the edge of the historical city. Hence an argument was built on the development of a contemporary 'monument' related to production (that displays processes and products), able to work as an anchor for the wine district and as a showcase for the city. In addition, a fundamental parameter to influence the design came from the very requirements of wine storage: the provision of dark spaces. Therefore, an underground slab was chosen as that type capable of being directly responsive to this requirement but, at the same time, continuously revealing other spatial opportunities, in a complex but never redundant relation between form and function. Function tickles form, the latter reacts with its inner qualities. The result of this process is a variously articulated roof whose collective space is in-formed by the various elements re-emerging from below – from the backstage of the real production. The roof works as a thickened surface of exchange between different actors and functions and it is the result of the students' formal exploration of the 'boundary' as architectural urban condition. This research was suggested both by the contemporary shift in the nature of workplaces as well as by the students' particular interest in medieval spatiality based on separation – realised both by the deployment of vertical walls and of topography.

The intention of including a student project here is to show the experimentation of some of the arguments about type/flexibility as operative in a design procedure. To refer back to the already quoted MA thesis we argued that, in order to avoid an 'ingenuous functionalism', special care needs to be put - in the moment of generation of the design - on the relation between form on the one side and content on the other.

Federcio Bucci, in his mentioned work on Albert Kahn[18], 'Architect of Ford', dedicates a whole essay 'Tempos and Methods of the Creative Process' to reflect on the issue of design procedures. Firstly this reveals the relationship between Fordism and the birth of a new professional figure — the factory designer. However, the point is made that Kahn is not the architect of Ford merely in the sense of an architect-client relation: he is the architect who developed its design process on the base of and in concert with Fordism. Albert Kahn reconfigured its own office — both in terms of management and in terms of spatial layout - according to a novel design method embedded in Fordism itself. The direct sharing of tasks and reasoning between systems of production and generational processes for architectural design — a sophisticated form of functionalism — was made possible by the very nature of Fordism: the assembly line, a process based on the advancement of goods and on the strict collocation of the worker within the line ('no reliance on the worker's own initiative'). Eventually, the architectural design would match with a precise flow of production that was specific of a particular industrial organisation and the building had to be capable of changing together with the evolution of the production requirements. It is therefore clear that the same correspondence would be impossible to achieve within an economic production that rejects a linear trajectory and a specificity of tasks[19]. Contemporary production processes — based on ever-shifting and volatile functions, tasks, workers and goods — cannot be at the base of the design process precisely because we cannot list them, neither position them within a line: they are incontrollable as variables because of their dynamic nature. Hence, the necessity of discussing the generational phases of design.

18.Federico Bucci, op.cit.

19.See the explanation we provided in the previous chapter on Grahame Thompson, 'The firm as 'dispersed' social agency.', in Economy and Society, Volume 11, Number 3, Routledge & Kegan Paul Ltd., London, August 1982.

Programme in general is something contingent but showing the property of evolution over time. If we agree with Rem Koolhaas in his exaltation of the programmatic instability overtime; or with Bernard Tschumi and his theory of 'Event' as something originated from 'cross/trans/ dis-programming'; or else with Peter Eisenman and his quest for a dialectic relation between form and program where an intelligence of the form ('Interiority') is the guarantor for the accommodation of program since is itself able to index it; or, finally, with Aldo Rossi's theory of permanence and urban artifacts, we cannot but stress the dynamic nature of functions and program. We do not accept, however, Cedric Price's vision: architecture cannot be just the materialization (or the non-materialization, a neutral movable modifiable place) of a set of changeable activities and thus be a complex machine modifiable with/by the activities.

If on the one hand a building or an area cannot absorb the programmatic instability when its generation has been driven only by a specific programme in time, on the other it is not even acceptable an inconsistent machine that, like the Fun Palace, continuously reconfigures itself to accommodate changing activities. For this reason we have no other choice than relying on the intelligence of type as the material response to the evolutionary nature of programme.

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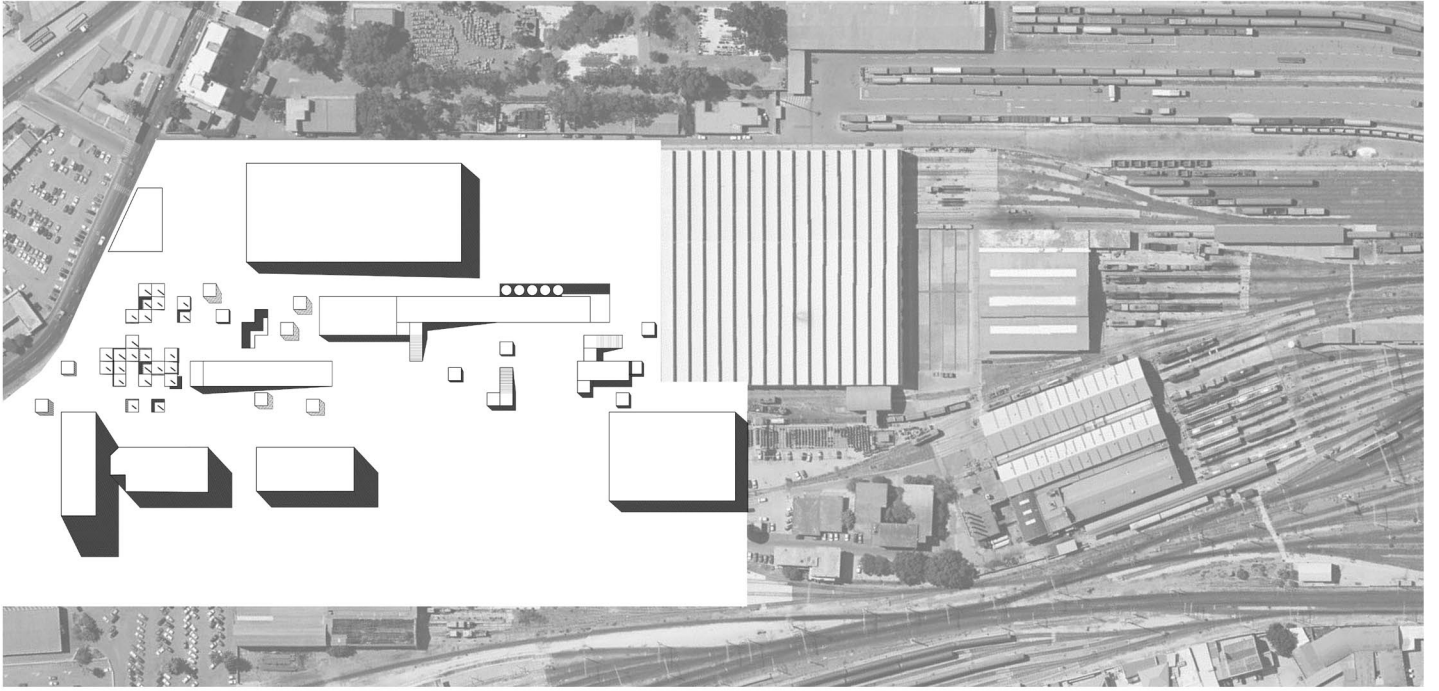
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ASSISTENZA TECNICA	●	●		
GRUPPO DI ACQUISTO SOLIDALE	●	●		
DIFFUSIONE DI CONOSCENZA E CONFRONTO	●	●	●	●

ATTORI

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Donori

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Dolianova

Settimo San Pietro

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Maracalagonis

Monserrato

Selargius

Pirri

Cagliari

Quartu S. Elena

Castiadas

Villasimius

Pula

S. Margherita

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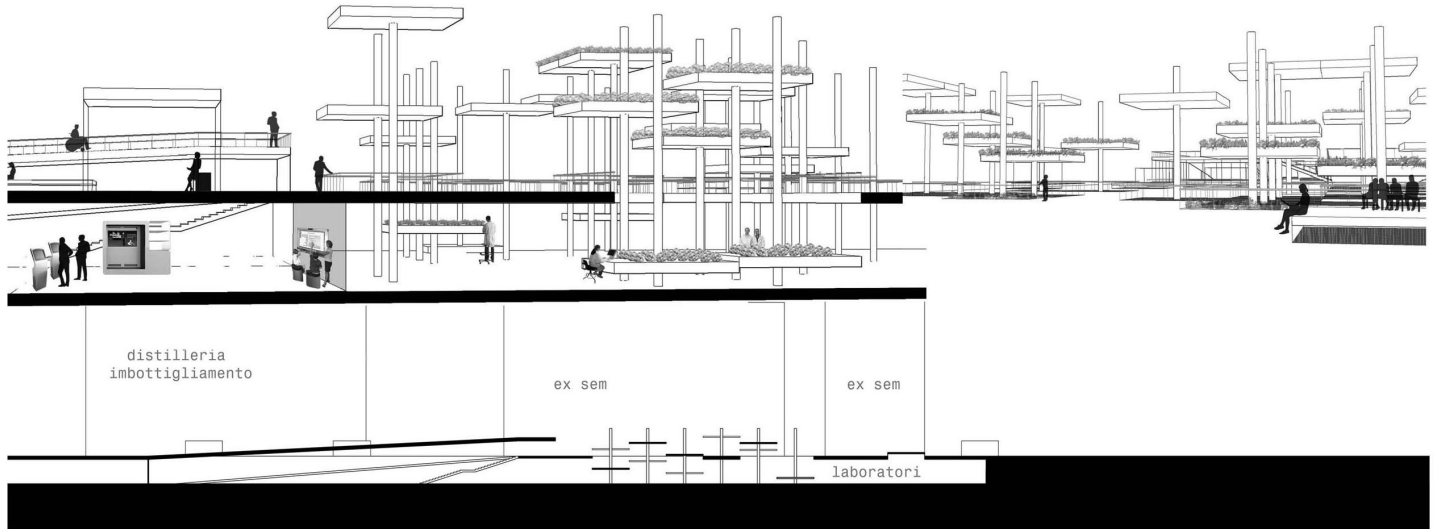
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[Il Monumento Produttivo. Marco Moro, Anna Rita Taccori]

Text extracted from the students' design booklet.

Uno dei più significativi riferimenti nell'ambito delle trasformazioni dell'organismo città legate al tema del monumento e alla sua potenzialità nel generare 'fatti urbani', è indubbiamente rappresentato dall'indagine di Aldo Rossi. Nel citare le sue parole intendiamo sottolineare come la sua analisi possa essere considerata attuale e oggettiva anche nel contesto contemporaneo, contesto in cui il monumento sembra ormai aver assunto tante sfaccettature e un numero di configurazioni tale da rendere estremamente complicata una sua definizione: "Gli elementi primari non sono solo dei monumenti come non sono solo delle attività fisse; in senso generale essi sono quegli elementi capaci di accelerare il processo di urbanizzazione di una città e, riferendoli ad un territorio più vasto, degli elementi caratterizzanti il processo di trasformazione spaziale del territorio. Essi agiscono spesso come dei catalizzatori. Originariamente la loro presenza può identificarsi solo con una funzione (e in questo caso coincidono con le attività fisse) ma presto essi assurgono a un valore più significativo"[20].

Edifici emblematici come il Centro Pompidou a Parigi o la Tate Modern a Londra dimostrano che nell'era contemporanea non è stato il carattere rappresentativo dei monumenti a crollare. Di fatto questo continua ad esistere ma volge la sua attenzione a contenuti diversi: la rappresentatività non è più quella legata alla forma, ai simboli, agli archetipi, ma è la rappresentatività dei processi, che possono essere sociali, politici, economici, ma pur sempre 'fatti urbani'.

È su tali presupposti che si è fondata e si è evoluta l'idea di realizzare un monumento legato al settore della produzione, nello specifico di tipo agro-alimentare, che avrebbe le potenzialità di fornire un impulso tale da far dialogare finalmente la scala urbana con quella territoriale. Ciò avverrebbe attraverso un sistema di collaborazioni a larga scala nel quale risulterebbero coinvolti attori mol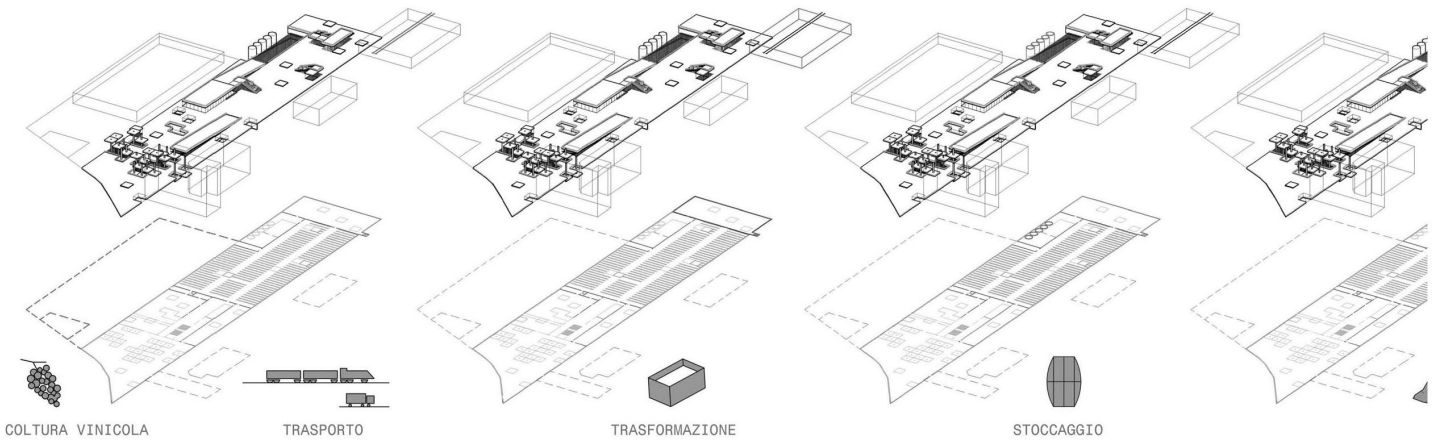teplici, nell'ottica di ricavare un'isola urbana con la forza di incidere, quale elemento primario nella visione di Rossi, più che recepire, sull'evoluzione di una strategia urbana rivolta all'intero sito di studio e all'intera città.

20. Aldo Rossi, L'architettura della città. (first published in 1966), CittàStudiEdizioni, Torino, 1995, p.106.

L'area nella quale si sviluppa il progetto dell'isola monumentale corrisponde ai "tasselli" che si affacciano sul Viale la Playa, uno dei quali contiene la ex-Semoleria, l'altro il centro commerciale OVS. La scomposizione dell'area in tasselli definisce degli spazi caratterizzati da una forte dimensione longitudinale che si spinge all'interno del sito: i tasselli hanno prevalentemente un rapporto con la strada sulla quale si affaccia il lato corto di ciascun tassello, ma risultano indipendenti tra di loro non essendovi alcun livello di comunicazione sul lato lungo.

Questo diagramma ha per un attimo alimentato la riflessione sul concetto di città monumentale prendendo come esempio emblematico la città di Las Vegas, vista stavolta dal lato della sua spazialità e configurazione urbana, con l'intento di indagare su una possibile relazione tra il concetto di monumento e la soluzione spaziale che si adotta per ospitarlo. Las Vegas, quale esempio esasperato della rappresentatività simbolica dell'oggetto monumentale, fa del rapporto diretto e immediato con lo Strip il punto di forza del suo sistema urbano. Si genera un rapporto quasi morboso in cui dove esiste lo Strip è presente il monumento, dove esiste il monumento è presente lo Strip: questi due elementi urbani nati con la logica ultra-commerciale quindi ultra-economica, riproducono in serie quasi illimitata e su una scala notevolmente maggiore la condizione dei tasselli che proiettano tutta la loro rappresentatività in direzione del Viale la Playa.

Di fronte alla possibilità di proporre un concetto di città monumentale rispondente a questo diagramma, il progetto si è invece concentrato sulla possibilità di sfruttare l'importante massa critica degli oggetti esistenti per ribaltare il diagramma, ribaltando il sistema di relazioni e di rapporti dalla direzione longitudinale a quella trasversale, utilizzando il tassello che si trova tra i due preesistenti per generare un concetto di monumentalità collegato ai processi, alimentati dall'inserimento di un programma produttivo al livello sotterraneo e uno spazio pubblico al livello della strada. Questo nuovo sistema che si potrebbe definire di 'produzione pubblica' si inserisce quindi tra due sistemi di produzione consolidati, ognuno dei quali ha sortito effetti differenti, ma entrambi decisivi nell'ambito delle trasformazioni urbane: quello storicamente legato all'era industriale rappresentato dalla ex-sem al quale si affiancano, lungo lo stesso tassello, gli impianti necessari per sviluppare l'attività produttiva e la ricerca connessa; nel secondo tassello il sistema del centro commerciale contemporaneo che alla vendita del

prodotto finito associa la capacità di grande attrattore sociale.

In questi termini l'oggetto del progetto è quasi uno spazio interstiziale che dovrebbe essere in grado di ricavarsi una dimensione indipendente ma allo stesso tempo di generare delle tensioni tra i due tasselli preesistenti e lontani. Riducendo notevolmente l'interesse di un rapporto diretto rispetto alla strada si favorisce invece la direzionalità dettata dal processo, cioè quella parallela alla strada.

In questo modo il progetto cerca di dare risposta agli obiettivi dichiarati anche nella strategia urbana dell'intero gruppo. Ad esempio la ricerca di un sistema di relazioni interne evocate nel mondo medioevale che si manifestano nell'ambito di una città contemporanea attraverso l'interpretazione di un nuovo concetto di limite. Questa è una condizione che si vorrebbe generare grazie ad un sistema produttivo complesso e intenso, inizialmente proiettato più verso l'interno che verso l'esterno del sito, articolato e combinato con lo spazio pubblico; la stessa condizione porta quindi la strada ad assumere più il ruolo simbolico di muro medioevale rispetto a quello di Strip di una metropoli contemporanea, contribuendo a rafforzare l'idea di isola che la strategia si propone di attuare in un primo stadio. Il passo successivo è la possibilità di espansione del sistema prima verso l'interno del sito, e poi anche all'esterno, scavalcando il muro per verificare come questo sistema possa coinvolgere altri processi , ad esempio quelli legati alle attività portuali.

Il programma che ha garantito l'individuazione del processo intorno al quale è stato pensato il progetto, deriva dalla interpretazione delle iniziative legate a settori dell'amministrazione provinciale che prevedono l'individuazione di percorsi che interessano alcuni poli produttivi dell'entroterra legati alla produzione, trasformazione e distribuzione di vino, olio, formaggi e altri prodotti del settore agro-alimentare che grazie al loro marchio di qualità potrebbero garantire una intensificazione e valorizzazione dei processi e del territorio che li ospita. Osservando nello specifico il percorso del vino proposto attualmente, è emersa l'assenza di una tappa significativa all'interno della città di Cagliari. Il progetto ha dunque proposto per l'area di interesse un programma produttivo articolato non solo nella trasformazione e conservazione del vino, ma anche in attività di ricerca su metodi e sistemi di produzione all'avanguardia tali da apportare dei miglioramenti che potrebbero poi essere diffusi nel territorio.

Gli spunti forniti da questo genere di programma sono molteplici. Il primo consiste nell'articolazione della filiera grazie agli studi sull'agricoltura idroponica che sfrutta i residui della produzione vinicola per la coltivazione di frutta e ortaggi a base di inerti. Un secondo aspetto riguarda la biodiversità che caratterizza profondamente la viticoltura sarda e rispetto alla quale si cerca già di intervenire attraverso l'ausilio di consulenti esperti che si servono di strutture e mezzi altamente tecnologici. La 'tendenza', l'aspetto apparentemente più frivolo di marketing e branding, è un altro fattore profondamente influente nei processi di produzione del settore vinicolo, tanto da fornire gli elementi necessari per pensare uno spazio pubblico nel quale si possano verificare degli eventi strettamente correlati all'attività produttiva che si svolge nell'area.

Il progetto si fonda infatti sull'idea di una vasta piastra totalmente interrata per permettere il migliore svolgimento delle attività produttive e di ricerca. Il tetto della piastra diventa quindi una piazza pubblica che ospita rampe, terrazzamenti, un portico, un bosco artificiale composto dalle serre idroponiche: tutti questi elementi, nati dalla sinergia tra la funzione produttiva e quella pubblica, contribuiscono a comporre la configurazione di un landscape urbano. Questa configurazione non risulta fissa ma modificabile nel tempo in base alle esigenze pubbliche che la piazza può richiedere: stand e laboratori mobili dallo spazio interrato compaiono nella piazza proponendo configurazioni spaziali differenti date dalla moltiplicazione degli spazi.

Così i tetti degli elementi urbani della piazza diventano terrazze, sbloccando delle viste ad un livello superiore, oppure il bosco artificiale diventa uno scavo archeologico quando le serre vengono richiamate nei laboratori del piano interrato: è un monumento fatto di spazi statici e muti, che però non nascondono la loro ambiguità fino a dichiararne in qualche caso un'essenza effimera. Cercando di inserirsi nel linguaggio e nella percezione del mondo contemporaneo, il progetto propone un monumento in cui lo spazio strettamente produttivo è come un back stage, all'interno del quale si prepara un'esibizione, che viene poi servita al pubblico con il tentativo di non lasciare indifferente lo spettatore, anzi di invadere e influenzare i suoi spazi caratterizzando così gli spazi del pubblico e del collettivo.

SECT

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PUS PART 1.

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NOVATION ECONOMY.

Italy

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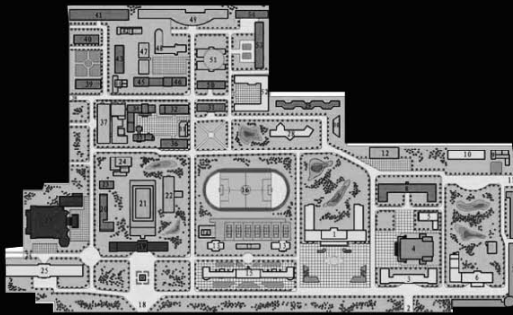
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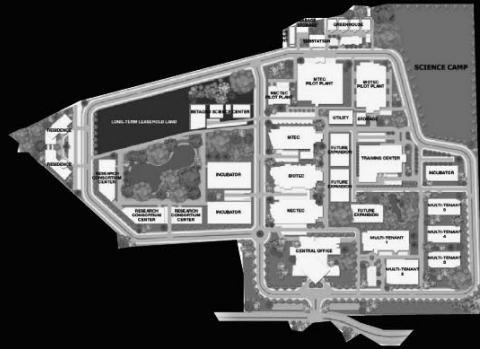
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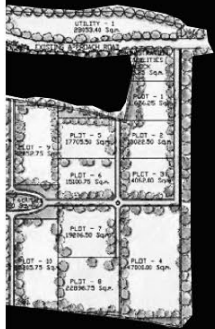
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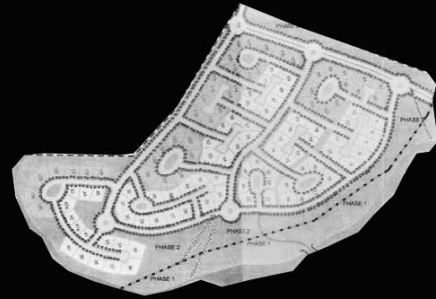
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Abstract

Nella pratica progettuale e speculativa sui luoghi per l'innovazione potremmo individuare e descrivere tre 'credi' che, definiti come sistemi spaziali-economici, vengono in maniera diversa ritenuti dai pianificatori fonti di ispirazione semplificata e quindi direttamente replicabili. Il primo è il 'sistema emergente' di piccole-medio imprese in una condizione di sprawl estendibile, il secondo è costituito da isole monoculturali pianificate disposte lungo un'infrastruttura longitudinale, il terzo è il quartiere urbano e la sua estensione nella forma di città. La loro supposta replicabilità è stabilita in base alle performance positive, in termini di successo economico, del luogo reale che gli viene associato. Una volta accertato il successo economico del modello, questo viene replicato portandosi dietro una 'fotocopia' delle qualità spaziali che lo contraddistinguevano all'origine. Partire da una descrizione spaziale dei tre credi è rilevante per capirne l'impatto sulla totalità delle condizioni urbane in cui vengono trasposti, e quindi scoraggiarne la trasposizione basilare. Un metodo alternativo alla ripetizione del modello consiste nel tentativo di estrarre dalla specificità — di tempo e luogo — dei casi esemplari a cui si guarda degli 'strumenti operativi'. Una volta individuati, questi strumenti - il quartiere, il campus e il landscape - possono essere utilizzati per una diagnosi propositiva di altre condizioni e, quindi, per un nuovo progetto.

In the research phase leading up to this dissertation we came into contact with different sources of information: from the specialised literature on innovation to the perspective of academics; from the freshness and naivety of (architecture) students' speculation to the pragmatism of public and private decision-makers, investors, and consultancy agencies engaged in the process of intensification/implantation from scratch/ fostering of 'innovation environments'. The moment of consolidation of the observations and reflections coming out of this preliminary body of knowledge – the written dissertation - invariably asks for some kind of classification although we are aware of the related risk of oversimplification each classification brings with itself. At the same time, and here stands an interesting aspect of the research, the oversimplification is already embedded in most of the sources of knowledge listed above. In particular, this is true for the point of view (a pragmatic point of view) of the actors directly involved in planning-managing-constructing the real places for innovation.

In a working paper presented at a conference on innovation in Asian countries we wrote: "We all recognize the tendency, in Asian countries as well as in the western world, to replicate successful 'models' of high-tech environments, almost as though researchers and entrepreneurs are highly adapted niche dwellers with little capacity for flexible response. This might be a particular outcome of the fast producing/designing processes: in fast growing economies a thoughtful process seems to be denied, and theoretical reasoning is overwhelmed by an anxious 'quick doing' attitude, but it probably runs deeper than that. Clearly, there is a design difficulty that appears whenever we think of extending the fabric of the city toward its periphery – we have to ask ourselves what would guide the design process. In our view, instead of simply replicating models from elsewhere or relying upon local tradition, we would like to encourage a comparative, propositional, and analytical approach to design that has a high degree of relationship to urban and economic strategy."[1]

The insistence on the 'model' led us to further investigate on what is that

I. (previous spread) Beyond the science park. Collage of randomly collected images from the web. Search engine: Google.

1.Sabrina Puddu, 'Peripheral Intencities. Shanghai's KIC and Hanoi's HaBiotech Park', working paper presented at Asian Creativity in Culture and Technology. Conference and PhD course., Panel 6: Urbanization, Regionalization, Mega-Cities and Innovation., Trondheim, Norway, 12-16 November 2008.

characterised this model. We asked ourselves whether there is a single model to be pursued or if we can identify different ones that are widely sought after by developers (and companies). Our conclusion is that we can identify a classification made of three categories. We can see them as three 'systems of belief' for they manage to condense three different basic conceptions of the places where innovation is expected to blossom, each of whom probably linked to a simplified 'image' of a particular geographical location. These beliefs have acted as sources of exemplarity and inspiration that, by means of oversimplification, led to their election as shared models for research and, above all, for real design practice.

We want to make it clear from the outset that the truth is not in the middle but in a combination of the three. In fact, in reality, these three beliefs often coexisted either by mixing their principles resulting in a hybrid structure or by nurturing each other in a multi-scalar way. Considering them as exemplary is due to their recognised successful performance as innovation environments in terms of the economic development they have proved able to drive in their respective geo-political conditions. Their recognition as models that are also imbued with a particular set of spatial qualities invariably comes second in the mind of planners.

Our classification aims to identify, for each of the three 'beliefs', the relative spatial conditions associated with them. In other words, we want to understand the relation that certain kinds of spatial configurations associated to the activities of the New Economy have with the totality of the urban condition into which they are inserted, often as 'special guests' (either we refer to a city-like compact condition or to a suburban-sprawl-like condition), or which they contributed to frame.

Series, Trees and Grid are the three categories that Michel Foucault[2] identified to define the formal relations characterising contemporary space. The classification proposed by Foucault, part of a theoretical speculation on the deeply space-centred nature of our (his) age,

2."The present epoch will perhaps be above all the epoch of space. We are in the epoch of simultaneity: we are in the epoch of juxtaposition, the epoch of the near and far, of the side-by-side, of the dispersed. [...] Today the site has been substituted for extension which itself had replaced emplacement. The site is defined by relations of proximity between points or elements; formally, we can describe these relations as series, trees, or grids". Michel Foucault, 'Of Other Spaces. Heterotopias' in Diacritics, 1986 (published in www.foucault.info).

usefully fits within and, we think, strengthens our classification of the 'three systems of belief'. In the following text, for each of the three 'beliefs', we will therefore make reference to the categories listed by the French philosopher in 1967, by giving them our personal interpretation (Foucault, in fact, limited his task to list them without giving any definition of the three).

The first belief is based on an idea of an emerging system. That is, something which despite not being heavily and wholly planned, materializes with success. The materialization is a visible and invisible network of small-medium peers: small-medium firms and decentralized large corporations act through a progressive blurring of company's boundaries.

The privileged spatial condition for this model is the valley, that is, a space identifiable as inclusive but extended enough to be extensively occupied. The spatial development is of a sprawl kind, it extends as far as it can by gradually filling up the space in-between the already existing bits. The network of loads of small peers is supported and fed by consistent infrastructural mobility systems which are multiple and multidirectional. There is no hierarchy among the 'emerging actors' of the network: rather, they coexist within the continuity of network.

Such a spatial configuration of the business ecology relies on a dispersed living environment, made of agglomerations that already show some degree of urbanity (in terms of mix of uses). A major centre cannot really be identified.

The associated Foucaultian formal category is that of the 'Series' that we understand as an endless association between elements without a direct pyramidal hierarchy but characterized by the necessity of the co-presence of each bit in order for the whole series to make sense. The image commonly associated to this first belief is that of Silicon Valley.

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III. The second belief: the branching system of mono-cultural planned islands of innovation. The associated image: Boston Route 128. Aerial view of Boston Metropolitan area, ©2010Google

3.Ibid.
4.AnnaLee Saxenian, 'Inside-Out: Regional Networks and Industrial Adaptation in Silicon Valley and Route 128' in Cityscape: A Journal of Policy Development and Research, vol. 2, n.2, May 1996, U.S.
5."I have come to call these new urban centers Edge Cities. Cities, because they contain all the functions a city ever has, albeit in a spread-out form that few have come to recognized for what it is. Edge because they are a vigorous world of pioneers and immigrants, rising far from the old downtowns, where little save villages or farmland lay only thirty years before. Edge cities represent the third wave of our lives pushing into new frontiers in this half century. First, we moved our homes out past the traditional idea of what constituted a city. This was the suburbanization of America, especially after World War II. Then we wearied of returning downtown for the necessities of life, so we moved our marketplaces out to where we lived. This was the malling in America, especially in the 1960s and 1970s.Today, we have moved our means of creating wealth, the essence of urbanism, -our jobs- out to where most of us have lived and shopped for two generations. That has led to the rise of the Edge City." Joel Garreau, Edge City: Life on the New Frontier. Random House Inc, New York, 1992.
6.See Joel Garreau, op.cit and Anna-Lee Saxenian, op.cit.

The second belief is based on an idea of discrete, planned mono-cultural 'islands of innovation' that are juxtaposed in the form of an archipelago along a monodirectional infrastructural line.

These islands, mainly campuses, industrial zones and science parks, congregate various self-confined communities of innovation into a geography of 'heterotopias'[3].

Their location, size, orientation and internal zoning distribution is planned and determined by governmental decision-making or by the interests of large companies. The privileged spatial condition for this model is the corridor – a branching system - that is, a linear development that, despite its variable width, is mainly characterized by its longitudinal dimension, along which a number of independent 'clusters' are attached. Thus, the associated Foucaultian formal category may be that of 'Trees': a system of ramifications from a major line. In this case, the housing environment follows the same rules of the autarchic business clusters: housing compounds are related to the other mono-functional compounds through a major infrastructural line in a suburban structure that is supposed to work without any need for a 'downtown'.

The image we can associate to this second belief can be found in the 'independent, firm-based system'[4] of the autarchic developments and 'edge cities[5]' located along Route 128 in the metropolitan region of Boston[6].

Finally, the third belief embraces urbanity in the traditional sense of the term while injecting in this 'traditional' understanding novel patterns of relation and collectiveness. Being innovation essentially urban and fuzzy in nature, neither the juxtaposition of islands nor a sprawl condition can, in principle, be compared to a city-like environment made of mass continuity and regulated discontinuity of urban patterns.

The privileged spatial condition for this model is the 'multi-cultural

quarter', an intense milieu based on intensity coming from mix, vicinity and density as well as from formal patterns of porosity and permeability. This urbanised environment can allow for both coexistence and hierarchy among economic actors that find themselves to share a collective infrastructure – that also includes the movement infrastructure but is not simply to be identified with it. In fact, with the term 'infrastructure' we refer here not only to traffic ways, but also to all of those 'structures' that support urban life, from civic facilities to outdoor public spaces, from shopping and leisure services to housing itself. All these are kept together by the structure of the city in a multi-scalar associative way: the 'Grid' can thus be the Foucaultian formal category associated to this condition.

The image for this example probably has not yet crystallized in the minds of clients and developers. We can refer, although avoiding delineating this case study as an image, to the densely built environment of some parts of London that today houses firms and institutions constituting an innovative network. In particular, we are referring to the media-university-biomedical district that is housed in the central areas of Soho, Fitzrovia and Bloomsbury.

The three beliefs discussed above are assumed as planning possibilities for who, today, is called to propose a project for emerging innovative networks. The first two have already reached a wide recognition as models, but while the first one is a 'hope' – something that cannot really be planned but for which, maybe, a framework can be defined for its emergence - the second has proved easier to put into practice. The third - the urbanised innovation environment – is still under discussion and probably not yet sufficiently grasped nor, maybe, accepted by real estates and stakeholders. The risk inherent in a possible 'model replication' of the third, something that we want here to warmly discourage, is the pantomime of a 'traditional' urbanity – that associated to a 'vibrant' consolidated urban core.

A way to move forward from a mere logic of model replication can pass

through a reconsideration of the concept of 'analogy'. This way of reasoning can come to help when approaching the real world of practice as a way to start to have a discussion with clients, either public or private.

With relation to the question of what do we mean by repetition, it is useful to refer to Rossi's aim at defining architecture and a city that he calls 'analogical'.

"I have explained that 'logical' thought is what is expressed in words directed to the outside world in the form of discourse. 'Analogical' thought is sensed yet unreal, imagined yet silent; it is not a discourse but rather a meditation on themes of the past, an interior monologue."[7]

'Analogous' is more appropriate than 'similar' for the former implies differences among things that are alike. According to Rossi, an analogical reasoning in research and design seeks for a mechanism based on repetition: in every architectural work we always need to proceed for "several variations of the same form"[8] for no fixed object can totally and immediately solve the complexity of the conditions. This procedure towards repetition – based on our awareness of the primary 'forms' and structures that are repeated, assembled and tested in composition - realizes a series of works each analogous to the other. However, the spirit of analogy can be not necessarily related to time, history and memory as Rossi points out, for a process of non-linear succession is recognizable in an analogical thought.

This kind of non-linear, lateral, and comparative design reasoning is not exclusive to Rossi, and is a broadly held approach within a critically inclined urbanism. What we want to discuss here, however, is an alternative to analogical reasoning that, starting from the specificity of that which is or can be elected as a model (either it being Silicon Valley or Fitzrovia/Bloomsbury), leads to extracting from it some of the operative instruments that have been employed there rather than resulting in a composition of pieces derived from different existing experiences (the

7. Carl Jung as quoted by Aldo Rossi, 'An analogical Architecture' (first published in 1976), in Kate Nesbitt (ed.), Theorizing a new agenda for architecture. An anthology of architectural theory. 1965-1995, Princeton Architectural Press, New York, 1996, p.349.

8. Ibid.

analogy). These instruments, although deriving from the specificities of a particular time and space, are general and abstract enough to be eligible for repetition, thus enabling the diagnosis of different conditions.

An interesting example of operative instrument is the grid. The grid is primarily an abstract perfect tool that ensures equality among the parts and multidirectionality in its composition. However, none grid is exactly identical to another. Grids are distorted, squeezed, compressed or their parcels have different proportions and dimension. They are filled with uses and functions of the more diverse nature and they are able to generate diverse kinds of patterns and environments.

In the following we will attempt to introduce three of the operative instruments that we think are relevant for a discussion of the case studies that will form the last section of the dissertation. Namely, the instruments we are referring to are (in the order in which we will describe them): quarter, campus and landscape.

Chapter 4
Quarter (and the rediscovery of the office neighbourhood)

Abstract

Il quartiere emerge nella teoria architettonica e nella pratica pianificatoria del XX secolo come una dimensione di progetto possibile. In particolare, il dibattito architettonico e urbanistico nella ricostruzione del dopoguerra italiano si incentra sulla 'costruzione' di un pensiero di quartiere, assistendo in parallelo al fallimento della sua realizzazione. Dalla pratica di zonizzazione alla città nucleare fino alla città per parti di Aldo Rossi, il quartiere assume connotazioni che vanno al di là di una dimensione e scala di intervento. La città è un sistema di relazioni e specializzazioni, e il quartiere è un momento formale di tale sistema in grado di avere ripercussioni sulla sua interezza. Il quartiere nel XXI secolo diventa rilevante e strumentale per materializzare la richiesta di collettività e privilegio nell'Economia Basata sulla Conoscenza. Il luogo paradigmatico per l'innovazione non è un capannone industriale, né un'agglomerazione di capannoni. Non è nemmeno un edificio per uffici o un laboratorio biomedico. Infatti, lo scambio di conoscenza esce al di fuori del singolo edificio alla ricerca di pattern di privilegio e continuità propri di una dimensione collettiva urbana. Il quartiere, come dimensione e scala di intervento e come strumento operativo è in grado di far fronte a queste richieste. Costituire il quartiere come strumento operativo per la nuova economia sulla base delle qualità di privilegio e continuità significa considerare e riconsiderare le questioni qui definite come 'internal complexity' e 'edge condition'.
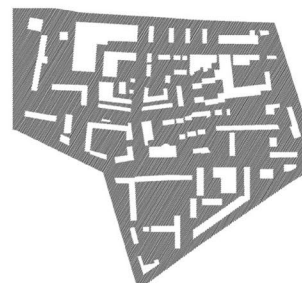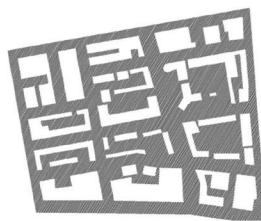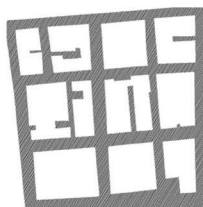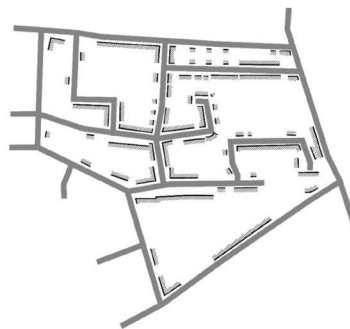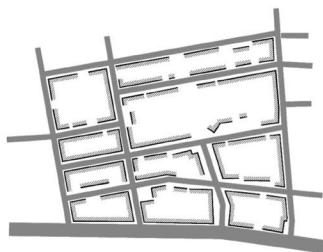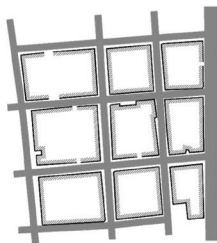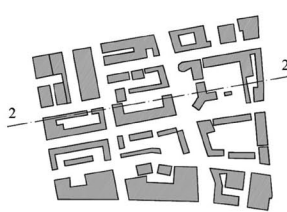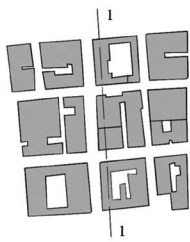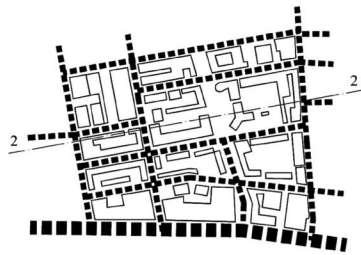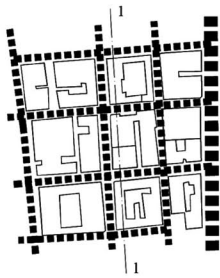
Fitzrovia   Whitechapel 1   Whitechapel 2

We have decided to trace the relevance of the 'quarter' for architecture and planning by looking at the architectural and urban theory developed in Italy in a period that goes from World War II to the 1970s. In particular, we will report this debate from the particular point of view of one of its central characters, Ludovico Quaroni. Most of the debate around the concept of the quarter of those years was published only in Italian language. Since this paragraph relies heavily on quotations extracted from that debate, in order to maintain an adequate fluency in our discussion we have decided to translate or paraphrase into English some selected excerpts, leaving the original text for consultation in the footnotes.

The Italian nature of such a thorough exploration of the 'quarter' probably derived from the awareness that any strategic planning that invests the whole city was – and is, for a set of 'national' political, administrative and cultural conditions - unlikely to happen in our country. The quarter is thus recognized as the only possible 'place' for real and theoretical intervention, and it is at the scale of the quarter that, we think, a contribution to the international discourse on an architectural urbanism comes in the late XX century, from the 'Scuola Romana' to Aldo Rossi. In 1966 Aldo Rossi argued that the quarter offers a more concrete platform of both knowledge and planning[1] : the assemblage of pieces which are different from each other in their being peculiar urban landscapes constitutes the city that, by definition, is not a homogeneous organism (we will come back to this later). The city is made of places of 'specializations' and 'relations': the quarter is the instrument to pursue this dichotomy, the city is the place that resolves it.

Writing about the 'planning by quarters' ('pianificazione per quartieri') attitude emerging in the Italian post-war years, in 1964 Manfredo Tafuri[2] observed the faith in the quarter as the operative instrument able to solve some of the demands coming from the massive need for city-restructuring of the post-war years. In particular, he referred to the quarter as that instrument that can deliver a certain degree of freedom

I. Operative Instruments: Quarter.
The city is based on the dialectic between 'specialization' and 'relations'. Comparative abacus of London's quarters, by Ling Ha.

1."Un pezzo di città offre maggiori criteri di concretezza dal punto di vista della conoscenza e dal punto di vista della programmazione (intervento)" Aldo Rossi, L'architettura della città, Città Studi Edizioni, Torino 1995 (first published in 1966; English edition 'The Architecture of the City', MIT Press, Cambridge MA, 1982), p.73.

2.Manfredo Tafuri, 'Teoria e Critica nella cultura urbanistica italiana del dopoguerra.', in La città Territorio, Leonardo Da Vinci Editrice, 1964.

(of 'openness') to the planning procedure: the quarter is an ultimately 'closed' system because it is controlled by a defined project, but at the same time can allow for a more open conception of 'city'- (that comes from the assemblage of quarters: the 'nuclear city'. According to Tafuri, the urbanists' efforts for achieving a practice of 'planning by quarters' had been driven by the belief that the quarter was the key instrument and the key scale for resolving the integration between city and territory, between social housing and private housing, between working and living environments: the quarter was supposed to be the right operative dimension to constitute the 'skeleton' able to then effect the whole new structure of the city.[3]

From a historical point of view, we can argue that the general interest in 'quarters' started in the moment in which the strongest public institution – the National State – was called to build housing quarters from scratch – in a modern logic of 'welfare'. The quarter as an active projectual instrument thus came to the surface of academic discussion and simultaneously became a cliché for politicians' rhetoric and normative texts and laws. For many different reasons, however, most of the post-war projects failed in their mission.

Ludovico Quaroni was among those architects that, despite – or because - witnessing the failure of the experience of the application of the 'quarter' by the INA casa social-housing programme, animated the 'architectural' scene in the 1960s seeking for a deep academic and theoretical study of the quarter and for its political re-affirmation. In his 1957 essay 'La Politica del Quartiere'[4] Quaroni argued that before coordinating a quarter we need to grasp what a quarter is and what it can be beyond the schematic and idealistic conception that architects have made up of it[5].

Just one year earlier, in his 1956 article titled 'Città e quartiere nella attuale fase critica di cultura'[6] included in the monographic issue on the 'quarter' of the quadern 'La Casa', Quaroni opened his reflections with the paragraph 'Che cos'è un quartiere?' ('What is a quarter?'). He started

3."Nel <<quartiere>>, dunque, si potevano concentrare gli sforzi degli urbanisti italiani: esso sembrava poter divenire una chiave di volta risolutrice dei complessi problemi della ricostruzione e dello sviluppo delle città italiane. Tramite una politica del quartiere si poteva raggiungere la voluta integrazione fra città e territori, si risolveva unitariamente il problema delle connessioni fra edilizia privata e sovvenzionata, si trovava una giusta dimensione operativa e un inizio di ossatura per il nuovo volto della città, si compensava la difficoltà di una pianificazione continua nel tempo. E si poteva tendere a quell'integrazione di residenza e lavoro, di zona produttiva e di abitazione che erano logica conseguenza di una visione della città frantumata e annegate nella regione, dove quel rapporto <<città-regione>> veniva a configurarsi come tendenziale annullamento del primo termine nel secondo." Manfredo Tafuri, 'Teoria e Critica nella cultura urbanistica italiana del dopoguerra.', in La città Territorio, Leonardo Da Vinci Editrice, 1964.

4.Ludovico Quaroni, 'La politica del quartiere', in Urbanistica n.22, 1957.

5."[…] prima di coordinare un quartiere occorre sapere cosa è o cosa può essere un quartiere: sapere quale è la validità dell'idea del quartiere, al di fuori, proprio, di quel concetto schematico e freddamente idealistico che se ne sono fatti, a buon mercato, gli architetti" Ludovico Quaroni, 'La politica del quartiere', in Urbanistica n.22, 1957.

6.Ibid.

7."La natura urbanistica del quartiere significa, nel tempo stesso, la sua natura topografica, la sua natura amministrativa, sociologica, tecnologica, edilizia, architettonica, panoramica, e forse ancora molte altre cose: una unità autonoma, autosufficiente, e nel tempo stesso inconcepibile, e non vitale, se separata dal resto; un organismo primario, nella città, per le funzioni residenziali complete, tale cioè da comprendere tutte le funzioni produttive, direzionali, ricreative e formative a scala locale, accanto ad eventuali funzioni direzionali, produttive, ecc., a scala urbana." […] "Il quartiere è un organismo sociale in simbiosi con altri organismi analoghi a formare la realtà biologica della città." […] "lo studio approfondito di questo microcosmo urbano potrebbe egregiamente servire, domani che fosse stato condotto sufficientemente avanti, come base di riferimento e di partenze per quello del macrocosmo rappresentato da una metropoli Ludovico Quaroni, 'Città e quartiere nella attuale fase critica di cultura', in La Casa n.3, Edizioni De Luca, Roma, 1956, p.10-11.

8."la quale consiste appunto nel prevedere l'espansione della città realizzata attraverso una serie di 'unità residenziali' l'una indipendente dall'altra in quanto a forma, e viceversa con le altre collegata da un criterio gerarchico, in base al quale due tre quattro unità primarie vicine formano una unità secondaria, due o più unità secondarie, a loro volta, ne formano una di terzo grado, e così via." Ludovico Quaroni [1956], op.cit.,p.16.

off by admitting a certain difficulty in answering this question, that is, in describing the commonly shared concept of quarter, something that, although belonging to everyone is hard to be defined. In other words, he noticed a certain nature of the 'quarter' as a platonic idea that we know a priori but that we are not able to theorize. Hence the need to build an explicit and debatable culture of the quarter both in practice and academy.

Quaroni's explorative attempt, far from achieving any final codification, emerges clear in the plethora of 'descriptive' notions he uses to address the quarter: "the quarter is a piece of the city"; "the quarter is a self-sufficient entity but unconceivable if disconnected from the rest"; "the quarter is multiscalar"; "the quarter is a social organism"; "the quarter is a microcosm"; "the quarter is like a biological organism with a proper life irrelevant if external to the whole".[7]

He then proposed an investigation of the quarter by 'negation', listing a series of prejudiced positions: the conventional prejudice of social homogeneity and, on the contrary, of total social mix and integration; the prejudice of the 'factory quarter' ('quartiere fabbrica') and the opposite one of 'dormitory quarter' ('quartiere dormitorio'); the prejudice of the 'shopping center' and the opposite one of the 'piazza'; the prejudice of the 'neighbourhood unit' ('vicinato'); the prejudice of excess of pedestrian paths.

While surpassing the widespread practice of zoning Quaroni's theory of the quarter was limited by a faith in a 'nuclear city' ('città nucleare'), a conception based on the urban expansion by means of a series of 'residential units', each formally independent from one another but hierarchically interrelated based on the combination of units resulting in units of a 'higher degree'[8] . Probably, this conception limited his understanding of the quarter as a constitutive element of the city, something that was to be developed by Aldo Rossi.

9.Manfredo Tafuri, op.cit.

II. Privilege and continuity: the relevance of the quarter for the Knowledge Economy. London School of Economics and Political Science, London, ©GooglePicasa.

10."Il settore diventa quindi un momento, un settore, della forma della città, intimamente legato alla sua evoluzione e alla sua natura, costruito per parti a sua immagine". "Questa concezione [referring to Burgess' theory] è limitata al suo concepire la città come una serie di momenti semplicemente contrapposti che si risolvono in base a una semplice normativa basata sulla differenziazione; una concezione di questo tipo risulta troppo limitativa dei valori più profondi, della struttura dei fatti urbani; a questa concezione si oppone invece la possibilità di stabilire dei fatti urbani in tutta la loro interezza, capaci cioè di risolvere una parte di città in modo completo, determinando tutti i rapporti che si possono stabilire all'interno di un certo fatto." Aldo Rossi, L'architettura della città, Città Studi Edizioni, Torino 1995 (first published in 1966; English edition 'The Architecture of the City', MIT Press, Cambridge MA, 1982).

Rossi published 'The Architecture of the City' in 1966. The success of this seminal text for urbanism, in particular for the Italian urban-architectural debate, lies in its ability to build a theory where city, quarter and type are put together to reply to the inability of planning. Here, taking again the quarter as starting point, he managed – at least in theory – to re-establish the relation between quarter and city - that, as Tafuri had pointed out, had been negated in favour of the 'territory'[9]. Rossi's theory of quarters gives back to the city a dignity negated by the fragmenting practice of zoning exactly by reconsidering the value of the quarter. The city is constituted of quarters that differ among each other, but these are not simple juxtaposed parts that are 'functional' – because of their programmatic specialization - to the whole (the city). Quarters are not even the cellular sub-element of the geometrically simplified assemblage of the nuclear city. Rather, they are moments of the form of the city as well as complex formal entities capable of containing within themselves a spatiality that can be considered equally complex to that of the city itself[10]. What characterizes a quarter and differentiates it from the others is not just a particular function, a particular group of inhabitants, a particular topography but – we can say – a peculiar urban landscape (we will elaborate on the concept of 'landscape' later in this section).

We have already pointed out the urban character that is associated to the processes implied in the knowledge-based economy. We have also underlined the inevitable 'privileged' side associated to it. Once we recognise these as peculiarities of the new economy, the relevance of the quarter emerges as the most immediate 'dimension' of intervention as well as the most direct instrument of action and decision. The contemporary 'knowledge factory' is neither a shed, nor a cluster of industrial sheds. In the still short history of the knowledge economy, the common and diffused physical organization through which it has materialised has been that of the 'campus' (that will be the focus of our next chapter). However, if we were to correctly translate the teachings on innovation and the knowledge-based economy as variously and widely presented in the specialised economic literature on those subjects, it

11.DEGW is a business consultancy with offices across Europe, Asia Pacific, and North America. The company's aim consists in delivering "transformative solutions that use space more productively, enhance organisational performance, and inspire individuals to connect with one another". DEGW's services for Corporations, Public Institutions, Real Estates span three realms: Learning Environments, Workplace, and Cities. An approach based on the integration between research, strategy, and design, makes DEGW an affordable and always updated source of information. See www.degw.com.

12.Lora Nicolaou, 'Emerging building forms and accommodation solutions: new building typologies or distinctive place-making.' in John Worthington DEGW (Ed.) Reinventing the workplace., Architectural Press, London, 2006 (first published in 1997), p.205.

would make more sense to imagine the spaces where innovation is likely to happen as 'quarters'.

Moreover, the importance of a shift from building to quarter seems to be already acknowledged by some proposals developed by consultancy agencies that devote their efforts on defining a new spatiality for the contemporary workplace. In the introductory notes to one of the articles included in the book 'Reinventing the Workplace', published by DEGW[11] in 1997 we read: "In the first edition of Reinventing the Workplace, the chapter on emerging buildings forms focused on the design of simple, correctly configured floorplates, with considerable capacity for servicing. Less than ten years later we have seen a fundamental shift from building specification to the exploration of wider 'accommodation' offerings. [...] As organizations become more distributed and networked across locations, accommodation solutions will be as much about urban context and local character as the functionality of building specification. In the future, the office may draw its value as much from the city as the building in which it is housed."[12]

What is defined as 'urban context' in the above cited words has to be read, in our opinion, as the 'problem of the quarter'. In this paragraph we have tried to reason on the quarter through the particular insights coming from the debate that animated the Italian discourse on urbanism in the post-war years. Moving forward from the peculiarities (of time and place) of that debate, once we have recognised the re-emerging relevance of the 'quarter' for an 'urban discourse' on the knowledge-based economy, we want now to propose, as a conclusion, some points forecasting the possibility for the constitution of a 'quarter for innovation'.

Firstly, the quarter emerges for its ability of representing and containing the collective: it has embedded in its 'tradition' a set of features – vicinity, street-based system, hierarchy of collective spaces, co-existence of the 'large' with the 'small' - that act as spatial instruments which keep

1. Mould-makers.
2. Note office.
3. Accountants' drawing office.
4. Note store-room.
5. Nightly watch.
9, 10. Secretary's office and room.
11. Chief accountant's parlour.
12. Secretary's house.
15. Power of attorney office.
17. Interior office.
20. Silver office.
21. Private room, Branch banks office.
25. Deputy accountant's office.
26. Chief accountant's.
27. Chief cashiers'.
28. Governor's rooms.
29. Deputy governor's.
32, 36. Committee rooms.
34. Secretary's.
35. Officers' rooms.
43. Three per cent. reduced.
44. Rotunda.
46. Bullion office.
48. Pay hall.
49. Drawing office.
50. Cash-book office.
51. Posting ledgers.
52. Store-keeper's.
58. Servants' room.
64. Coffee room.
65. Discount office.
13, 38, 53, 56, &c. Open courts for light.
18, 23, 24, 33, 42, 60, 61. Passages, lobbies, &c.
30, 31, 62, 63. Waiting rooms.

GROUND PLAN

OF THE

BANK

OF

ENGLAND.

Copied from a Drawing in Sir John Soane's Museum.

BY

JOHN WEALE,

1851.
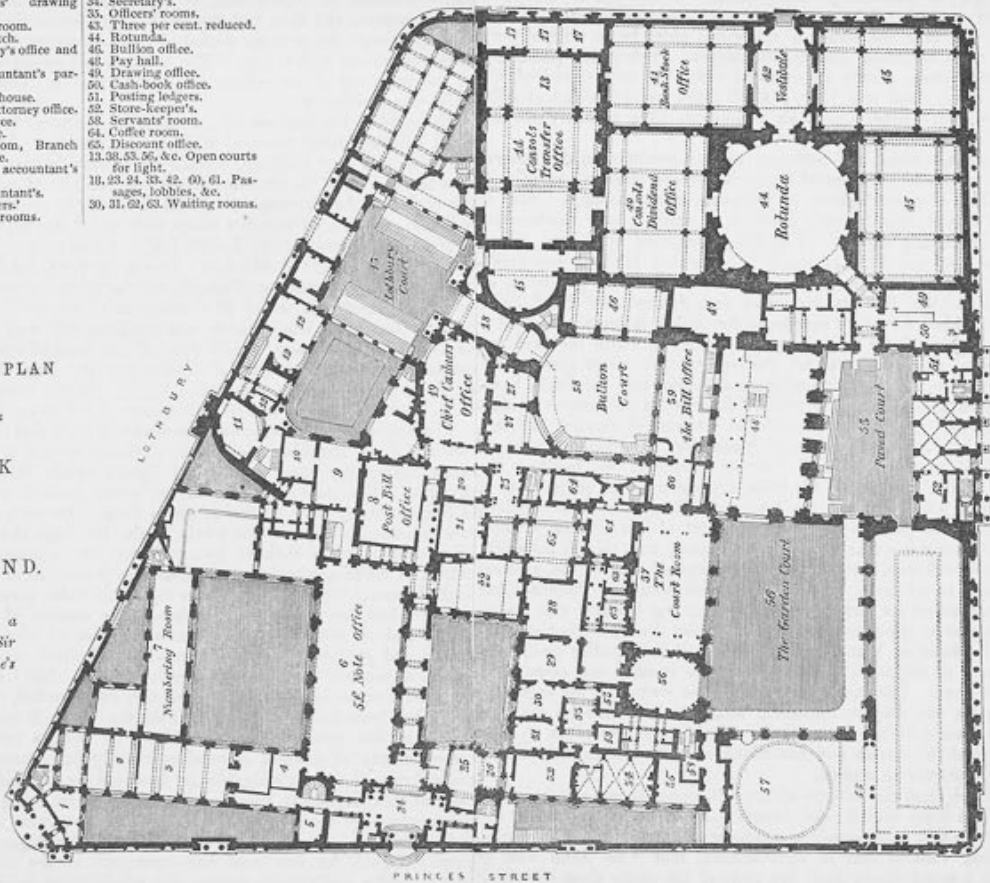
PRINCES STREET

THREADNEEDLE STREET

LOTHBURY

13."il fatto più importante, nella resi-
denza di un uomo, è la possibilità di
scelta continua fra la vita collettiva e
la libertà del controllo sociale, la pos-
sibilità di scelta fra la solitudine e la
compagnia, tra il chiuso e l'aperto,
fra il chiasso e il silenzio." Ludovico
Quaroni[1957], op.cit.

14.The issue of the 'professionaliza-
tion of the social practice' will con-
stitute the focus of the concluding
note of the present dissertation.

*IV. Internal complexity: the quarter
is a formal entity able to reproduce the
complexity of the city. Ground plan of the
Bank of England by John Weale from an
original at the Soane Museum 1851.*

different actors together while ensuring them those places to meet
socially but within a sense of community.

Quaroni noticed how the most important aspect of human living stands
in the possibility of choosing between moments of collective life and
moments of solitude, between 'noise' and 'silence'[13]. This, we think, is
an even more relevant reflection if we consider that 'professionalization
of social practices' which characterises contemporary patterns of work[14].
The city is the place for maximum interaction; the quarter still provides
privilege. In other words, the quarter has the adequate dimension for
ensuring that need for 'operative closure' or 'privilege' that is vital for the
correct functioning of the mechanisms governing innovation. Moreover,
there is an advantage proper of the quarter in comparison to other
'privilege-oriented' places - like the campus: it is unique in its capacity of
matching privilege with continuity. The quarter is indeed inserted within
a larger urban pattern and is in relation with its neighbouring quarters in
a multi-oriented way through its being, for example, part of a 'grid'. In
practical terms, this 'continuity' guarantees, as an immediate consequence,
the avoidance of exerting too much pressure on a limited number of
traffic arteries (an often cited 'negative repercussion' of campus-based
territorial systems).

In relation to the fortunate pair of privilege/continuity as resolved in the
quarter we can decompose the question of how to define a quarter into
two sub-questions: the first relates to its 'internal complexity'; the second
is concerned with its 'edge condition'.

We have already mentioned the formation of the quarter as 'urban
landscape' as something implicitly contained in the conception proposed
by Rossi for the quarter as a formal entity capable of reproducing the
complexity of the city. The formal complexity of the urban landscape is
the result of an intricate set of relations between figure and ground and
of a hierarchy of spaces that is realized not only planimetrically (mainly
through the definition of the ground) but also through the complication

15. We are referring to the already discussed (see Section 1) Colin Rowe and Robert Slutzky, Transparency (with a commentary by Bernhard Hoesli and introduction by Werner Oechslin), Birkhauser, Basel, 1997.

of the vertical dimension. The quarter's size and internal complexity could allow a mix of uses – some of which related to the scale of the quarter, others to the scale of the whole city. However, the abundance of interior 'satisfaction' that a thorough mix of uses could guarantee, raises the inherent risk of resulting into a self-contained character of the quarter. In other words, the quarter could, in principle, subsist without a city since, apparently, it could summarise it (the city) within its boundary. Hence, the relevance of considering the edge condition of the quarter as that operative aspect upon which to intervene to avoid that detachment from the city.

First of all, the edge condition is achieved through differentiation: the urban landscape that characterizes a quarter makes it different from the adjacent quarter. However, it is not enough to sustain that quarters are closely juxtaposed to each other to describe the principle of city making for a 'city of quarters' as opposed, for example, to a 'city within a city'. The edge can be intended as that physical 'linear' place - the boundary of the quarter – that demarcates the passage from quarter to quarter. Borrowing a vocabulary already codified to discuss a particular aspect of architectural composition[15], we could here argue that the edge condition of a quarter realizes a phenomenological boundary, that is not limited to a 'linear fence' (i.e. a wall, a ring-road, a line of trees) but is a thickened built and un-built realm. Therefore, the permeability enabled by this 'thickened boundary', consisting of a sequence of spaces rather than of a demarcating line, gives the quarter a more articulated relation to its surroundings if compared to the easier and more immediate relation established by the 'door' signalling a campus' access.

In conclusion, we consider the quarter as something more than a 'good size' for intervention or an 'intermediary' scale mediating between – in sequence - region, city and building. The quarter is in fact an operative instrument with repercussions at different scales.

Chapter 5
Campus (as ground zero of field condition)

Abstract

Il secondo strumento operativo che consideriamo è il 'campus'. Se il quartiere dimostra di essere un campo di discussione, progettazione e definizione ancora non concluso, il campus mostra un grado di semplificazione tale da renderlo facilmente trasferibile e costruibile. Infatti, nel campus, la condizione di bordo è immediata da pensare e disegnare; la complessità interna è un'immagine semplificata e schematica delle complesse relazioni spaziali della città. Tuttavia, non si vuole qua costruire un confronto tra campus e quartiere affermando la superiorità del secondo sul primo. Piuttosto, una riflessione sul campus è necessaria per evolvere lo strumento quartiere alla luce di un interesse verso la progettabilità di una 'condizione di campo' (field condition) – di cui il campus si può definire il grado zero. Il campus è, infatti, una 'condizione di campo' immatura, senza regole complesse, il cui piano verde orizzontale è lo sfondo indifferente per l'emergere indistinto di entità pari. Un quartiere informato dallo strumento campus come field condition è quindi un'opportunità per realizzare l'obiettivo di un 'progetto aperto' per il quartiere. Nel 'progetto aperto' diventa rilevante individuare gli elementi suscettibili di progetto, quelli che garantiscono continuità in un panorama di instabilità. La pratica del field condition come sistema emergente potrebbe inoltre evolversi se accostata ad una pratica operativa dell'architettura costituita di forme da testare nel 'campo'.

I. Operative Instruments: Campus.
Being the most successful spatial model for
the Knowledge Economy, the campus can
be turned into an operative instrument for
evolving an understanding of the quarter.
Mies Van der Rohe's Illinois Institute of
Technology campus, from Mies Van der
Rohe Archive, The Museum of Modern
Art, New York.

1.It is widely agreed that a first ex-
ample of a campus system can be
found in the University of Virginia
built by Thomas Jefferson in 1817.
For a review on the 'Campus' see:
Kerstin Hoeger and Kees Chris-
tiaanse (eds.), Campus and the City.
Urban Design for the Knowledge
Society., gta Verlag, Zurich, 2008. In
particular, see the essay by Andrea
Deplanes, 'The Campus as Location
and Strategy: Thumbnail Sketches of
Science City."

The discussion of the quarter highlights the difficulty of describing and
abstracting it as a category. Aldo Rossi contributed to provide some
answers to questions like 'where does a quarter start and end?', 'what
distinguishes one quarter from another?' by transferring into the domain
of urbanism the methodology based on analysis and classification of
existing artefacts that he borrowed from the practice of geographers.
However, the question of how to transpose this 'classificatory' skill into a
projectual attitude is still left as a major issue for further reflection.

Nevertheless, there is one particular spatial arrangement that seems to
overcome the complexity of achieving that transposition from a set of
'classified' categories of spatial quality to an actual architectural/built
proposal. The 'campus', we argue here, is such a peculiar case.

The success of the campus in contemporary planning originates from its
nature of oversimplification from which depends, as peculiar features, its
being easily classifiable, codifiable and promptly replicable. These are all
characteristic that locate the campus in clear contrast to that complex and
'evasive' spatial category represented by the 'quarter'. As we will further
explain, the campus' edge condition is clearly defined and simple to draw,
in contrast to that 'thickened boundary' we sketched in our discussion of
the quarter. Similarly, the campus is not an 'image' of the city intended,
as in the case of the 'Rossian' quarter, as a spatial arrangement capable of
summarising the complexity of the whole city. Rather, it is an 'image' of
the city intended as its reduction to a simplified scheme.

What is, then, a campus?

The term is commonly associated to the domain of academic
environments. In fact, it is often argued that the campus originated as a
peculiar spatial condition for organizing universities in the United States
starting from the early XIX century[1]. The campus grew as a counterpart
to the English 'collegial' structures, paradigmatically exemplified by the
universities of Oxford and Cambridge. Here, the college served as that

compact structure intended for the organization of the collective life of an academic community usually built around the spatial instrument of courtyards. The courtyard built up towards a sense of community by both acting as a breakout space for formal and informal encounters and by configuring a centripetal space different from the outside environment. In this sense, a space of privilege.

By contrast, although aiming to achieve the same goals – collectiveness, community and privilege – the American campus introduced the horizontal dimension of extension. The fact that campuses were mainly located in the countryside asked for new ways of differentiation from the external conditions than those explored by the college. The fenced park, a fenced artificial green plan, was thus considered the spatial paradigm for differentiation between the interior of the campus and the exterior of the 'wild' countryside.

Thus, a first principle of campus design: the literal boundary as a means for the negation of the surrounding spatial structure, either it being the dense environment of a city or the nature of the countryside. The campus introduces a spatial disjunction which is neatly demarked and quickly resolved.

Compared to the collages, the campus introduces a fragmentation of the academic institutional arrangement: the compactness of the collage is atomized into monofunctional bits all kept together by their being laid over the same self-contained ground. Compared to the quarter, the campus realizes a mortification of the ground's complexity: the co-evolution of figuring and grounding proper of the former is resolved by its negation. The quarter's ground is the formal result of a process based on repetition and differentiation that shows its effects both in the single bit (the prevalent type) and in the overall configuration as result of a dialectic between built and unbuilt. By contrast, the tension between figure and ground is again quickly wiped off in the campus base environment: although the 'figures' are sometimes even extremely

III. Internal complexity: the pure juxtaposition of peers. ©Alex MacLean

different from one another, the ground is not affected by this managing to remain neutral. Thus, a second recurring principle: the crisis of the relation between 'type' and 'area' leads to a logic of pure juxtaposition of peers.

The third principle of a campus is its alleged ability of 'beating time': it is the story of a singular actor – the academic institution – that defines space and rules for gathering a relevant critical mass of mixed functions and selected people within a 'special' space. Thus, the campus is thought of not incurring in the risk of 'immaturity' that, instead, novel quarters have to face.

Before moving forward in our reflections around the 'campus' as a spatial category, it is here relevant to notice how the history of theoretical/design proposals for the city has produced one category that can be considered as an intermediary step between quarter and campus: the city within the city. To be sure, this is not to be understood as an intermediary step under a perspective of historical transition or in the sense of a hybrid result from the combination of quarter and campus.

The relevance of a digression, at this point of the dissertation, on such a widely influential project like the "Proposal by the Sommer Akademie for Berlin: cities within the city"[2] elaborated in 1977 by a team of students headed by Oswald M. Ungers, Rem Koolhaas, Peter Riemann, Hans Kollhoff and Artur Ovaska, stands in its capacity of delivering unexpected solutions that manage to surpass traditional ways of operating.

2.O.M.Ungers, Rem Koolhaas, Peter Riemann, Hans Kollhoff, Arthur Ovaska, 'Cities within the City. Proposals by the Sommer Akademie for Berlin.' in Lotus n.19, 1978.

3.Ibid.

The city within the city for Berlin is a project of 'mass' subtraction. It maintains a few selected quarters amidst a steeply shrinking city, based on 'clearly identifiable features likely to justify their preservation and accentuation'[3]. This act of selection guarantees the preservation of the 'internal complexity' proper to those quarters of the city, their being distinctive urban landscapes.
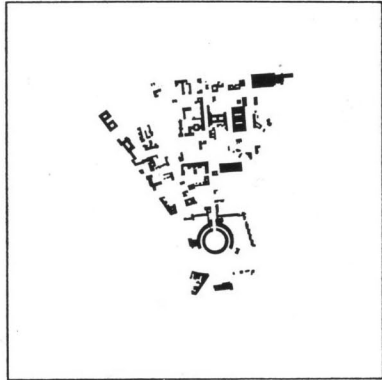
Stadtinsel südl. Friedrichstadt
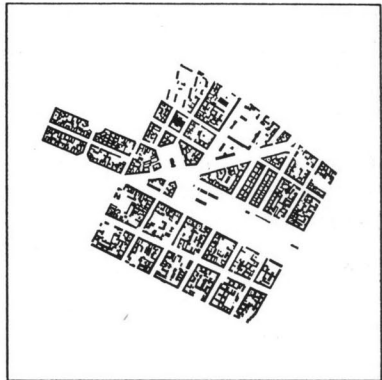
Stadtinsel Kreuzberg

Stadtinsel unter den Eichen

IV. *Interpreting novel conditions: 'Cities within the City. Proposals by the Sommer Akademie for Berlin.'*.

4."Fatto sta che, così come nacquero, i quartieri INA erano solo un ammasso di casa, più o meno ordinate plasticamente.[…] Il quartiere nuovo è solo apparentemente oggetto di cure speciali da parte dell'Ente, qualunque esso sia; di fatto finisce per trovarsi lontano, appartato, separato dalla massa urbana, abbandonato a se stesso, senza quella organizzazione di servizi e di spazi collettivi che, necessari ad un nucleo abitato, divengono addirittura indispensabili per un quartiere di nuova formazione, senza tradizioni, senza uno spirito, un'anima comune a tutti gli abitanti, che appunto vanno cercando nel centro sociale e nei negozi l'occasione di non sentirsi più soli. […] i tempi necessari per l'inserimento sono lunghissimi, addirittura eterni, qualora non intervenga opportunamente lo spazio creato per la vita collettiva e le organizzazioni coscienti della necessità di creare una vita sociale." Ludovico Quaroni, 'La politica del quartiere', in Urbanistica n.22, 1957.

5.O.M. Ungers, op.cit.

At the same time, the very act of selection deeply transforms that other structural aspect that we have described in the previous paragraph: the 'edge condition' of the selected quarters is radically altered for the modality of continuity/contiguity with the other quarters completely changes. Once the condition of a contiguous urban mass is broken, suddenly consolidated categories of thought, such as the 'quarter', do not make any more sense. The once-were quarters are now turned into urban islands, self-sufficient 'cities' drowned in a sea of green: the 'green archipelago'.

For Ungers and his team, the quarter is thus considered as an 'instrument' rather than just a 'place': an instrument that is tested with respect to a novel, peculiar condition of the city – the condition of rapid depopulation - and that gets thus transformed to its limit in order to respond to this new condition. Such an approach to the project for the city seems to be totally at odds with the 'Italian procedure' as represented by the experience of INA-Casa and whose failure was acknowledged by Quaroni, one of its protagonists.

The post-war Italian experience of a 'city of quarters' probably failed in that it aimed at transposing the 'image' of a traditional quarter over conditions that, most likely, were not calling for that: "As a matter of fact, the way in which the INA quarters were conceived reduced them to a simple set of houses, more or less plastically disposed. [...] The new quarter [...] eventually turns out to be far, secluded, disjointed from the urban substance, abandoned, short of all those facilities and collective spaces that are necessary for an urban agglomeration and still more essential for a brand new quarter without traditions, without a spirit and a soul shared by its inhabitants [...]" (our translation)[4].

The Green Archipelago for Berlin is a proposal for a 'better reality'[5], which is based on a peculiar idea of city that, despite starting from the acknowledgment of the main building blocks of the city, its quarters, 'plays' with them through alteration, negation, and consolidation,

resulting in a completely different spatial configuration. The only logical configuration, the only one that makes sense in relation to the new urban condition. In other words, we can see the initial point, that is, the recognition of the 'internal complexity' of some of the quarters constituting the city, as a common ground between the group led by Ungers and the Italian protagonists of the discourse on the quarter. However, the former manage to take a step forward in that they freed themselves from the act of observation and transposition to opt for an attitude of questioning what was 'taken-for-granted' both in terms of a design practice (planning quarters) and of a format of urban living (the city of quarters).

It is this attitude that we want to take on board from the digression on the Berlin experience. The way in which we want to reason on the campus is indeed not merely intended to affirm it as a reverse of the quarter. Rather, we think that the 'campus' can act as an operative instrument capable of evolving an understanding of 'quarter' as a primate spatial arrangement for 'urbanity' that is today more than ever relevant for a discussion on the 'urbanisation of the places for innovation'. This is because we believe that it is not enough to simply 'replicate' a consolidated vision, or 'image', of an urban quarter to cope with the demands coming from the new economy that, as we have seen, depend on a delicate interplay between openness and operative closure[6], privilege and sharing, the 'everyday' and the 'ivory tower'[7]. To reiterate, a quarter for innovation is yet to be defined and for this to be achieved we propose to balance the understanding of a 'traditional quarter' with the 'lessons' we can draw from the 'campus' as a convenient spatial solution for the knowledge economy.

This introduction was felt necessary as it could otherwise appear non-sense to devote a section of the dissertation on a speculation on campuses after we have recognised the necessity for a 'quarter quality' for the spaces of innovation. As mentioned, there could not be two more distant spatial configurations than campus and quarter. In particular,

6. Lars Qvortrup, 'The new knowledge regions: From simple to complex innovation theory.' in Philip N. Cooke and Andrea Piccaluga (eds.), Regional development in the knowledge economy, Routledge, New York, 2006.

7. Kees Christiaanse, 'Campus to City: Urban Design for Universities.' in Kerstin Hoeger and Kees Christiaanse (eds.), Campus and City. Urban design for the knowledge society, GTA Verlag, Zurich, 2007.

two are the reasons for including the 'campus' as an instrument for understanding and designing innovation environments.

The first reason is based on the immediate observation that campuses – in the form of science parks, technology parks, university and corporate campuses, special zones – are the most diffused designed spatial form for the New Economy. Their success derives, as we already noticed, from a simplified conception that sees them as a literal, immediate, and easy to achieve translation into space of an often also simplified conception of a cluster of firms, companies, institutions. The precondition is the availability of a vast enough extension of land - plus the other additional 'musts' of any innovation environment like that of being located in close connection to a major international airport and well linked through infrastructure to an urban centre. Once the land is 'conquered' - often by subtracting it from other uses, such as in the case of HABiotech that we will expose in the following chapters - it is enough to 'fence' it thus defining a 'privileged' interiorised condition appealing to its sought-after guests.

Either if we consider the case of East-Asian countries, where the reason for the triumph of campus-based environments can be associated to a need to counterpoise it to an unwelcoming congested urban condition; or if we consider the case of the American campus, where a tradition of campus-based environments has overtime elected the campus as an artificial platform for the contemplation of a wild landscape into which it is drowned; the common 'belief' at the basis of the continuous success of the 'campus' stands in its ability to provide a 'space other'.

The second reason for which we are apparently taking a step-back by taking on board the 'campus' after having spent our efforts in a review of the 'quarter', is grounded in the observation that the 'campus' as a spatial instrument can be regarded as the 'degree zero' of what has been theorised as 'Field Condition'[8].

8.Stan Allen, 'Field Conditions.' in A.K. Sykes (editor), Constructing a New Agenda. Architectural Theory 1993-2009, Princeton Architectural Press, New York 2010 (first published in Stan Allen, Points and Lines: Diagrams and Projects for the City, Princeton Architectural Press, New York 1999).

We like to intend the term 'campus', from its original Latin meaning of 'field', as an extension of 'cultivated' land. The primary feature of it thus stands in its horizontal extension, a sort of 'synthetic', artificial flat ground that, once 'cultivated' can nurture the blossoming of an environment different from its surroundings.

Stan Allen defines the 'field' as that spatial condition which is "based on interval, repetition and seriality" and tends to an "indeterminate whole"[9]. The 'field' repositions the attention of the architect from the clearly defined singularity of the object to the totality of an enabling platform. "A field condition could be any formal or spatial matrix capable of unifying diverse elements while respecting the identity of each. Field conditions are loosely bound aggregates characterized by porosity and local interconnectivity. Overall shape and extent are highly fluid and less important than the internal relationship of parts, which determine the behaviour of the field. Field conditions are bottom-up phenomena, defined not by overarching geometrical schemes but by intricate connections"[10].

As said, the campus is first of all a flat field from which a multitude of entities are likely to emerge. The limitation of the campus, that inhibits it from maturing as a real field condition, is that the space in-between the buildings – that according to the original reflections by Stan Allen on the 'Field' is the most relevant aspect of a theory of field conditions[11] – does not deliver, on the one hand, any rule for the configuration and relations among the elements and, on the other, any spatial quality beyond an aesthetic greenery behaviour. Thus, the campus is an immature field condition from which a networked business or research ecology can emerge indifferently. The extension of 'campus' into the notion of 'field' is significant in that it enables a possible redefinition of the 'quarter' leading to the provision of some initial answers to both Quaroni's pursuit for an 'open plan' and Rossi's search for operatively translating the insights coming from an analytical attitude.

9.Ibid.

10.Ibid.

11."Form matters, but not so much as the forms of things as the form between things". Stan Allen (1999), op.cit.

V. The campus is the ground zero of 'field condition'. Mies Van der Rohe's Illinois Institute of Technology campus, picture from edwardlifson.blogspot.com.
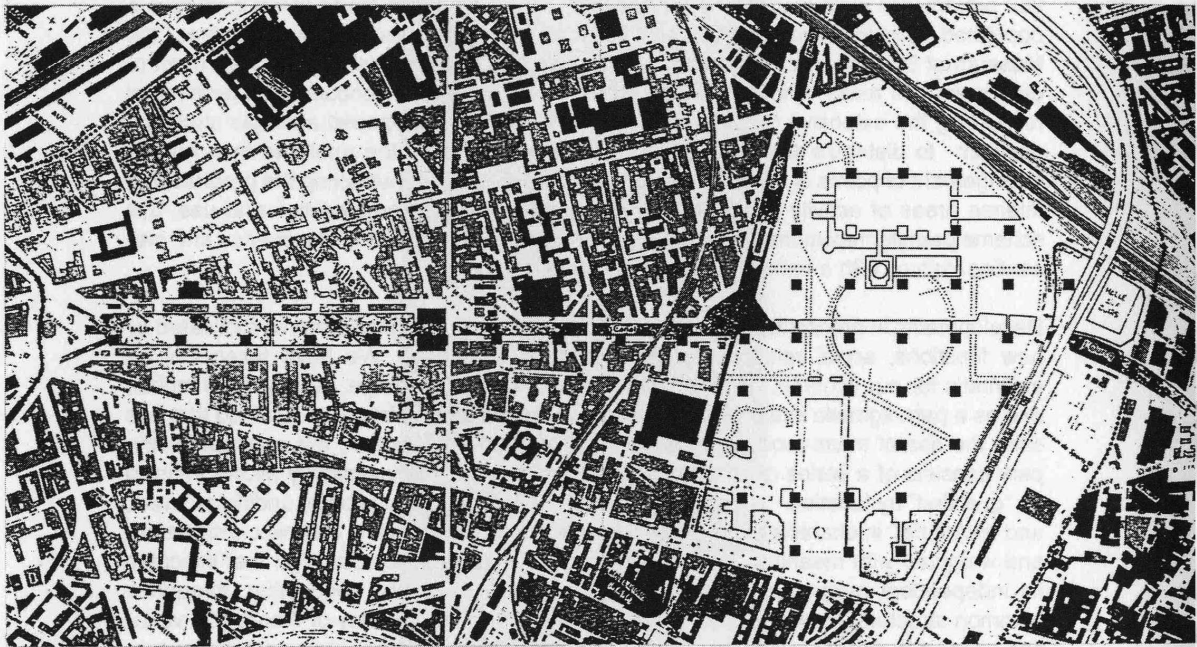
Points of intensity

12. "Si tratta dunque di un piano chiuso […] che tuttavia ci ha costretto a considerare, materialmente, la necessità di dimensionare, di strutturare il quartiere, di prenderlo in esame nella sua relativa realtà, forse proprio per sfuggire l'irrealtà del piano disegnato." Ludovico Quaroni, 'Città e quartiere nella attuale fase critica di cultura' in La Casa n.3, Edizioni De Luca, Roma, 1956, p.16.

VI. 'Points of intensity': it is a matter of understanding what we can effectvely design. Bernard Tschumi, La Villette, from Event Cities 2.

13. "[...] cioè dall'idea di un progetto, finito e consegnato una volta per tutte, all'idea di un'operazione continua, perennemente aggiornata." Ludovico Quaroni(1956), op.cit., p.17.

Going back for a moment to the Italian debate on the quarter, according to Quaroni the zoning practice was itself the stimulus for a theorization of the quarter. In its simplest definition, we can see zoning as that planning practice that tends to the control of the city by its division into zones, each assigned to a single function. Despite widely criticised by the numerous 'reactions' following Modernism, for the Italian debate around the quarter the practice of zoning acted as a stimulus to consider, pragmatically, the necessity to carefully dimension and structure a quarter and to consider it in what Quaroni called its 'relative reality'[12].

A step further from the rigidity of planning by zones was taken through the so called 'nuclear expansion' ('espansione nucleare'), defined as an open and flexible planning strategy in which the quarter was the space for 'design' intended as a 'close', 'defined' practice of decision-making. Not satisfied with such a 'compromise' between closure and openness of the planning process, Quaroni longed for the possibility of applying an 'open procedure' also to the design of the quarter. In order to achieve this he considered of paramount importance the transition from an idea of 'plan' ('piano') to that of 'planning' ('pianificazione'), the latter understood not as a 'finite and once-for-all defined design' but rather as a 'continuous practice' constantly subject to updating [13].

It is useful to notice how the 'open practice' predicted by Quaroni as a solution to the demands of city planning can be seen as an argument in favour of an abandonment of planning (the practice of 'non-plan') that, we think, led the way to the current predilection for 'strategic planning'. We intend here 'strategic planning' as the ultimate demise of 'decision-making' by the part of the architect in favour for an attitude of thorough analysis, description, categorization oriented towards an output of generic 'guidelines' for 'strategic' interventions. In strategic planning nothing can really be 'defined' because everything is inevitably subject to constant change.

If the latter part of the last sentence, the inevitability of constant change

of our present condition, cannot probably be denied, nevertheless
it is not through a demise of architectural design that any effective
contribution can be provided. It is a matter of understanding what we
can effectively design, instead of being interested in what we can't. In
'Whatever Happened to Urbanism', Rem Koolhaas argued that: "If there
is to be a 'new urbanism' it will not be based on the twin fantasies of
order and omnipotence; it will be the staging of uncertainty; [...] it will
no longer aim for stable configurations but for the creation of enabling
fields that accommodate processes that refuse to be crystallized into
definitive form."[14] We interpret these words neither as the proclaim of
an avoidance of planning nor as a call for designing projects of instability.
Rather, again, they stimulate the understanding of what can be subject
to design that can ensure continuity in an un-predictable panorama
of instability. Rossi observed that in the city there are some particular
elements - which he named 'primary' – that, for having achieved
this status of 'primacy', are able to survive the unavoidable changes
brought by the urban process. Thinking projectually, these elements,
that characterize an area and ensure continuity within modification
(like in a network), can be formally designed. The field condition can
be thus considered a projectual transposition for this Rossian analytical
consideration.

To use Stan Allen's words: "Emergence does not imply an indifferent
architecture, or "anything goes" attitude. The conditions for subsequent
emergence must be established through a precise architectural framework
that allows change and evolution, and it is the organizational diagram
that specifies these conditions. In an organizational schema, it is not
form or shape that counts but performance and behaviour. [...] Structure,
configuration, and scale all play a part: architectural and organizational
variables that can be designed and controlled with a high degree of
specificity. This reflects a realism about what can be designed, and
what will change: a 'thick' matrix with enough surplus information
that it is open to being continually reworked and reengineered. The
exacting design of initial conditions, coupled with the awareness of

14. Rem Koolhaas, 'What ever happened to urbanism?' in Rem Koolhaas and Bruce Mau, SMLXL , The Monacelli Press, 1995., p.969.

15.Stan Allen, 'Urbanisms in the Plural' in Practice: Architecture Technique+Representation (First Edition 2000), Routledge, Abingdon, 2009, p.182.

inevitable change, is a strategy to cultivate survival by adaptation and co-evolution."[15]

Therefore, the project of the 'ground', and the related one of 'field condition', is one of those elements on which the attention of architects should be focused when asked to design for an innovation environment – that, as already pointed out in this dissertation and as many researchers and scholars agree about, cannot really be 'designed' for it is based on the character of emergence of a business ecology. In this way, the field condition, as understood by Stan Allen and preceded by the 'campus' as its degree zero, can be considered an 'open' way to conceive the plan for a 'quarter' that is going to house a network of innovation-oriented firms. However, the theory of 'field condition' could be pushed even forward by an operative architecture made of 'forms' to be tested into the field.

In conclusion, we could now argue that the sizes of the quarter and campus are effectively convenient to experiment the paradigm of 'field condition' - as emerging system – and simultaneously that of an operative architecture –as testing practice. We will now turn our attention onto a third instrument that, by further testing the possibility for a project of an emerging 'field', embraces the complexity of multiscalarity proper of a regional system marked by both agglomeration and dispersion. This last instrument is the landscape.

Chapter 6
Landscape (for the Regional World)

Abstract

La regione è considerata dalla letteratura economica specializzata come la 'dimensione' adeguata alla costituzione di network innovativi complessi: è, infatti, il luogo in cui si manifestano quelle specifiche convenzioni relazionali, regole informali e conoscenze 'tacite' in grado di costituire uno sfondo locale di coordinamento tra gli attori facenti parte del network economico. Allo stesso tempo è l'entità adeguata a gestire le relazioni economiche globali, in uno scambio che va sempre più definendosi come cross-regionale. Da un punto di vista urbano, la regione è quindi il luogo capace di contenere la tensione tra dispersione e agglomerazione propria dell'economia della conoscenza. Se la regione è il dominio che contiene il milieu 'culturale' proprio di ogni comunità regionale, il 'landscape' – grazie alle sue proprietà di multiscalarità e 'identitarietà' visionaria – ne è la materializzazione e, allo stesso tempo, lo strumento operativo capace di generarla. Le relazioni tra lo strumento del 'landscape'(come definito dalla pratica e teoria contemporanea) e l'economia dell'innovazione sono da ritrovarsi nella capacità multiscalare del primo di governare dispersione e indispensabile urbanità; nella capacità diagrammatica di produrre paesaggi specifici – il network è competitivo nel mercato globale se si caratterizza in modo specialistico – interpretando le potenzialità 'emergenti' di una regione ma proiettandovi visioni progettuali e materialità inimmaginate. Questo avviene attraverso pratiche di formalizzazione, localizzazione e processualità, in una revisione del dibattito sul Landscape Urbanism attraverso il pensiero di Vittorio Gregotti. Il tentativo conclusivo porta quindi ad individuare due prospettive progettuali significative nei confronti del progetto di landscape , in un discorso che coinvolge il progetto esteso del suolo e l'operazione critica dell'architettura e in cui 'landscape urbanism' e 'architectural urbanism' sono considerate pratiche di 'urbanism' differenti ma associative.

new programs

new pathways
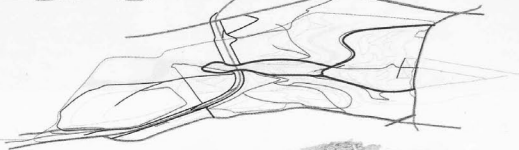
new habitats

cover, soil and vegetation types

surface water and existing roads

■ storm water basins
▨ drainage swales
▦ existing roads

impermeable liner

gas extraction network
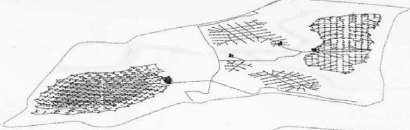
liquid collection and containment

☐ leachate pumping and cleaning
▨ containment walls

150 million tons of waste

wetland prior to 1948

▨ location of fill to come
☐ approximate extent of wetland in 1900

1.See Anna Lee Saxenian, The New Argonauts. Regional advantage in a global economy., Harvard University Press, Cambridge (MA) and London, 2006.

2.See Nicos Komninos, Intelligent Cities. Innovation, Knowledge, System and Digital Spaces, Spon Press, London and New York, 2002, Part II 'Innovating Regions: Innovation as an Institution'.
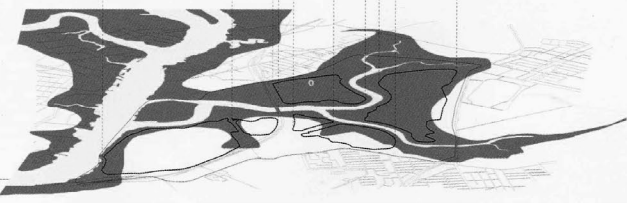
I. Operative Instruments: Landscape. ©Field Operations

Up to this point, our discussion has spanned through spatial instruments such as Campus, Quarter, Type and Area, and Field. We have referred to the archipelago of campuses as the most widespread planning strategy for innovation and, by contrast and association through the 'quarter', to the emergent interest in urban environments manifested by the actors of the knowledge economy. We are going now to further our discussion on the operative instruments for innovation environments by embracing the spatial domain that has shown to be capable of resolving the tension between dispersal and agglomeration that characterizes the economic networks as materialized in the second half of the XX century. If such a domain is the region (widely acknowledged by the specialized literature as the right scale of thinking about innovation), the spatial instrument through which we think this can be operatively coped with by architects and urbanists is the landscape.

Starting from the 1980s scholars began to widely agree on the political, administrative, cultural and physical extension of the region as both the necessary place to realize the basic loop of innovation – that is, the sharing of an evolving and specific tacit knowledge among research, production, commercialization and consumption – and the proper dimension to deal with the global network of innovation.

Economist Anna Lee Saxenian shows as a matter of fact that the most innovative places in the world (she mainly refers to the IT sector) have 'a regional scale' (either administrative regions like Silicon Valley or small nations like Israel and Taiwan) and that the globalized integrated IT network works through 'cross-regional communities'.[1] The European Union, on its side, is devoting a lot of efforts in developing policies that support the birth of 'innovative regions' – the favourable place for a bottom-up innovation system to emerge as a synergy of local shared abilities and cross-regional dynamics - as opposed to (but coordinating with) a diffused 'national approach' to innovation.[2]

The Third Italy, that agile network of small textile producers in

HSINCHU BIOMEDIAL PARK
HSINCHU SCIENCE PARK

LONGTAN SCIENCE PARK

JHUNAN SCIENCE PARK

YILAN SCIENCE PARK

TONGLUO SCIENCE PARK

Taichung EPZ
Chungkang EPZ
HOULI SCIENCE PARK
TAICHUNG SCIENCE PARK

ERLIN SCIENCE PARK

HUWEI SCIENCE PARK

TAINAN SCIENCE PARK

KAOHSIUNG SCIENCE PARK

Nantze EPZ
Pingtung EPZ
Kaohsiung EPZ

60 ■ INDUSTRIAL PARKS
[36,898 hectars]
12 ● SCIENCE PARKS
[3,781 hectars]
8 ▲ ECONOMIC PROCESSING ZONES
[940 hectars]
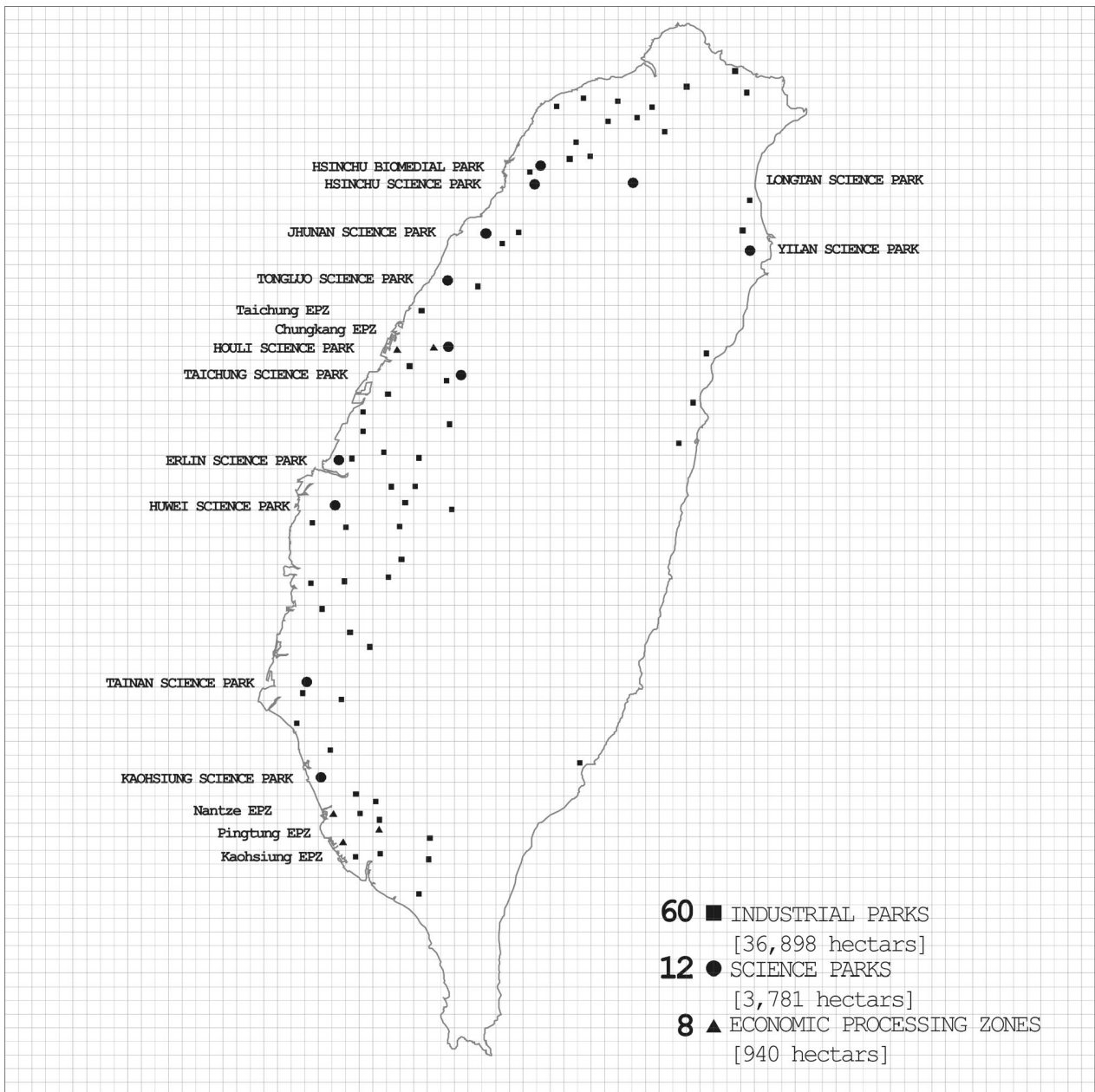
3.Michael Storper, The regional world. Territorial development in a global economy., Guilford Press, New York, London, 1997.
4.Ibid., p.3.

5.Michel Storper, 'Regional Context and Global Trade', July 2008 (Forthcoming in Economic Geography, January 2009).

6.Michael Storper (1997), op.cit., chapter 7.

II. Innovation and the regional scale: Taiwan. Drawing by Francesco Zuddas and Sabrina Puddu.

Northeast/Central Italy, has been widely acknowledged as a paradigmatic example for the quality of a region-based industrial network. Theories on regional learning, that took Third Italy as a primitive example, have evolved from its specificities. 'The Regional World' by economist Michael Storper [3] provides a thorough investigation on the relevance attributed to regional scale and qualities within the global economy. It was in the 1980s that the region was rediscovered in contemporary capitalism, as an "outcome of deeper political-economic processes"[4]. Surpassing the common attribute of 'homogeneity' associated to globalization, regionalization is a process based on specificities and specialization assumed as essential in an integrated global market. According to Storper, the emergence of regions within the global economy is due to their nature as the locus of the 'untraded interdependences', namely of those conventions, informal rules, and habits that constitute a shared background for the coordination of the economic actors within a panorama of global uncertainty. The regional 'world' or the similar notion of 'context' is "a collective environment defined by the conventional ways actors coordinate with one another to reduce uncertainty."[5] Case studies like Silicon Valley and the manufacture region of Third Italy show that the reduction of 'transaction costs' (the costs for the exchange of goods, information, and human resources over geographical distances) due to pure factors of proximity is a necessary but not sufficient condition to explain the 'regional' success. A region – or a territory – that has matured a "geography of conventions and relations, which have cognitive, informational, psychological and cultural foundations"[6], if combined with 'technology' and organization' in a novel definition of 'holy trinity' for innovation, shows advantages in nurturing a competitive not imitable innovative regional network.

The region is thus the domain encompassing the administrative, social and 'cultural milieu' that nourishes the 'sticky' network of innovative actors - researcher, producers, and public-private decision makers. The landscape is for us to be conceived as the materialization of the cultural milieu of which is itself the agent. To explain the different

meaning we attribute to the two terms, and the reason why we think it is relevant to talk of 'landscape' rather than 'region' in our 'list of operative instruments' for the 'urbanists of innovation', we will here consider the region as the effective scale for innovation (in agreement with the specialised literature), while the landscape is for us the operative instrument for the formalization of the region as well as its actual visible form.

To make more explicit the relevance of the landscape for conceiving a 'regional world' it is useful to refer to a reflection we made elsewhere[7]: "Finally, the challenge of creating an intensive and well-integrated innovation environment also involves creating a particular landscape of learning and practice that works both locally and transnationally. Cities tend to create distinctive landscapes over time that reflect the ways they learn and change. In architectural terms, we say that the urban landscape 'indexes' the ongoing processes of urban transformation, and it does so in ways that give cities a singular identity. So, when we speak of identity, we are not referring to a cultural style or pattern, but to something material and effective in the structure of cities. Here, our method is similar to that of landscape geographers who have made use of chorological reasoning to compare different areas on the basis of materially definable culture complexes. The difference is that, as urbanists, we are projecting a material landscape rather than simply describing an existing one. If we take all of these themes together, we might say that we are aiming toward an urbanism that produces 'sticky' places which can still respond to the natural dynamism and volatility of the innovation process, and that this is a current response to the perceived failure of the generalized science park."

The relevance of landscape and landscaping has gone through cycles and is, like the other instruments we mentioned above, an evolving issue[8]. 'Landscape' as instrument is a 'modifier' to urbanism[9], from the earlier germs of a recognized 'suburbanized regionalism' – based on the dissolution of figure into field - that Charles Waldheim recognises

7. Sabrina Puddu, 'Peripheral Intencities. Shanghai's KIC and Hanoi's HaBiotech Park', working paper presented at Asian Creativity in Culture and Technology. Conference and PhD course., Panel 6: Urbanization, Regionalization, Mega-Cities and Innovation., Trondheim, Norway, 12-16 November 2008.

8. For the contemporary discussion on landscape and landscape urbanism see the collection of essays in James Corner (ed.) in Recovering Landscape. Essays in Contemporary Landscape Architecture.(1999), Mohsen Mostafavi and Ciro Najle (eds.) Landscape Urbanism: A Manual for the Machinic Landscape. (2003), Charles Waldheim (ed.) The Landscape Urbanism Reader. (2006) and the recent Topos 71 issue 'Landscape Urbanism' (2010).

9. This is the main argument delivered by Charles Waldheim's essay 'On Landscape, Ecology and other Modifiers to Urbanism' in Topos 71, 2010.

10.Charles Waldheim, 'Urbanism, Landscape, and the Emergent Aerial Subject' in Landscape Architecture in Mutation, ed. Institute for Landscape Architecture, Zurich, 2005.

11.Shane Grahame, 'The emergence of "Landscape Urbanism". Reflections on Stalking Detroit.' in Harvard Design Magazine n.19, Fall2003/ Winter 2004.
12.Patrik Schumacher and Christian Rogner, 'After Ford' in Georgia Daskalakis, Charles Waldheim, Jason Young (eds.), Stalking Detroit, Actar, Barcelona, 2001, p.48-56.

13.James Corner, 'Recovering Landscape as a Critical cultural Practice' in James Corner (ed.) Recovering Landscape. Essays in Contemporary Landscape Architecture, Princeton Architectural Press, 1999, p.14.

14.Vittorio Gregotti, Il territorio dell'Architettura, Chapter 2, Feltrinelli, Milan, 2008 (first published in 1966).

in proposals and speculations such as Frank Lloyd Wright's Broadacre City (1934-35), Norman Bell Geddes' Futurama (1939-40) and Ludwig Hilberseimer's New Regional Pattern (1945-49)[10]. These projects are 'proto-landscape urbanism designs' in the way they make use of landscape as instrument in urbanism.

However, what is relevant here to us is to notice, together with Shane Grahame and many others, the relationship between the 1990s' birth of the discipline of Landscape Urbanism and the contemporary pattern of industry[11], that is, a tendency of dispersing regionally, nationally, and globally the places of production and the places of consumption (this was already pursued in the last phase of Fordism) while simultaneously recognizing the necessity of urbanity.[12] According to James Corner, at the forefront of the contemporary debate over landscape, the economic shift named 'deindustrialization' has been one of the stimuli for the 'recovery' of landscape in urbanism: "A third phenomenon surrounding landscape's recovery is the massive process of deindustrialization that has accompanied the shift toward global communication and service economy. These changes have stressed both urban centers and rural areas, perhaps even collapsing their differences. As a consequence, new demands have been placed on land use planning and the accommodation of multiple, often irreconcilable conflicts. Huge and complex postindustrial sectors of cities have presented new challenges for landscape architects and urban designers in the past few years."[13]

Thus, the landscape is the instrument that may help us to discuss the extent up to which we should disperse and agglomerate within a consistent 'extension' in order to foster an intense environment, the necessary condition for innovation. However, as pointed out in Vittorio Gregotti's 'Il Territorio dell'Architettura[14]' (1966), this is, similarly to any urban project, not a simple question of 'localization' but also of 'formalization'. The reply to this argument from the contemporary generation of landscape urbanists would then be that it is not just a matter of localization and formalization but also – and for some people
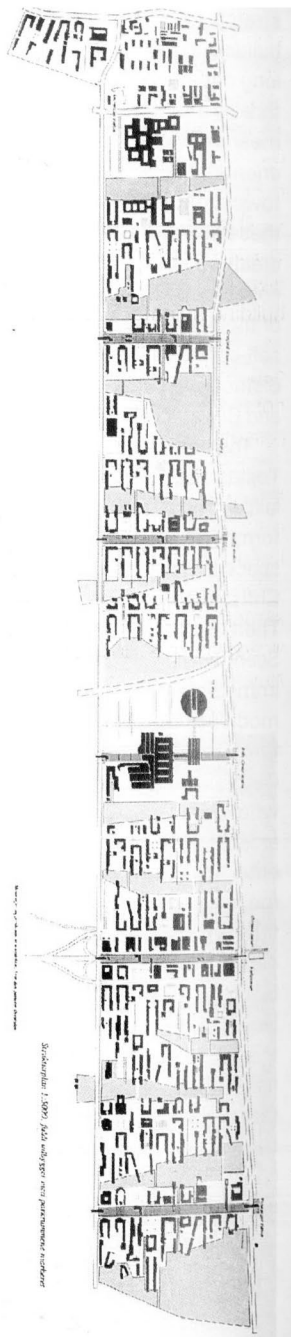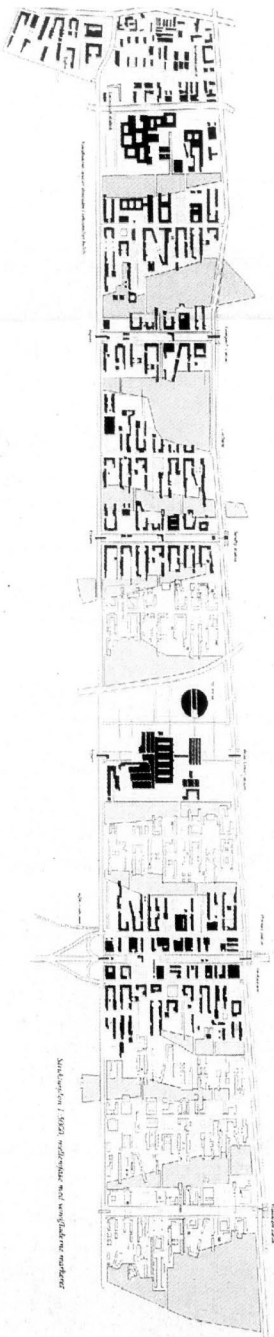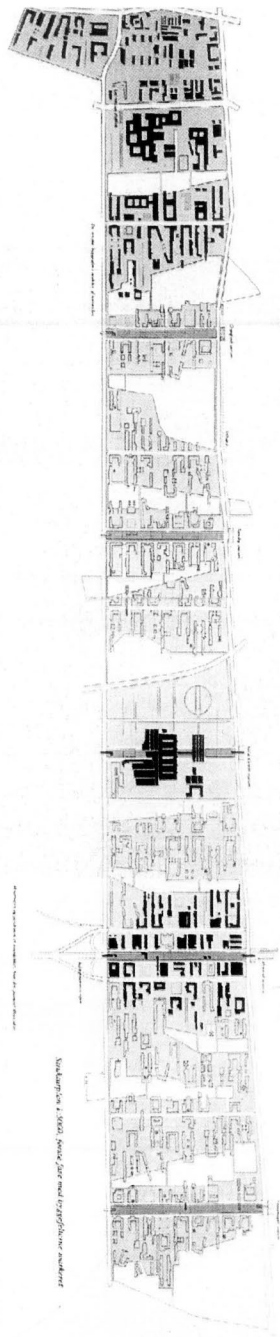
mainly - of processing.

We want to list two complementary ways of conceiving processing. The first is that of phasing, the second is that of feed-backing. Through phasing, a processual project of landscape can consider the urban concern for 'history and time' while evolving the traditional historic and contextual approach. Vittorio Gregotti insists on the importance of history for the formation of landscape.[15] Instead of referring to the overrated labels of history (focused on time) and context (focused on place and identity), we prefer to talk about 'conditions' as a term that better interprets the capacity of 'action' rather than that of 'linear evolution/stratification' or 'being' as understood respectively by the terms history and context. A condition is something operative in that it has embedded in itself a capacity of 'conditioning', that is, of exerting influence over the modification of the characteristics of the condition itself. In other words, we agree with James Corner's plea for a shift from a passive way of conceiving landscape to landscape understood as an active agent. Landscape becomes active in the moment it is object and instrument of an ex-temporal design. It has to build mature relationships for a project that is thought in one discrete moment. According to a line of thinking about the city the city in its beauty and differentiation is the product of many moments of formation that succeed in history. We could thus affirm that the necessity for a diagrammatic urbanism and for a landscape meant as a system able to put together form and social-spatial-political conditions as well as the geographical condition of the site, emerges in the moment we are required to deliver a project for the city that could not rely on the successive creation, refinement, catastrophic impulse and event, smoothing of time. Differentiation of parts comes from the historical differentiation of moments of generation and from the historical succession of 'time-activities' (impulse and smoothing) that lead the parts to mature peculiar features. What is expected from the architect is to deliver specificity and differentiation by means of project.

15. "[...] the history of a territory should be considered as the fundamental support of its formal structure." Vittorio Gregotti, 'The Form of the Territory.' (adapted version of the original article published in Edilizia Moderna in 1965) in Over Territoria, OASE #80 Journal of Architecture, NAI Publishers, 2010.

III. Formalizaton, Localization and Processing (meant as phasing and feed-backing). Erik Bystrup's proposal for the ideas competition on a Master Plan for Orestad (Copenhagen).

16.James Corner (1999), op.cit.

IV. Regionalization as a process of specialization: the formation of 'cultural landscapes'. West8's 'Markeroog' proposal for the EO Wijers competition. ©West8.

The second way of conceiving processing understands the landscape as informed and informative at the same time, passive and active at the same time. The landscape is in fact widely accepted to have a feed-backing nature, that is, an instrument that projects on and extract forms and processes out of the landscape itself, meant as a geo-political and 'antropogeographical' stratified materialization of past and present conditions, 'natural' or manmade.

The landscape is also the instrument that interprets the 'regionalization' as a process of specialization: it is an innovative agent that realizes the landscape's hidden potential[16] thus conferring to a certain place a peculiar 'identity'. This quality makes a productive region specialized - and thus competitive and collaborative within the global economic network the region is affiliated to. Hence, again, it emerges the relationship between the birth of a specific discipline (Landscape Urbanism as the interpreter of the peculiarities of places and conditions) with the contemporary patterns of production. The process of specialization is based on conceiving the action of landscape both as an emerging practice, rooted in the potentialities of a place that are interpreted and recovered, and as a visionary practice able to project decisions beyond the predictable.

In general, cities and regions, tend to create a 'landscape' that reflects – by recording and indexing them – the ways in which they have been constituted (spontaneously or by planning) and evolved. Landscape is the index (for us a material index) of urban processes in transformation.

Summing up, we have until now referred to Landscape as the instrument that pursues the generation and intensification of distinctive specializing regions by means of localization, formalization and processing in a feed-backing design process between emergent issues and projecting visions. To further the discussion, we can refer to Corner's account of Landscape Urbanism that is plural, inclusive, projective and suggests broad cross-disciplinary and multi-scalar modes of practice. Hence, two further issued are to be here considered: crossdisciplinarity and multiscalarity.
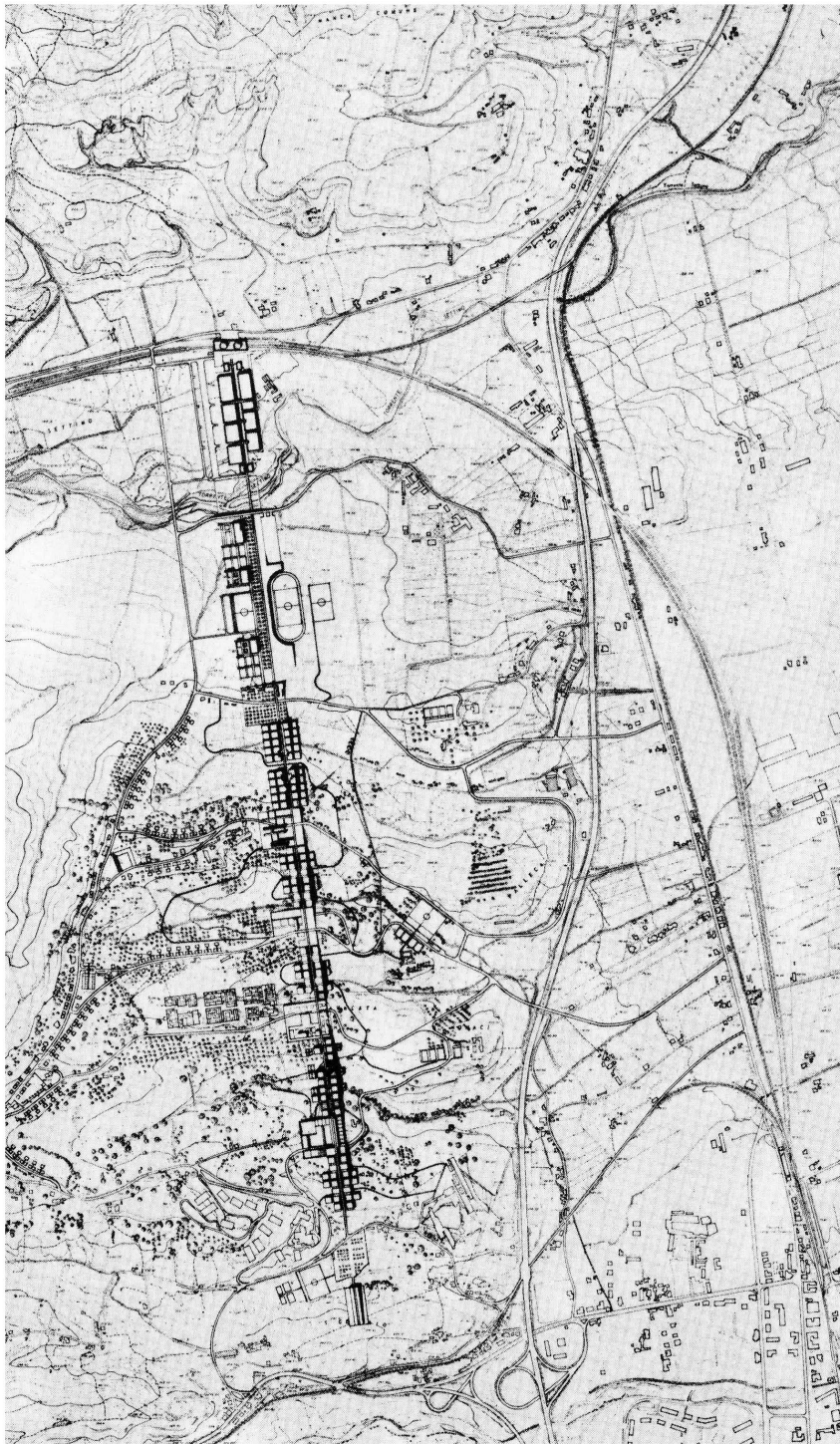
As far as the former is concerned – crossdisciplinarity - we feel to refuse Corner's enthusiasm for the evolution of the professional figure of the architect towards that of 'master choreographer': "Landscape urbanism elevates the role of the landscape architect to that of the master choreographer, the great generalist who is able to see and shape enormously complex phenomena into new organizations. Crossdisciplinary, inclusive and visionary, the landscape urbanist is perhaps the best hope cities have for coping with increased densification, diminished resources and environmental decline."[17]

17. James Corner, 'Landscape Urbanism in the Field' in Topos n.71, 2010, p.26.

In order to restore a formal approach to landscape as a major responsibility for architecture, we can propose some of the arguments that Gregotti developed in the 1960s on the notion of 'Territory'. We could quickly liquidate the matter by affirming the superiority of the contemporary understanding of Landscape (for landscape urbanism) on that of Territory. It is a matter of fact that, generally, the 1990s' proposals for a landscape urbanism manifest an attempt to escape formally-based procedures. According to Alex Wall it was the 1982 competition for La Villette that paved the path towards an attitude that "was less one of design in terms of styling identity, representation, or formal composition, and much more one of strategic organization"[18]. Introducing the collection of essays, Corner reiterates: "In various ways, then, all of the essays that follow are oriented around themes of strategic efficacy; they return the instrumental function to design while downplaying the strictly formal, the representational, and the contemplative. They suggest how landscape architects and their projects may better shape how a culture evolves and relates to the world. The concern is less for finding a new aesthetic style than for increasing the scope of the landscape project in a broader cultural milieu."[19] Strategies belong more to the domain of reasoning and coordination, they use a 'generic' and shared vocabulary: thus they can be cross-disciplinary. The 'strategic' developmental process is widely – and vaguely - preferred for an architect meant as a master choreographer, whereas form is used by him opportunistically: a diverse set of forms is argued to indifferently be able to satisfy the

18. Alex Wall, 'Programming the Urban Surface' in James Corner (ed.) Recovering Landscape. Essays in Contemporary Landscape Architecture., Princeton Architectural Press, 1999.

19. James Corner (1999), op.cit., p.5.

V. Form can interpret complexity. Architect as 'formalizzatore creativo' or as masterchoreographer? Proposal for Università di Calabria by Vittorio Gregotti.

strategy. "When the making of landscape is considered in terms of developmental process, the resulting project may assume any number of formal characteristics, depending on local circumstances and situations. Whether a particular project is naturalistic, rectilinear, curvilinear, formal, or informal is irrelevant; what matters is how the form and geometry of a project make sense with regard to the specific issues it is trying to address and the effects it is trying to precipitate. Thus, recovering landscape is less a matter of appearances and aesthetic categories than an issue of strategic instrumentality. Form is still important, but less as appearance and more as an efficacious disposition of parts."[20]

20. James Corner (1999), op.cit., p.4.

The attempt to grasp a multi-layered multi-scalar cross-disciplinary complexity is thus the heroic promise of 'Landscape Urbanism'. This attempt is accomplished through a predilection for strategic process (made of compulsive understanding and projectual coordinated vision) in which form (it does not really matter which form) is used opportunistically. What differentiates this position to the concept of territory as emerged in the 1960s is strictly related to the way of conceiving architecture and the role of architects. According to Gregotti, the territory can be observed and planned as a formal system. This does not mean that, as a formal system, the landscape does not register a recognized complexity. However, according to Gregotti it is not the architect's duty to build a synthesis of this given complexity. The role of the architect in the cross-disciplinary group of 'experts' is not that of coordination but first of all that of contribution to team work with his own (formal) instruments and (formal) intents right from the outset of the design process. There is "the need to codify architect's role as creator of forms or rather to entrust him with the task of introducing concrete finalities into the spatial translation of functions at the start of the project's elaboration process" [21] while acknowledging " that the overall anthropogeographical environment has a materiality that can be modelled and constantly oriented towards given finalities."[22]

21. Vittorio Gregotti (1965), op.cit.

22. Ibid.

Bringing back to the surface of discussion this position refused by the

prophets of Landscape Urbanism, aware of the risk of being considered reactionary, could ease the debate on Landscape Urbanism and liberate it from the anxiety of delivering complication while responding to an undoubted complexity. A contemporary position that we want to highlight on the relation between a form-oriented approach and a process-oriented approach is expressed, within one of the most recent editorial debates on Landscape Urbanism published by the magazine Topos, by architect Frits Palmboom: "For many authors the argument for landscape urbanism is coupled with an argument for a process-oriented approach above a form-oriented approach. [...] For instance James Corner argues for shifting the emphasis from 'compositional design' to 'strategic instrumentality'. [...] The aim of design is not the ordering in space but the ordering in space and time. It is our strong conviction that within design form-oriented and process-oriented approaches cannot be driven apart from one another. Form is not purely expression of the process lying behind it. The direct identification of form with process and programme leads to a sort of neo-functionalism."[23]

23.Frits Palmboom, 'Landscape Urbanism: Conflation or Coalition?' in Topos n.71, 2010.

In conclusion, we prefer to refer to Landscape by means of diagram instead of asserting its 'crossdisciplinarity'. For 'diagram' we are here referring to the way it has been intended by a postmodern tradition of architecture in order to surpass an 'ingenuous functionalism'. In particular, a relevant take on diagram is offered by Stan Allen's appraisal of the proposals for La Villette by Bernard Tschumi and OMA: "Tschumi's point grid and OMA's bands are graphic devices first, but in both cases, the specifics of their deployment trigger complex organizational potentials."[24] According to Allen, complex organizational potentials delivered by formal and graphic devices (the diagram) can organize space at different scales, time evolution and adaptation, program and event, multiple actors and, we can add, organize the contributions coming from other disciplines. The landscape diagrams conditions - some of these conditions belong to architecture's 'interiority', that is the formal configuration of the landscape we are working on; many other conditions belong to the realm of architecture's 'exteriorities', better

24.Stan Allen, 'Urbanisms in the Plural' in Practice: Architecture Technique+Representation (First Edition 2000), Routledge, Abingdon, 2009, p.184.
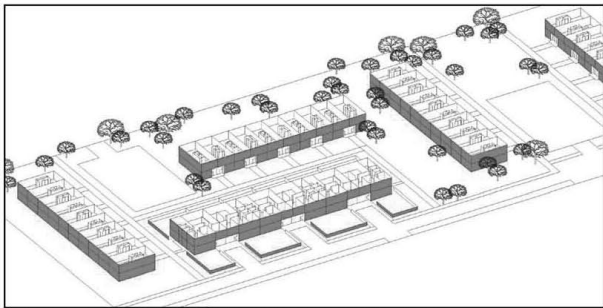
Relation between the Surface of Small Housing and Landscape

Being criticized for using its 'inhuman' size to solve
only problems on large scale

work on multi-scales
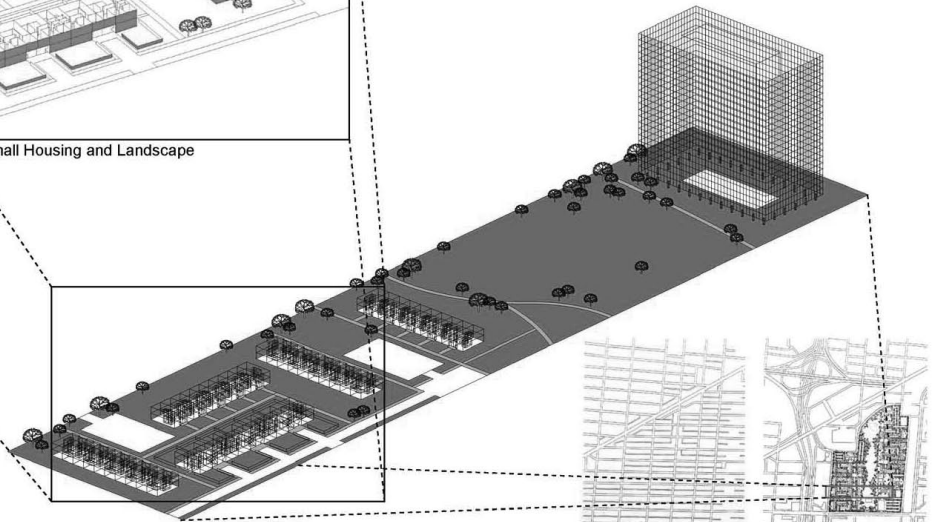
Use Landscape to Relate Different Sizes
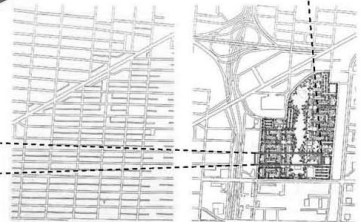
Block Size Comparison

25.Peter Eisenman, Diagram Diaries., Thames & Hudson, London, 1999.

VI. Multiscalarity: from 'vegetation' towards a broader scope for Landscape. Hilberseimer's La Fayette Park. Drawing by Ling Ha.

26.Charles Waldheim (2005), op.cit.

explained and analysed by other disciplines[25] - by providing a formal structure. In other words, landscape matches together matter and information. The landscape records geo-political-economic-material/formal conditions and transforms them into a material landscape again.

The second issue that, like that of crossdisciplinarity, recurs obsessively in the 'Landscape discourse' is that of 'multiscalarity'. We believe that this is a key goal for any urban and large scale project and that is an embedded potentiality of the instrument of landscape. The region can be the place for multiscalarity to be observed and realized, but the Landscape – as conceived in contemporary theory – is the operative instrument for this. The question for multiscalarity is fundamental in an economy based on the apotheosis of dispersion and agglomeration like the contemporary system of production. The logic of a network with blurred boundaries that involves at the same time a plant in Shanghai, a firm in Silicon Valley and a library in San José city cannot but take into account this issue. Multiscalarity is related to engagement, that is, to the way people, economic actors and institutions engage with one another to realize the loop of innovation (as explained in Chapter 1). Thus, landscape is the instrument that, by accounting Multiscalarity in larger extensions, realizes and enhances those patterns of interactivity and engagement at the base of the 'sharing' quality of contemporary production.

Charles Waldheim[26] explains the multiscalar capability of landscape, in particular by referring to the work of German architect and planner Ludwig Hilberseimer. According to Hilberseimer the region is based on interrelation: "A region is an interrelated part of a country", it is an entity "in which the whole is related to the parts, as the parts are related to the whole." Thus, instruments that realized this interrelation, that are thus based on multiscalarity, are required.

Hilberseimer, called to deal with the regional dimension, based many of his projects on a multiscalar landscape able to frame the region both in terms of green spaces' differentiation and of a hierarchy of spaces (not
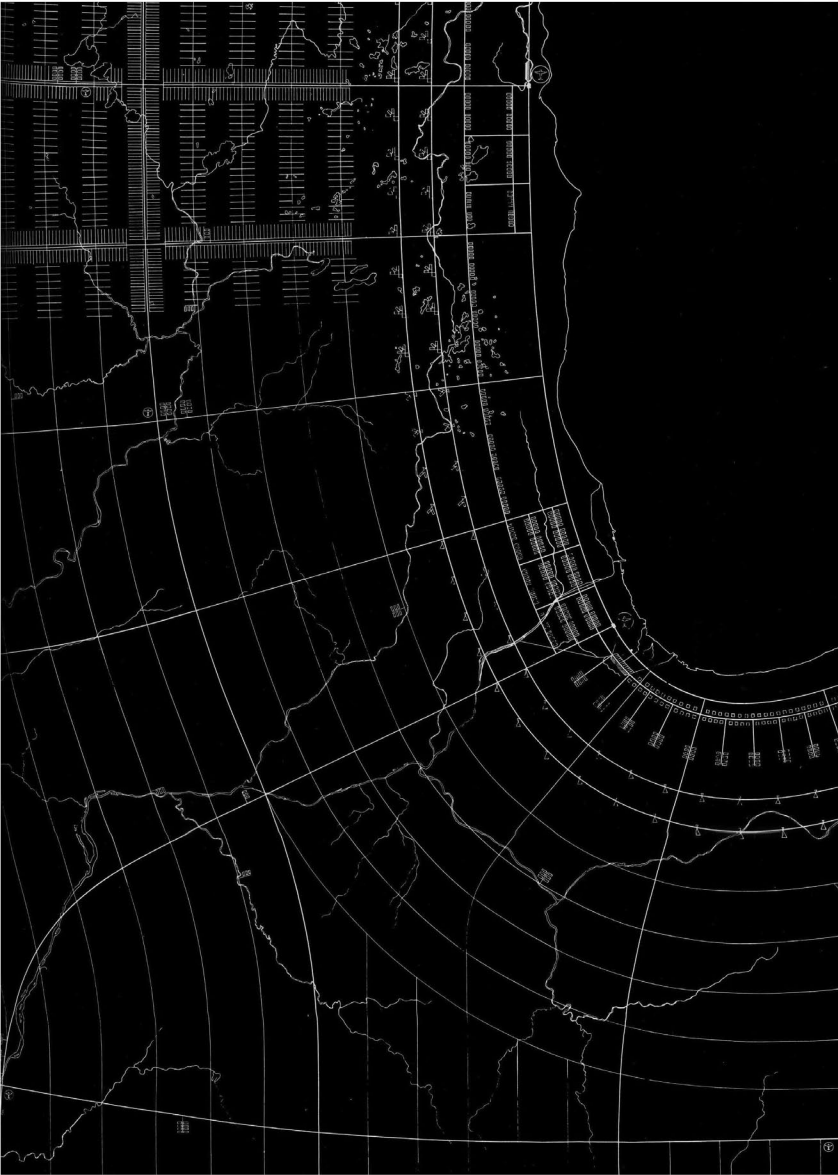
necessarily green spaces) and infrastructure.

Referring to the already cited cases by Wright, Geddes and Hilberseimer, Waldheim notes: "All the three projects propose a revised and redefined role for landscape in the ordering of public and private space. Extending the traditional limits of the landscape medium as a decorative art or environmental science, they lend it precisely the relevance for contemporary culture that recommends it today. No small part of that relevance is landscape's potential for working across various scales, creating meaningful relationships between the larger regional environment and local social conditions. This potentiality is evident in Hilberseimer's use of variously scaled courts, yards, and gardens to relate domestic life to the larger public parklands that connect them."[27]

In the new regional pattern proposed by Hilberseimer[28], in particular in the diagrams and application of the three proposed planning systems – urban, rural, urban-rural - diagrams are proposed based on differentiation of open spaces: private gardens, small and large farms' fields, woods, and parks. These open spaces allow for a differentiation of collective life, being the domestic gardens the "spatial and material basis for private life".[29] In the proposal for the regional pattern, and as better specified in the only piece of project Hilberseimer was allowed to bring to the construction site - La Fayette Park in Detroit - landscape in its basic form of green open space is used to achieve multiscalarity and differentiation, it is used to organize and relate different 'sizes', local and regional conditions. But also other elements start to be used with the same purpose of organizing mutliscalar integration like the green open space: other 'natural' elements like topography and water; the transportation system, that is not only an undifferentiated line functional to connect parts of the region with each other, but is elevated to a framework that, in a hierarchical variation of a canonical gridiron system, organizes the different parts and the whole; the programmatic arrangement (of settlements, industry, agriculture, of private houses, collective facilities and working places). Thus, acquiring the basic landscape's quality, these

VII. Multiscalarity: from 'vegetation' towards a broader scope for Landscape. Hilberseimer's diagram for a proposed replanning of the Chicago Area, from 'The New Regional Pattern.'

27. Ibid., 117-135.

28. Ludwig Karl Hilberseimer, The New Regional Pattern. Industries and Gardens. Workshops and Farms., Paul Theobald, Chicago, 1949.

29. Charles Waldheim (2005), op.cit., p.133.

30.The field condition is in fact a concept derived from landscape urbanism. However, for reasons related to the text's organization we had to introduce it earlier.

elements build up towards a new way of conceiving landscape and broaden its scope.

Following these introductory notes on the region and landscape, we will now present two perspectives that enable to deal with the latter. In order to do this, we will indistinctively refer to projects and attitudes that belong to the XX century's recovered landscape urbanism as well as to a few key-points that constitute a sort of pre-history of the discipline. The two perspectives develop those described in our previous discussion on the campus and the field[30].

The first perspective focuses its attention on the landscape meant as urban surface or as field or as ground (the 'field condition' for Stan Allen and James Corner, the 'project of the ground' for Bernardo Secchi, the 'programming surface' for Alex Wall). The term ground, as opposed to that of surface, introduces the necessity of 'material' and formal constitution that is better expressed by the second perspective. The second perspective is associated to the relevance of architecture in urbanism and in landscape urbanism. Architecture can emerge either in the moment of 'solidification' that follows that of preparing the ground (according to First Palmboom) or as primitive input for the ground formation (in a tendency that we like to refer to as 'Palladian Villa', that is a building that works at a large scale because of a particular capacity of orienting and intensifying a landscape formation). Signalling these two perspectives - that we are going to explain below in wider detail - is relevant in order to foster a discussion where landscape urbanism and architectural urbanism are kept into consideration as different but associated forms of urbanism.

As far as the first perspective is concerned we can start by quoting Alex Wall's will to restate the landscape as mainly an active surface: "In describing landscape as urban surface, I do not mean to refer to simply the space between buildings, as in parking lots, planted areas, and residual spaces. Neither do I want to limit the use of the term landscape to wholly
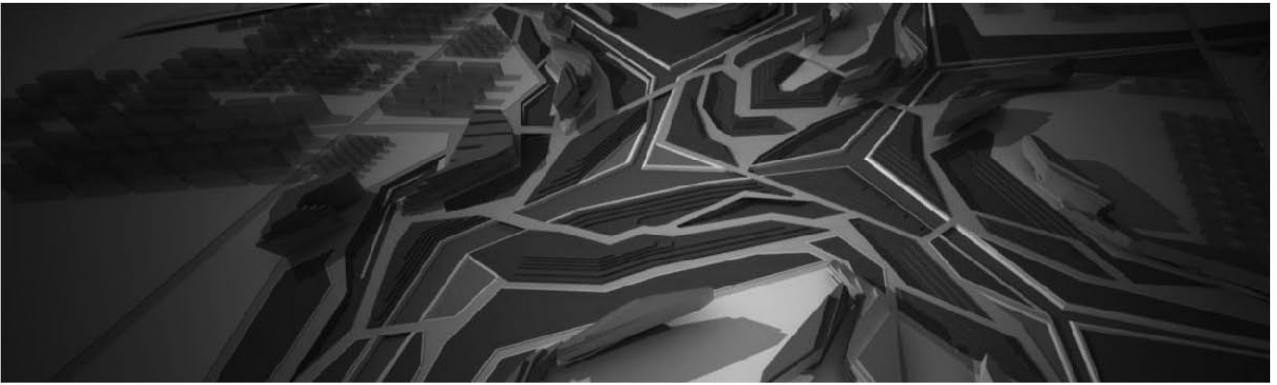
X. Two 'musts' for landscape urbanists: the performative ground and the continuous hyper-connected ground. Schouwburgplein in Rotterdam by West8 (picture published in West8's official website) and student's project (by Carlos Umana) from Landscape Urbanism Postgraduate Programme's (AA).

31. Alex Wall, op.cit.

32. 'Flow and Surface' is a paragraph of Alex Wall's 'Programming the Urban Surface' essay (op.cit.). Here, he refers to the projects presented for the Yokohama Design Forum by OMA and to International Port Terminal by Foreign Office Architects.

33. James Corner as quoted by Shane Grahame, op.cit.

34. Alex Wall, op.cit.

35. Shane Grahame, op.cit.

36. Shane Grahame, op.cit.

green, natural, or recreational spaces. Instead, I refer to the extensive and inclusive ground-plane of the city, to the 'field' that accommodates building, roads, utilities, open spaces, neighbourhoods, and natural habitats. This is the ground structure that organizes and supports a broad range of fixed and changing activities in the city."[31]

When a shift of attention happened from the traditional city to the extended regional dimension a diffused cliché of continuity and hyper-connectivity emerged. When then we went back to considering the project for central city, such an obsession was again revealed. 'Continuous' is a property of the surface and the lines of flow (of water and infrastructure). For Instance, Alex Wall describes a few 'Flow and Surface'[32] projects, namely those projects that are articulated through folded and warped surfaces. Yet, we would like to reaffirm that the formal configuration of the ground is articulated through repetition and exception, through continuous flows and non-continuous progression of spaces. Thus, discontinuity is a quality that urbanism can use to deliver as much quality as through continuity.

The second agreement among the 'surface-makers' is that of performative ground, described as the 'prepared ground' to be colonized by 'performative social patterns'[33] or as an 'active surface'[34]. Shane Grahame, quotes James Corner's account of some paradigmatic projects like West8's West Market Square in Binnerotte, Rem Koolhaas' Melun-Senart and Bernard Tschumi's La Villette: "For Corner these spaces are 'prepared ground', flexible and open [...], allowing the 'ad hoc emergence' of performative social patterns and group alliances that eventually colonize these surfaces in provisional yet deeply significant ways"[35]. Hence, landscape urbanism is conceived by many as a 'performative urbanism', the discipline whose task is that of preparing the background for the programmed and un-programmed. However, the doubt raised by Grahame seems legitimate: "A common ground – he argues – is useless without people to activate it and to surround it."[36] Thus, 'mass' (housing settlements and working spaces) are relevant for a ground project in the
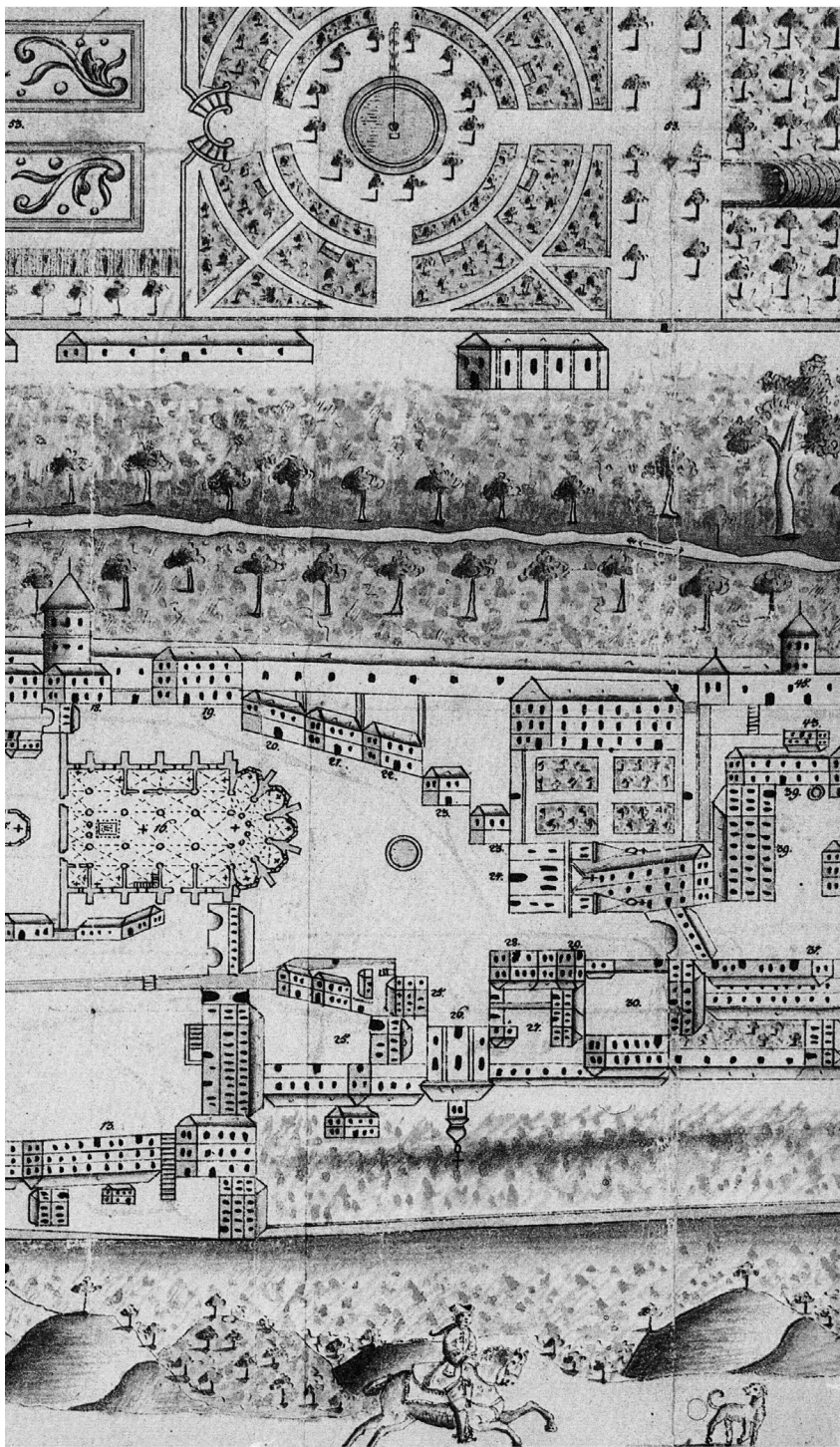
same way as the project of the surface itself.

Alex Wall's essay 'Programming the Urban Surface'[37] focuses on the design of continuous performative surfaces able to accommodate a wide range of activities and functions. The text describes 'surface making' practise spanning from Victor Gruen's attention to cityscape and landscape to the recent infrastructural projects in Spain, to the 'void' potentiality expressed in Melun-Senart and the 'surface programming' designed in La Villette (both projects by OMA), to West 8's interest in the 'emptiness' of space as opposed to overprogramming. According to Alex Wall the 'Surface strategies' proposed by these projects work as 'social and ecological agents'.

37. Alex Wall, op.cit.

The position expressed by the term social/cultural/ecological 'agent' - a diffused term among contemporary landscapers - can be contrasted through quoting the point made by Bernardo Secchi: "To me the theme [how to do an urban project] appears different and more general; it seems to resolve around the issue of the design of the ground. It acquires a 'sense' inside a wider social project, and acquires a 'value' through the project of architecture."[38] The project of the ground is for Secchi an urban-architectural project that is not itself a cultural, social, economical agent but acquires a sense within a wider cultural, social, and economic project.

38. Bernardo Secchi, 'Progetto di Suolo', in Casabella 520-521, January/February 1986.

At this point, following the wider account we devoted to the contemporary practice of landscape urbanism, it seems right and meaningful to spend some words also on the text 'Progetto di Suolo'[39] (Project for the ground) published in Casabella by Bernardo Secchi in 1986 - exactly ten years earlier then Charles Waldheim's 'manifesto' for Landscape Urbanism.

39. Bernardo Secchi, op.cit.

Bernardo Secchi aimed to state that the 'urban' and 'urbanistic' project is first of all a project of ground (an apparently similar statement to the 'the landscape as an active surface' proper of Alex Wall's contribution).

XI. A qualified and articulated thickened ground. Historical map of Hradcany area in Prague, as published in Casabella 520-521.

This 'extreme position' was argued to be considered true both for the construction of new cities and for the modification of consolidated pieces of territory. While striving to build up his own theory about it, Secchi complained about the weakness of the discussion about the ground, left to the status of an unqualified and unarticulated surface[40].

Therefore, a list of three tendencies is identified that were basically adopted by urbanists and architects in (Secchi's) contemporary practice of 'ground projects': [1] "A first tendency absorbs the ground, its functions and its meaning inside a building which becomes a city in itself"; [2] "A second tendency reduces the role of the project for the ground until it becomes a pure amorphous support to technical elements; through these one tries to logically interpret the exchanges between different and distant subjects and activities." [41] ; [3] The third tendency "considers the ground under the light of its metric characteristics" and seeks to distribute uses and activities according to technical coefficients and rules. Thus, once the project is reduced to a matter of quantity and location, the representation of an urban project is reduced to a map.

Against these widely accepted tendencies, Secchi was arguing for a project of ground that is conceived simultaneously at different scales and that is defined as a process (made of staged actions to be determined interactively). Thus, the territory has to be thought and designed as constituted of 'parts'. Each part of the city and of the territory is diverse from each other because of the socio-economic processes it has dealt with. The parts are in a relation to each other according to relationships that evolve in time. However, we have to describe and work with the formal and visible features of these parts instead of working with criteria simplistically linked to the external conditions that generate them. Thus, the ground's project is a project that locally qualifies the elements – each at the proper scale - through which the ground is articulated.

In addition in support to Secchi's critique to the ground as an amorphous support to technical elements, Alex Wall recovers Gregotti for a

40. "Se osserviamo tutto ciò, ad esempio attraverso i disegni degli urbanisti, possiamo renderci conto della progressiva perdita di importanza, lungo questa storia, della progettazione del suolo: della sua costruzione, non solo come edificazione, ma anche come formazione, ordinamento secondo dipendenze logiche e concordanze grammaticali, come composizione di singoli elementi differenti o di loro serie, insomma come definizione dei caratteri della superficie sulla quale gli edifici in primo luogo si impiantano." Bernardo Secchi, op.cit.

41. Bernardo Secchi, op.cit.

reconsidered dignity of infrastructure as a formal designed place that support public activities.

However, the positions presented above – in particular Alex Wall's notation of 'surface' – seem to focus on the 'superficial' design of the ground. To us, instead, the ground is three-dimensional in nature. Thus, it has to be conceived as a thickened ground defined by the vertical dimension that surrounds or covers it. This leads us to consider the cited second perspective of reading the design for landscape and regions. The 'Pompeii in Reverse' argument advanced by architect Frits Palmboom[42] is appropriate to describe what we mean.

Palmboom follows the discussion on landscape urbanism by stating the relevance of 'landscape' in contemporary design: "The contemporary city is a phenomenon of landscape. It can no longer be conceived as an architectonic entity that stands apart from the landscape. In essence, our environment is an urbanized landscape." By referring to Bernardo Secchi, he also believes that the ground project (the action he calls 'preparing the ground') is an architectural duty and is an activity that precedes building. For this reason he talks of 'preparing ground', a ground that has to be conceived three-dimensionally. In fact, he notices, any ground level – even a flat delta land – is three-dimensional and has a material depth.

Hence, while recognizing the relevance of landscape in contemporary design – here meant as the act of preparing the ground – he points to architectural form and composition as indispensable notions. Preparing ground has an architectural dimension, thus "Architectonic notions regarding form and composition are of crucial importance at these moments of solidification. [the process of solidification of the prepared ground]".[43] This means going back to the two projects that anticipated the practice of landscape urbanism – the winning entries by Bernard Tschumi and OMA for La Villette – thus becoming canonical for it. In fact, as pointed out by Stan Allen[44] both projects for what was supposed to be a 'park' design were delivered by architects, thus with that

42. Ibid.

43. Ibid.

44. "The 1982 competition produced two canonical projects: the winning entry by Bernard Tschumi and the second place OMA entry. In this context, it is significant that both entries are produced by architects. Nature and naturalism are secondary to both schemes. These architects claim landscape as a cultural territory, and extend the working methods of architecture to urbanism and landscape. For Tschumi, 'the park now forms part of the vision of the city'. Cities and landscapes, for these architects, are equally artificial, both products of culture and artifice. But while both entries are part produced by architects, neither insists on architectural monuments or traditional typologies of streets and blocks, as seen six years earlier [nel progetto di Krier]. The 'architecture of the city' has been dissolved and refigured into the newly discovered territory of urban landscape." Stan Allen (2009), op.cit., p.184.

'architectonic notions' (of form and composition) that are required in the act of 'preparing ground'.

According to Palmboom the relation between urbanism and the other disciplines (architecture and landscape) has gone through cycles. After the modernists' concern for housing that reinforced the relation between urbanism and architecture, we are now in a moment marked by a renewed relation between urbanism and landscape. However, Palmboom disagrees with James Corner about the possibility that landscape architecture and urbanism are conflated in the Landscape Urbanism discipline: "They must indeed be redefined with respect to one another, but each retains its own temporal and architectonic dimension." [45]

45. Frits Palmboom, op.cit.

XII. The 'printed plate' as a practice of 'preparing ground'. Urban design for Leidsche Rijn by Palmbout, from www. palmbout.nl.

In fact, although the link urbanism-architecture has loosened, "building – architecture – does not disappear from the picture. The task of directing the position of new urban material continues to exist. Over the course of time in our work we developed a set of instruments for that, with the printed circuit (or print plate) as an important element. It draws the bonding points for the buildings: the first decimetres of the vertical elements along the public spaces, which define the relation between public and private. It is like Pompeii in reverse: rather than relics of a city that has disappeared, it is the preconception of a city that can arise. The printed circuit negotiates between the flat surface and the carpet of buildings. They are interconnected but not conflated."[46] After the ground is defined and prepared, a 'solidification through architecture' is the step further: "The moment at which the architectonic in the process solidifies and acquires certain autonomy is of vital importance. It is an instrument for provoking succeeding steps in the planning process, or for making them possible, and adding new layers to the process, which without that form could not come about." [47]

46. Ibid.

47. Ibid.

In summary, the design process spends loads of efforts in preparing a ground meant as a 'Pompeii in reverse' or 'printed circuit', that is a three-dimensional and material element (versus an abstract surface of

support) that to some extent (architecture obviously keeps a certain degree of freedom) will guide the solidification of architecture. Thus, the 'professional figure' who is supposed to prepare the ground is not a generic strategist (neither is reduced to 'Programming the Urban Surface') but must own notions of form and architectural composition. The landscape project is thus reconfigured to be process-oriented through a formal practice.

XII. A piece of architecture that re-orients and affects the landscape from which it emerges. Andrea Palladio, Villa Emo, ©Centro Internazionale di studi di architettura 'A.Palladio'.

To this first position that reaffirms the role of form and architecture in landscape urbanism we want to add (either alongside with or in contrast with) another position that reinforces an architectural urbanism perspective. This is referred to the tradition of critically using a piece of architecture – a building or an infrastructure – within the urban or regional realm by designing, localizing, orienting it in such a way that makes it able to affect the wider 'picture'. We can assume the Palladian Villas as the paradigm of this approach (we refer to Section 1 of this dissertation for a deeper discussion on this issue), in its manifested role of informing not only a particular material landscape but also a landscape conception. However, other points in case can be identified in Victor Gruen's Regional Shopping Malls for the American suburbs, in a few of Gregotti's projects (like the University of Reggio Calabria) for the Italian territory, and in the projects by OMA for the condition of the contemporary metropolis. These are all buildings that have shown to be capable to re-orient the landscape in which they are inserted – and from which they emerge – modifying the sense of the landscape itself. From a theoretical point of view both Aldo Rossi's conception of monument and Rem Koolhaas's appraisal of 'Bigness' point towards this direction.

To conclude, we have attempted in this chapter to give an account to the instrument of 'landscape' as fundamental in the project for that 'Regional World' forecasted for contemporary patterns of production. After a description of Landscape and Region within the current debate of Landscape Urbanism and some older references, we have discussed some tendencies for the urban project at the wider scale. The complexity

and uncertainty of this discussion reflects the condition of real practice. One of the key issues related to this condition is the representability of a project based on 'landscaping'. The method of representation that is currently being deployed and experimented with the most is the 'layered drawing', for its ability of decomposing and composing the project. Layers are overlapped that represent (and configure) formal systems (roads and transport, hydrology, mass, green space), time sequences, different disciplines, different actions by involved actors, programme, social structure, etc. If associated to the drawing devices of zooming and distortion, a drawing based on layering can also convey multiscalarity and specify the relation between architecture and landscape.

SECT

BEYOND CAM

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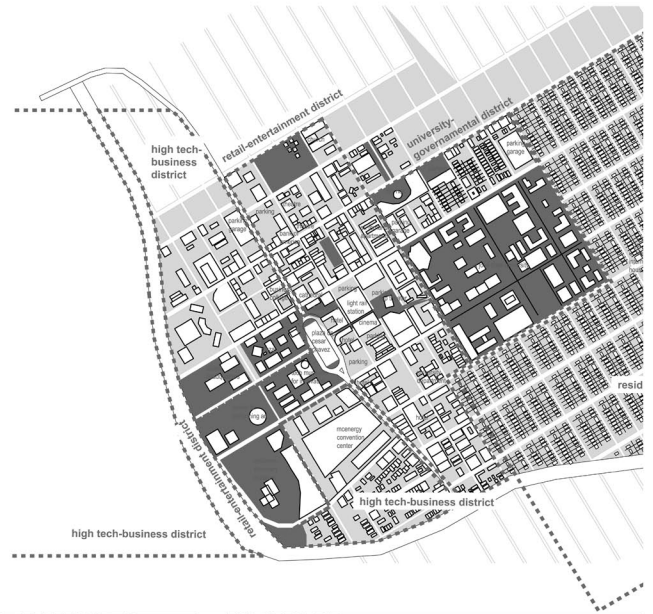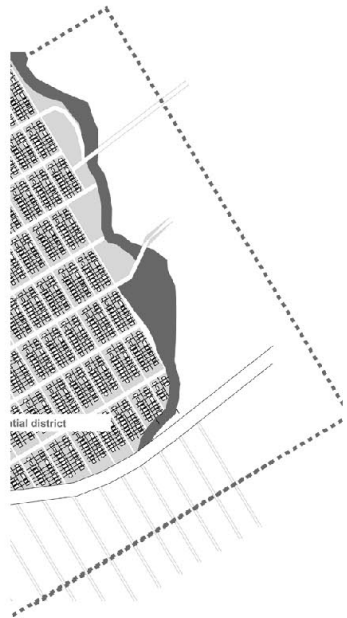
Abstract

La sezione 3 è da leggere come un'estensione della precedente: saranno qui infatti presentati dei casi studio che possono essere osservati e compresi attraverso le argomentazioni sostenute nella Sezione 2. Si è deciso di soffermare l'attenzione in particolare su tre luoghi per il l'innovazione, esistenti o pianificati, di cui si è avuta diretta e più approfondita esperienza nel corso della ricerca: il fenomeno innovativo localizzato nell'area di Cambridge, i luoghi 'urbani' per l'innovazione nel centro di Londra e il sistema 'periferico' designato a diventare un luogo per l'innovazione ad Hanoi, Vietnam. Le condizioni spaziali e istituzionali offerte dai tre casi danno luogo a motivi di confronto immediatamente evidenti, ma non sempre basati sul contrasto. I tre casi studio verranno discussi sulla base di un'osservazione diretta — spesso accompagnata dal disegno; sulla base di riferimenti bibliografici che, se esistenti, ne aveva già descritto i requisiti; sulla base di una ricerca bibliografica e sul web dei processi pianificatori e istituzionali in atto. In alcuni casi una speculazione progettuale accompagnerà la discussione, in altri si procederà al confronto dei casi studio selezionati con altri ritenuti pertinenti a livello progettuale.

I. (introductory spread) Spatialities of Innovation. A collage. Clockwise: Mission Bay San Francisco, drawing by the author; San Josè City, drawing by the author; KIC Shangai, ©Google, HaBiotech Hanoi, collage by the author; Whitechapel London, drawing by the author; Fitzrovia-Bloomsbury London, drawing by the author.

We believe that architecture and urbanism should have a projective approach, that consists in selecting the relevant questions, diagramming conditions and thus responding through chosen operative instruments at the chosen 'scales'. Within an academic research, we can build 'projectiveness' through discourse or through comparison of case studies. In this case, we chose to elaborate on three case studies, read through the lenses of the operative instruments discussed in Section 2 and with the ambitions of the Innovation Economy described in Chapter 1 as a background.

Chapter 7
The Cambridge Phenomenon: colleges, science parks, green belts and low-density urban fabric

Abstract

Il Parco Scientifico di Cambridge è stato l'esempio più citato da quei politici e attori economici che, negli ultimi venti anni, avessero deciso a tavolino di trasformare la propria regione o nazione in luogo innovativo. In realtà, il CSP è solo un tassello percentualmente minoritario di un evento più comprensivo che, dalla letteratura specializzata, viene definito come Cambridge Phenomenon. Da un punto di vista spaziale, questo si costruisce attraverso un accostamento di un denso tessuto urbano e una proliferazione di campus (parchi scientifici e tecnologici, campus universitari e campus ospedalieri). Tale accostamento è regolato dal sistema contemporaneamente spaziale, di controllo politico e di negoziazione economica delle greenbelts: le fasce verdi di rispetto costringono la città ad auto contenersi in una politica iniqua che ha favorito l'emergere di luoghi di lavoro a discapito di quelli per l'abitare e costituiscono l'elemento di scambio – spaziale e di supporto infrastrutturale – con gli altri centri del Cambridgeshire. Il minuto e denso tessuto urbano di Cambridge è stato l'incubatore delle piccole-medie imprese impegnate nel settore high-tech ed è interrotto dagli elementi eccezionali dei college universitari (città dentro la città che contribuiscono alla creazione di comunità privilegiate cross-disciplinari di studenti, ricercatori, professori e imprenditori in fiere) e dei dipartimenti universitari, l'interfaccia urbana dell'università di Cambridge. I campus proliferano nelle greenbelts. Tuttavia, la scarsità di alloggi e, in generale, di spazio per le grandi industrie (in particolare quelle legate al settore emergente delle biotecnologie) minacciano la competitività attrattiva del fenomeno. D'altro canto, azioni di densificazione ed espansione della città di Cambridge potrebbero mettere in crisi 'il perfetto environment' di Cambridge definito da un'adeguata dimensione pedonale, dalla quantità e qualità di spazi verdi e di infrastrutture ricreative e civiche e ritenuto da alcuni fortemente rilevante per la sopravivenza del fenomeno stesso. In queste condizioni, l'arrangiamento istituzionale e spaziale del Cambridge Phenomenon si trova di fronte la sfida di correggere lo sbilanciamento tra i luoghi per il lavoro e i luoghi per l'abitare, alla ricerca di nuove forme e tipi compatibili con la città stessa e di pattern capaci di equilibrare le forze centrifughe – verso l'area metropolitana e regionale – e quelle centripete di lavoratori pendolari e industrie delocalizzate. Ovviamente, la risposta non si può cercare nella sola dimensione della città ma in una dimensione regionale di network che include non solo i centri immediatamente intorno a Cambridge ma tutto il corridoio tra Cambridge e Londra, e la stessa Londra.

This chapter is devoted to what the literature has named 'The Cambridge Phenomenon'. Before starting a critical examination of the 'Cambridge Phenomenon', a preliminary clarification is necessary with regards to what constituted the phenomenon[1].

One of the paradigmatic cases of the new industrial pattern established by the knowledge-based economy, put in bullet-points, the Cambridge case is characterized by: [1] the concentration in and around Cambridge of a large number of high tech companies (electronic, computing industries and, increasingly in recent years, biotechnology firms) which are mainly young, small, independent and indigenous; research/design/development oriented (the production being located elsewhere); spin-offs of the university and of other companies; [2] the absence of large scale industries; [3] the complex network of direct and indirect links between companies and university and among the companies themselves.

Among the factors which generated the phenomenon we can draw our attention on some that, predisposed in the 1970s, acted as direct stimulus for growth. Among these we can list – with no aim at comprehensiveness - the 'Mott Report' from 1969, that contributed to firing change in the attitudes of the university and the county's planning institution; the constitution of numerous companies which helped and encouraged the spin-off mechanism; the constitution of the 'Cambridge Technology Association' in 1979; the key role played by Barclays Bank for financial support policies aimed at start-ups.

If it goes without saying that such policies and factors are also associated to other experiences elsewhere in the world, the Cambridge Phenomenon could not be explained without some 'preconditioning factors', that is, specific features proper of the peculiar urban environment itself and particular events which unfolded concomitantly with the ignition of the phenomenon. These preconditioning factors can be split in categories such as: national factors (UK governmental support policies in the 1970s to enable small firms to emerge and grow); regional factors (the fast

1. We take here as main reference the chapter 'Factors causing and shaping the Cambridge phenomenon' from Segal Quince Wicksteed, The Cambridge Phenomenon. The Growth of High Tech Industry in a University Town., Segal Quince Wicksteed Limited, Cambridge, 1985.

I. Cambridge's landscape within a cross-regional network. UK and Northern Europe Road Map, ©2010Google; and aerial view of Cambridgeshire, ©2010 Microsoft Corporation, from BingMaps.

economic growth of the East Anglia Region from the 1960s as well as the infrastructural improvements from the 70s and 80s); technological factors (the development of electronic and computing industries, more suitable for the new small firms); Cambridge-specific factors. Are Cambridge-specific factors: the prestige, the quality and the 'style' of the university; the number of local research and technological institutes (either public or private; either housed in, associated with or completely independent from the university); the incidence of public expenditure on research in the 60s-70s; the role of the Cambridge Science Park; the industrial history and structure of the county never associated to mass production (the absence of a industrial working class has then contributed to the formation of a skilled labor force to be employed in the high tech sector); the special character of Cambridge as a town (in particular, its small size has contributed to the networking and concentration of small industries and to achieve easily the critical mass necessary for innovation versus, according to the Cambridge Phenomenon report, what happens in big cities where often the dispersal of firms does not allow the creation of critical mass); and the numerous push-factors which led well qualified employers or researchers to set up their own businesses as spin-offs of other institutions in which they did not feel professionally fully satisfied.

From the brief summary presented above, it emerges quite clearly that what we are dealing with, in this chapter, is a rather 'unique' experience. While acknowledging the particularity of the exceptional series of event that combined to build up the 'phenomenon', it is however possible to consider it as a starting point to raise more general questions on innovation environments. Hence, aware of the high number of topics related to the phenomenon and the correlation among them, this chapter is structured in three main parts, each corresponding to one specific issue.

The first part looks at the role of Cambridge University as leading force in driving the changes of the city in spatial, economic and social terms. The power of the academic institution is so deeply rooted in Cambridge's inner structure that the strong position it took in the '60s-70s (namely

the Mott Report and its effects) has opened an era of change both in the university's policies as well as in the spatial configuration of the city. Cambridge University and Cambridge City are intrinsically related; they have grown, evolved and expanded together. In addition, understanding the evolution of the role of the academic institution within the continuous reassessment of innovation environments (from the 1970s onwards) can be a valuable foundation for further research.

In the second part, the Cambridge Science Park (CSP) is taken as starting point for a wider discussion on the spatial pattern of the Cambridge area and on the general role of science parks. Widely recognized as successful and quoted both in the specific literature and in the 'developers' speeches', it is often misunderstood and considered to be a model replicable everywhere (maybe with some formal improvements and adjustments in terms of landscaping and building 'make-up'). Besides, within a discussion of urbanized innovation environments versus the enclosure-model represented by the science park, CSP is taken here to sustain an argument for the relevance of the latter. To avoid misinterpretations, it is then important to link CSP to its supporting background, since the park is only a component of that most complex machine Cambridge's economy is.

Finally, the last part deals with the challenge related to the future growth of the phenomenon and the way such challenge merges with the question of its physical expansion and its positioning inside the wider regional context. Cambridge as city and as centre of a bigger innovative region has posed particular spatial interrogatives giving an answer to which is becoming increasingly more complicated as the phenomenon evolves.

Cambridge

0   200 metres

CHESTERTON COMMUNITY COLLEGE
CAMBRIDGE CITY FC
WESTBROOK RESEARCH CENTRE
SCH
A. Coaches
MILTON ROAD
CHESTERTON ROAD
RING ROAD
A1303
Recreation Ground
HOSPITAL

VICTORIA ROAD
A1134
VICTORIA ROAD
PO
HILDA ST
Alexandria Gardens
CASTLE BRO HIGH TECHNOLOGY SITE
SHIRE HALL
CHESTERTON ROAD
A1303
CHESTERTON LANE
REGISTER OFFICE
CASTLE MOUND
FOLK MUS
KETTLE'S YD
MAGDALENE BRIDGE
Victoria Bridge
LOCK & WEIR
OUTDOOR SWIMMING BATHS
ELIZABETH WAY
A1134
RING ROAD
UNIVERSITY
COLLEGE BOATHOUSES

Jesus Green
Bowling Green & Tennis Courts
Jesus Close
SCHOOL
WESLEY HOUSE
JESUS COLLEGE
Midsummer Common
Butts Green
CAMBRIDGE REGIONAL COLLEGE
NEWMARKET RD
CAMBRIDGE COLLEGE

ST JOHN'S COLLEGE
SCHOOL OF PYTHAGORAS
HOLY SEPULCHRE ROUND CH
WESCOTT
ADC THEATRE
JESUS LANE
Bridge of Sighs
St John's Bridge
SIDNEY SUSSEX COLL
MAIDS CAUSEWAY
SHORT ST
NEW SQ
BRAFTON
BUS INTERCHANGE

Trinity Bridge
Trinity College Fellows' Garden
TRINITY COLLEGE
Garret Hostel Bridge
TRINITY HALL
Clare Bridge
GONVILLE & CAIUS COLL
ARTS CINEMA
CHRIST'S COLLEGE
BUS STA
Christ's Pieces

CLARE MEMORIAL
The Backs
SENATE HO
ST MARY'S CH
EMMANUEL COLLEGE

KING'S COLLEGE CHAPEL
KING'S COLLEGE
King's Bridge
King's College Fellows Garden
ARTS TH
LION YARD SHOPPING CENTRE

POL HQ
FIRE STA
Peter's Field

QUEEN'S COLLEGE
Queen's Bridge
CRIPPS CT
ST CATHARINE'S
ST BOTOLPH'S CH
CINEMA
SEDGWICK MUS
DENT SCIENCES
Parker's Piece
PARKSIDE INDOOR SWIMMING POOL

HARVEY COURT
INST OF CRIMINOLOGY
FISHER CT
UNIVERSITY PRESS
BOATYARD
PEMBROKE COLLEGE
UNIVERSITY CENTRE
ST MARY'S

ANGLIA POLYTECHNIC UNIVERSITY
Cemetery

MUS OF CLASSICAL ARCHAEOLOGY
RESEARCH INST
PETERHOUSE COLLEGE
DOWNING COLLEGE
GONVILLE PLACE
KELSEY KERRIDGE SPORTS HALL
HUGHES HALL
YMCA

SIDGWICK AVENUE
DARWIN COLLEGE
RIDLEY HALL
NEWNHAM WALK
NEWNHAM COLLEGE
HALTING LANE
A1134
Coe Fen
Crusoe Bridge
FITZWILLIAM MUSEUM
PO
SOUTH CAMBRIDGESHIRE DIST COUNCIL OFFICES
SCOTT POLAR RESEARCH INST
SCHOOL
Fenner's (University Cricket Ground)

Caius College Sports Ground
Lammas Land
Sheeps Green
HOBSON'S CONDUIT
THE LEYS SCHOOL
A1134
THE FEN CAUSEWAY
RING ROAD
LENSFIELD ROAD
A603
RC
SAXON ST
SCH
Park & Ride South
CAMBRIDGE STATION
YHA

CHEDWORTH STREET
TRUMPINGTON ROAD
TRUMPINGTON ROAD
UNIVERSITY

QUEEN'S ROAD
RING ROAD
NEWNHAM RD

2. This argument is presented in 'Something new under the sun. A special report on innovation' in The Economist, 13 October 2007: "Its success came 'in spite of, not because of' government and university support."

3. Something new under the sun. A special report on innovation', op.cit.

[Part 1: The Universities' Guide to Innovation]

We can start off by stating that the Cambridge phenomenon has developed 'despite'[2] the support of the government and of the university in private entrepreneurship.

Observing innovation-and-knowledge-based economies spread around the world, it is noticeable that the most flourishing among them are those which have a strong constituent in academic institutions. Found the formula, many projects that followed on Cambridge's footsteps have thus tried to generate clusters and science parks around universities. However, not all of them have accomplished the expectations. This is a sign of how university institutions can act in different ways in the promotion of innovation and how it is not possible to define a 'recipe'.

According to a report on innovation published by The Economist in 2007, investing too much in the role of higher education is not only sufficient for innovation to spread, but also it can be a real mistake. It is hence argued that although Europe can boast numerous top universities, at the moment it is far to lead the economic scene in terms of innovation capability and performance. There is, in European countries, an exaggerate pour of public money in education and R&D compared to the lower attention put on the entrepreneurial process and venture capitals, factors, the latter, which have demonstrated to be able to drive innovation in many other contexts.[3]

Anyhow, Cambridge is one of those cases where the university has managed to be a primary factor in generating and supporting a high tech innovation cluster. Even today, when the relations among firms are strong and the phenomenon is mature, the academic institution is still present (and even reinforced by the emergence of the biotech sector).

Cambridge University has set up a program of long-term but non-invasive influence on the cluster. Compared to other institutions like, for

Burrell's Field

Grange Road

Burrell's Walk

Fellows' Garden

Queen's Road

The Avenue

The Wren Library

Garret Hostel Lane

New Court

Nevile's Court

River Cam

Bishop's Hostel

Nevile's Gate

Hall

Great Court

Master's Lodge

The Fountain

Trinity Lane

Angel Court

Chapel

Great Gate

Trinity Street

Blue Boar Court

Wolfson Building

All Saints' Passage

Whewell's Court

Green Street

Bridge Street

Sidney Street

4. "St John's Innovation Centre provides early stage knowledge-based companies with business advice, strategic consultancy, introductions and flexible accommodation. It was the first innovation centre of its kind in Europe and has become world-renowned for its success as a business incubator. It is located at the heart of the Greater Cambridge technology cluster, in which it plays a pivotal role". From http://www.stjohns.co.uk.

5. Segal Quince Wicksteed, The Cambridge Phenomenon. The Growth of High Tech Industry in a University Town., Segal Quince Wicksteed Limited, Cambridge, 1985, p. 48.

III. Cambridge's collegiate structure contributes to the creation of an environment of open - although inevitably elitist- exchange and cross-over. Trinity College, Drawing by Jeremy Bays, © Trinity College.

example, Silicon Valley's Stanford University, whose interference within the business sector has been far more incisive and direct, Cambridge University accounts for a larger number of spin-offs. When the San John's Innovation Centre[4] opened in 1988, two thirds of the tenant firms were direct spin-offs of the university. Today only the 5% of Cambridge's start-ups is a direct spin-off of the university. However, this does not reflect a decline of the university's position, but rather its changing role.

Materially Cambridge University's influence can be seen from the sheer numerical data in terms of number of spin-offs; number of highly qualified staff educated in the university and who then feed the workforce of the established firms; number of staff working as consultants for industries; number of square meters of labs and commercial workspaces in the science and research park. However, its most important contribution has been an invisible set of policies - the short-term contract of its lecturers who then decide to move into industries; a flexible relation with its employees and researchers who are free to make research elsewhere or to open their own business; an open policy in terms of intellectual rights - and of informal linkages which have contributed to the generation of "an environment in which industrial links of all kinds have been allowed to flourish without fear of sanction or beaurocratic intervention, as too easily can happen in a rigid even if well-intentioned regime".[5]

The university's collegiate structure has also contributed to the creation of an environment of open - although inevitably elitarian - exchange and cross-over, since students and researchers from different disciplines constantly found themselves gathered together. In addition, even when a 'contractual' and formal relationship between a researcher (now entrepreneur) and the university is over, he can keep on being a fellow of his original college. The colleges are also the structures expected to welcome those visiting researchers who are probably going to work in the laboratories embedded within them. They thus constitute another channel which permits business to keep in constant contact with the academic
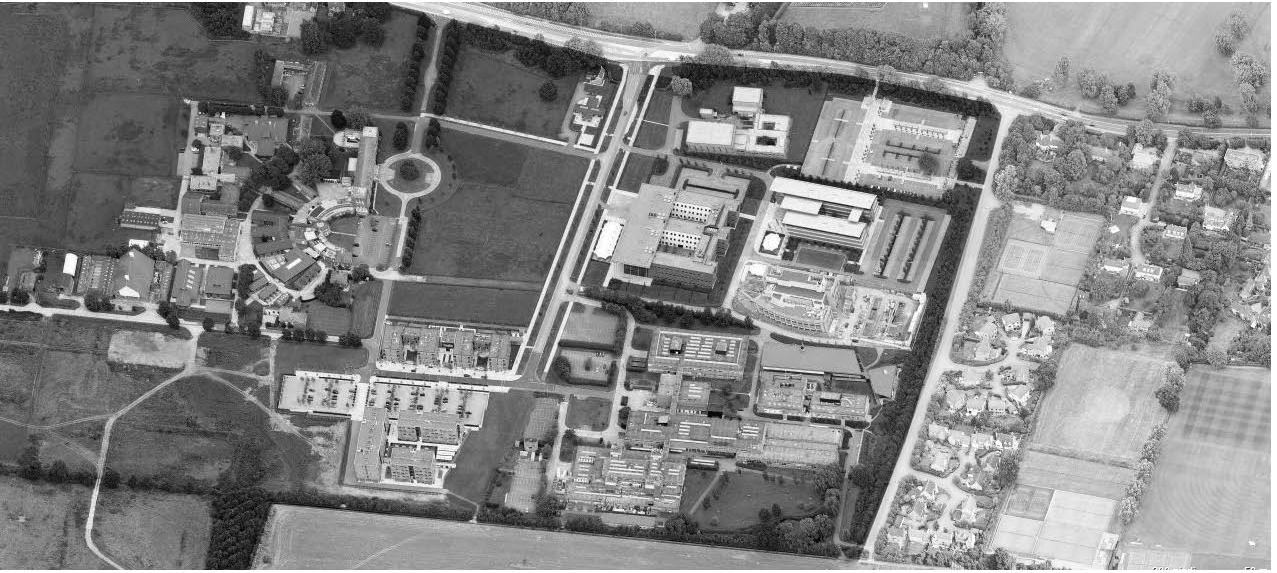
community.

The contribution to a creative environment is to be intended also in terms of social life. Not only is the university a 'cerebral attractor' for good brains and foreign companies but has actually made Cambridge an attractive place to live: its young community fuels an active culture and social life. The campus configuration of, for instance, MIT mirrors its scarce relation with the community and the city: a spatial arrangement which reinforces a community of privilege. Conversely, while still being an elitarian system, Cambridge's collegiate structure is embedded within the city's fabric in such a way to avoid the closure associated to the campus. Moreover, even when the university establishes parks outside the city, its 'urban' interface is maintained.

Furthermore, the university has been always aware of the benefits that can be obtained by being engaged with the business sector. It is through such a fruitful relation between academia and business that the university has, in the last fifty years, become richer and increased its already established and recognized prestige. Indeed, the institution has been able to obtain private funding for teaching and research projects as well as to exploit the economic advantages coming from the commercialization of research (applied research). Moreover, the university has significantly improved its educational offer through the establishment of a two-way flow of information between pure research and the real world of industry.

As quickly mentioned above, the collaboration between the academic institution and the business world has been enhanced by an official statement by Cambridge University in 1969: the Mott Report. Yet, the Report has been much more than a promoter of ties between university and private business. Probably still unique in its strength, it in fact clearly expressed a position toward central issues involved in the planning policies of the city. What is peculiar in Cambridge is actually that not only is the university the most relevant institution in the city, but - given the

IV. Another chunk of greenbelt for Cam. Aerial view of the West Cambridge Site, the new university campus development, ©2010 Microsoft Corporation, from BingMaps.

huge percentage of land owned by it and by the colleges - it also has the power to actually interfere in the physical development of the city. This fact needs to be clear in order to understand the expansion of Cambridge through its history.

In particular, in several occasions the university has been able to change the recurrent planning attitude and adapt it to its need of promoting commercial science-based projects. To give an example of the university's strength in influencing the rules of urban growth, we can remind how CSP – and this is valid also for all the other parks set up by the university - is built inside the Green Belt[6] that was established in order to define an edge to the development and any possible sprawl of the urban fabric over the countryside. In other words, the university managed to build on off-limits land. As will be explained later, this preferential treatment towards the high tech sector in relation to other possible urban uses has been the reason for the disequilibrium and disfunction that Cambridge is currently showing.[7]

In conclusion, the contribution of Cambridge University to the phenomenon has consisted in both non-material inputs - intellectual capital, research results, managerial experience - and material ones - land and floor space.

The first physical contribution has been the Cambridge Science Park, established in 1970 by Trinity College[8]. Starting from it, a long series of parks have followed, either publicly or privately funded. The last contribution to Cambridge University is the West Cambridge Campus where, together with the university departments, a significant amount of commercial space will be allocated. The program, probably pushed by the evident disequilibrium between housing and workspace in the area, includes also 200 new houses for the staff and correlated facilities.

Besides the provision of incubators and land for firms to develop within the university's land, a new formula of cross-research has been set up.

6.Cambridge's Green Belt's origin can be found in the Plan for Cambridge produced by William Holford and H. Miles Wright in the immediate aftermath of WWII.

7.This is actually a consequence of the contradiction between policies set up over the last fifty years. As we know, there are extremely strict regulations aimed at avoiding the expansion of the city at the expenses of the green belt. This policy was set up in order to contain the size of the city (and protect its environment) and to prevent the sprawling of housing and the creation of industrial settlements. However, looking at the Cambridge Map the image is not as clear as an outcome of such law should have given. In fact, the green belt houses new developments. Among them, we can spot CSP and other new high tech research developments. From the Mott Report until now, there has been a long history of favoritism for this sector. The picture now is that the high tech (in terms of office and lab floor space) has grown more (but not sufficiently for the sector itself) then the correspondent amount of houses and service infrastructure to support it. For this reason a dispersed pattern of housing and employment has emerged.

8.“Now home to over 100 companies and 1,650,000 sq ft of buildings, Cambridge Science Park continues to attract new businesses, from small start-ups and spin-outs to subsidiaries of multinational corporations.” From http://www.cambridgesciencepark.co.uk/

The 'embedded laboratories' represent the last development in the relation between business and university and show how the university is continuously evolving its approach to the phenomenon. Whereas the embedded laboratories have until now effectively engaged mostly with big firms - like chemical industries and pharmaceutical companies - they are expected to have soon an impact on the whole phenomenon (they have in fact already started to generate spin-offs).

In particular, the hot-field of life-sciences is pushing the university to find new ways to dispose itself toward commercialization. The pressures around the development of the Addenbrooke's site, with the envisioned expansion of the hospital and the construction of new privately funded workspaces targeted at the collaboration of teams from different institutions, are a representation of the challenge posed by the embracement of the biotech sector. However, the council asked for a resizing of the plan for the expansion of this peripheral settlement, thus showing yet another manifestation of the old struggle between city planning and the phenomenon's ambitions.

[Part 2: Science Parks]

The land where the Cambridge Science Park is located, on the north-eastern edge of the City of Cambridge, has belonged to Trinity College since its foundation by King Henry VIII in 1546. It was farm land until World War II when it was requisitioned by the US Army and was used to prepare vehicles and tanks for the D-Day landings in Europe. After the war, the site laid largely derelict and increasingly threatened by planning blight until the decision to develop it was taken in 1970.

Cambridge Science Park is taken here as a successful case of a purposely designed enclosed space.

CSP can be classified as belonging to what is referred to as the 'first

9. The Cambridge Phenomenon Report from 1985 refers in particular to Dr John Bradfield who promoted "an unhurried long-term approach, working informally and in line with the natural grain of events" in the relation between university and business.

generation of science parks'. That is, a fenced piece of land on the outskirts of the city, with one or two accesses from a main vehicular road, in which the only function allowed is that of production (in the case of CSP, production takes the form of R&D and light industrial production).

The institution that laid the foundations of the Science Park is the prestigious Trinity College, and the Park's establishment was a direct outcome of the Mott Report. Trinity College possessed all the correct features to respond to the requirements defined by the Report: it owned the land, constituted a community of excellent scientists, had experience in scientific research and management as well as people able to set up the informal network between firms and university community that would have proved to be key in the Park's success.[9] This was the genesis of CSP.

The first tenants - mainly spin-offs from the university - moved here attracted by the availability of floor-area. In addition, given their small size, they could benefit from both clustering together while sharing facilities otherwise unaffordable and from being part of a system set up and sponsored by such a prestigious institution as Trinity College. Many of these first tenants have grown and now occupy larger buildings inside the Park itself. Moreover, the Park also houses some large firms who decided to move here attracted by the exalted and notorious environment. In some cases they have built their own buildings over the Park's land.

Today the buildings have filled up almost the whole available land (over 100 firms and almost 4,000 employees) and an expansion is envisioned to an adjacent piece of land to the west of the Science Park. This would be CSP's 5th phase of expansion.

This shows the extent to which the Science Park has been a work in progress spread over a 40-year life span that has gone through continuous adjustment of the Park's role as well as of its spatial configuration. If the university started soon working informally to create ties with the companies, it is curious to observe how the Trinity Centre (a facility

providing a bar, common spaces and meeting rooms) was opened only in 1984.

In terms of the physical planning of the Science Park, a great deal of attention has been posed on landscaping (meant as 'green' design for the open space), considered to be, together with the low density, a key element for a pleasant and attractive environment. This makes even clear how CSP has been a place for the experimentation of those physical and programmatic requirements that are today considered canonical for a 'creative environment'. In fact, landscaping and common facilities are found today as cornerstones in the design of every single science park, and they can even precede the necessary number of firms that constitute the critical mass for innovation. Architecture is another of the means used by the developers as instrument for marketing new science parks. However, the buildings in CSP were not developed by any particularly famous architect or on the basis of achieving a 'striking' appearance.

Many ambitious plans for science parks do not answer to a real demand for innovation but precede it. CSP responded to a real event. In fact the engine of entrepreneurial creation of the high tech firms was already in progress before the early 1970s. The start-ups, mainly established by people coming from the university, occupied all the possible free space in the city - and this is still valid today - and CSP can be seen as a first response to their need of additional room for expansion.

What it is important to underline here is that the Park had a long period of gestation before really becoming a critical element of the phenomenon. In the first five years, in fact, it housed only seven tenants. Even if it had not a big role in supporting the birth of the phenomenon, for sure it sustained the phenomenon once it had started, becoming the 'advertisement' of it around the world.

"It takes time for a novel scheme to feel in its way in the market and to project the right image and offer the right facilities for the market

VI. The science park's design cornerstones: landscaping, meeting facilities and the architecture of each single bit. Picture of Cambridge Science Park, from http://www.cambridgesciencepark.co.uk/

10. Segal Quince Wicksteed (1985), op. cit., p.73.

VII. A science park alone is not enough! CSP collaborates with and is fed by a whole range of high-tech small medium firms packed within the town's fabric ©2007MicrosoftCorporation.

aimed at. It takes time to cultivate an environment in which fruitful exchanges across boundaries are readily possible. It takes time for external confidence in the scheme to be built up and for it to be seen as a desirable location by a diversity of organizations."[10]

It took time despite the fact that Cambridge and the cluster were offering favorable conditions.

Even in its successful experience, CSP provides a lesson which seems of not having properly digested around the world. The lesson can be simply summarized by stating that a science park alone is not enough to guarantee the generation of an innovation environment. The latter, in fact, has to be regarded as a complex set of ingredients. And, in its spatial enclosure and oversimplify pattern, a science park cannot accommodate all these ingredients. Looking at CSP as an isolated piece of land cannot but give the wrong image of a phenomenon which has wider implications. The high tech cluster is in fact not that one enclosed within the boundary of CSP, but the one which was generated inside the city of Cambridge - whose middle size helped in achieving the needed critical mass for the explosion of the phenomenon - and that now is characterized by a widely spread pattern that includes the numerous science parks, the city, and the surrounding towns. It is sufficient to observe the data: only 5% of high-tech companies of all the area are actually housed inside the fences of CSP.

Pushing our argument a bit further, besides noticing how CSP constitutes only a small part of the phenomenon, we want to stress how rather than being only an example of efficient management, research, clustering and knowledge transfer it has been the seed for the future employment pattern of Cambridgeshire. This pattern can be summarized as composed of workplace settlements shaped as Science Parks and located in the outskirts, service and houses inside the city or in some surrounding villages, and manufacturing plants located elsewhere.

VIII. *Science Parks' proliferation. Edge between CSP and St. John's Innovation Park ©2007MicrosoftCorporation.*

11.Just to mention the science and technology parks in Cambridge area: Cambridge Science Park, Granta Park, Melbourn Science Park, Peterhouse Technology Park, St John's Innovation Centre.

12.Segal Quince Wicksteed, The Cambridge Phenomenon revisited., Segal Quince Wicksteed Limited, Cambridge, 2000.

The first proliferation out of CSP includes the construction of San John's Innovation park in 1987, smaller but complementary in function to the earlier Park. While the latter is the 'window' of the phenomenon for the world, the former really has played a supporting role for the small companies. It was born in fact established as an incubator and still continues its goal of finding innovative solutions for the growth of the small firms and, therefore, nurtures the phenomenon itself.

The title of this paragraph – Science Parks - is thus intentionally 'plural'. It wants to highlight the proliferation of science, business and research parks[11] which have occupied the area around Cambridge and that are now re-locating far apart from it.

Moreover, from the high-tech related parks we are now witnessing a movement towards further differentiation in which the business and service sectors - obvious outcomes of all innovation clusters - have to been housed. The Cambridge Report Revisited[12], published in 2000 as follow-up to the first publication from 1985, speaks in fact of a 'halo effect': new and future developments in the form of business parks are expanding far apart from Cambridge, where cities like St. Ives and Huntingdon are expected to house a high number of firms moving out from the congested Cambridge area.

In general, despite the consciousness of an unavoidable development, there is great concern about the increasing extension of the workplace settlements and much concentration is advocated. If the first science parks where located around the city and, particularly, to the north of it, the new ones are moving to distant locations and following a different direction. What is needed to be debated is up to what extent will the sprawl of settlements be sustainable and when it will turn into a problem for the area. Otherwise, we could start speculating about the possible ways of accommodating this natural development to give consistency to a wider region of innovation.

[Part 3: College (city within the city), Campus (city without the city),
Low Dense Urban Pattern and the wider Region of innovation. The
Cambridge landscape.]

The Cambridge phenomenon has developed despite the heavy physical
constraints imposed by the planning policies.

Cambridgeshire, the western area of East Anglia, has started a dramatic
escalation in the 1960s - when many industries, escaping the congestion
of London area, relocated themselves in the region - from a mostly rural
location to one of the wealthiest in all the UK. Alongside with the growth
of the manufacturing sector and a consistent demographic change, in
the 1970s also the local enterprise became an essential component of the
economy.

Cambridge has played a major role thanks to its proximity and good
connection - through the M11 expressway and the railway network) - to
the southern region and the capital and to the impulse coming from
the consolidated academic institutions. Nevertheless, the attitude of
the city towards development and industrialization has never been of
unconditioned welcome.

The concern for the preservation of the city's historical heritage and of
its uniqueness of urban environment led, in the 1950s, to the city plan
developed by Holford and Wright and marked by a protectionist attitude:
industrial activities were almost prohibited near Cambridge and pushed
outside of the first ring of villages – with the aim of revitalizing the rural
area – and, in general, large scale production was discouraged throughout
the entire county.

Twenty years later, the university spoke up against these excessive
limitations which where precluding the growth of Cambridge's economy
and of the university itself. The Mott Report in 1967 opened a period
of more - but not unconditioned - freedom in the development of

IX. Green Belts as the key physical and political space of negotiation for the enhancement of the Cambridge Phenomenon. Picture by author.

research and service floorspace close to the city. However, the industrial settlements would have continued to be unwelcomed in favor of a more compatible and adequate science-based industry.

The subsequent development of the city, in spatial and economic terms - quite related to each other in terms of size, type and location of the industries - has assumed the distinctive organization at the base of the uniqueness of the phenomenon.

The Cambridge phenomenon is mainly constituted by small firms which could be allocated in the low dense pattern of the city. The hostility toward the establishment of large companies - either manufacturing or big research multinationals - has precluded this high-tech cluster to benefit from the multiple relationships with large firms. A synergy which characterizes other innovation environments elsewhere located.

In order to understand the uniqueness of the phenomenon it can be relevant to compare it with other successful high-tech clusters, such as Silicon Valley or the Boston Metropolitan area, which show how different economic models correspond to different spatial arrangements.

The geographic configuration of the area, the planning policies, the field of specialization and the point in time of development have shaped these models as unique and embedded in their physical constitution.

The Cambridgeshire is a suburban area of which Cambridge is the centre and the most 'urban' settlement. Like Boston Metropolitan area, Cambridgeshire belongs to the category of 'dispersed patterns of settlements'. However, their type of suburbanity is dissimilar in scale and quality. As already said, the dispersed pattern of monofunctional workspace around Cambridge has derived from the contradiction in urban policies. People who work here commute everyday to the city or to the villages close-by, where they live. The character of the science park is however less complex then the one of the 'Edge Cities'[13], born along two

13. "I have come to call these new urban centers Edge Cities. Cities, because they contain all the functions a city ever has, albeit in a spread-out form that few have come to be recognized for what it is. Edge because they are a vigorous world of pioneers and immigrants, rising far from the old downtowns, where little save villages or farmland lay only thirty years before.
Edge cities represent the third wave of our lives pushing into new frontiers in this half century. First, we moved our homes out past the traditional idea of what constituted a city. This was the suburbanization of America, especially after World War II.
Then we wearied of returning downtown for the necessities of life, so we moved our marketplaces out to where we lived. This was the malling in America, especially in the 1960s and 1970s.
Today, we have moved our means of creating wealth, the essence of urbanism, -our jobs- out to where most of us have lived and shopped for two generations. That has led to the rise of the Edge City." Joel Garreau, Edge City: Life on the New Frontier., Random House Inc, New York, 1992.

main lines of infrastructure - Route 128 and, later, Route 495 - around Boston and funded by large companies.

Joel Garreau defined the 'Edge City' as the third phase of the process of suburbanization. If the sprawl in Cambridge was supposed to be rejected – nevertheless, the contradiction of policies generated it - in the Boston area it was promoted by policies and by infrastructural improvements – aimed at opening up new free land for sprawl. The Edge Cities have been started by large industries who found themselves clustered around Route 128 because of a favorable location: close to the airports, close to the main roads leading to downtown and to other main regional centers and, in particular, close to the residential areas of the labor force (the suburban settlements – Garreau argues - are simply the horizontal version for the new working class of the 'information age' of the old tenements where the industrial workers used to live). Then, the small and medium firms arrived and promoted the need for clustering and sharing retail and leisure facilities. The synergy between the residential suburbs (even those previously established) and the new entity of the Edge Cities generated an even more powerful suburban structure which could then work without any need for a 'downtown'.

Cambridge has never lost - rather is reinforcing - its role as centre and attractor for the suburban and regional system. Not only is it able to attract the interest of firms and business service offices, but the city is furthermore sophisticating the delivering of excellent health care services, education, retail and leisure-amenities. The small size of the Cambridge's production settlements and their ties to the city centre reflect the structure of the economic and institutional arrangements grounding the phenomenon. In addition, as the data on commuting show, most of the workers (especially the in-comers and the highly paid) would like to live in the city of Cambridge. However, as in Boston, the housing market pushes out most of the old residents who move to the north or to the villages. The various phases of the Boston Miracle were not leaded by small entrepreneurs but by large companies. The

X. The Cambridge Phenomenon's attractivess relies on its good quality living environment. Picture by author.

XI. (following page) Cambridge's development has caused a disfunction that favours the places for working to the places for living. The Cambridge Economy is repulsing labor force because of the high cost of the housing market. New housing development on the outskirts of the city, picture by author.

14. "The main problem, argues Georges Haour, of IMD, a Swiss business school, is that Cambridge suffers from the Peter Pan complex: 'Investors never want to grow up, they are happy with modest success.'" from 'Something new under the sun. A special report on innovation', op.cit.

vertically-integrated organization of these big companies (whether focused on research or manufacture) did not require informal ties with other companies and institutions. They could work by themselves in isolation from the downtown. Being a start-up in Boston has never been easy, even in the inner suburbs such as the MIT area. The market does not support the request of the small companies but prefers to provide large commissioned buildings for the big firms. Then the big firms may accommodate start-ups. The pattern of the medieval Cambridge, conversely, cannot but accommodate small companies. The ties among them are strong and encouraged by the environment and by the university, even when they move to the outlying science parks.

Silicon Valley is again different. The dense concentration of firms in the Valley - in contrast with the dispersed pattern of companies in Massachusetts' edge cities - makes them working in a free network where both small start-ups and large companies can be accommodated. The system is open and flexible, compared to the stable but rigid system of Route 128. Its scale and dynamism is not even comparable to the Cambridge Phenomenon, give the scale and the possibility of unconditioned expansion in the Valley. A centre cannot really be identified - even if San José is argued to be the capital of the Valley - and a particularly powerful institution is not present to regulate and mediate the relationships among the companies.

According to some critics who are looking to the speed of growth and the dynamism of similar innovation environments mainly in other continents, the Cambridge Phenomenon is not enough ambitious[14]. This can be, according to them, the cause for a future decline and non-competitiveness. However, the formula has been working and evolving until now and it is not clear whether its further development should include also large research firms (in particular in the emerging biotech sector, where large pharmaceutical companies capable of driving the sector are needed) and places for mass production. How to refresh and reinvent the formula is the challenge of every innovation environment

15.Segal Quince Wicksteed (1985), op.cit.

16.In 1999 Cambridge Futures, a non-for-profit group of local business leaders, politicians, professionals and academics based at the Martin Centre for Architectural & Urban Studies of Cambridge University, published a first project that examined seven possible scenarios of development for Cambridge.
As can be read on the website http://www.cambridgefutures.org/futures1/index.htm, "Cambridge Futures was set up because both the City and region are undergoing massive and accelerating change. What kind of place do we want them to become? How will they shape up over the next 50 years?"
The 'study area' taken into consideration extended over a 25-mile radius from central Cambridge, encompassing Cambridge City, South Cambridgeshire, East Cambridgeshire and Huntingdonshire districts of Cambridgeshire.
The seven scenarios, from whose names it is clear the main focus of each, are: Minimum Growth; Densification; Necklace Villages; Green "Swap"; Growth along Transport Links; "Virtual Highway"; New Town
In Cambridge Futures 2 analyses the options for transport in the Cambridge sub-region for the next 15 years and beyond.
In 2004 a follow up to the first study was published. "Cambridge Futures 2 analyses the options for transport in the Cambridge sub-region for the next 15 years and beyond".

that, for definition, has to keep on reinventing itself to remain competitive.

The concern for the future growth of Cambridge is not only related to its direct output, namely the high demand for new office space, research labs, commercial spaces for the new business-service offices (the business service sector has grown conspicuously in the last twenty years), the new high tech start-ups and spin-offs, the large firms (if really required) which would like to establish as close as possible to the centre of Cambridge. The main reason for the debate of how the city should grow is the difficulties that Cambridgeshire's firms already found in the recruitment of their labor force, which can represent a serious risk not only for the development but also for the existence of the phenomenon itself. This problem is again related to the spatial condition of the city: Cambridge, whose quality of life is not doubted, can repulse labor force because of the high cost of life and, in particular, of the housing market. Then, more land is needed not only for production and services but, above all, for houses.

If this pattern is the result of the attempt to accommodate the fast growth of people and jobs of the past fifty years (almost doubled), the question about Cambridge's growth not only has to deal with the incoherent development of the past and the pressure and demand of the present, but also with the massive challenge of the future: in the next fifty years the population is predicted to increase of another 45%.[15]

In 1999 Cambridge Futures[16] has elaborated seven options for the growth of the area.

Among them, none seems to be brave enough to accommodate a growth compatible with the speed rate of the phenomenon and to propose the allocation of large companies and consistent spaces for production. Then, it is not clear whether the critique on the modest size of the phenomenon we were referring before is being seriously considered.

However, the main challenge which emerges from these seven options is the balance between the need of the cluster and the preservation of Cambridge's 'atmosphere' and environment. Far from being only a romantic issue, the supporters of conservation argue that if Cambridge has been so attractive for firms and people it is due to its qualitative environment characterized by a low-density fabric and green areas together with a wide offer of amenities, services and retail facilities. The pleasant environment is the same one that is believed to encourage meetings and informal relations among the scientific community. It would be actually nonsense to destroy the advantages of attractiveness that other industrial and wealth cities are trying to reproduce after years of policies centered only on production (i.e. San José in Silicon Valley). However, it seems to us questionable that keeping the low-density character both in the centre and in the possible expansion is the only option able to generate a good environment. The same low density and dispersed character of CSP is open to discussion. For similar reasons, options like the 'minimum growth' or the establishment of a 'new town' sound both unworkable and unrealistic since they do not even try to face the requests of the phenomenon.

Together with a necessary densification in Cambridge and in the adjacent villages, we should pay attention to two of the options advanced by Cambridge Futures, namely 'transport links' and 'virtual highway'. These, we think, are relevant as they place Cambridge within the recognition of a wider regional system. The increased interest of London in the 'knowledge corridor' connecting to Cambridge is a symptom that the city can rely on a wider region then Cambridgeshire. It is then becoming reality the opportunity to commute between Cambridge and London and vice-versa.

Actually the Cambridge Phenomenon has never been a city-case - although the 'university city' has increased its central role as attractor for the surroundings. Rather, right from the outset, it has been supported by the industrial development of the West Anglia region and has benefitted

17.Nicos Komninos, Intelligent Cities. Innovation, Knowledge, System and Digital Spaces., Spon Press, London and New York, 2002.

from the network with the surrounding towns of Cambridgeshire which house part of the manufacturing plants - essential for the high-tech research - and provide housing for its workers.

In light of this last consideration, it seems to us that a strengthening of the regional network where villages and town are made attractive and better connected – by means of an enhanced public transportation system - would alleviate the pressure on Cambridge. The 'Virtual Highway' option would then enhance the system. Actually a system like Cambridge which has largely shown its maturity in producing and managing innovative processes, can easily fit within the current call for an intelligent city.[17] Apparently, consistent efforts are being put in order to follow the path toward an intelligent city which, the literature states, is the result of three coexistent layers: the physical, the institutional and the virtual. In relation to this, we can notice that Cambridge boasts an efficient system of telecommunication and, in addition, the San John's Innovation Park is considering the possibility to constitute a network of centers of innovation spread throughout the area.

Finally, as far as a consideration of the possibility of urbanizing innovation environments is concerned, although suburban in its shape, the Cambridge Phenomenon seems to have benefited from some of the advantages of a larger urban area such as the vivacity of the environment - probably the university community has been favorable in this sense together with Cambridge's role in providing governmental, health, and business services - and suffered of some of its drawbacks such us the increase in land costs and the difficulty of expansion. However, if we take a look at an aerial view of the boundary between the science parks and their surroundings – either these being the suburban pattern of semi-detached houses or the rural landscape - we wonder whether the urbanization of both of them would really enhance the phenomenon. If the city of Cambridge, despite its small size, has developed into a mature urban environment it both feeds and is fed by a suburban framework of park-kind developments and villages.

Therefore, if we were to insert the Cambridge case within an argument for urbanized innovation environments, we propose, on the one side, to push the question of urbanization towards challenging the suburban character of the area. On the other side, challenging the regional networking and looking for the means to enhance its coherency may be a valid alternative – or, maybe, a complementary choice - worth to be investigated for the maintenance of the much praised 'uniqueness' of the phenomenon.

Chapter 8
Central London. City center as opportunity and constraint for innovation environments

Abstract

Il contributo che Londra offre al network britannico per le biotecnologie – che abbraccia una regione corridoio tra Cambridge, Londra e Oxford, fatta di città, centri universitari, paesaggi suburbani e rurali antropizzati e fortemente infrastrutturati - è molteplice. Da un lato Londra offre i vantaggi derivanti dall'essere un centro finanziario di assoluta rilevanza mondiale e un centro trasportistico internazionale; dall'altro, l'opportunità latente di contribuire alla regione innovativa estesa con la propria distintiva 'componente urbana' e quindi di trasformare ricerca e innovazione tecnologica in innovazione sociale, verso un 'collective learning environemnt'. La componente urbana inoltre è essenziale per mantenere alta l'attrattività del fenomeno nei confronti di una forza lavoro cosmopolita, altamente educata ed esigente. Urbanità e possibilità di urbanizzazione – dei luoghi per l'innovazione, appunto – è da ritrovarsi nella dimensione di quartiere, dimensione urbana fondamentale per la città di Londra. Attraverso lo studio di due quartieri Londinesi, Fitzrovia-Bloomsbury e Whitechapel, ci si vuole confrontare con i vantaggi, le sfide e i rischi del reinserimento dei luoghi contemporanei di 'produzione' nei centri città. Ai quartieri è chiesto di ristrutturarsi – più o meno profondamente - sulla base di elementi spaziali contradditori in principio propri del campus verso la costruzione di un nuovo tessuto urbano o, meglio, di un nuovo paesaggio urbano. Mentre il distretto centrale di Fitzrovia-Bloomsbury costituisce un esempio di tessuto urbano capace di adattarsi perfettamente ai cambiamenti dell'economia basata sulla conoscenza grazie al buon diagramma sotteso alla griglia urbana e alla differenziazione dei tipi presenti, la struttura urbana del quartiere più periferico di Whitechapel – soggetta a simili forze di trasformazione – non reagisce altrettanto efficacemente a queste. L'invenzione di un nuovo tessuto – che prenda comunque il via dalle qualità di instabilità e differenziazione presenti - è necessaria per favorire l'insediamento e l'intensificazione di un nuovo cluster per le biotecnologie che si sta spontaneamente e sommessamente facendo spazio in uno dei quartieri più poveri e destrutturati di Londra. L'istituzione universitaria, attraverso il proprio assetto istituzionale, spaziale e programmatico, può agire da mediatore in questo processo urbano tra le richieste degli attori economici e gli assetti urbani locali. Può quindi un cluster innovativo per le biotecnologie, una volta rotte le barriere del 'parco scientifico' o del 'campus universitario', diventare motore per la ristrutturazione di un intero distretto?

The UK is today one of the leading countries in Europe in terms of advancement in the Biotech Sector.

"The UK biotechnology sector grew by an average of 20 per cent a year during the late 1990s, and is the strongest in Europe. As a result it has attracted considerable attention from both government and private sector financial and business service, in particular the venture capital industry. The UK government has provided strong policy support [...]. Lord Sainsbury's report recognised that the UK's leading position in Europe in biotechnology is increasingly being challenged, particularly by Germany. [...] Biotechnology firms are concentrated in few distinct clusters within the country (including Cambridge, Oxford and the London), and that building more successful clusters requires concerted action across a range of policy areas, including encouraging venture capitals and ensuring that planning policies allow clusters to grow."[1] 'The Cambridge Phenomenon Revisited', 2000.

While the first phases of the Cambridge Phenomenon relied mainly on the development of a High-Tech cluster, as described in the previous chapter, 'The Cambridge Phenomenon Revisited', published in 2000 as a follow-up to the first report on the growth of the new industrial pattern around Cambridge, stresses the increasing involvement of the UK with the sector of biotechnology.

It is important to notice how the biotech sector is characterised by some peculiar organizational patterns and dynamics that differ from those of the high-tech sector – i.e. IT. Whereas the latter usually results an agile network of small-sized firms involved in quick innovative cycles, Biotechnology is marked by a high degree of uncertainty and a need of massive long-term investments. In terms of research, biotechnology requires much longer periods of time in order for the output to be tested and thus diffused and commercialized. Therefore, either a stronger intervention by a public institution – central government, universities or the public health system - or by some leading large private companies is

1.Segal Quince Wicksteed, The Cambridge Phenomenon revisited., Segal Quince Wicksteed Limited, Cambridge, 2000.

I. *King's Cross transportation hub is paradigmatic in understanding the multiscalarity of the UK biotech Network. Aerial view towards the City Corporation of London; in the foreground King's Cross and San Pancras Station, the UKCMRI, and the British Library, ©CityScape.*

required.

Biotechnology sets up closer links between business and university that are of a more formal nature than those established by the high-tech sector: there is a "fluid movement [of invention and information] between university laboratories and private firms that is generally less often seen in other subject areas, for instance engineering sciences."[2] These links are often materialized with an effective proximity between university and corporations. In the same guise, the space for research cannot be as informal and 'basic' as a 'garage' or a house – that, conversely, have provided the sufficient spatial conditions for the take off of both the Cambridge Phenomenon and the experience of Silicon Valley - but it needs to include large laboratories equipped with the most recent cutting-edge technologies.

In short, it is a sector that asks for its specific spatial configurations. If this is valid and important for the scale of the single laboratory, it is here even more relevant to notice how biotechnology also means a more serious appreciation of the 'regional dimension' of a system of innovation.

If the recent hospital development in the Addenbrooke site, located south of Cambridge, is the more immediate manifestation of the upcoming of biotech around the original centre of the innovation network, that is, Cambridge, it has to be noticed how this is just a piece of a larger picture that involves a much wider territory. We are referring to the corridor stretching from Central London towards Cambridge – or, as argued by some, to the London-Cambridge-Oxford triangle.

Within such a corridor the transport hub of King's Cross/St. Pancras represents the most visible manifestation of the multiple scales encompassed by the Biotech Phenomenon. The multiscalarity of the hub is easily understood if we consider: the share of the metropolitan public traffic of London hold by King's Cross Underground and Bus Stations;

2.Segal Quince Wicksteed (2000), op.cit., part two, p. 17.

II. Urbanity is London's contribution to the Biotech Regional Network. Workers talking outdoor, picture by Nuria Alvarez Lombardero.

the location along Euston Road, a major east-west spine that defines the northern edge for Central London by keeping together a sequence of urban districts among which the world renowned academic district of Bloomsbury (recently upgraded as a major health center holding one of the largest hospitals of the city); the terminal for the regional railway system that configures Cambridge/London as a reasonable commuting distance in both directions in terms of working/living (45-minute ride with one train departing every hour); the Eurostar Terminal that, together with Stansted Airport – also located along the corridor - projects the London-Cambridge corridor into a wider international network.

Considering all those features, it comes as no surprise the decision of building a major new Center for Medical Research and Innovation (UKCMRI)[3] in close proximity to the site of King's Cross transport hub. The development, designed by HOK and commonly referred to as 'Superlab', was promoted by University College London (the major academic neighbour settled in the Bloomsbury/Fitzrovia district), Medical Research Council, Council Research UK, and the Wellcome Trust and is due to be completed by 2015 for a total expenditure of £600 million. In the minds of its developers and promoters, Superlab will act as a major international research center devoted to develop new treatments for illnesses such as cancer, heart diseases, stroke and flu.

If the construction of Superlab will further strengthen the importance of the urbanised innovation environment of the Bloomsbury/King's Cross axis, it is within the wider London-Cambridge corridor that its scale of importance should be more correctly placed. A peculiarity of the corridor is that its two main poles, London and Cambridge, are not to be intended as part of a hierarchy that works against the smaller: they play complementary roles. The corridor is a 'rururban' territory, a continuous landscape keeping together the built and the unbuilt, greenfields and brownfields that plug into the financial center of London through the River Lea Valley. As we have already noticed, the development of biotech sites in London cannot be understood if we do not consider this

3.See the official website: www.ukc-mri.ac.uk

III. Industry back in town. The insertion of a research lab, the Blizard Building, in Whitechapel 's urban fabric. ©MicrosoftCorporation

regional scale which includes both locations in the inner centre and along a complex regional corridor – that contains manufacturing settlements, other centres of research, and housing settlements, often in the form of sprawl.

London can be regarded as a city whose constituent parts are districts that find their interfaces along corridors at the scale of the whole city. Therefore, it is by enhancing the scale of the district – and its urban dimension/qualities – that London can actively contribute to the definition of the spatial arrangements for a biotech network. London's relation with such a regional landscape is filtered through its districts, whose dimension is, on the one side, capable of attracting the talented cosmopolitan workforce to be employed within its laboratories and universities and, on the other side, of retaining a large multicultural population that can act – for instance, through the interface of the hospitals – the key component of an inclusive form of innovation.

IV. Industry back in town. Bloomsbury's Georgian pattern accomodating university's facilities.

This chapter will focus on the districts of Whitechapel and, albeit more superficially, of Bloomsbury/Fitzrovia, taken as case studies for comprehending the interest put by the knowledge based economy on central city locations, and the related benefits and challenges related to a possible reinsertion of 'production' inside city centres. Whereas it can be argued that the contemporary non-polluting factory is suitable for such a reinsertion within the urban environment, it is also evident from an observation of the cases of Bloomsbury/Fitzrovia and Whitechapel that the inherent risk could be that of allowing a proliferation of introverted and segregated buildings, blocks and districts. This would clearly be in open contrast to any attempt of spreading innovation over a wider social fabric or building a collective city.

The nature of Bloomsbury/Fitzrovia as an innovation district stretching on both sides of the north-south direction of Tottenham Court Road is widely recognised: in fact, it houses one of the largest concentrations of academic and research-oriented premises in London and beyond
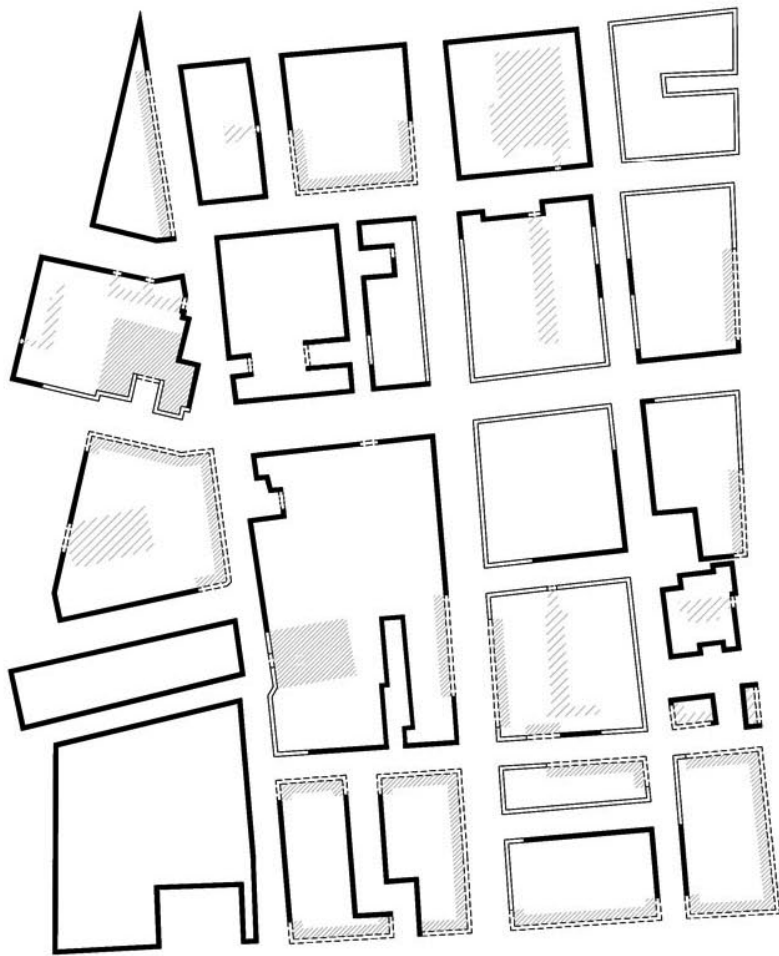
together with a large number of cutting-edge companies. In comparison, Whitechapel is a far less defined innovation environment, currently undergoing major pressures for change from which, perhaps, a new innovation district could emerge.

In Fitzrovia the media and service cluster has been accommodated in the same pattern and partly within the very same buildings where, just few decades ago, other activities unrolled. In Bloomsbury the university and medical cluster has partially been housed in the original Georgian pattern of row-houses and squares and partially it has modified the urban tissue. Among the most noticeable alterations to the original urban pattern we can remind the growth of UCL's campus through the addition of some large dimension structures, the new hospital on Euston Road, the area surrounding the University of London's Institute of Education designed by Denys Lasdun in the mid 60s.

In general, the existing urban pattern has over time proved able of accommodating change by slightly adapting to them. The reasons for what seems to be a successful adaptation can be found in the hierarchical nature of the urban grid – made of major traffic corridors on the edge defining a thinner and more pedestrian-friendly interior environment that contribute to guaranteeing adequate levels of 'privilege' as discussed elsewhere in this dissertation; and in the wide range of collective spaces, either outdoor (the exceptional Georgian Squares of Bedford Square and Fitzroy Square, as well as the urban park of Russell Square, and the pedestrian systems of paths and courtyards of the university) or indoor (the Central Court of the British Museum and the interior spaces of university facilities). Streets perform as the main collective spaces of the district – particularly in Fitzrovia – providing a whole range of amenities such as shops, restaurants, cafes, among which stand the atria of the office buildings, all contributing to activating the ground level.

Minor problems can be found at the scale of the block. Some new office and mix-use developments show a tendency toward the interiorisation of

V. Industry back in town. Bloomsbury's exceptional spaces. UCL courtyard building, picture by Vasiliki Geropanta.

Blocked Boundary
Transparent Boundary
Permeable Boundary
Accessable Public Area

mews
filled courtyard
street as place
main shopping corridor
narrow courtyard
back-street
'filled' courtyard terrace
street as place
UCL courtyard
park+ streets
courtyard

street life. Their halls are transparent but impermeable in contrast with the high permeability of the existing ground level.

Bloomsbury is mainly characterised by the presence of the university. The UCL Campus is accommodated within the street-based system of the district over which it superimposes a system of voids around which academic activities cluster. While the central building of UCL relates with the surrounding urban realm through a major courtyard, the new hospital interiorises the courtyard and makes it an indoor atrium.

A different take on the ways of engaging with the complexity of the quarter is offered by the set of spaces revolving around the above mentioned building designed by Lasdun. Here streets are enlarged in their section and turned into pedestrian green linear squares marked by a clear hierarchy of permeability that includes the buildings themselves as interfaces for regulating the edge-condition. Such an architectural/urban apparatus, within the pre-existent intelligence of the district's structure aims to balance patterns of interaction and exclusion.

VI. Industry back in town and the advantages of the Fitzrovia-Bloomsbury district in accomodating an innovative network. Fitzrovia's urban pattern offers an active collaborative groundlevel as shown in the analitycal drawing by by Ling Ha. The grid generates a hierarchical arrangement of paths and of diversified voids as well as ensuring the coexistence of a differentiated urban fabric. Section cutting through the Fitzrovia-Bloomsbury districts, drawing by the author.

Scale 1:6,000 see cartography pages 316/317

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VII. (previous spread) Comparison between Whitechapel (on the left) and Bloomsbury-Fitzrovia (on the right). Fragments of a general plan. ©2010Google
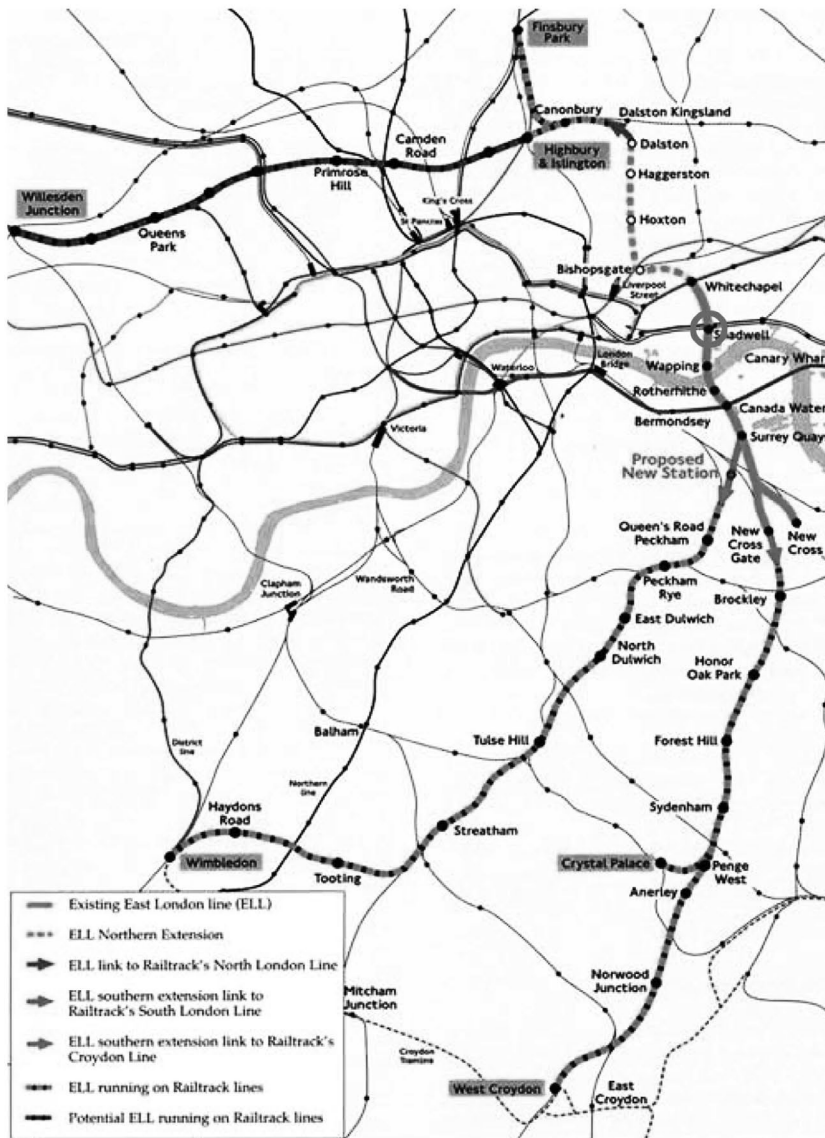
of the area, infrastructural improvements are taking place among which the construction of the new Crossrail and the insertion of Whitechapel within the Overground network that is superimposing a new public transportation system over the existing underground. The new infrastructures, besides shortening the distances between the district and the rest of London will also, more importantly, quickly connect it to Stansted airport thus realising one of the main prerequisites for an innovation environment to blossom, that is, the vicinity to a major international airport.

Whitechapel represents an excellent opportunity for the growth of the UK biotechnology sector since it would enable it to establish close relations – on the basis of proximity - to one of the most important financial centres in the world. Beside this, the area contains also a number of other ingredients that hint towards the possibility for the formation of an innovation-based urban district, focused on Biotechnology. We can summarise them as follows: a university (Queen Mary University) which is investing in life sciences and medical research and, above all, which is encouraging entrepreneurship among the academic community; a major public hospital that is currently being further developed to strengthen its role as a key health structure for the whole East London; a number of infrastructural improvements which will insert the area, historically peripheral, within the wider London region and facilitate exchanges among different critical masses; an intense and rich urban environment which can encourage a cross-fertilization among disciplines and activities: the potential 'East-London Living Lab'.

VIII. Whitechapel between opportunities and new challenges as the district opens to the Biotech Sector. Whitechapel suffers from high levels of social exclusion and unemployment but, at the same time, is subject to strong pressures for market-driven development that are visibly changing the urban landscape. Picture by the author.

The last point, that is, the potential 'East-London Living Lab' hints to the possibilities for the enhancement of those processes of 'social innovation' that are frequently advocated by the specialised literature on innovation. In other words, what is at stake in Whitechapel is the opportunity for spreading the effects of an innovation-based economy on larger strata of society.

Legend:

— Existing East London line (ELL)

••• ELL Northern Extension

➤ ELL link to Railtrack's North London Line

➤ ELL southern extension link to Railtrack's South London Line

➤ ELL southern extension link to Railtrack's Croydon Line

••• ELL running on Railtrack lines

— Potential ELL running on Railtrack lines

IX. The new infrastructures under development in Whitechapel, besides shortening the distances between the district and the rest of London will also quickly connect it to Stansted Airport thus realising one of the main prerequisites for an innovation environment to blossom, that is, the vicinity to a major international airport. Extension of the East London Line. ©Transport for London

4.Quotation from the 'City Growth Strategy.London City Fringe. Main strategy.', October 2004. See also the 'City Fringe Partnership City Growth, Strategy Evaluation Programme. Final Report.', published in July 2009 by The Cities Institute, London Metropolitan University. The City Growth Strategy is an experimental approach to inner city regeneration that has been taking place in the City Fringe since 2003. It "focuses on the positive advantages of the inner city rather than the social disadvantages. It places enterprise at the heart of regeneration and promotes the competitive advantages of the inner city – in terms of proximity to successful economic activity, labour pools, and untapped markets, by focusing on developing and strengthening business clusters". In 2005, The Cities Institute of London Metropolitan University was commissioned to undertake an evaluation programme of the City Growth Strategy of which this report is the final result. In particular, see the evaluation of the actions undertaken to improve the 'Health and Social Care' sector (chapter 8, Final Report).

[Whitechapel and the UK Biotechnology Network]

Whereas Fitzrovia and Bloomsbury have shown remarkable capacity of adapting their fabrics to the shifting cycles of the economy, in Whitechapel a similar process seems to be starting happening in a much more problematic way.

Whitechapel is part of the wider Borough of Tower Hamlets located in East London, and part of the so-called City Fringe that encircles the City Corporation, one of the world financial centers.

"The City Fringe is an area with significant problems and high levels of social disadvantage among its residents but it also offers enormous opportunities. By putting business and enterprise at the heart of our strategy, we can capitalize on the area's undoubted competitive advantages to work towards economic and social regeneration. The competitive advantages of the City Fringe fall into four main categories: Business clusters; Strategic location; Human resources; Local market demand."[4]

Whitechapel shows visible signs of post industrial processes. In spite of its location close to the financial business clusters of the 'Square Mile' (The City Corporation) and Canary Wharf it does not part take in any of the global financial activities that revolve around them. In general, residents in Whitechapel suffer from high levels of social exclusion and unemployment. The pool of human resources is mostly composed on un-qualified labour force inadequate to the kind of jobs offered in the adjacent areas. At the same time, Whitechapel is subject to strong pressures for market-driven development stretching eastward from the City: it is considered as a valuable 'conquer land', an area viable for new luxurious housing and office developments.

A number of such developments are currently either in their planning or construction stages and visibly changing the urban landscape. Along these, and also as a reason to explain the increasing appeal and value

Compared to Cambridge, for example, Whitechapel offers a more fertile ground for the enhancement of an inclusive innovation network based on the specificities of Biotech. In fact, given its widely variegated pool of residents in terms of ethnicities, Whitechapel offers a 'living database' as well as a 'living test bed' that are particularly relevant and appealing for life sciences-related research.

If, therefore, there seem to be signs of opportunity on the part of the actors of Biotech, what is even more relevant is to remind ourselves of the wider implications that the endorsement of an urbanised innovation environment could have on the local social substratum. In fact, local communities could actually benefit from an improved accessibility and exchange of knowledge and education, from enhanced employment possibilities, and from better life standards coming from directing some of the investments for – and from – innovation towards the enhancement of civic life. These are all opportunities that emerge from the local conditions and should therefore be carefully embraced by any project proposed for the area.

Therefore, Whitechapel seems to have a natural ambition to evolve towards an innovation environment where the already established cluster of creative industries and the latent Biotech cluster would play a fundamental role. However, in order to turn those opportunities into reality, we need also to consider the remarkable challenges posed by the requirements of space and 'operative closure' of university departments, laboratories, workspaces, high-income housing, the hospital, etc. All these are indeed exerting high pressure on the existing urban fabric.

X. Whitechapel represents an excellent opportunity for the growth of the UK biotechnology sector, rooted in its historical location for health care services. Image of the extension of the Royal Hospital, currently under construction. From Google.

The built fabric of the area needs re-arrangement in such a way as to accommodate the needs of the above listed actors of innovation without erasing the intense urban environment. In other words, the individual projects that have been proposed and are under development need a clearer orchestration in order then not to turn into barricades from the city.

XI. The opportunity for the 'East-London Living Lab'? Whitechapel Road multicultural street market in front of the Royal Hospital ©2004 Bob Stuart

A striking character of Whitechapel is the great variety of patterns and urban-architectural situations that are collaged into a complex whole. There is no homogenous grid to highlight as the framework for urban restructuring and emergence, neither a repeated main architectural type.

Two corridors constitute the main planimetric spines that keep together the different parts of the district. These converge towards the City, thus naturally leading to a hierarchy of land values associated to a non-isotropic grid. Each genre of use (housing, office, commercial…) not only differs in type from the other genres, but also results itself into a wide range of typological variation and, thus, different urban patterns. For instance, as far as housing is concerned, typical row-houses schemes are juxtaposed to slab or tower-based housing estates, thus leading to a wide range of figure-ground configurations of land use.

A catalogue of workspaces, different in sizes and types, represents the literal spatial manifestation of the evolution over time of the requirements of labor, from the factory sheds of the Old Truman Brewery, now turned into art and performance center, to the new office buildings that interiorize the organization of collectivity by piling office spaces vertically.

XII. (following spread) Instability and opportunity for development. A striking character of Whitechapel is the great variety of patterns and urban-architectural situations that are collaged into a complex whole regulated by a non-isotropic grid. Drawings by Ling Ha.

The high differentiation between areas, even when adjacent to each other, is a symptom of the great dynamism which has characterized Whitechapel along its development. If, on the one hand such a diverse built environment can produce chaos and rupture in the city fabric, on the other it is also a sign of great vitality. The 'instability' at the base of this continuous change and evolution is present even today (either in the informal modification of space or in the introduction of elements by the new economy) and begs for thoughtful architectural action in order to enhance some unexpressed potentialities of the area while maintaining the already existing urbanity.

The potential of Whitechapel as an 'urbanised' innovation environment

whitechapel road

commercial road

regular grid

whitechapel road
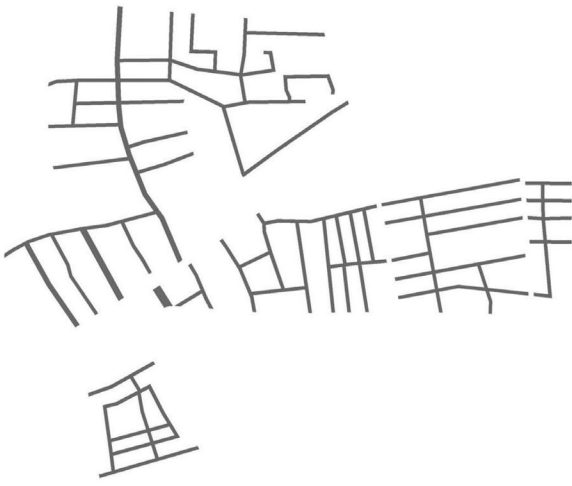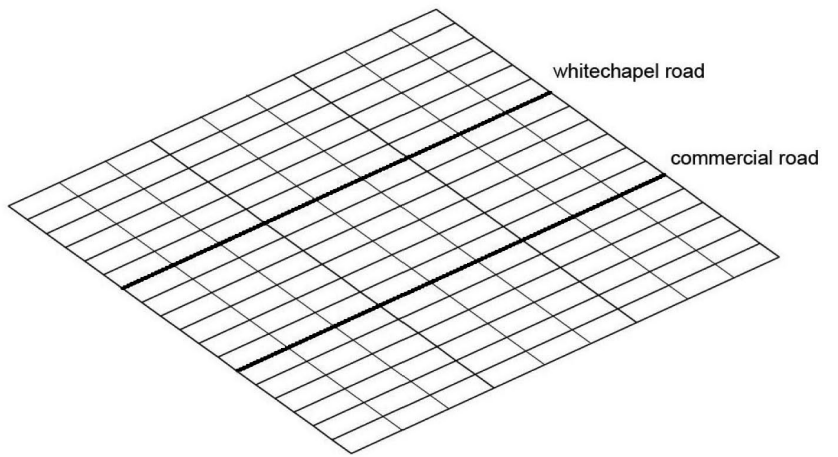
commercial road
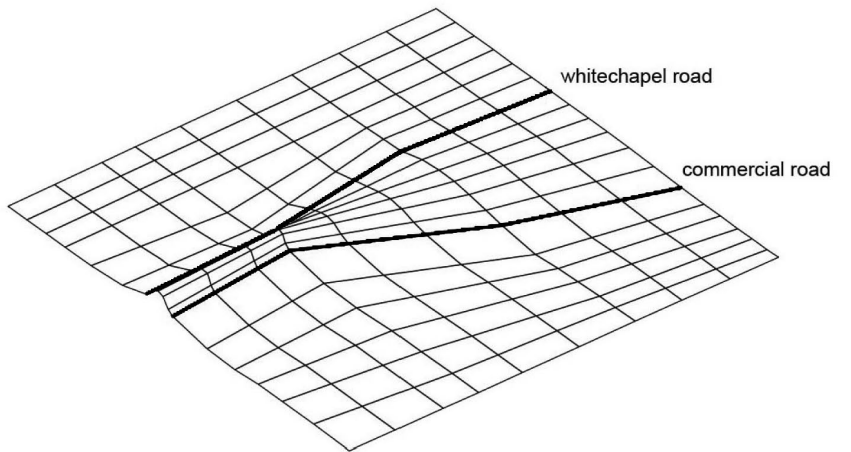
squeezed grid
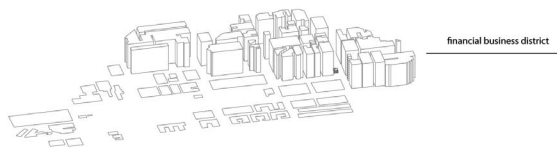
financial business district
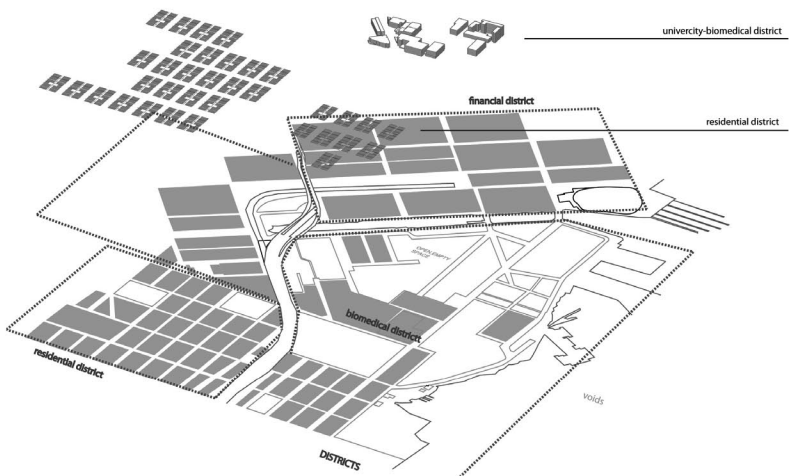
univercity-biomedical district

financial district

residential district

residential district

biomedical district

voids

DISTRICTS

Study Area

Housing

XIII. Without doubt Whitechapel presents the right conditions to challenge the creation of an urbanised innovation environment. It has already the critical mass for urbanisation, which is a great advantage compared, for instance, to the efforts that planners are putting in order to gather a relevant critical mass in Mission Bay's Biotech Cluster. Mission Bay's mix of uses and Whitechapel's evaluation of housing mass, drawings by Sabrina Puddu and Vasiliki Geropanta.

5. "Europe itself spends a lot of money on higher education and has a number of top Universities with leading academics and researchers who produce excellent papers and win Nobel prizes. The problem is that their ideas tend to stay in their ivory towers. Part of the explanation is that innovation is still seen as being driven by government spending in R&D, when in fact most of it is now in services and business models." The second obsession in Europe is duplicate geographic clusters: "There are dozen of aspiring clusters world-wide, nicknamed Silicon Fen, Silicon Fjord, Silicon Alley and Silicon Bog. Typically governments pick a prom-ising part of their country, ideally one that has a big university nearby, and provide a pot of money that is meant to kick-start entrepreneurship and of benevolent bureaucrats. It has been an abysmal failure." From 'Something new under the sun. A special report on innovation' in The Economist, 13 October 2007.

emerges even more clearly if we compare for a moment to the efforts that planners are putting in order to gathering a relevant critical mass – both for innovation and for urbanization – in the waterfront site of San Francisco where the Mission Bay Biotech Cluster is being developed. Conversely, as described above, Whitechapel already provides the critical mass for urbanization and, partially, also the critical mass for boosting innovation. While an urbanised innovation environment is not necessarily the right answer for each particular site condition, there seems to be little doubt about the feasibility and reasonability of such a scenario to be forecasted for Whitechapel.

[University as city maker]

We can start envisaging a project for an urbanized innovation environment in Whitechapel by starting from the role that the university can play within the area, both in terms of its institutional weight and of its spatial presence. We are hinting to the possibility of boosting the university's action as one of mediation between local communities and the 'privileged' environment for the economic stakeholders.

Despite the prominent presence of academic institutions in Whitechapel, the engagement between those universities (Queen Mary University and London Metropolitan University) and research centers with the local businesses (above all as far as the creative sector is concerned) is currently inadequate.

Higher education is an active part of the 'social project' for the knowledge economy. According to some economic perspectives, considering the university as a key factor for innovation and therefore pouring large investments to sustain its growth are two major problematic aspects for the economic strategies being deployed in Europe.[5] However, we believe that the role of the university in a possible biotech cluster

in the particular case of Whitechapel is to be considered essential since we should think of academic institutions as not only platforms of interaction with business and a pushing factor for innovation in terms of research or spin-offs. Rather, and this is particularly fitting to the case of Whitechapel, universities' strength stands in a capacity of opening up an eventual innovation process to the city and to mediate between the social and economic patterns of a particular location and the strong and determinate action of the actors of business.

Orestad Nord in Copenhagen is exemplary in this sense and deserves to be quickly mentioned to sustain our argument. Part of a larger plan for the southward expansion of Copenhagen started in the early 1990's, the northern section of Orestad is mainly marked by the presence of the premises of Copenhagen University's campus. Along with capitalising on such an institutional presence – which acted as the main developer for Orestad North – the physical upgrade of a peripheral urban location has been coupled with a program called 'Cross-Roads' intended to promote the involvement of the local population in the programs of research being carried inside the university campus. In such a way, the knowledge creation processes are freed from the constraints of the walls of the research labs and spread throughout an improved urban realm.

Therefore, a project based on operationalizing the learning environment provided by the two already established universities in Whitechapel means, in spatial terms, to conceive the university as an integrated part of the city fabric that works as an engine nurturing urban processes.

As already mentioned, Whitechapel hosts two universities: the London Metropolitan University and the Queen Mary University. The latter is more significant for us here because of its stronger inclination towards medical and life-science research. However, given its relevant physical presence within the district and the already established links with the creative industries operating in the area, it is worthwhile to spend some words also on London Met.

London Met's premises in Whitechapel are a good example of spatial diagram for a 'campus' – or a piece of campus – showing a propensity towards urbanity and inclusivity. We are referring, in particular, to one urban block located almost at the junction between the two cited main corridors - Whitechapel Road and Commercial Road. Here, internal connection among the different buildings composing the block is kept to a minimum so that students use the public pavement to move around the block and access the different facilities: in this way, the street becomes active part of the 'academic' realm. To further express the absorption within the city fabric, access to the university's premises from the main road, Whitechapel High Street, is blurred among bars, pubs and shops: it is just one more 'door' along the pavement.

Othr accesses are disperses all around the perimeter of the block, building up to a complex hierarchy of public permeability since each 'entrance' is different from the others. The articulation and differentiation of the block's perimeter (in terms of boundary regulation and programmatic distribution) respond to the contemporary necessity of maintaining degrees of privacy, security, and quietness of the learning environment adequate for study and research, while contributing to the 'collective learning' strategy at the basis of an innovative development by being accessible to a wider public. This last aspect is in line with the mission statement published by London Met: "London Metropolitan University is committed to providing excellent educational and knowledge transfer services, engaging with real-world issues, transforming individuals and society, and enabling students to achieve their potential and London to succeed as a world city."[6]

Nevertheless, the block reveals also the challenges that we have to face while designing a university urban block. First of all, the necessity to accommodate change and expansion: university activities change sharply over time, making the building unstable in a constant attempt to accommodate new activities, new technologies, and new ways of teaching and learning. If in designing campus-based systems it is usually

6.'Statement of educational character and mission', London Metropolitan University, 2005.

XIV. (following spread) University as a possible institutional, programmatic and spatial agent to mediate between the biotech sector and the local urban processes. University's presence in Whitechapel, ©2010MicrosoftCorporation
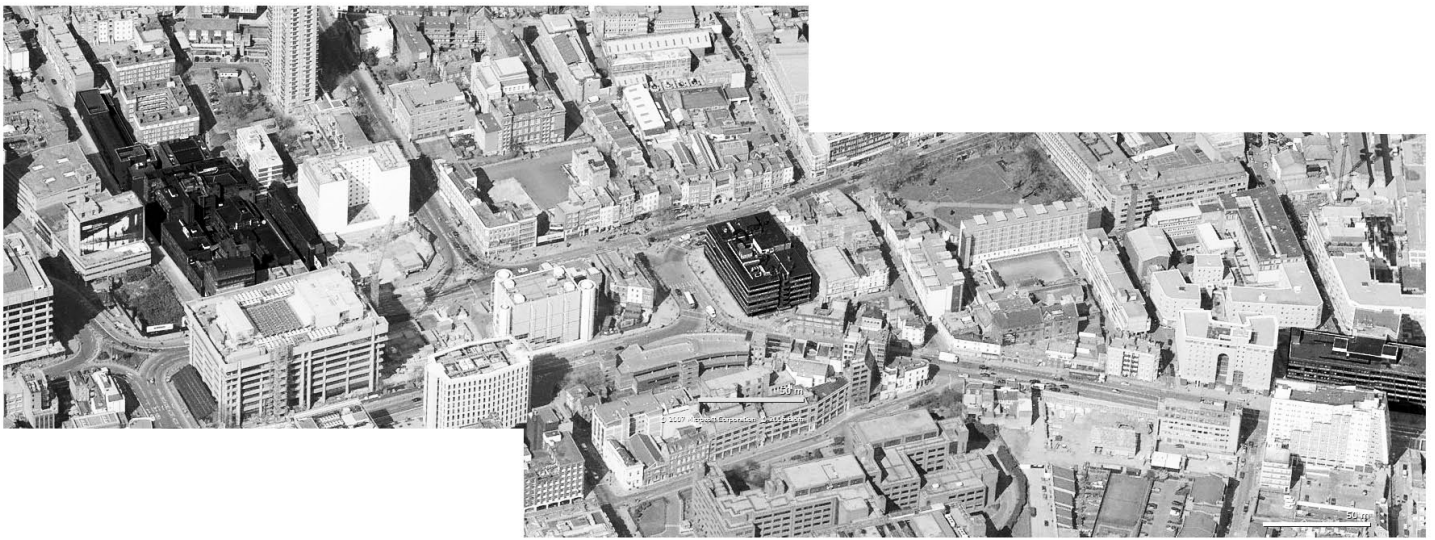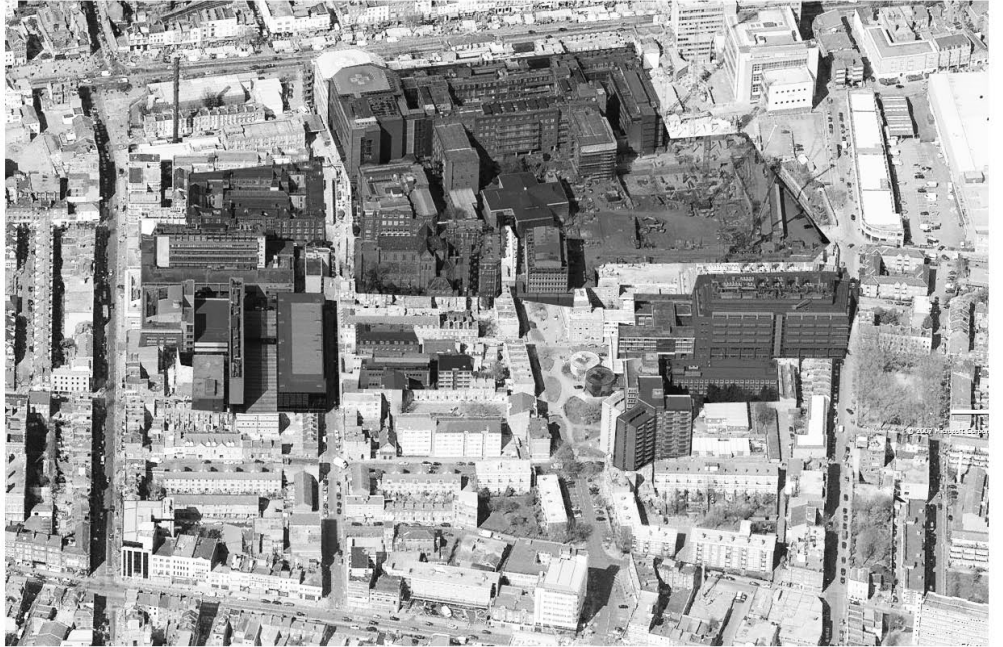
7. See Brian Edwards, *University architecture*, Spon Press, London, 2000.

XV. London Metropolitan University's urban block. One entrance among many, Whitechapel Road. Picture by author.

advised[7] to provide bigger footprints than necessary for the immediate requirements of buildings - in order to allow them to expand - in a city campus we can understand how the provision of extra-room for future reconfiguration is obviously much more challenging. So, a typological investigation for university buildings, such as the one described in Section 1 of this dissertation, is urged. In particular, we need to distinguish between permanent and non-permanent elements and find a way to make the latter quickly reconfigurable but without losing the coherence of the original project.

Showing an opposed attitude to that we have just described, Queen Mary University's expansion and acquisition of new urban blocks in Whitechapel is far from establishing an 'urban approach': in general the streets are rejected by the new self-sufficient departments (i.e. the simple compact box of the new institute of pathology and pharmacy or the large 'bastion' for the extension of the Royal London Hospital) whose ground floors are far from being permeable or porous and whose masses express enclosure rather than openness as a environment of innovation would require. The self-enclosed character of Queen Mary's new buildings is the immediate answer to the need of 'security' and control expressed by the biomedical sector.

8. See the official website Queen Mary University: http://www.qmul.ac.uk/

9. See the official website Queen Mary Innovation Ltd: http://www.qminnovation.co.uk/

Queen Mary University, which also owns a wider campus further east in Mile End Road, has decided to locate its 'biotech task force' in Whitechapel, namely through the Dental and Medical Institute, the Institute of Pathology and Pharmacy, the Science and Research Centre, the Nursery School, the Postgraduate Centre, the BioEnterprise Innovation Centre, and the Hospital. The University's website[8] and, in particular the Queen Mary Innovation Ltd. website[9], clearly explains the intention of the university to set up a business model able to push in the direction of biotech and to set up material and non-material actions (that is, buildings and policies) encouraging spin-offs and entrepreneurial undertakings. In particular, the Queen Mary BioEnterprises Innovation Centre is a recently completed flag-ship project representing such an

10. See the official website Queen Mary BioEnterprises Innovation Centre: http://www.qmbioenterprises.com/

'academic business culture', an "highly adaptable laboratory and open plan write-up space ideal for science and technology start-ups as well as more mature companies looking to expand. It is the only place to offer scientific grow-on space in London."[10] As stated in the University's website, "Unique advantages include location at a major London medical school, currently undergoing a £1 billion re-investment in clinical care and close proximity (2 kilometres) to Europe's largest capital market - the City of London. The Centre will attract scientific ventures from the University of London as well as from further afield, including Europe, and create opportunities for employment within the east London region. In the run up to the Centre's opening, the management company, Queen Mary Innovation Ltd. will provide a range of business support services. These include: business mentoring, coaching, web portal-based business support, assistance in protecting and licensing intellectual property and access to sources of investment capital. Queen Mary's mission is to prime bioscience entrepreneurs for success before, during and after they are resident in our laboratories."[11]

11. http://www.qmul.ac.uk/innovationcentre/

XVI. Queen Mary University's expansion in Whitechapel: a proliferation of enclosed buildings, barricades against the city. Picture by author.
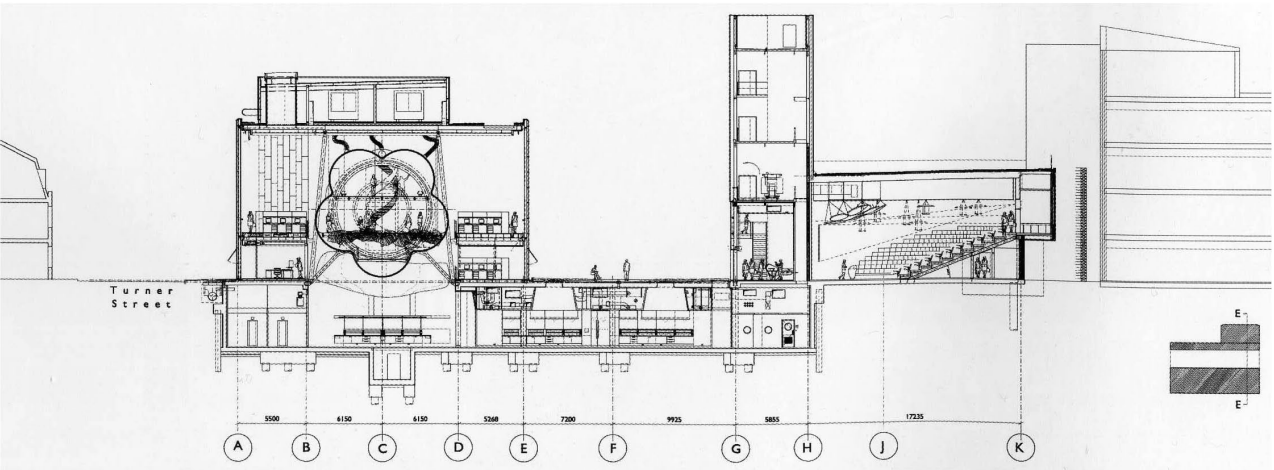
XVII. (following page) Queen Mary University's expansion in Whitechapel: Blizard Building. Architect William Alsop's attempt to design a collaborative environement for researchers and realize the mission of 'public engagement in science'. Intentions and spatial failures. @2010MicrosoftCorporation

A second building that deserves mentioning – for its aim to education and knowledge diffusion, rather than knowledge-transfer as in the BioEnterprises Innovation Centre – is the Blizard Building, designed by Will Alsop and completed in 2005.

"This building is unique in the annals of laboratory design. Traditionally scientists in a university environment have worked within their own, defined departments and offices. Here scientists are co-located together in an open plan space. It is a unique, inspiring environment in which to undertake science. Its transparency and openness – very rare with laboratory buildings – encourages interaction with both staff and the community. The substantial volume of open laboratory space and its light and airy atmosphere is in itself the first of its kind. We have every confidence that this building will raise the profile of Queen Mary and assist in the regeneration of the area at large."[12]

12. From the Blizzard Building's Brochure.

Turner
Street

5500   6150   6150   5268   7200   9925   5855   17235

A   B   C   D   E   F   G   H   J   K

E

E

13."the Centre of the Cell, which aims to engage young people and schools in the principles of scientific and biomedical research and the background to many of the major scientific and ethical issues facing young people, educationally and socially. The Centre of the Cell opened in September 2009 and 10,000 children will have visited in its first year of opening." From the Official website Blizard Institute of Cell and Molecular Science:http://www.icms.qmul.ac.uk/. See also:http://www.centreofthecell.org/.

14.The design workshop was part of the MA course, Housing and Urbanism Programme, Postgraduate School, Architectural Association School of Architecture, 2007-2008. Group Work: Nuria Alvarez Lombardero, Vasiliki Geropanta, Ling Ha, Sabrina Puddu, Marianna Karapetyan; Tutors: Lawrence Barth, Dominic Papa. The group's proposal focused on the design for a biotechnology cluster that could have an influence on the wider district of whitechapel. The group explored both issues directly related to the constitution of an innovative environment (the design of workspaces and educational/research facilities, the transportation system, the re-adaptation of old factories for contemporary production) and others that, sometimes neglected, were considered crucial for the formation of an urbanized innovation environment. Among the latter, there were questions related to the provision of housing and retail-entertainment facilities as well as of civic co-founded collective facilities able to foster process of inclusiveness.

The building can be considered as attempting to pursue two parallel goals. On the one side, it seeks to create a comfortable and collaborative workspace for the researchers; on the other, there is an attempt to interact with the local community ('the public engagement in science' mission). The 'Centre of the cell', a public exhibition space for school children located on the second floor of the main building as well as the 'transparency and openness' of the whole structure are intended as instruments to pursue engagement[13]. However, many of the architectural choices seem to fail in pursuing those intentions. The transparency does not correspond to the porosity of the building, which is a much impenetrable box. The two accesses (one for the staff and the other for the public) face a linear 'piazza' that, despite the intentions, does not seem capable of performing as a space with any collective significance or capable of providing any relevant contribution to the quarter's public realm: rather, it is a deserted pedestrian street leading nowhere.

[The Dispersed Campus]

Following a scheme elsewhere proposed in this dissertation (see Chapter 3 ending Section 1 and the following last paragraph for Chapter 9), we want to conclude this chapter by making use of the speculations coming out of an (academic) design experience. Therefore, we will instrumentally consider Whitechapel, the study-area of a design workshop[14] hold at the Architectural Association in London in spring 2008, in order to expand from the peculiarities of a design brief – with its specificities in terms of study area and design issues and themes – on some of the points emerged previously in this chapter. In particular, we are referring to the possibility of constituting an urbanised biotech cluster by reviewing the spatial conception of 'campus'.

We have mentioned the conflict that characterises the life of a university when embedded within a city fabric. To reiterate on the points already
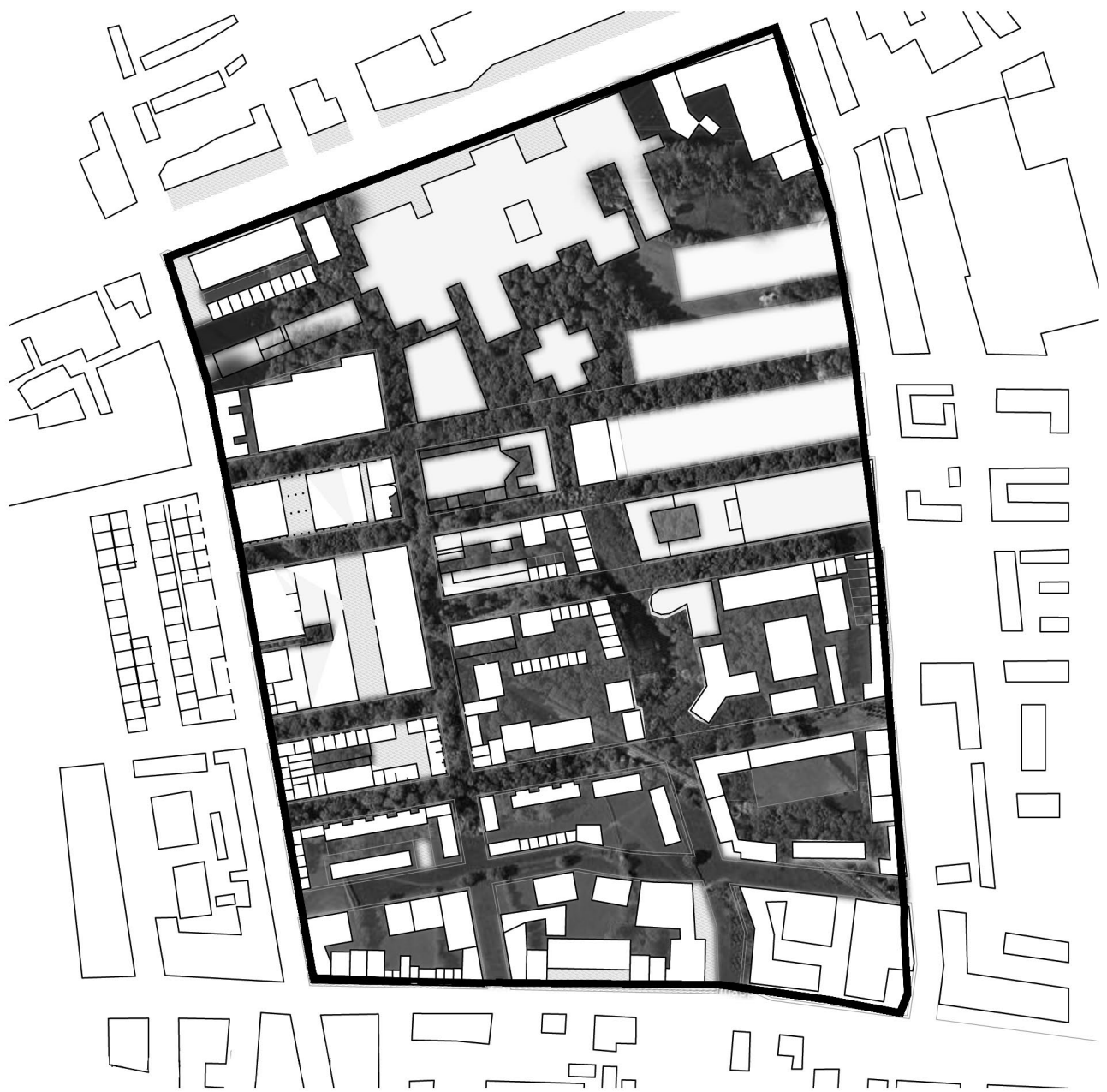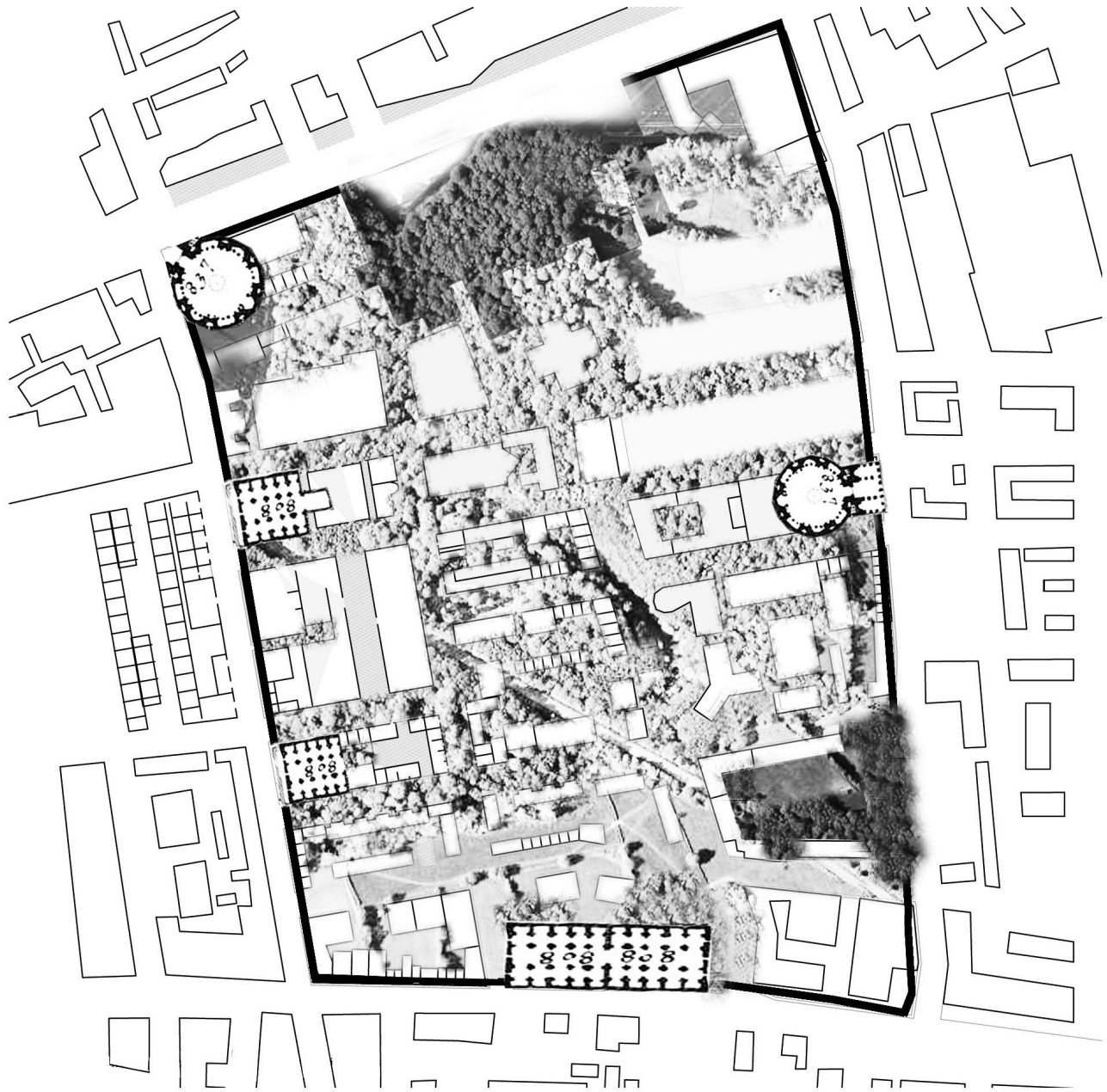
raised, the university is an institution that lives a condition of constant restructuring and evolution – in terms of learning and research procedures and requirements and in terms of the spatial implications these have on the physical substance of the institution. The need for expansion and growth of the universities in Whitechapel is particularly marked – in particular as far as Queen Mary University is concerned, so that this will be our main focus in this paragraph – thus turning the institution into a permanent building site.

Moreover, we have also hinted to the institutional mission to act as a more 'socially inclusive' agent, that is, to the aspiration of promoting engagement at different levels by embracing a more open attitude towards both private business - the university as entrepreneur and knowledge-transfer body – and the local urban community – the university as civic facility with collective significance.

The new developments around the site of the Royal London Hospital, stretching between Whitechapel Road and Commercial Road, are markedly strengthening the presence of Queen Mary University in the area. We may therefore think that the University is clustering with the aim to create a campus environment. However, every single building that is either being refurbished or added from scratch, while inserted in the urban grid can be read as independent closed environments rejecting any relevant contribution to the complexity and richness of the urban space both in terms of ground floor articulation and of the 'space between buildings'.

VIII. What if an enclosed campus? An indipendent collaborative environemnt able to gather Queen Mary's Biotech Task Force. Drawing by the author.

What if we promote an idea of an enclosed campus and we cluster all the university buildings within a confined area – that has indeed already been defined by the developments planned by Queen Mary University? If we accept the canonical idea of campus we would at least manage to improve the environment for the needs of the academic community. In other words, by strengthening the 'literal boundary' and defining once and for all the extension of the academic ground as an enclave embedded inside
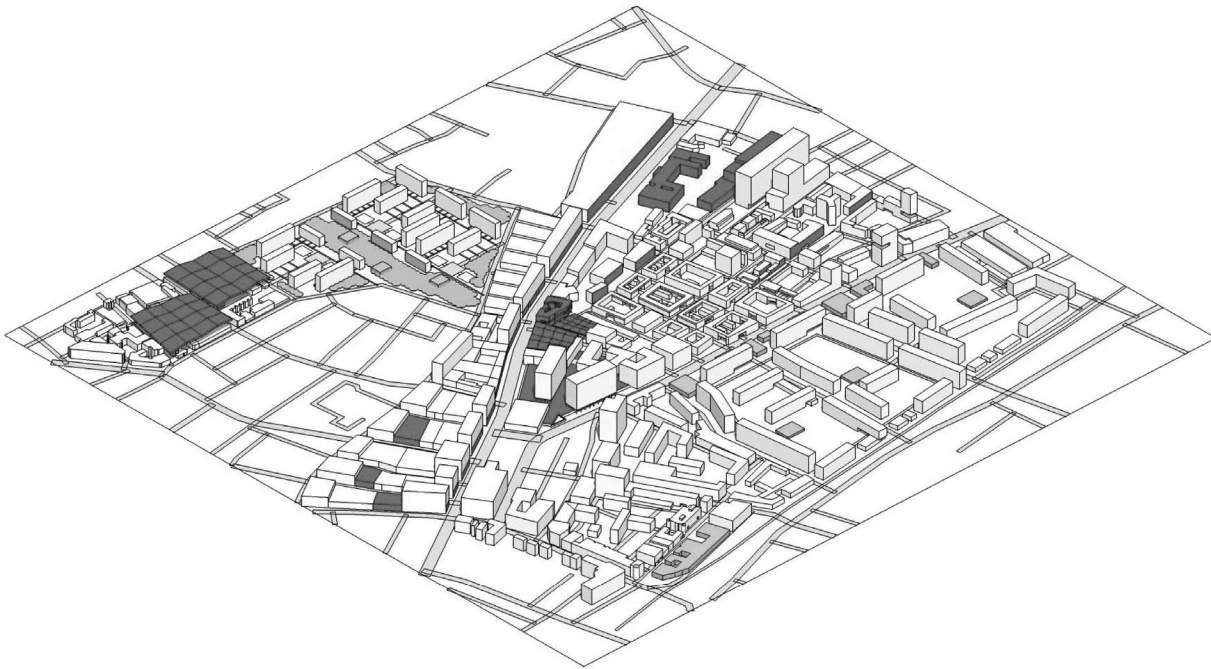
an urban district, all our efforts – as architects – could be placed on the careful design of the spaces between buildings. However, the other task we initially set in this paragraph – namely inclusiveness – would in such a scenario be missed and we would find difficulties in achieving an effective pattern of local engagement with the city and with the business sector.

What if, as an evolution to the enclave scenario, we then improve the performance of the boundary beyond mere fencing? The boundary could be thus 'thickened' and its thickness manipulated to upgrade it as the primary platform of interaction. Open spaces, civic facilities, hybrid buildings could inhabit the perimeter defining an urbanised version of the 'fence'. The working motto of such a scenario would be 'opening the university to the city'.

As further evolution of our projective scenario, we could envisage one that - to further rely on mottos - while 'opening the university to the city' aims also to 'open the city to the university'.

XIX. What if an interactive boundary? Opening the university to the city through platforms of interaction along the campus' boundary. Drawing by the author.

What if, then, we scatter the university's activities throughout the whole district? What would the advantages of a network of campus facilities for both Whitechapel and Queen Mary University be? Firstly, Queen Mary University would benefit from the avoidance of 'conquering' large chunks of urban land by, rather, infiltrating wherever convenient. In other words, this would represent a more flexible market strategy for land use. Furthermore, another advantage of a dispersal model is its flexibility and disposition to future adjustments that allow coping with the dynamic urban process of constant negotiation of space. Secondly, a dispersed campus would represent an opportunity to avoid any introverted and monocultural character and, conversely, contribute to the variety of the urban mix. Then, a network of academic facilities could promote the integration with the existing urban activities as well as with other institutions operating in the area through a more capillary permeation of the local condition.

OPEN THE CITY TO
THE UNIVERSITY

school + house for nurses : upgrade the skills
of the local residents and retain the residential
function in the area

clustering of university department and work-
spaces: large companies, start-up, spin-off,
embedded laboratories

station building: collective houses
for researcher

leisure and enterteinment for the worker-
student community open to a wider public

student houses + facilities:
cross over with social housing environ-
ment - improvement of the sorroundings

adult classes

RES 1

BTD 3

H   H   H

CRI

health facilities

BTD 2

open library

mix univ - media
companies:

health facilities:
promote the
diffuse hospital

COMMERCIALIZE
THE KNOWLEDGE

gym

sport facilities

RES 2

transfer knowledge
company office:
interface with business companies
and with the other universities

BTD 1

health facilities:
promote the
diffuse hospital

cross over with social housing
environment - improvement of the
sorroundings

spread sport facilities

WSP

centre for the diffusion of the
new technologies-discoveries
among the resident + health
éducation

OPEN THE CITY TO
THE UNIVERSITY

metropolitan university

MIX

student houses

BTD biotech district
  - BTD 1 cluster
  - BTD 2 cluster
  - BTD 3 cluster

RES residential district

CRI creative industries cluster

MIX mix used area superblock

WSP workspace district

The 'dispersed campus' is an intriguing oxymoron which conveys an idea of urbanised university that is at the same time diffused but still constituting a system.

Academic environments are currently being subject to the wider processes of institutional rearrangement that is permeating the domain of so called 'civic facilities'[15]. Recent accounts on this subject have attempted to define some major trends that are characterizing the modification of the places that were public. Among these, we can remind: regeneration of the environment, proximity, virtuality, co-location, uses recycling, jeunism, escapism vs. engagement, consuming vs. participating, public-private partnerships, retailization, dissolving limits, and sustainability[16].

In particular, as far as universities are concerned, the progressive institutional openness towards business has implications on the programmatic arrangements and on the spatial configuration of academic buildings. It is relevant to briefly remind of an argument sustained by Herman Hertzberger about the peculiarities of the spaces for learning. Hertzberger notices how education is today still one of the domains upon which the architect can actively contribute through its formal experimentation. In other words, while it is true that academic institutions are currently being transformed by novel arrangements at a managerial and marketing level – as reminded in the cited categories of 'consuming vs. participating', 'public-private partnerships', and 'retailization' – the architect can pursue a parallel agenda and act as 'brief definer'.

To explain this last point by means of examples, we can remind of the remarkable innovations coming from the architect's pencil as contributions to changed understandings of 'universities' as represented by the new campuses designed in the UK in the 1960s. To quote some more recent examples, we could perhaps argue for a massive increase of importance in the 'hall principle' as a design tool often deployed by architects when designing university facilities inside urban fabrics. In this
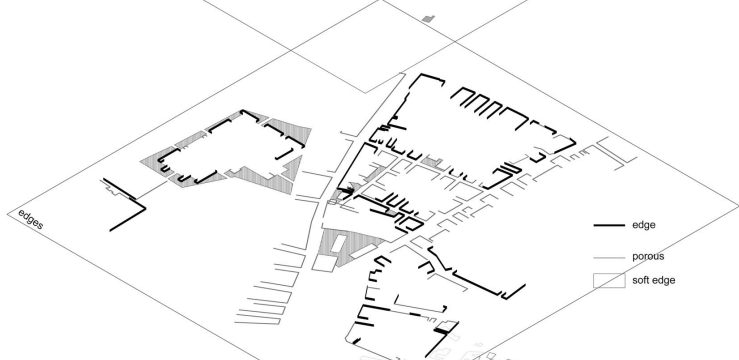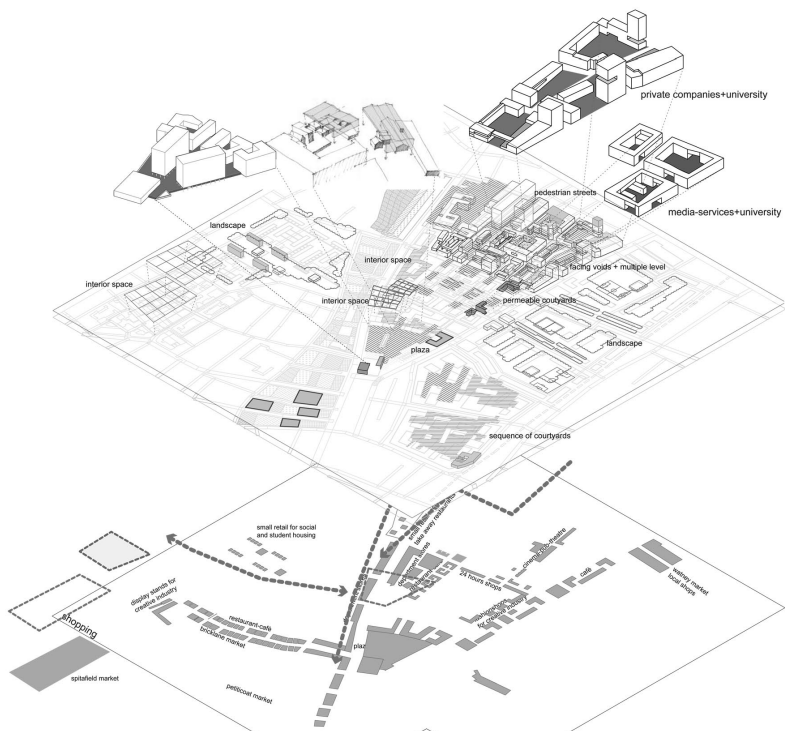
15. For a thorough account to the increasing civic role of university see Francesco Zuddas, The Civic University. Examining strategies for a 'city from learning'., unpublished thesis, supervisor: Hugo Hinsley, Housing and Urbanism Programme, Postgraduate School, Architectural Association School of Architecture, September 2008.

16. Aurora Fernàndez Per, 'Reviving the heart of the city' in a+t 29, CIVILITIES 1, a+t ediciones, 2007.

XX. What if a dispersed campus? Opening the City to the University through dislocated functions that emerge from the peculiarities of each sub-quarter and contribute to their further characterization. Programme and location's proposal, drawings by Sabrina Puddu and Ling Ha.

private companies+university

pedestrian streets

media-services+university

landscape

interior space

facing voids + multiple level

interior space

interior space

permeable courtyards

interior space

landscape

plaza

sequence of courtyards

small retail for social
and student housing

display stands for
creative industry

shopping

restaurant-café
brocante market

24 hours shops

café

flower market
local shops

spitalfield market

petticoat market

plaza

edges

edge

porous

soft edge

BTD 3

RES 1

CRI

BTD 2

BTD 1

RES 2

WSP

MIX

BTD biotech district
 - BTD 1 cluster
 - BTD 2 cluster
 - BTD 3 cluster

RES residential district

CRI creative industries cluster

MIX mix used area superblock

WSP workspace district

XXI. Edges, voids, and paths, for the constitution of a common ground able to keep together a dispersed critical mass for innovation. Drawing by the author.

17. In listing the program within this purpose, a distinction must be made between those spaces which can be completely public and those which are supposed to establish a privileged engagement with residents or a collaboration with business and other institutions. Thus, for example, the library, the cafeteria, the open spaces, the sport facilities, the theatre-cinema, the internet point, the health service facilities, the adult class room, the centre for diffusion of new technology, the incubators or small workshop can be shared with the residents. The lecture halls, the laboratories, the meeting rooms, the offices, the transfer knowledge centre for the commercialization of innovation, the leisure facilities and the various collective spaces can be shared with the business companies.

18. "The responsibility of regenerating the environment is an increasingly aspect and is attributed to any new civic facility, as yet another part of its program, regardless of its scale. The presence of these services provides urban quality, something harder and harder to come by. In less fortunate areas or areas that have suffered a process of neglect these services not only offer activities but also positive expectation." Aurora Fernàndez Per, 'Reviving the heart of the city' in a+t 29, CIVILITIES 1, a+t ediciones, 2007.

respect, we can remind the recent additions to Cooper Union in New York – designed by Morphosis as an extremely virtuous application of the hall principle -, the New Academic Building for the London School of Economics – designed by Grimshaw and Partners –, and Columbia University's Lerner Hall Student Center in New York – designed by Bernard Tschumi.

These are all manifestations of typological experimentations and variations for university buildings that respond to the complication of the institution by the introduction of new programs and synergies among functions and activities. To reiterate, dispersion means 'programmatic location' and thus a typological effort (at the scale of the building) that derives from delocalizing – and isolating from the 'campus' - selected academic functions[17] and hybridizing them with civic ones. Dispersion also means the formalization of such localization and delocalization. In other words we are hinting to the fact that it would not be sufficient to rely on 'location strategies' to achieve engagement. Rather, this would require typological thinking and ground 'qualification'.

Coming back to Whitechapel, the district could be usefully handled as a collage of formally defined sub-quarters. One of these, the mentioned area concentrating the facilities of Queen Mary University, could act as the necessary core for a wider 'academic network'. A number of other facilities could be located more far apart from the main core and could participate to the characterization of the different sub-quarters. In other words, the dislocated functions, on the one hand, emerge from the peculiarities of the sub-quarters and, on the other hand, contribute to their future characterization.

For example, a delocalization of elements such as sport facilities, health care units, students' and researchers' dormitories, from the main core to the social housing estates constellating the residential realm of Whitechapel could promote crossovers with the residents, in terms of knowledge-transfer, and contribute to the regeneration[18] of those

areas. From a spatial point of view, dormitories and civic facilities could intensify and reorient those green open spaces that, supposed to act as meaningful collective realm for the residents, have never performed as such.

Nevertheless, despite the advantages coming from a strategy of dispersion, extreme decentralization can also have the drawbacks of excessively dispersing the critical mass for innovation and disorienting the users of the campus. So, to what degree should we disperse, and how?

This last question leads to two additional ones, the first related to the constitution of a 'common ground' for the dispersed system, the second related to the ways of conceiving the 'core'.

Starting from the first, we could ask whether Whitechapel constitutes a pedestrian environment enabling comfortable movement from one building to another and the provision of 'spaces of privilege' besides the collective realm of street markets – a major 'social infrastructure' for Whitechapel. While a 'canonical campus' resolves this through the disposition of a neutral horizontal green surface, the existing complexity of Whitechapel complicates the provision of a common ground for the networked academic facilities.

The area is vast and offers neither the possibility to use comprehensively articulated landscaping nor a regular grid to realize the common ground. We thus have necessarily to rely on a network of 'points of activation, intensification and attraction' scattered throughout the sub-quarters and on multiscalar infrastructure relating them to one another. On the one hand, internal restructuring of the sub-quarters' patterns is needed. This could be more or less invasive and achieved through the articulation of 'voids', the modification of the typological composition, or the insertion of pieces of architecture able to re-orient the local public realm. On the other hand, while keeping differentiation among the interventions for every sub-quarter – so as to maintain the mixture of differences of the
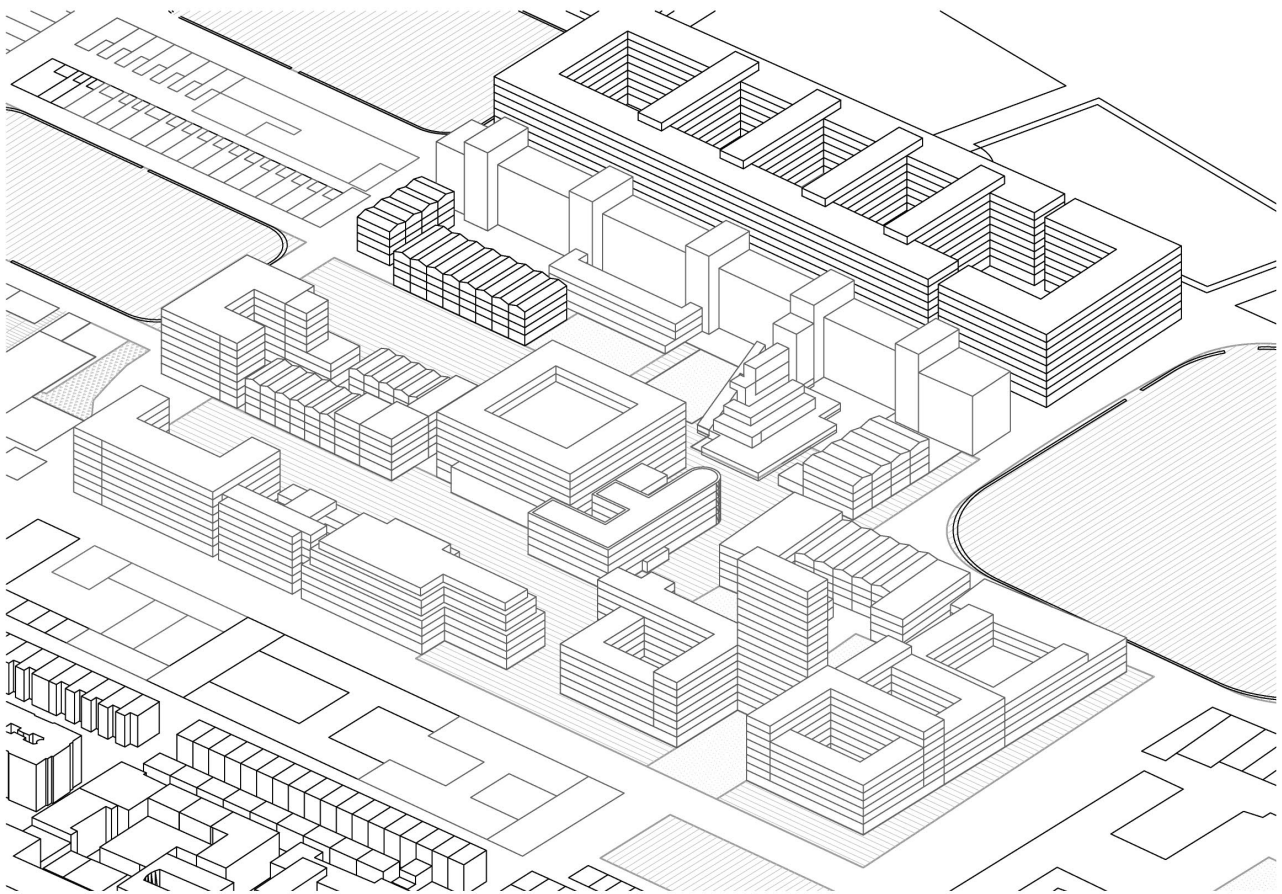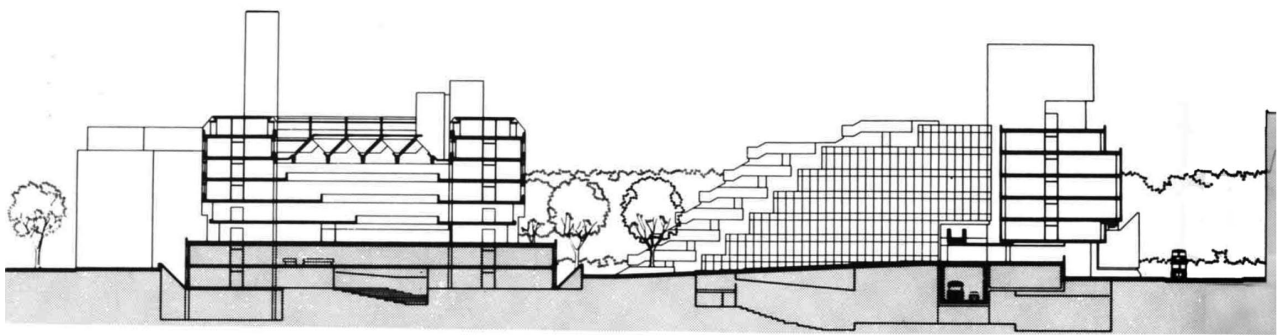
current collage of parts – particular attention should be put on those elements that configure the relation among sub-quarters. We are referring in particular to a project of the main traffic corridors - that perform at multiple scales - and of a secondary network of shopping and leisure-related streets, and to a study of the edges and of the relations among sub-quarters and between them and the corridors. The latter could be achieved by careful positioning of buildings along the corridors that are characterised by 'double-frontages', and by the design and localisation of collective facilities that, by means of trans/disprogramming[19] and multiple orientation could act as catalysts for the whole district.

Turning to the second question – the project for the core – this is related to the necessity, particularly intrinsic to any emergent cluster, to not disperse the critical mass for innovation. In other words, an adequate degree of proximity has to be ensured for university departments, hospital facilities, and for the firms and companies related to the biotech sector or necessary to support it – such as media or financial services.

So, we should ask what programmatic units have a necessity to be located close to one another and how to deliver them an environment of 'privilege', building up to a 'sense of innovation community'. Conversely, we also have to keep in mind the opposite question, that is, the inherent risk of excessive enclosure that strong centralization could imply.

This brings us back to the previously described dilemma proper of the fenced campus scenario. We previously referred to the existent, perhaps still begging for a proper 'design', core of Queen Mary University which occupies a square-shaped sub-quarter south of Whitechapel Road. Projecting a growth of this Biotech/University core, it could expand to comprehend the whole triangle-shaped area that has as its vertex the junction between the two cited main corridors - Whitechapel Road and Commercial Road.

We have already hinted to the relevance of conceiving architectural

19. We refer here to Bernard Tschumi's vocabulary: "Transprogramming: Combining two programs, regardless of their incompatibilities, together with their respective spatial configurations. Reference: planetarium+rollercoaster.
Disprogramming: Combining two programs, whereby a required spatial configuration of program A contaminates program B and B's possible configuration. The new program B may be extracted from the inherent contradictions contained in program A, and B's required spatial configuration may be applied to A." From Bernard Tschumi, 'Abstract Mediation and Strategy.' in Architecture and Disjunction, The MIT Press, Cambridge Massachusetts, London England, 1996, p.205.

and typological explorations as means to add a relevant contribution to the pattern of a given urban condition. To explain what we mean by contribution to the urban space, it is useful to recall once again the previously cited project by Denys Lasdun for the University of London in Bloomsbury. Here, the building engages with the urban conditions in which it is inserted not simply by the 'addition of a new academic piece' but by superimposing an added complexity to the urban grid of streets and squares which characterize that part of London. Therefore, the building itself – or, more correctly, the urban landscape[20] it provides - can be read as a 'controlled extension' of the outer space that provides new possibilities of use/movement and contributes to the 'collective' space of the city while at the same time performing its main purpose as an academic space.

A relevant contribution to the existing pattern can also come from the superimposition of instrumental spatial and programmatic layers. Back to Bloomsbury, the area around Lasdun's building is again a good example – although with a degree of incompleteness - of a strategy of voids superimposed over a city grid: the result is a pedestrian inclusive but permeable environment. Voids can be used to organize the future occupation of plots together with existing buildings, thus allowing the evolution of the area. In addition, the use of voids is relevant to realize patterns of engagement between the academic institution and the private firms, either these being large companies or small start-ups. The urban project is here one of grids, voids and paths' orientation and re-orientation.

To conclude and to further explain our position about the necessity of conceiving the core beyond a 'canonical campus', we will briefly describe one aspect of the proposal developed for the cited workshop for Whitechapel that, we think, synthetically suggests some relevant design moves.

The project proposes a Biotech/University cluster arranged in three

20. According to the interpretation given by William J.R. Curtis. See 'Architecture as Urban Landscape' in Denys Lasdun. Architecture, City, Landscape, Phaidon Press Limited, London, 1994.

XXII. The project for a privileged but permeable core. Denys Lasdun's intervention in Bloomsbury. Top: section cutting through the Institute of Education and the Soas Library from W.J.R. Curtis, Denys Lasdun. Architecture, City, Landscape; bottom: axonometric view of the whole 'campus' area, drawing by author.

campus
commercial & entertainment
business
residential

Permeable ground floor

san fernando street
children's room
cafe
bookstore
fourth street
book return

Cathedral
Post Office
Station
Theatre
Parking
Restraunt
University
Hotel
Cinema
Hotel
Museum

Activate the pathway and grid

sub-quarters (named BD1, BD2, BD3) that are based on an existing differentiation of patterns. While conceived as welcoming a mix of uses, each sub-quarter presents a marked specialization in terms of the main role it plays within the larger innovation/biotech cluster. The corridors – Whitechapel Road and Commercial Road - contribute to keep together the three as working units of a larger entity and through their boundaries they establish a link between the cluster and the larger Whitechapel district. Additionally, a privileged path cuts through the cluster and houses leisure, entertainment, retail and cultural facilities (the design reference for this is the Paseo de San Antonio aimed at re-structuring San Josè City's center, in Silicon Valley).

BD1 occupies the most valuable part of the district given its position in the vertex joining the two corridors. A raised podium is proposed – taking, as a design reference, Mies Van der Rohe's Dominion Centre in New York – over which high-rise structures are located. The towers house business and financial companies as well as the university's knowledge-transfer offices and small 'advertising shop-windows' for the biotech firms. The podium is occupied by a department store which is supposed to act, together with the hospital located on the opposite edge of the cluster, as an anchor to activate the internal leisure-oriented path. Its roof is conceived as a raised plaza adding up to the provision of open spaces of the wider district.

Given the thinner fabric of BD2, this is conceived to house small firms that support biotech – i.e. media companies. These are located within a pattern of row-houses stretching perpendicularly between Commercial Road and the internal path and thus characterising the southern edge of the sub-quarter as highly permeable by means of streets penetrating from Commercial Road. The northern edge is organised trough a sequence of slabs that run parallel to Whitechapel Road. While the masses of the buildings constitute a clear edge, permeability is nevertheless guaranteed through the design of the ground floor that houses a shopping gallery (the reference being Raphael Moneo's La Ila in Barcelona).
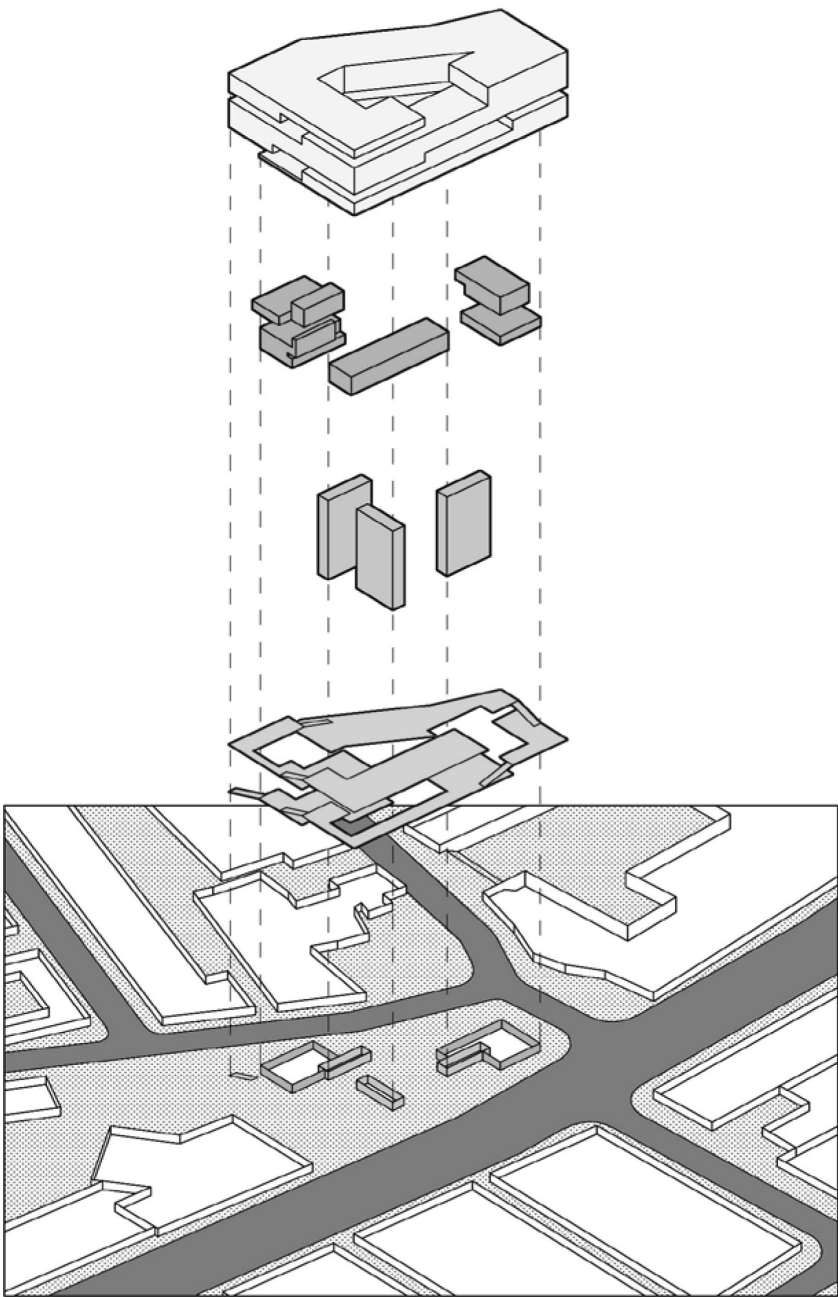
XXIII. The King's Library is a piece of civic, educational and urban infrastructure for innovation in San Josè City, Clifornia. Drawing by Sabrina Puddu and Ling Ha.

Finally, BD3 is the privileged place for university departments and biotech companies' research headquarters. Voids are used to enlarge the streets' section and to cluster the projected new functions along with the existing buildings. The continuation of the internal pedestrian path – that houses those university facilities with a higher degree of openness - inside this sub-quarter along with the configuration of its edge and masses aim to open the 'campus' to the city, while ensuring a sense of exclusiveness and privilege for the researchers-students community.

The internal leisure path is therefore the actual spine of the whole proposal. Cutting through the three sub-quarters, it reaches a peak of intensity at the junction with Whitechapel Road. Here the University Library is proposed as a fundamental element for the cluster since it aims at synthesising the very nature of an urbanised innovation environment. The plot of the library is designed as a permeable mediation between the corridor and the internal innovation environment. Programmatically, it is conceived after the case of the library built in San Jose's City at the edge of the university campus: it is both a public library and a university library, thus aiming to bring together different audiences.

XXIV. A spatial diagram that encourages inclusiveness while ensuring the necessary privilege for the 'knowledge community'. Proposal for a library in Whitechapel. Drawing by Sabrina Puddu and Ling Ha.

From a spatial point of view, the building is based on a diagram aimed at encouraging inclusiveness between the residential and the university/ biotech communities while at the same time ensuring the necessary privacy of the latter. An interior trajectory - accessible from two entrances, one facing Commercial Road and the other placed along the internal path - cuts through the mass of the building inflecting the various spaces it touches along its way.

Therefore, the overall meaning of the library is that of a permeable catalyst that performs the simultaneous 'urban tasks' of intensification and exclusiveness.

Chapter 9
Hanoi Biotech Park. Fostering emerging networks in peripheral conditions[1]

Abstract

Il caso studio Vietnam offre l'occasione per discutere di condizioni di network differenti da quelle descritte nei precedenti capitoli. Ci riferiremo a queste condizioni come 'periferiche' ed 'emergenti'. La foto del sito su cui HaBiotech Park è stato progettato, una risaia nella periferia di Hanoi, insieme ad una mappa dell'innovazione in Vietnam, che si riduce a pochi interventi incentrati ancora sulla manifattura, sono sufficientemente esplicative a spiegare i limiti e le ambizioni che il governo Vietnamita intende affrontare per inserire la propria economia all'interno della competizione globale per l'innovazione. 'Emergente' si riferisce in questo caso alla condizione di un network giovane e immaturo; 'periferico' si riferisce a quella particolare condizione – rispetto al centro città – ritenuta come la più immediata per la costruzione di cluster per l'innovazione in gran parte dei paesi asiatici. Il parco scientifico periferico è considerato la soluzione spaziale più efficiente per mettere insieme una massa critica per l'innovazione e garantirne, attraverso la legge della prossimità, una vita intensa in un ambiente piacevole, sicuro e soprattutto lontano dalla realtà di congestione e caos che caratterizza i centri città. Il 'corridoio innovativo' progettato per Hanoi è quindi una successione di una serie di enclave progettate lungo una importante infrastruttura viaria. Al di là delle questioni relative ai network produttivi, un'altra serie di questioni riguarda la condizione urbana in cui HaBiotech Park (o HaBiotech City, come viene definita dai suoi investitori) va ad inserirsi: Hanoi, la capitale del Vietnam, è una città in forte crescita che avrà presto una chiara dimensione metropolitana. Un masterplan per la sua futura espansione e ricostituzione è stato recentemente approvato. L'ulteriore domanda che ci si deve porre riguarda quindi l'opportunità di utilizzare un cluster per le biotecnologie come motore per l'urbanizzazione di un'area periurbana in condizione di instabilità. Quest'ultima considerazione, in particolare, apre la discussione su modelli spaziali alternativi al canone del 'parco scientifico' in quanto capaci di costruire una maggiore sinergia – di investimenti, per esempio – tra parchi scientifici e città. A questo proposito il progetto per KIC a Shanghai, che introdurremo brevemente come controcanto al caso di Hanoi, offre lezioni di esemplarità rispetto alle opportunità mancate di HaBiotech.

I. HaBiotech site: 200 ha of land from agriculture to the biotech sector. ©Google

In line with the strategies adopted by different so-called 'developing countries' in East Asia, the government of Vietnam has started to put its efforts towards ways of shifting its economic base from one which is labor-intensive (based on agriculture and manufacturing) to one reliant on knowledge and research. In recent years the national government has been supporting numerous initiatives to enable the country to align to the global path of knowledge-based economies and, at the same time, to attract the attention of foreign countries and foreign investors. Up to now, the only project that has been realized is the Saigon City Science Park (SHP), a High-Tech oriented development mainly devoted to the manufacturing aspects of a wider innovation network. In fact, among the tenants of the Science Park the only R&D company is the Vietnamese FTP while the others, mainly foreign companies, are all manufacturing plants for computer and electronic components.

SHP is symptomatic of the desires, on the one hand, and the actual possibilities, on the other, of Vietnam at this point in its history, and represents a clear intention of the central government as far as the strategies for an innovation-oriented economy are concerned. The enclosure-based model of the Science Park – in its original configuration also referred to as the 'first generation' of such compounds for innovation - is widely believed to be the most effective spatial solution that would enable, given the local conditions of Vietnam, to gather a critical mass necessary for innovation to happen. At the same time, the Science Park is also considered the environment with the highest capability of attractiveness towards foreign firms to establish their premises in Vietnam, that is, capable of setting in place a spatial condition which ensures a pleasant environment far away from that highly congested and chaotic reality we commonly associate to East Asian cities.

Indeed, there seems to be in Vietnam a shared concern about clustering together private/public research institutions and production activities which, up to now, have not been used to collaborate. In addition, based on an understanding, by the part of the decision-makers, of the life

standards proper of Vietnamese cities as inadequate to the development of a knowledge-based economy, a common view is predominant which sees in the construction of 'self-enclosed worlds' the most effective answer to the needs of foreign researchers and scientists.

Although the country has great ambitions, there is an awareness of the actual potentialities and limits of Vietnam in boosting a new economy. At the moment an innovation environment reliant on the R&D side of the innovation process does not seem the most likely scenario if we consider that Vietnam does not have either the necessary critical mass of excellent indigenous science and expertise, nor institutions mature enough to deal with the massive challenges that a switch from low-wage/low-skilled labor to knowledge-intensive industries would bring. Furthermore, it is clear that there is a need to set up international relationships in order to locate Vietnam on the global map of innovation, and the importance of attracting foreign firms and institutions is therefore paramount.

The political stability offered by the government, together with its support for the project of innovation and a knowledge-based economy, is a positive factor to enable the economic growth of the country. Moreover, it seems that Vietnam can count on another component of what we can call the 'innovation equation' that has proved highly relevant for explaining the achievements, for example, of Taiwan's shift to a High-Tech based economy. We are referring to the mass of highly qualified Vietnamese labor force that is currently studying or working abroad and, apparently, seems willing to come back and start new businesses in their home country.

II. The ambition of the Vietnamese government towards the bitechnology sector. Picture from the local newpaper Vieclam, 08.04.2008.

A follow-up to SHP is a large new development being proposed for the western periphery of Vietnam's capital city, Hanoi. The US$1 billion, 500 hectares project for HaBiotech, a Biotechnology Park to be developed in two successive stages designed by Vinaconex, a public-private Vietnamese construction corporation, marks the engagement of the Vietnamese government with the challenges of biotechnology. The project, which

2.Nicos Komninos, Intelligent Cities. Innovation, Knowledge, System and Digital Spaces., Spon Press, London and New York, 2002.

was proposed as an infrastructure to focus on research into new drugs and products for agriculture and environmental protection, is in fact a pioneering experience for the country, given the lack of any consistent 'roots' upon which to found a biotech specialization in Vietnam.

The experience of HaBiotech is taken here as a case study through which to propose a reflection on the peculiar challenges related to the support to an emerging network in peripheral conditions. Therefore, this chapter focuses on two main aspects of an innovation network that can be summarized by the terms 'emergent' and 'peripheral'.

The 'emergent' nature of a network is often cited, by the specialized literature on innovation, as that very characteristic that makes any attempt to 'design' innovation sound like a contradiction in terms[2]. The way in which we will use the term 'emergent' here is, however, different from an understanding of a bottom-up phenomenon. We are referring, in fact, to that condition which is diametrically opposed to the maturity of a built environment that has been realized over time. In other words, we are considering a case, HaBiotech, which asks for careful thinking on the ways to include the time dimension into a much more condensed process than the normal diluted nature of urban processes. As we have already seen, this seems to be the main promise of a science park (or of a campus-based system) and this also partly explains its success as the most diffused spatial model of innovation worldwide.

'Peripheral' refers to that peculiar condition which has proved itself, over time, to be the most welcoming 'quality' for the establishment of the planned environments of innovation. When related to the case of an East Asian country like Vietnam, the periphery becomes an even more relevant lens through which to read the strategies of central governments for setting up an innovation-based economy, as it is thought to offer those conditions which are different from the congestion of urban cores and are more appropriate for nurturing the internal dynamics of innovation. In other words, peripheral is, in the minds of developers and

IV. 'Emergent' and 'Peripheral'. The designated site for HaBiotech Park, picture by the author.

decision-makers, the quality that counterbalance the illnesses associated to urban congestion. Alternatively, we will reflect on the 'peripheral' by taking on board a widely diverging vision of 'congestion' read through the term 'intensification' as a way of improving the opportunities for knowledge creation and sharing and embedded in the very nature of urban environments.

These two aspects, the 'emergent' and the 'peripheral', are kept together by an underlying common issue which relates to the possibility of implementing projects for innovation environments as a key component for the restructuring and/or growth of a city. Therefore, two questions are at the basis of our reflections. The first question regards the ways to respond to the challenges posed by an expanding city (Hanoi, in our case) while, at the same time, developing the right degrees of 'enclosure' and 'privilege' for a biotech cluster. The second question relates to how to use a biotech cluster as a means to activate – and contribute to – the process of urbanization of a peri-urban area. The latter question, in particular, raises the doubt as to whether it would be more effective, in terms of an urbanization process, to think differently than the 'science park' canon.

We will start by briefly describing the conditions that characterize the proposal for a biotech cluster in the periphery of Hanoi, by inserting it into the larger picture of the processes going on and forecasted by the government for the capital city of Vietnam. In particular, we will try to make the point for a different perspective under which we think it would be more relevant to understand the conditions of the peri-urban site elected for the construction of HaBiotech, conceiving the latter as design instrument rather than mere 'tabula rasa'. We will call this the 'active void'.

Then, we will introduce the challenges of designing in peripheral conditions for the set up of brand new innovation-oriented clusters. This will lead to discuss the relevance of intensification intended in its multiple meanings.

Finally, we will present the projective speculations that were advanced as a 'counter proposal' to the masterplan for HaBiotech based on an understanding of the site chosen for the biotech park as a part of the city not only in terms of an adequate degree of infrastructural connection to it, but in terms of spatial continuity of pattern with it.
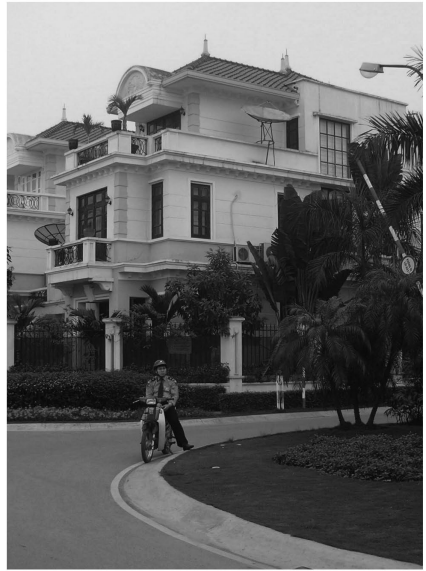
[Conditions]

Hanoi is a complex collage of different parts that are the materialization of the rich range of economic-political realms emerged in the city in more or less successive periods. "The story of Hanoi's evolution is reflected in the bipolarity of the feudal city, the oppression represented in the colonial imposed city, the destruction of World War 2 and the two wars of independence, the attempt to achieve a socialistic vision and, now, the changes flowing from Doi Moi."[3] William S. Logan identifies these parts as 'cultural layers'[4] that reflect "the economic condition that had made [their] creation possible"[5]. According to him, to a changing ideology corresponds a changing heritage. Nevertheless this pure historicist perspective –expressed by the word 'heritage' - can be easily broadened by the observation of the actual subsistence and spatial effectiveness (with the obvious modification and evolution) of many of these spatial layers in the actual functioning of the city.

3. Marcial Stewart Logan, 'Doi moi and the return of capitalism: Hanoi in the 1990s' and 'Creeping Pluralism: Hanoi faces the new millennium' in Hanoi: Biography of a City., UNSW Press, Australia, 2000, p.235.
4. Ibid., p.225
5. Ibid., p.225

The city centre is composed by the feudal agglomeration of the Ancient Quarter, a dense compact environment of 'tunnel' houses; by the squared walled Royal Citadel, place for the institutional villas; by the gridiron French Quarter - where the original typology of the villa has now given way to more dense types - and its less rigorous extension. In the successive years the city has grown organically. The process of growth and expansion - mainly towards the south-west - has seen a progressive occupation of the paddy fields merging the rural villages surrounding the city. The villages' pattern has been included in the city, and connected to

VI. The three urban phenomena that have been shaping the city after the economic liberalization. Left to right: [1]occupation of further land on the city fringes including the suburban/rural villages; [2] densification of the existing narrow blocks; [3] proliferation of gated communities, often mono-use compounds on the outskirts of the city. Pictures by the author.

the other ex-villages and to the old urban quarter with main commercial corridors crossing the farm lands, from which the urbanization of the paddy fields started. The sinuous pattern of the old villages is still recognizable in the city map.

After the economic reforms of the Doi Moi period[6] in the mid-1980s and the economic boom the residential population started to grow sharply as did the requirement for office and industrial spaces. As far as the urban structure of the city and its region is concerned, three main phenomena have been shaping the city after the economic liberalization. Firstly, the process of organic growth has developed – and is still going – by conquering further land on the city fringes, including the suburban/rural villages - already in a transitional status from farmers' self-sufficient settlements to residential settlements serving the main city, which is represented by their interior unstable spatial condition - and eroding agricultural land.

Secondly, the consolidated inner city has seen a process of densification. However, this has rarely followed a change in typology. In the Ancient Quarter the result has been an overcrowding of people in the existing narrow blocks - where the density average has reached unsustainable substandard performance - and an intense life in the congested streets. In an opposite tendency to other Asian cities, high-rise is banned from the inner city centre in the name of a preservation common sense. High-rise and denser types are allowed in the fringe areas of the city, but these and the massive investments that are pouring on them have not been used to struggle the desperate need for residential spaces. High-rises are often office spaces or hotels. We can conclude that the process of densification within the city is not kept under control, for on the one hand we have the indiscriminate action of developers at the service of economic pressure and, on the other, the confuse action of the overall population that is overfilling existing buildings or illegally modifying them with additions, elevations and infills at the edge of light-hygienic-ventilation-structural standards.

The third process, superimposed to the other two, is the proliferation of new developments in the form of introverted, often mono-use compounds on the outskirts of the city, mainly on the main corridors toward west and north. This is the response to the economic-production pressures - of the heavy manufacture and light production industry and, more recently, of the high-tech and bio-tech sectors - as well as to the higher-standard requirements for housing of both the emergent Vietnamese middle-class and the foreigners coming to live-work in Hanoi.

VII. The relationship betweenn 'HaBiotech City' and the immediate sorroundings. Drawing from H&U design booklet.

There is a strident contrast between the character of these safe high-standard clean compounds and the inner city. It is often argued that these peripheral compounds are critical for their lack of intensity, compared to the vibrant life of the Ancient and French Quarter. If this observation and critique is indubitable – Hanoi's inner city is indeed incredibly dense and intense – nevertheless it would be a mistake trying to reproduce or seek the same kind of congestion for the environments for innovation to be developed in the outskirts of the city. In fact, the synergies and diversification of people and functions that would be able to activate a science park or an innovative cluster are far different from those we can find in Hanoi's Ancient Quarter. Here, the nature of congestion is based on commercial exchanges and inward 'guild-like' relationships among small textile-food enterprises and commercial firms. An emerging network for biotechnology in Hanoi would involve large corporations and public research and education institutions, and massive foreign and local investments. The work-force community would be mainly composed by high-skilled and, at least in a first phase, not indigenous people although a process for the integration and the inclusiveness of local enterprise and labour should be fostered.

At the light of these considerations, we can thus consider the proposed science park as a missed opportunity and, probably, not even the more appropriate strategy for fostering the emergence of such a network.

VIII. Institutional arrangement: Hanoi's concentration of governamental institutions. Picture by the author.

7. In 2007 the Irish real estate developer Pacific Land Ltd. obtained approval and support from the Vietnamese government to build the biotech park. The developer's forecast was to have the park up and running in three years time.

"The High-Biotechnology Park of Ha Noi, once established, will be a driving force of the knowledge economy development of Ha Noi City, will facilitate the development of a modern high-biotechnology area of international standard in Ha Noi, at the same time will contribute to the training, research and development of the biotechnology in many fields, such as, health care, medicine, biochemistry, agriculture. Moreover, it will be an important part to promote the economic development of Ha Noi, contribute to form a representative feature of Viet Nam integrated into WTO and towards the 1000-year celebration of Thang Long-Ha Noi." Vinaconex

The proposed first phase for the HaBiotech Park[7] fences a vast surface of land of rice fields between some existing peri-urban villages leaving open the question about what will happen between the fence and the villages. The proposed masterplan follows the stereotypical model for a Biotech cluster in a science park type of setting. There is little response either to the existing rural condition or to the process of urbanization. The relation with the city is left to infrastructural improvements; the relation with the villages is not even considered.

The term 'urbanized environment' is often used by the developers when presenting the project but it is clear how the meaning of the term has been reduced to a mere question of 'mixed-use' program inside the park. To be sure, the mix of uses represents a step forward compared to the first generation of science parks. The HaBiotech is in fact going to house not only research labs, offices, university departments, manufacture buildings and incubators – in the guise of a 'traditional' science park - but is provided also with housing and related facilities. If we take into consideration the urban dynamics going on in Hanoi as briefly depicted above, by way of paradox the promise of such a mixed-use program enclosed in this 'ideal' environment – that is, the assumption that a community is going to develop within it that is going to live, work and spend their free time in the park – can lead to even more introversion than openness since it makes the settlement self-contained and
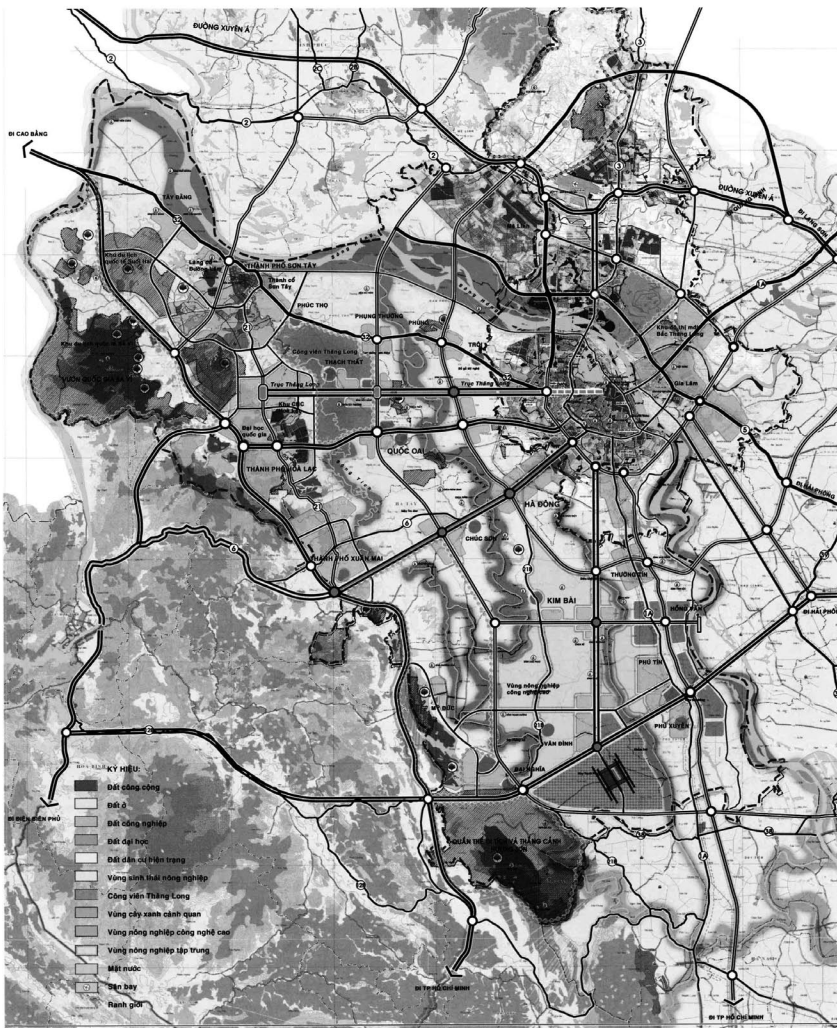
independent from the city.

Presenting the actual condition and future ambitions of Hanoi, Dr. Dao Ngoc Nghien, the chief architect of the Department of Architecture of the City, defined four challenges that Hanoi is facing in order to acquire a clear role in the country: to become a political centre as the capital city; an education centre as deliverer of high education; an economic centre; and an international and diplomatic centre.

Actually, as capital city, Hanoi houses a great number of governmental institutions, mostly in the old French colonial buildings around the Citadel. Moreover, it is already considered to be the 'educational centre' of Vietnam, housing the premises of some sixty five universities inside the city.

While this fact is a signal of the strength of the university as institution and its potential role in promoting an economic shift toward a knowledge-based economy, the high number of dispersed universities - none of them being ranked among the top level world academic institutions - raises the need for concentration and coordination. In this regard we can understand the proposal that has been advanced to move the universities out from the city and to cluster them in an outlying campus to the west of the consolidated urban core.

Given the political structure of Vietnam, everything is rather centralized. However, as far as research activity is concerned, the country is witnessing a shift from a model where the state was highly involved in research - but without any synergy between the university, mainly dealing with teaching, and the national research laboratories and the industry - to a new model where the private companies are becoming an active part of the research and production project. The challenge is then finding the way in which the old controlled closed governmental model will work with the most aggressive and dynamic private sector as well as to make the public institutions eventually work together and open up among

ĐƯỜNG XUYÊN Á

ĐI CAO BẰNG

TÂY ĐẰNG

THÀNH PHỐ SƠN TÂY

Khu du lịch
quốc tế Suối Hai

Làng văn
hóa du lịch

Thành cổ
Sơn Tây

PHÚC THỌ

VƯỜN QUỐC GIA BA VÌ

Công viên Thăng Long

PHÙNG

PHÚNG THƯƠNG

TRÔI

Khu đô thị mới
Bắc Thăng Long

THẠCH THẤT

Trục Thăng Long

Trục Thăng Long

Gia Lâm

Khu CNC

Đại học
quốc gia

THÀNH PHỐ HÒA LẠC

QUỐC OAI

ĐƯỜNG XUYÊN Á

Đi Lạng Sơn

ĐI HẢI PHÒNG

HÀ ĐÔNG

THÀNH PHỐ XUÂN MAI

CHÚC SƠN

THƯỜNG TÍN

ĐI HẢI PHÒNG

KIM BÀI

HỒNG VÂN

ĐI ĐIỆN BIÊN PHỦ

Vùng nông nghiệp
công nghệ cao

PHÚ TÍN

VÂN ĐÌNH

PHÚ XUYÊN

ĐẠI NGHĨA

KHU QUẦN THỂ DU LỊCH VÀ THẮNG CẢNH

KÝ HIỆU:

Đất công cộng
Đất ở
Đất công nghiệp
Đất đại học
Đất dân cư hiện trạng
Vùng sinh thái nông nghiệp
Công viên Thăng Long
Vùng cây xanh cảnh quan
Vùng nông nghiệp công nghệ cao
Vùng nông nghiệp tập trung
Mặt nước
Sân bay
Ranh giới

ĐI NAM ĐỊNH

ĐI TP HỒ CHÍ MINH

8.Among the potential clients of HaBiotech Pacific Land Ltd listed some leading companies from the US, UK, Japan, Germany, Switzerland, and Sweden, and, as far as the university is concerned, there were rumours about a possible collaboration with Harvard.
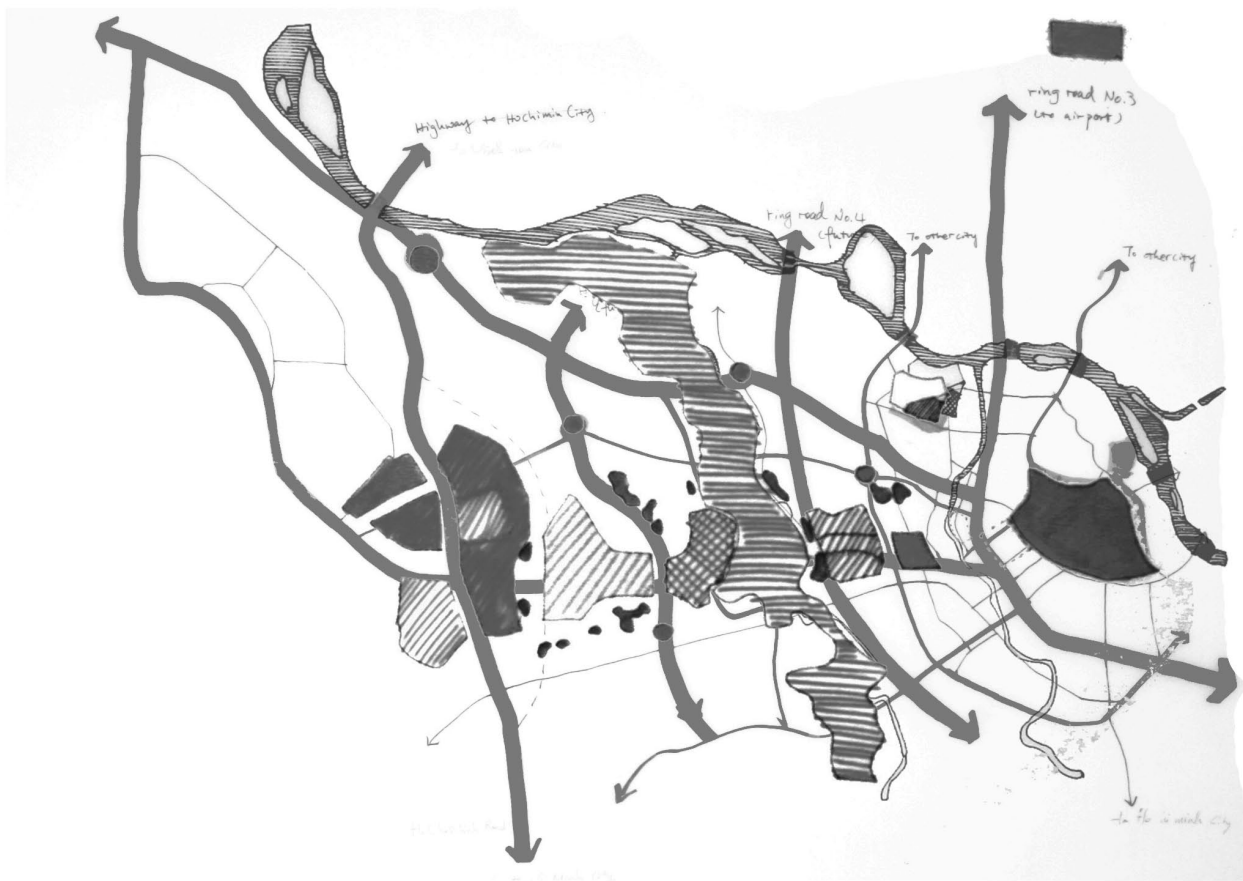
themselves.

The science park is then commonly considered in Vietnam the easiest way to encourage the different actors - foreign companies and universities[8], local public and private institutions who will move out from the city to the park - to work together, based on the 'proximity' factor. It is anyway easy to imagine how, even if such a strong interior coherence was achieved, the drawback would still remain of an 'island' completely disconnected from the wider socio-economic context of the city upon which it is hard to imagine any realistic positive repercussion of the activities interiorized within the park's fence.

Another point to consider when reflecting on the relevance of a biotech cluster in the periphery of Hanoi is the massive challenge that Hanoi is going to face in the next decades in terms of urbanization and expansion.

In 2008 the city planners presented plans of expanding Hanoi by three times its present size in a few decades, with a projection of a doubling by 2020. This expansion is intended to accommodate new immigrants as well as to relocate some inhabitants of the city centre, marked by unbearable levels of overpopulation, to a wider urbanized region.

A debate was fired up as to which direction of expansion would be the most suitable for the city. The majority sustain that the city should expand to the West including the Hà Tai Province, the Vinh Phuc Province's Me Linh district and four communes of Hoa Binh Province's Luong Son District. According to the masterplan of westward expansion, many projects are proposed to the west side of Hanoi such as HaBiotech Park, the new university campus clustering the academic institutions currently scattered throughout the city, the 'knowledge corridor', a number of infrastructural improvements, the Hoa Lac High-Tech Park.

Nevertheless, the 'west direction' of expansion has some limits. It does not really consider the possibility to expand beyond the Red

Highway to Hochimin City

ring road No.3
(to airport)

ring road No.4
(future)

To other city

To other city

To other city

River, on the north and east edges of the capital city that still remains a strong boundary containing the built urban fabric. Indeed, Hanoi never considered its waterfront as an opportunity for urban growth, given probably the large section of the river, that would not perform as other water lines cutting through cities worldwide, and the technical difficulties associated to keeping it under control. Despite this, however, some settlements are now occupying the northern bank of the river. In particular, along the direction leading to Hanoi's international airport, a dynamic process of urbanization is defining new patterns of employment distribution.

The other argument, again in terms of direction of expansion, is related to the localization and orientation of what the authorities refer to as the 'knowledge corridor'. Even if a future 'knowledge corridor' is not necessarily going to follow the largely agreed plan of westward urban expansion, it still can exert an influence on the pattern of that expansion thus acting as an engine of urbanization.

XI. The planned 'knowledge corridor' towards west: a sequence of campuses along an infrastrcural line. Drawing from H&U design booklet.

A first possibility could be that of following the knowledge corridor proposed in the masterplan which points to the west. Alternatively, an 'innovation corridor' could emerge along the north-south direction marked by the road connecting the city centre to the airport, where already some industries are located. What makes this latter option attractive is the accessibility from the existing infrastructure and from the airport, the availability of land, and the proximity to the centre, all of which are 'canonical' features of 'good innovation environment planning' – defined as the activity of planning islands of innovation in the form of science parks and campuses.

As we will describe in the concluding section of this chapter, we propose a framework which aims to be flexible enough to accommodate the expansion of the city in both directions and that sets itself a number of goals: to join the predictable westward expansion of the city with the inclusion of the surrounding existing settlements; to accommodate the

needs of the firms and future possible companies involved in the project of the knowledge economy; to accommodate the possible success - in terms of expansion and proliferation - or the possible failure – implosion - or even the initial possible slow period of gestation of the sector; and to take on board the time dimension by carefully phasing the process of growth.

XII. The 'active' void as the space for planning instances. Picture by the author.

Whichever direction the expansion of the city will follow, what is indubitable is that it is going to perpetuate the already familiar absorption of the existing rural villages by filling up the currently un-built space among them. We consider these un-built land as an 'active void' understood on different levels. Firstly it is active because in many cases - such as is the case of the biotech park site - it is a workplace, a space which has been continuously shaped, regimented and modified by the action of human-beings for production purposes. In addition it always played a structural role for the rural pattern of villages by containing their growth and regulating the relations among them. Secondly, it is currently a dynamic place offering potential room for the city's expansion and urbanization - even if it has not yet reached the level of instability found in other cities, since it is still used as agricultural land.

The alternative scenario of modification we propose for the site of HaBiotech – and that is described at the end of this chapter – is distant from both the 'image' of the proposed masterplan and the 'philosophy' of regional innovation that underpins that model. By taking on board the conception of the current un-built space in-between the villages, that area to be 'developed' in the minds of the investors as if currently not developed, as an 'active void' we are aware of offering an argument for preservation. However, we want to take distance from a simple romanticized conception of preservation of the current condition of this active void – the rice fields. We do not see any convincing reason to suddenly get rid of the paddy fields, considering also the inevitable tension that a project of such a size and scale of repercussions will cause between local farmers and developers. In other words, a hostile

RANH GIỚI XÃ

KHU CN NAM THĂNG LONG
(30 HA)

XÃ LIÊN MAC
(43.44 HA)

XÃ THỤY PHƯƠNG
(25.28 HA)

XÃ TÂY TỰU
(37.78 HA)

XÃ MINH KHAI
(99.76 HA)

RANH GIỚI KHU HABIOTECH GIAI ĐO

CÔNG NGHỆ SINH HỌC & NGHIÊN CỨU HÀ NỘI - HaBiotech
Thành Phố Hà Nội

XÃ CỔ NHUẾ

environment would not be favorable to the acceptance, growth and possible positive spillovers of the new innovation environment. Far from being a 'romantic' decision, we think that it would be appropriate to work with the existing structure of property. Even if, apparently, only the 30% of the villagers is employed in agriculture and get their income from the rice fields - the other 70% commuting everyday to and from Hanoi - the expropriation of the land, which legally would be easy to achieve since the farm land is actually property of the state although given in lease to the farmers for a few generations, can be far from being accepted by the villagers. To this extent, creating a framework able to keep into consideration the paddy fields, can favor a more gentle negotiation and allow a gradual change for that could involve also the weakest strata of population.

[Peripheral Intensification]

Asian cities are well known to be highly congested at their centres, and this tends to create two kinds of problems for the development of forward-looking innovation environments focused on high-tech industries. The first one is obvious, and this is the lack of buildable space for new labs, offices, or industries. The second is that the congestion that typifies Asian cities has until recent years been dominated by local and inward-looking networks. This pattern seems to be changing as Asian cities become more global in their cultural and economic outlook, but the most congested areas of some of these cities have most often developed according to social and cultural patterns that predate the incursion of global technology industries.

XIII. The 'active' void as the space of land negotiation. Picture by the author.

For these reasons, when we pursue strategies for rapidly developing local engagement with global technology industries, we become inclined to look to the peripheries of those cities for sites unencumbered with the congestion of the city centres. On the periphery we have both the space

and the opportunity to create the kind of environments for attracting global talent and international firms. However, when we make this choice, we immediately take on a set of challenges that are underestimated in their difficulty.

Three of them we can name easily as a set of three 'I- words': integration, intensification, and identity. First of all, to the extent that there are solid reasons for imagining that global technology industries would wish to locate in these cities, this would be on grounds of a local talent base or human capital that is no doubt already highly organized and with a highly developed regional culture influencing both business and the sciences. Our new development would want to become well integrated into the most positive aspects of this regionally-based tacit culture of knowledge and business. To achieve this sets up a challenge that is both cultural and infrastructural – it is about establishing a thickened web of communicational possibilities, both virtual and material.

XIV. Congestion. Hanoi's cityscape, picture by the author.

Secondly, we would want our new innovation environment to be capable of 'touching' or influencing the greatest number of local practices over time. We would want it to touch both current research and business practices, and also longer-term educational and intergenerational cultures. To achieve this is a matter of multiplying the spaces of interaction, the resources, facilities, services, and institutions that 'thicken' and intensify the knowledge economy. This is a pattern we easily can notice in the centres of global cities – they have intensified the resources and institutions available to people who live in them. They make the local global, and vice-versa, of course. Peripheral environments are usually (although not always) poor in terms of these resources and institutions. We will return to this issue of intensification later, but when we refer to intensity we are calling attention to a specifically urban quality – that of a diversity of resources and opportunities available in a particular area. This is perhaps the opposite of some versions of economic intensity which might refer to a quantitative condition in relation to a single use. Urban intensification refers to the multi-use and multi-functional synergies that

typify city life.

The third challenge – that includes the previous ones– is related to the constitution of particular urban and regional landscape. As extensively discussed in the previous Section, cities tend to create distinctive landscapes by indexing the ongoing processes of urban transformation in ways that give cities a singular identity. Urban landscape is the key answer to the perceived failure of the canonical science park as opposed to the constitution of an intense, well-integrated and 'sticky' innovation environment.

In order to explore these themes through the case study of Hanoi's Biotech Park, it can be useful to couple the latter with another Asian experience that, despite some similarities with HaBiotech, shows some divergence in terms of the way a peripheral innovation environment can be conceived. We are referring to Shanghai's KIC (Knowledge Innovation Community) located on the northern periphery of the city. For both cases, the task is that of creating a framework for development, and this quickly becomes an exploration of processes, concepts, and methods.

XV. KIC and HaBiotech are both planned projects for innovation environments. HaBiotech Masterplan, ©Vinaconex.

KIC and HaBiotech are planned projects for innovation environments, and as urbanists we would look at them not so much as places with embedded cultures, but as instances of planned projects. They have characteristics that can be described and analyzed as such – that is, they are projects that propose a certain pattern of urban development on the periphery of the city, and that aim to harness the growth and investment of the innovation economy to it.

Before going on to deepen our understanding of the general challenge of designing urban innovation environments, let's take a closer look at the similarities and differences of KIC and HaBiotech. Firstly, a few descriptive words about KIC are needed in order to enable an understanding of our comparative effort.

Shanghai's Knowledge Innovation Community's development started in 2003 when the Chinese real estate developer Shui On Group signed an agreement with Shanghai's Yangpu University City Investment and Development Ltd. KIC's phase 1 was inaugurated in 2004. The development occupies an urban area of more than 1 million square meters and is constituted of four complementary areas: KIC Plaza is intended as the core of the whole development, a hub of R&D and business and commercial services; KIC Village was designed as a mixed-use quarter including housing, offices, retail, recreation and entertainment facilities; KIC Tech Park, a technology park functional to the mission of making of KIC a digital community; the Jiangwan Sports Center, built in the first half of the twentieth century, is a major destination for sports and recreational activities in Shanghai.

KIC is presented in the official website as "a motivating space in which to work, learn, grow and realize potential to the fullest. [...] KIC eliminates the traditional boundaries that exist between business and residential communities, allowing a complete interaction between home and place of work, and creating a heaven for entrepreneurial and creative pursuits"[9].

9.From the oofficial website Knowledge Innovation Community: http://www.kic.net.cn

XVI. KIC and HaBiotech are both planned projects for innovation environments. KIC Masterplan, ©2006 The Shui On Group.

If we then consider KIC in comparison with HaBiotech, we can start by stressing the common features. Both projects are large and ambitious efforts to create peripheral innovation environments in the context of expanding, poly-centric city-regions. Both are positioned within a larger framework of projected technology corridors, although KIC's place in Shanghai's emerging northern technology corridor near Fudan and Tongji Universities is far clearer. Both are mixed-use projects, although KIC registers a much greater awareness of the role of a residential community in supporting the resources and services we have come to associate with intensive innovation environments. KIC also has a clearer relationship to key international business stakeholders, such as Cisco and Oracle, and a clearer business mission. But perhaps the most noticeable differences are in its urban structure. It makes clear use of Shanghai's grid and draws it into the site, and has also organized itself around an important urban

element, an historic stadium that gives definition both to the immediately adjacent business development site and to the overall character and feel of the project.

Broadening now our discussion, when dealing with cases of brand new clusters, we need firstly to have a clear understanding of the nature of emerging networks. It is often claimed in the literature that networks 'emerge' and derive their stability from a combination of synergies and skills at the local scale – the regional sharing of knowledge and enterprise supportive attitude - and of affiliations and relationships with a wider global network where they compete to have a significant place, sometimes through their specialization. Therefore, on the one hand a good strategy has to understand the general features of emerging networks and on the other we need to build a clear diagnostic frame of the existing institutional-social arrangements, economic potentialities/tendencies and existing skills of the specific area we are looking at.

XVII. KIC registers a much greater awareness of the role of a residential community in supporting the resources and services we have come to associate with intensive innovation environments. Picture from www.kic.net.cn.

The description of these networks has to be functional and relevant for design, which reveals to be a rather difficult task for the general literature on innovation almost exclusively refers to the fields of economics and sociology rather than to the discipline of architecture. Moreover, even when we manage to capture an effective understanding of a network – its organization, constitution and synergies - this is not easy to be transposed into an architectural-urban form. In the discussion that follows we will precisely try to deal with these two challenges for the design and intensification of emerging networks, the first referring to a diagnostic issue and the second to the process.

The networks' strength is often based on a mix of codified and tacit knowledge. The latter is at the base of the logic of networks as complex systems of formal and informal relationships among firms and institutions – each of them playing a particular role inside the network and being supported by it. In general –except for slow successive migrations – networks are therefore located in space. Thus, innovation

is often regarded as 'sticky' to precise geographical locations[10] and we tend to talk about innovative regions rather than singular innovative firms. In an innovative region the sharing and continuous upgrading of tacit knowledge is an important precondition for innovation. Hence, the first architectural–urban issue that emerges here is the necessity for intense 'collaborative' patterns of permeability and porosity to facilitate a collective shared learning.

In an emerging network it is likely that synergies have to be created from scratch. A work-force, that is enough numerous and enough diversified- often 'imported' from abroad- has to be gathered and made work collaboratively. A local entrepreneurship attitude is essential as well as the upgrading of the local labour force. Institutions have sometimes to re-organize themselves in order to find a place in the network or to lead it. Their re-organization, political and programmatic, is not only driven by the nature of networking but also by a possibility for reaching diverse strata of the society and being able to build a urban learning environment. The collective learning process is a loop, both a precondition and a result of innovation. For this reason the main task of intensification is the creation of these kinds of complex ecologies.

Rem Koolhaas pushed to its extreme the concept of intensification. In 'Delirious New York' the culture of congestion is freed from the usual negative connotation and becomes the essence of the prosperous synergies in the Manhattan district. Manhattan is a mature area that has achieved a sophisticated degree of intense life and complex synergies in a continuous manipulation of the ground and the blocks. In emerging areas we are conscious that it takes time to achieve a similar degree of congestion, nevertheless this is our challenge as planners. For example, at the base of the Mission Bay project in San Francisco there is precisely an attempt for intensification. For this reason, the insertion of the cluster inside the city as a specific district and within the wider innovative regional system, including Silicon Valley, is sought through the infrastructural project and the affiliation to multiple regional means of

10. Simona Iammarino and Philip McCann, 'The structure and evolution of industrial clusters: transactions, technology and knowledge spillovers.', SPRU Electronic Working Paper Series, paper n. 138, 2005.

movement. Within the cluster, there is an effort to achieve intensification that relies on the constitution of a hierarchical sequence of outdoor and indoor spaces, on the permeability of some buildings, and on the blocks density.

Considering another case, Silicon Valley's 'capital', the city of San José, shows that the efforts for enhancing and intensifying synergies within the consolidated innovative environment are involving the whole city whose formation over time has been basically mono-functionally oriented and embedded in the high-tech industry. These efforts are pushing the concept of innovation environments towards urban learning, so that every single quarter of the city - with its peculiar dominant use and multiple functions, spatial arrangement and population - has to be involved in the wider project of knowledge economy. Within the city the Kings Library is then elected as an important institutional-programmatic-spatial experiment for the activation of a social learning loop beyond the walls of the specific companies' buildings.

A third example, and a third way of conceiving intensification, is represented by the plan for the restructuring through densification of the outlying campus of Zurich's ETH. The enclosed compound lies in the middle of the landscape and the relation with the adjoining suburbs is guaranteed by a good network of infrastructure. However there is no spatial continuity with the city, for the landscape indistinctly fills the space among the suburbs fringes and the campus. Moreover, continuity is not likely to happen for Zurich does not show a frenetic process of urbanization and expansion and there is an attitude of preservation towards the landscape. The real task here is therefore not to create an 'urban quarter' within the city - although this is what is declared by the authors of the masterplan, the Dutch practice KCAP[11] - but to turn ETH campus into a 'public centre' for the adjacent suburb of Zurich. The nature of intensification in this suburbia reality has to be different than what we were previously describing in the cases above. The proposed strategy is a programmatic intensification within the boundaries

11. "[…] ETH Honggerberg, a 1960s campus on the outskirts of Zurich, is to be transformed from a mono-functional university compound into a urban quarter that acts as an interface between academia, industry and the general public."Kerstin Hoeger and Kees Christiaanse (eds), Campus and the City. Urban Design for the Knowledge Society, GTA Verlag, Zurich, 2007, p.234.
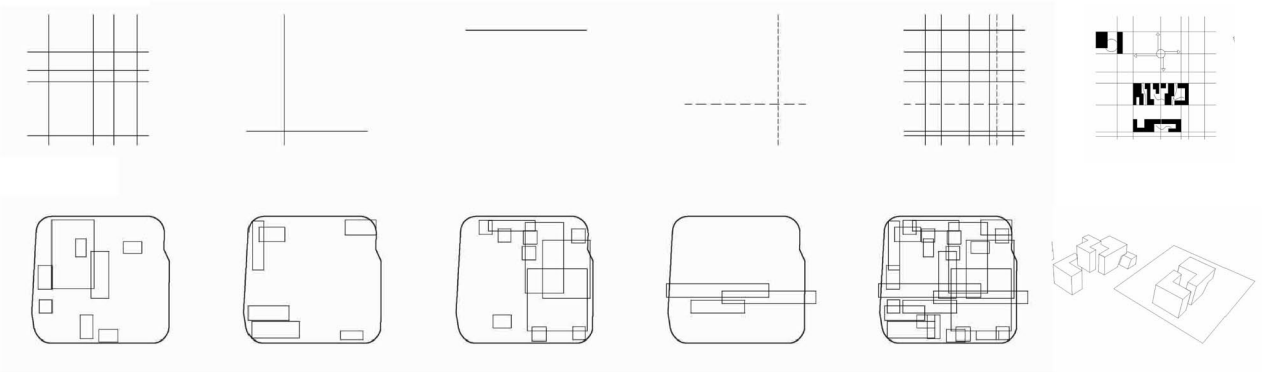
so to add new functions and uses able to promote renovated synergies between the university community and the business sector as well as between the former and the common people from Zurich. Spatially, a mass-infill will be provided and with that a probable enhancement of the physical relation among the buildings and of the pedestrian circulation will come, as well as a reconsideration of the void spaces as differentiated from the exterior landscape and hierarchically among themselves. Within this proposal the academic system is going to be a more open institution and, if keeping its main status of educational establishment, it is moving towards a progressive 'commercialization'. Again we will witness a parallel programmatic, spatial and institutional evolution for the campus type.

It is often argued that a precondition for intensity, in qualitative terms, is the mixed-use presence. This is usually true in the inner city, while such an understanding can show some drawbacks when dealing with a peripheral condition. In fact, the attempt to intensify peripheral fenced campuses through the insertion of a wide range of uses can generate a self-sufficient compound and reduce the exchange with the wider urban-metropolitan area. As noticed in a recent publication presenting a series of reflections on the relation between campus and city, "[...] the suburban campus has the potential to transform outlying areas into booming urban agglomeration that can crucially affect the development of an entire region [...]. Another tendency that can be observed is the evolution of suburban campuses into miniature cities their own right. However, in the case of Berlin Adlershof, Uithof, and the ETH's Science City, effort to bring urban life to a Greenfield campus paradoxically reinforce rather than eliminate the sense of separation from the city. The campus projects develop into more or less self-contained autarkic districts, which incorporate or rather imitate all the functions of the traditional city."[12]

Therefore, a project for innovative clusters in emerging networks has to carefully consider the conditions into which is to be inserted, being the result of a combination of spatial, institutional and programmatic arrangements. The simple and unconditioned mixed-use programmatic

XVIII. Mixing uses and functions as instrument for intensifying suburban campuses. ETH Science City project, programmatic intensification and mass densification. Picture of the model by KCAP and analitical drawings by UNICA students (A.Ledda, G.Deriu, E.Vacca, R.Argiolas, L.Casula, S.Ferreli, S.Asuni)

12. Kerstin Hoeger, 'Campus and the City' in Kerstin Hoeger and Kees Christiaanse (eds), Campus and the City. Urban Design for the Knowledge Society, GTA Verlag, Zurich, 2007.

No.	Land use	Land area (m2)	Ratio (%)
A	Land for high-biotechnology development research	932,745	46.50
1	Land for center of medical biotechnology research	164,250	8.19
2	Land for center agricultural biotechnology research	135,861	6.77
3	Land for fostering experimentation	89,670	4.47
4	Land for production and piloting	156,744	7.81
5	Land for production and development of professional software	116,144	5.79
6	Land for hospital, research center	110,770	5.52
7	Land for research institute university	159,306	7.94
B	Land for transport	439,192	21.89
1	Car park	40,026	2.00
2	Local circulation	399,166	19.90
C	Land for plazas, green parks, waters	387,791	19.33
1	Land for plazza	26,166	1.30
2	Land for green park	251,425	12.53
3	Land for water	110,200	5.49
D	Land for public, commercial and services facilities	93,144	4.64
1	Land for local administration	27,401	1.37
2	Land for commercial services	65,743	3.28
E	Land for technical infrastructure	51,389	2.56
F	Land for residence, dormitory	101,739	5.07
1	Land for high-rise condominium	57,212	2.85
2	Land for dormitory	44,527	2.22
G	Total	2,006,000	100.00

arrangement in fact can bring to results which are opposite to what desired, according to the conditions in which it is pursued and to the spatial organization.

It is curious to notice how the first name advanced for Hanoi's new biotech park was HaBiotech City. Encouraged by the success of the proposal for Singapore's One North, the developers of HaBiotech aimed at boasting an 'Urbanized Innovation Environment' based on the assumption that this could be achieved through a mix of uses. Actually, as already mentioned, HaBiotech's land use map shows a variety of uses encompassing research and production companies and institutions, health facilities, universities, housing, leisure and shopping facilities.

XIX. HaBiotech City, programmatic arrangement proposed by Vinaconex: the relevance of the 'civic-residential' infrastructure for innovation.

However, a first critique we can make is related to consideration based on sheer percentages. The housing component is merely the 6% of the total area for development and this clearly points towards a discrediting of the importance of the 'domesticity' component for an innovation environment. Elsewhere we argued that "Knowledge-based innovation environments depend upon the integration of housing for a variety of reasons. A residential population is necessary to support the local shops and services that sustain complex business ecologies and also integral to the balanced use and development of transport and service infrastructure. Beyond these more technical aspects of balanced urban development, however, housing has increasingly become recognized as part of the strategy to attract and retain the creative workforce at the core of innovation activities. While the housing projects associated with innovation environments have tended to emulate the rather homogeneous suburban communities associated with Western patterns of domestic privilege, more recent understandings have begun to emphasize the diversity of knowledge communities and become more experimental in their attitude toward the role of housing in social learning and business innovation."[13]

13. Architectural Association School, Project Review 2008 exhibition, Housing and Urbanism programme, July 2008.

Secondly, and this we think clearly marks the distance between HaBiotech
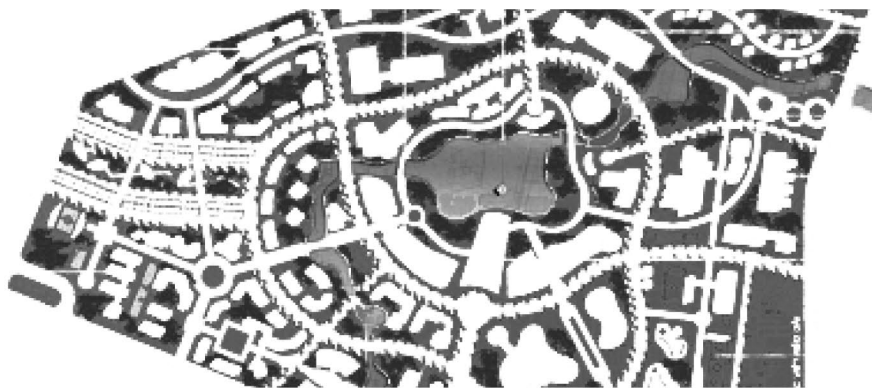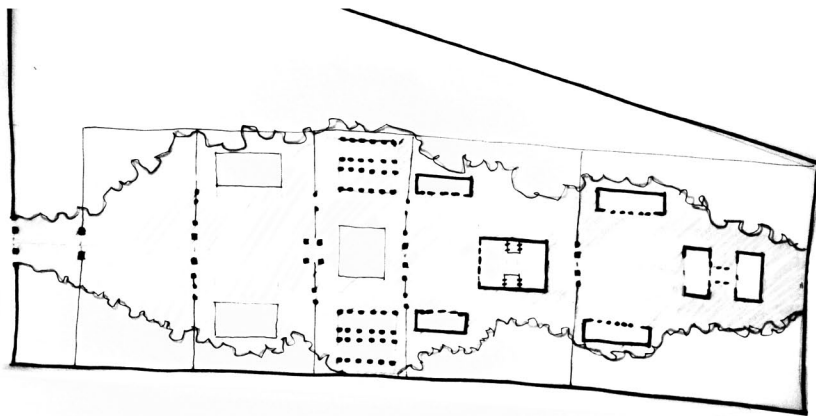
and One North, the former does not show any effective landscape or framework in support of the mix of uses as well as in support of its relations with the surrounding areas. Hence, a challenge of the traditional mono-use programme acquires sense when the 'boundary' is simultaneously challenged.

The first point - the necessity for considering a mixed-function environment as well as the mixed-use and the need for a particular conception of domesticity - drives us to a second question in relation to HaBiotech and the meaning of 'intensification' for an innovation ecology.

Our interest for intensification has to do with a shift in the understanding of innovation from being about supplying technology to focusing on the absorption of innovation. The absorption of innovation is also connected to the proliferation of innovation: when and if innovation is absorbed we can then assist to the creation of more complex innovative ecologies which are internally diversified. In the evolution of innovative clusters there has been a shift from an understanding of them as communities of very similar and like-minded talents to a multiplicity of diversified talents. Therefore, in order to achieve intensification two elements are simultaneously needed that support each other: diversification and critical mass. This is related to the search for an 'urbanization of innovation environments' where a concurrence of technological and social innovation can be achieved through pursuing an 'urban' quality.

Moreover, concurrently with a need to think about how to intensify an emerging network - in periods of growth and success - is also an urgency to reflect about its state in downturn periods. Innovation environments are notoriously volatile, and this account has to be part of our initial brief. How can we accommodate the growth trends and the cyclical character of innovation environments?

In addition, the question for an open framework is imperative in places

XX. HaBiotech City: spatial and landscaped arrangement (bottom) in comparison to the succesfull traditional 'landscape' practice of Vietnamese temples (top). Drawing from H&U design booklet.

XXI. Building a knowledge innovative community: KIC's spatial structure for integration and intensification. Pictures of the residential area, ©2009shyp.gov.cn, and of the workspace-leisure area facing the main pedestrian corridor.

like Vietnam where not only the future but also the present nature of the emerging Biotech network is ambiguous.

Hence, together with a need for critical mass and diversification - each playing a role in what we called 'intensification' - there is also a need for flexibility. In spatial terms it needs to be mirrored by a refusal of a mono-dimensional character, even when the requirements of the contingent brief are pushing for that.

Finally, another important issue for emerging networks related to the ways of accommodating the uncertainties of the future is the phasing process, again with reference to the temporality and life span of functions and synergies. In general, urban areas need time to acquire a certain urban maturity. In One North, not only a defined framework and a formal strategy based on a flexible diagram are given but the way in which the district is going to be developed will allow for future adjustments. Another brief comparison can help to explain this last point about phasing. Both in the proposal for Songdo in Korea and One North in Singapore the district is organized in quarters. However, while in Songdo the phasing programme is based on a succession in the construction of entire quarters one after the other, in Singapore the first phase sees the establishment of some main catalytic buildings (the so called X-Change centres for research and business) in three different quarters that are intended to activate the urban processes and the intensification of the urban environment. Although the scale and condition of this two innovation districts are completely different and perhaps the comparison inappropriate, it may clarify the importance to predispose the opportunity for further adjusting and redirecting a cluster's materialization– and the parallel urbanization process -during its life-span.

To conclude, in the light of what we have been here discussing and going back to our first comparison of case studies, we can now appreciate a fundamental difference between KIC and HaBiotech. The latter not only is a missed opportunity for a biotech cluster to emerge with a strong
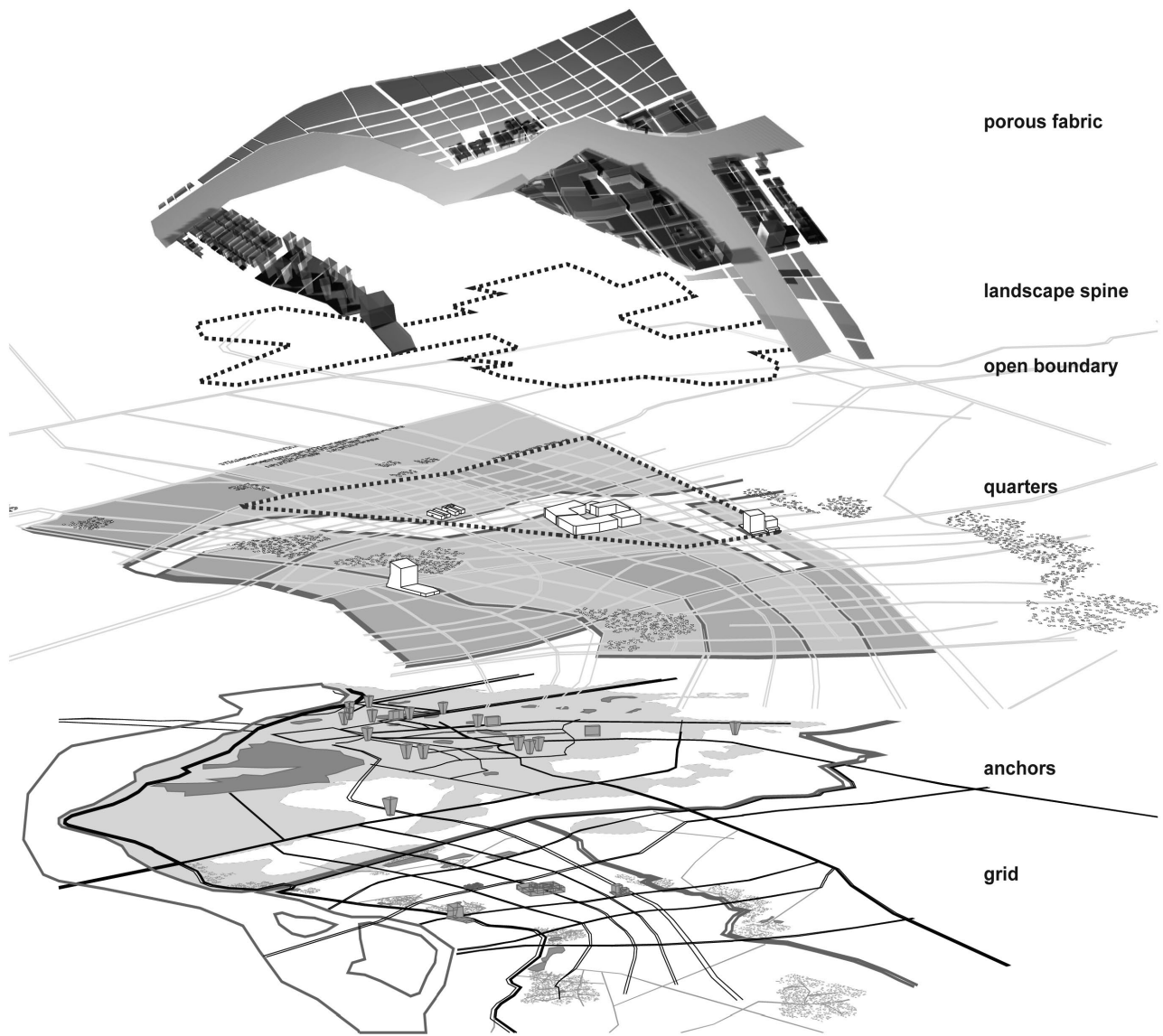
porous fabric

landscape spine

open boundary

quarters

anchors

grid

XXII. Elements for a projective scenario. Synthetic drawing from the H&U design workshops' proposal , by Sabrina Puddu and Francesco Zuddas.

definition within the process of urbanization of Hanoi city, but it is also rigid in its configuration and it does not allow to envisage any kind of evolution. Conversely, KIC shows feasibility in achieving integration, intensification and identity, the 'three Is' we introduced at the beginning of this paragraph, as well as possibility for re-configuration and re-adaptation in the future. First of all, there is in KIC already a certain quantitative achievement of critical masses for intensification as well as some spaces and emerging facilities (such as the stadium as open leisure-facility) as places for interaction. Secondly, it has a clear urban structure: the cluster is organized through a corridor that can give some clues for an effective landscaping formation. In fact, at the same time, the corridor can ensure the creation of an 'exclusive' environment for firms and companies involved directly in the cluster but not introverted for a wider set of users. A thoughtful reasoning on the sequence of voids, of interior and exterior spaces would enable to generate complex and articulated hierarchies of public or semiprivate spaces. In addition, while an effective integration with the city seems to be unlikely along the triangular fence of HaBiotech, a thoughtful reasoning on the 'back' of the corridor as a permeable – but controlled – twofold boundary can generate possibility for exchanges with the back urban realm where maybe a more 'local' population is going to be located.

[Projective Scenario]

We started off our critical appraisal of the proposal for a Park for Biotechnologies in the periphery of Hanoi by projecting it onto the framework defined by the peculiar conditions of Hanoi. We were asked to pay attention to the given program (considering both the first and second phases of development, although we think that the percentage of housing in phase one is not in equilibrium with the amount of workspaces proposed) and also to stay within the boundary enclosing the Park.
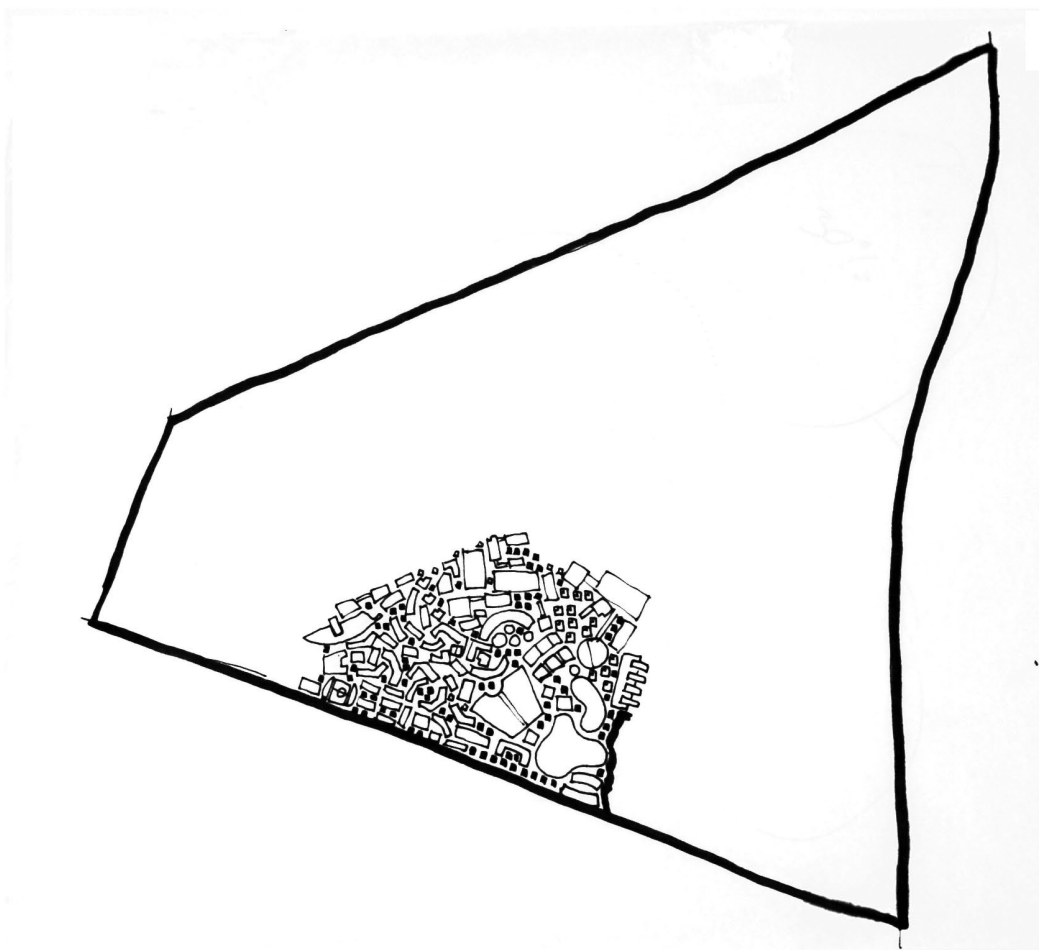
Looking at the proposed masterplan it can quickly be noticed how the footprint of actual mass (in terms of built square meters) is less then ¼ of the whole site's surface proposed for the first phase of development. The buildings are dispersed in an artificial landscape, larger than necessary given its ineffectiveness in that green spaces and water elements do not seem to be designed to play any structural role: they are there just for decorative purposes.

XXIII. Science Park's footprint. Drawing from H&U design booklet.

In open contrast with such a proposed use of the land and definition of figure-ground relation, we try to speculate over an extremely concentrated model, that we define as the 'tower model'. What if we concentrate all of the mass related to only the biotech activities in a reduced footprint preserving almost all of the void among the villages in its nature of being an active place, where workers can keep on using the paddy fields and the new workers are housed in a concentrated workspace and can maybe test some research directly 'on the field'? In such a scenario, the villages can continue to be contained within their current boundary (at least in a first phase) as long as they will be intensified in their interior: the housing and the facilities of the Park would move inside the villages contributing to a cross-over between the villagers and the new biotech community. In this scenario we would also have to pay attention to the tools for densifying the existing suburban villages.

A second scenario, more an evolution of rather than opposed to the just depicted 'tower model', can push toward a dispersed organization. What if we disperse the science park mass in a multitude of points of intensity? Eventually, during the workshop, we developed this second model since it was more likely to respond to the issue of "how to urbanize a rural area" and more flexible to further adjustment over time. This model might also be attractive for developers who are looking to the potentiality of a long term scenario rather than for immediate results.

A dispersed model, however, rises the inevitable question for clustering (= up to what degree can we actually spread the activities in order to
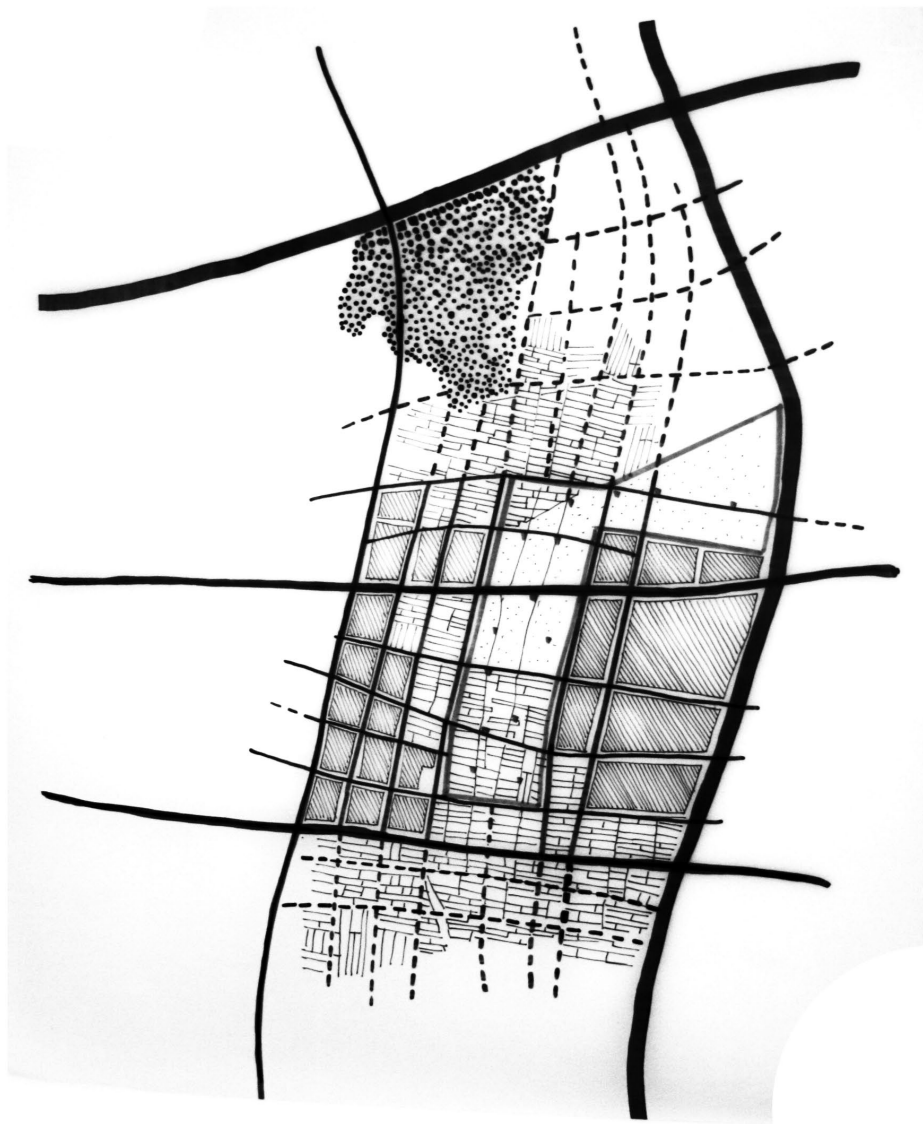
avoid an excessive dispersal and disorientation?) and of phases and localization (= which program comes first and in which part of the given site?).

In order to predispose a framework to make the dispersed points and activities to work, we have been looking to different case studies trying to understand which among the tools there deployed are appropriate for an application on the conditions we face in Hanoi's periphery. Our strategy consists in testing a framework for a biotech cluster to be set up in a form of 'open science park', that is, open to the surroundings and able to generate a gradual process of urbanization in a rural area. As primary elements for the materialization for our strategy we chose some that we explain in the following lines.

Grid [at the city scale]

In general, we can say that the system of grid, corridors, main void and superimposed voids, and quarters allow the Park to open up its boundary towards the villages and the city, to urbanize, to provide and suggest ways for expansion, to push urbanization towards the waterfront.

The grid, in particular, by developing from the traces embedded in the history of the place (since it keeps into consideration the existing pattern of properties and the existing network of streets between the villages) is a powerful element to give consistency to the strategy and to create a regulatory system (of infrastructure, plots and parcels) without leading to segregation. The grid is a tool able to work at different scales (including also the corridors): at the scale of the city and of the metropolitan region it is an instrument which can predispose future expansion and colonize new land together with taking into account the existing surroundings.

Grid [at the site scale]

At the site scale the grid regulates the district and relates the dispersed points (at the scale of the district); promotes the process of urbanization

Airport

University of Technology

Medical University

Institute of Medicine

Univ Agricultural

of the void oriented towards the achievement of the initial critical mass necessary for innovation to blossom (we have predisposed a quite thick grid of streets so that the parcels are going to be as wide as the normal Hanoi's city block, as shown by the comparison with the old quarter pattern); relates the interior of the given boundary with the outlying villages, relates the quarters among themselves, generates parcels of different size and thus different potential.

XXV. Grid at the 'city' scale. Drawing from H&U design booklet.

Corridors

The north-south corridors cross the river considering the possibility of expansion in that direction; to the south, they are a link to the 'westward knowledge corridor'. One of them (the one leading to the airport) is already an important spine for the metropolitan region and a catalyst for urbanization. The central corridor is supposed to cross our site. We prefer to locate here this corridor, rather than on the edges of the site, in order to have a growth of 'mass' within it and to open up the site 'imprisoned' by the boundary and the very structure of the layout proposed by the masterplan.

The east-west corridors work, on the one hand, as privileged connections to the city and on the other predispose the expansion towards the west in agreement with the direction of urban growth forecasted by the City of Hanoi. We have seen an opportunity in the waterfront corridor as alternative link to the city centre. In addition, from an aerial picture, it is possible to understand which role this corridor can play for the urbanization of the waterfront area.

Activities' dispersal [points of intensification]

In testing a dispersed model regulated by a hierarchically structured grid it may be possible to explore a novel process of composition of the cluster together with urbanizing it. The dispersed points of intensification are particular functions which can work as anchors that activate corridors,
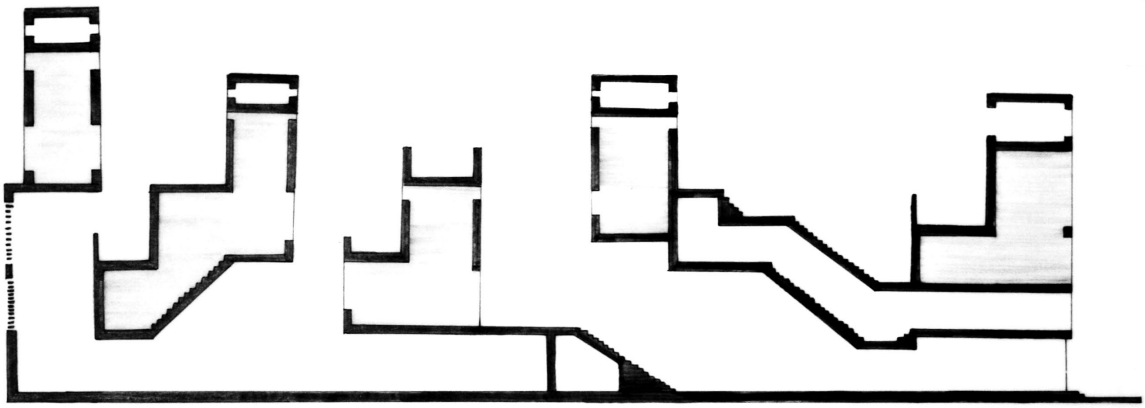
pieces of the grid and the park (superimposed voids). So, for example, the hospital can work as an anchor at a larger scale and it is located in one of the main corridors leading to the city and to the west province, and also close to the villages (since it is seen also as one of those facilities which can create engagement with the existing residents). At the same time, the hospital sits in 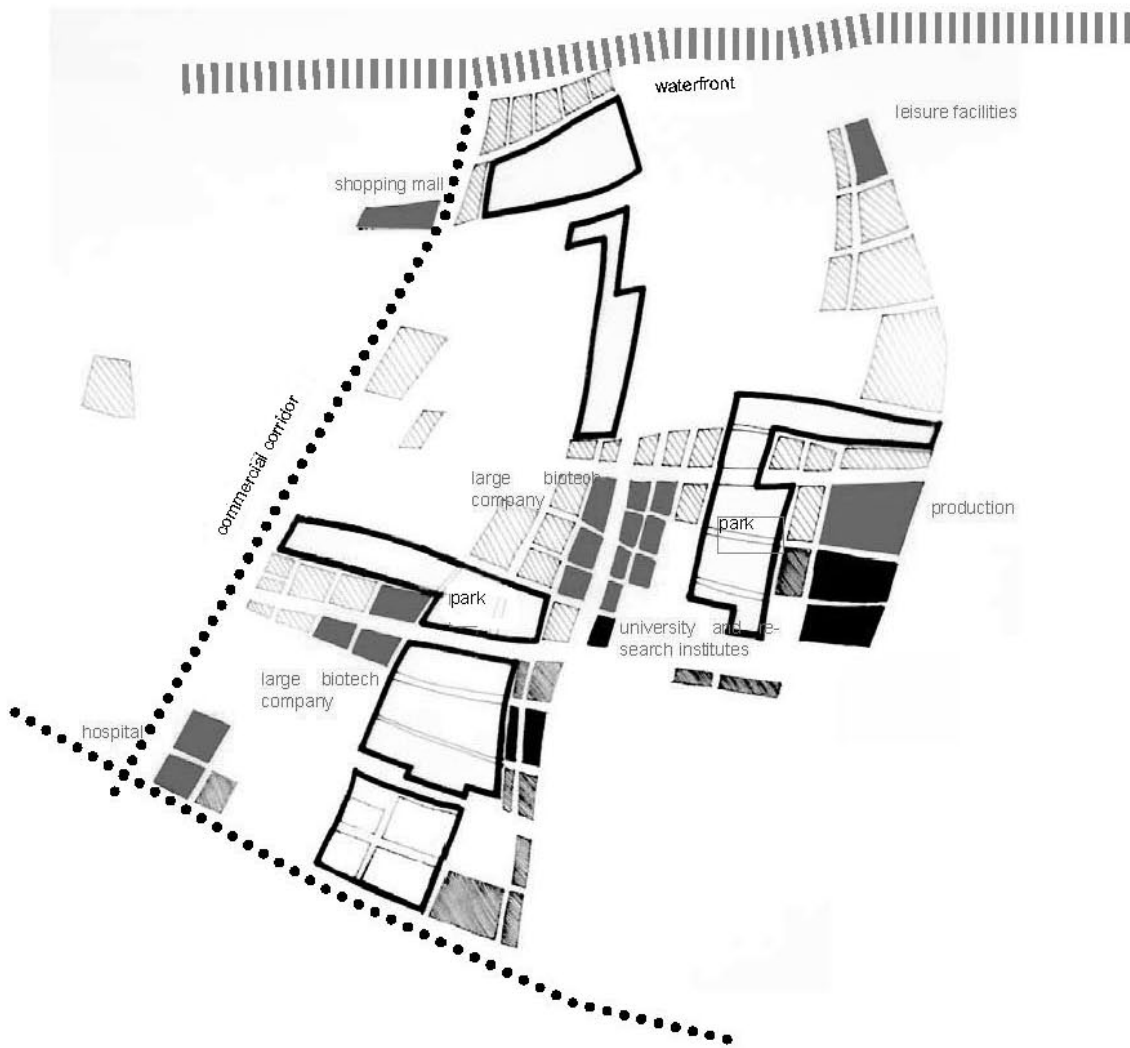the junction with an existing street connecting the villages that becomes part of the grid. In the northern end of the street we can then locate, in phase two, a shopping centre which, adding another anchor on the same street where the hospital is located, may be enable the activation of a commercial spine. Shopping is also part of the proposal for the waterfront and works together with the other activities and the park on the two sides of the waterfront corridor.

Looking to the program required by the masterplan and to the economic model which seems to be proposed by it, the first activities we propose to locate are production buildings, residential buildings, the hospital, the university's research labs and departments, and some private research labs. Since the first companies that will give start to the Biotech Park are some big pharmaceutical foreign firms, given their independent nature it is likely that they prefer to stay dispersed even if being part of the same exclusive system (i.e. maybe clustered around the park but not having the same 'street address') rather than being clustered together in a Science Park or in a quarter. In the same logic, the research institutes and the production centers (which were not used to collaborate in the past) face each other around a park, the former more visible and open in the middle corridor, the latter occupying a bigger plot on the facing side.

In this context the question on how to achieve an adequate critical mass can be raised. We would make a distinction between the critical mass for innovation and that for urbanization. They are both difficult to achieve. The first can be achieved even in the first phase (if the Biotech management will succeed in attracting foreign firms and creating synergies with Hanoi's institutions stimulating a diffuse entrepreneurship): working in sub-phases inside phase one we may manage to shift from

XXVI. Typological exploration of the internal complexity of the Hanoi Block as reinterpreted by Kazuhiro Kojima. Drawing from H&U design booklet.

waterfront

leisure facilities

shopping mall

commercial corridor

large biotech
company

park

production

university and re-
search institutes

park

large biotech
company

hospital

a first stage in which mainly foreign firms will be in charge to a second that will involve a process of proliferation and spin-off of local firms. As far as the critical mass for urbanization is concerned, the thick grid is instrumental at this purpose together with considering the already existing mass (the villages and the city). In addition, instead of proposing phases in which the new district will built quarter by quarter, we propose to locate in strategic positions some anchor buildings which, hopefully, will promote a densification and will characterize the space between them.

Activities' dispersal [clustering university and private research]

There are some activities which should stay close to each other in order to promote their collaboration which, for historical reasons, has not been cultivated to date. Therefore our typological experimentation tries to give an answer to this practical need, working with units of different dimension, clustered in a same building, which share facilities with other similar units of other buildings. The units are situated around open spaces whose role is more as space of circulation and relation with the back park rather than, at least in the first phases, of collective spaces. However, this experimentation also uses a diagram which can allow for expansion and that can be complicated when future new needs will appear. Hanoi's residential block is an effective machine which has been able to give birth to the rich and dense fabric of the city and, at the same time, has an interesting diagram in its internal complex configuration. It manages to cluster around spaces - which are circulation spaces and organizational voids - a great number of residential units. Among the different possible experimentations, an interesting could be that of trying to exteriorize the diagram of the block and work with it at a larger scale.

Activities' dispersal [phasing]

As far as urbanization and the creation of an innovative cluster are regarded, it is relevant to conceive a phased develop. In Hanoi's conditions, in particular, this becomes essential given the uncertainty

XXVII. Activities' dispersal and phasing.
Drawing from H&U design booklet.

around both the Biotech project and the development of Hanoi's metropolitan area. The masterplan proposed by Vinaconex already includes phasing (both in space and program), but segregates spatially the first from the second phase. In our proposal we partially keep the two phases, in programmatic terms - inasmuch as we respect the given boundary - but we try to develop further the two phases in spatial terms by redefining the process of growth and the characterization of the boundaries.

Aware that the phases are multiple and that many components are uncertain, we propose a scenario with two main phases (and two or more sub-phases) mainly stressing which one can be the role of the developer in each of them and trying to give a clue on how the surroundings would respond.

Superimposed void [organizing, clustering, being structured]

As explained before, we are dealing with two kinds of voids. The first one is the active void, the potential place for urbanization and expansion. The grid is going gradually to colonize the paddy-field area so that infrastructure can be introduced for urbanization.

However, we also insert a second 'void' element to control and structure the urbanization (superimposed over the thick grid): the superimposed voids define a fixed boundary for urbanization and are going to remain green spaces in order to be able to organize the quarters around them. The voids are park-like environments; they are three and not one because they do not work at the scale of the whole district but organize quarters (new ones as well as the existing villages).

Quarters [local entities integrated by the grid]

The quarters work at a smaller scale compared to the other layers. They are local entities but they are integrated with each other by the grid and, on another level, they can be clustered by the superimposed voids. The

quarter can contain a grid which is more or less thick so as to ensure the presence of different kinds of program and different size of plots.

As a local entity, however, the quarter can have a relevant role towards the area's boundary: together with the grid those quarters crossing the boundary or including the existing villages can constitute, in their small scale, a space to realize integration between the space planned by Vinaconex and the space which will be shaped by other small or large developers.

Conclusion in the Form "Enjoy

OF A (GREY) FOOTNOTE

WORK"

Abstract

"Enjoy Work" è il motto di Chiswick Park, un business Park situato a cinque miglia dal centro di Londra. Nell'economia contemporanea il lavoro informa tutti gli aspetti del vivere all'interno di un processo continuo che contiene, sfumandone i confini, il modo di divertirsi, il modo in cui si abita, il modo in cui ci si sposta. E se il progetto per il quartiere di One-North a Singapore - spesso citato come esemplare - fosse solo un grande parco tema sul lavoro? Una macchina sulla soglia della perfezione in cui l'abitare e il tempo libero, così come ogni aspetto della vita sono pensati come parte di un motore produttivo? Il lavoro di ricerca fin qui esposto assume come punto di partenza una serie di questioni derivanti dalla letteratura economica, in modo da capire quali siano le sfide e i problemi che possono essere approcciati dall'architettura e dall'urbanistica. Questa nota conclusiva tenta, invece, di aprire un'altra prospettiva di ragionamento. Attraverso un discorso sintetico su questioni sociologiche e politiche vorremmo mettere in questione il ruolo e l' 'agenda' del progetto architettonico-urbano all'interno del sistema economico contemporaneo. A questo fine seguiremo il contributo del filosofo Paolo Virno nell'aggiornamento del concetto di Moltitudine, necessario a definire la condizione attuale sia dell'uomo che della collettività, nonché della classe lavorativa contemporanea. La Moltitudine condivide un comune senso di estraneità (del mai sentirsi a casa) come un'angoscia persistente; trova quindi rifugio nel proprio 'intelletto generico' — che contempla delle modalità astratte e generiche di comunicare e ragionare —e lo usa per approcciare la vita pubblica. La Moltitudine, come prodotto del principio di individuazione, ridefinisce la relazione tra l'Uno e i Molti, in cui l'Uno diventa premessa della differenziazione dei Molti. La Moltitudine costituisce poi la forza lavoro dei modi di produzione contemporanei, basati su una professionalizzazione delle pratiche sociali. Se da un lato si assiste quindi all'inclusione all'interno dei luoghi di lavoro di comportamenti — che diventano così vere e proprie procedure — che tradizionalmente non appartenevano alla dimensione del lavoro; dall'altro si ha una pervasione del lavoro in tutte le sfere del vivere — abitare, muoversi, divertirsi, stare in pubblico,etc. L'urbano e, quindi, l'urbanizzazione dei luoghi per l'innovazione può essere quindi letto come il contributo del progetto architettonico-urbano a questa precisa condizione.

Grey Footnote.[1]

Footnotes are usually parallel thoughts, conceived in such a way as not
to disturb the construction and fluency of argument. That is the sense
we want to give to this 'end-of-thesis-footnote', something we felt
the necessity to write and to distinguish from the body of the present
dissertation.

Most of the arguments we have brought forward in the dissertation have
a common root that can be located in a line of reasoning which considers
architecture – and the 'intelligent form' underpinning it – as an essential
constituent of urbanism. That is, urbanism is grounded upon and
manifests itself through space and form.

This is our presupposition. A corollary to it - perhaps apparently an
oxymoron – is the multidisciplinary character of urbanism. Therefore,
more often than not, it happens that those who deal with urbanism
are moved by pressing curiosity and inevitably feel the attraction for
an 'omniscient behaviour '. This is because, it is thought, looking at
and designing for the city cannot be reduced to an autistic moment of
intellectual isolation. Moreover, it cannot but make do with the curious
and critical observation of the various variables involved. To put our
argument more clearly, we are here hinting at the very fact that, for
an architect, the city is first and foremost a formal system. It is the
'architecture of the city'. This is what it is for the architect. However, it is
also a formal system which registers or receives the social, economic, and
political conditions[2]. It is a formal system accepting difference.

Our study elects to both its instrument and aim the comprehension of
a formal and spatial structure – that is, the materialization in space of
innovation environments – that is today commonly accepted as the result
of a specific economic condition – the knowledge economy. Therefore,
it is inevitable to consider economics as our main extra-disciplinary
reference that can act as domain of thought parallel to architecture.

I. A Sudden Gust of Wind, 1993.
©Jeff Wall

1.This concluding note presents
a reflection born out of: an essay
written by the author for the gradu-
ate course 'Reason of Urbanism' at
the AA (course lecturer: Lawrence
Barth) which was built upon a com-
parison between George Simmel's
The Metropolis and Mental Life and
Richard Sennet's Fall of Public Man;
the discovery of the contemporary
– and 'urban' - season of Taiwanese
Cinema as represented by the mov-
ies directed by Edward Yang; and
an informal chat with Pier Vittorio
Aureli (DOGMA Office) about the
concept of Multitude for the Post-
Fordist society (as formulated by
Italian philosopher Paolo Virno)

2.We could list a whole number of
other conditions but we believe
those three to be sufficient to in-
clude all those sub-disciplines that
have gained status in the anxiety for
specialization which distinguishes
our time.

The specialised literature in economics has indeed represented for us a bibliographic reference complementary to that of our discipline – architecture. It has enabled us to grasp the challenges, ambitions, and the strategies being deployed by the institutions, the economic actors, and the 'clusters' of the production and economic framework of our age. Among these, we have detected those challenges to which a contribution can be given by the part of spatial structures – the latter registering the processes of economic transformation. Such spatial structures are either existing or yet to be designed. Have we then reached a point – in both professional practice and academic research – in which the questions posed by economics and the production/innovation sector match with those that are relevant to urbanism? Or, conversely, is urbanism allowed to pursue its own agenda – while still responding to questions coming from outside the discipline's boundary?

During our research we have focused our attention on the case study of Singapore's One North district, for reasons which are related to the intelligence of the diagram underpinning its physical construction, to its spatial and formal structure, and to its planning mechanism which is capable of combining together different times and actors. What if, in light of the reflections we are going to illustrate here, that project – often cited as exemplary by both urbanists and economic actors – was nothing but a big theme-park of labour? A machine which has almost reached perfection, in which living and leisure, as well as all other aspects of life, are conceived as parts of a precise productive mechanism? This is our grey note.

For a moment in this dissertation, then, we want to try to consider the socio-political viewpoint on the issue at stake. We want to do it by comparing – with no claim of comprehensiveness in terms of their theoretical richness – some of the contemporary positions that have dealt with the realm of labour in the contemporary society and politics of the knowledge-based economy.

[The Multitude]

The investigation over the concept of Multitude - in its contemporary meaning – is the objective of the text 'A Grammar of the Multitude' written by Italian philosopher Paolo Virno in 2003.

The Multitude is not only the most characterising social and political condition of our time, but it also constitutes the labour force of the contemporary economic system – Post-Fordism.

If we were to summarize its main aspects, we could list them as follows: "the life of the stranger (bios xenikos) being experienced as an ordinary condition; the prevalence of 'common places' in discourse over 'special' places; the publicness of the intellect, as much an apotropaic device as a pillar of social production; activity without end product (that is, virtuosity); the centrality of the principle of individuation; the relation with the possible in as much as it is possible (opportunism); the hypertrophic development of the non-referential aspects of language (idle talk)." [3]

3. Paolo Virno, A Grammar of the Moltitude, Semiotext(e) (distributed by MIT Press), Los Angeles, 2007 (first published in 2002; Italian Edition 'La Grammatica della Moltitudine', DeriveApprodi, Roma, 2002), p.97.

The debate around the concept of Multitude – in contrast to that of People – can be ascribed to the reasoning by philosophers Spinoza and Hobbes. Hobbes – according to Virno – goes against the Multitude intended as anti-sate and anti-people, and considers the People as a superior entity surpassing the 'state of nature' of the Multitude. The People are related to the formation and existence of the State in civil society. [4]

4. "Before the State, there were the many; after the establishment of the State, there is the One-people, endowed with a single will. The multitude, according to Hobbes, shuns political unity, resists authority, does not enter into lasting agreements, never attains the status of juridical person because it never transfers its own natural rights to the sovereign. [...] it is a regurgitation of the 'state of nature' in civil society." Paolo Virno (2007), op.cit., p.23

The dichotomy between People and Multitude – that apparently excluded the possibility for their mutual existence – is thus put into crisis in our contemporary condition. How was it possible that the Multitude managed to survive the formation of the State?

According to Liberal thinking, the Multitude survives today as a private dimension – counterpoised to the public dimension – and this is because

the 'many' do not take part into the sphere of public affairs. According to Democratic-Socialist thinking, the Multitude is a collection of single individuals – in opposition to the collectiveness proper of the People. [5]

5.Paolo Virno(2007), op.cit., p.24.

Virno refuses both interpretations, since they are based on dichotomies – public/private and collective/individual – which he thinks are not anymore applicable to our time.[6]

6.Ibid., p.24.

"And it is precisely for the dissolution of these terms, for so long held to be obvious, that one can no longer speak of a people converging into the unity of the State. [...] it is necessary, however, to recognize that the multitude does not clash with the One; rather it redefines it. Even the many need a form of unity, of being a One. But here is the point: this unity is no longer the State; rather it is language, intellect, the communal faculties of the human race. The One is no longer a promise, it is a premise. Unity is no longer something (the State, the sovereign) towards which things converge, as in the case of the people; rather it is taken for granted, as a background or a necessary precondition."[7]

7.Ibid., p.25.

Thus, it is not the elimination but the re-definition of the relation between One and Many – the former being the precondition for the diversification of the latter – that provides the basis to Virno's reflections.

Virno tries to build a description of the concept of Multitude on the premises of the pairing dread/refuge – hence, fear/anguish. Picking up on Heidegger's distinction among fear and anguish, he ends up recognising the extent to which those two feelings actually superimpose over one another in the contemporary Multitude. Whereas fear is the answer to a specific event and manifests itself as a public feeling, anguish is an interiorised feeling that gets manifested when our self is exposed to the world. "Fear situates itself inside the community, inside its forms of life and communication. Anguish, on the other hand, makes its appearance when it distances itself from the community to which it belongs, from its shared habits, from its well-known 'linguistic games,'

8.Ibid., p.32.

and then penetrates into the vast world. Outside of the community, fear is ubiquitous, unforeseeable, constant; in short, anguish-ridden."[8]

Since our condition does not allow us to distinguish among clearly defined communities - hence the absence of a neat separation between 'habitual "inside"' (the place of fear) and 'unknown and hostile "outside"' (the place of anguish) — the distinction between fear and anguish is dropped and the two get superimposed within the condition of the Multitude. Therefore, we can state the 'not feeling a home' as a first character of the Multitude. The critical point has thus to do with how and where the Multitude finds its own refuge to the mix of fear and anguish and to an incessant feeling of exposure to the risks of the world.

According to American sociologist Richard Sennett, one of the answers coming from the modern city to cosmopolitanism has led to the formation of fake communities. Does it mean that the only way out, also for the man of the metropolis, is that of negating his evident condition of 'multitude' by isolating inside local communities? Within these, he feels protected by the possibility of engaging in social and interpersonal relations with the individuals that he recognises as similar to himself, simply because it is easier for him to project among them his own sentiments and characteristics.

9.Robert Somol, 'Indifferent Urbanism or Modernism Was Almost Alright' in Ilka and Andreas Ruby (eds.), Urban Trans Formation, Ruby Press, Berlin, 2008, chapter 13.

The issue of 'communities' as opposed to metropolitan life becomes relevant in some cities at the spatial level: a new geography is defined which materialises a '[local] territory of warm feeling', in opposition to an '[urban] territory of impersonal blankness'.[9] In some cases, this spatial phenomenon manifests itself spontaneously; in other cases, it can be spotted in the intentions of planners.

According to Sennett, the atomization of the city in local quarters embedded within the city causes, as a consequence, ghetto-communities isolated against the city. If we are allowed a brief excursus, we could consider the interventions by Haussmann in XIXth century Paris as

a first example of a conceptualisation of the city as composed of quarters which are differentiated on the basis of groups of population. Haussmann was the first ever to promote the concept of 'villages inside the city', that will have a relevant legacy for the planners of the following century. Indeed, "the celebration of territorial community against the evils of impersonal, capitalist urbanism […] leads to a logic of local defense against the outside world, rather than a challenge to working of that world"[10]. In a chapter titled 'Community becomes uncivilized', Sennett encourages the destruction of cities that are characterized by ghetto-communities, pushing in favor of a condition which enables everyone to experience the whole metropolitan sphere. The only choice we have - 'try to make the larger world habitable' — would allow us to enjoy the social events that, albeit impersonal, the city has to offer rather than building walls among fratricidal and elitist communities.

It has to be noticed how Sennett's description — at least as far as his book Fall of Public Man is concerned — does not show a distinction between forms of capitalism. The cosmopolitan individual he describes — a character that emerges in modernity but has possible extensions and variations in our contemporary age — is an object of study much more generic than Virno's Multitude.

For Virno, the Multitude does not find refuge inside a local community. This does not mean that he stopped associating within communities. On the contrary, our time is marked by an extraordinary proliferation of local communities. Cities, through their internationalization and increasing complexity, favour multiple possibilities for association. Therefore, the same individual is part of not just one but of many different social groups, and this because he has not to change dress each time he switches from one to another. The confrontation between the individual and the social group does not happen through a specific way of acting, reasoning, and speaking but through categories of thought and speech which are generic and abstract. In other words, our wardrobe gets reduced to the black dress that fits all occasions.

10. Ibid., chapter 12.

'The life of the mind' thus becomes something of public domain, and that which distinguishes the Multitude – with his never feeling at home – is exactly the 'public intellect', that is, making public that basic intellectual activity which traditionally we consider as interiorised and hidden form the sphere of public affairs. The condition of extraneousness proper to the Multitude, Virno reiterates, allows the individual to become 'thinker', since the abstract categories of thought – the 'general intellect' – are the only instruments for defence and refuge from the contingencies of the world to which he is exposed without any filter coming from the affiliation to a state/community/club.

"The transformation with which we must come to terms can be summarized in this way: in today's world, the 'special places' of discourse and of argumentation are perishing and dissolving, while immediate visibility is being gained by the 'common places,' or by generic logical-linguistic forms which establish the pattern for all forms of discourse. This means that in order to get a sense of orientation in the world and to protect ourselves from its dangers, we cannot rely on those forms of thought, of reasoning, or of discourse which have their niche in one particular context or another. The clan of sports fans, the religious community, the branch of a political party, the workplace: all of these 'places' obviously continue to exist, but none of them is sufficiently characterized or characterizing as to be able to offer us a wind rose, or a standard of orientation, a trustworthy compass, a unity of specific customs, of specific ways of saying/ thinking things. Everywhere, and in every situation, we speak/ think in the same way, on the basis of logical-linguistic constructs which are as fundamental as they are broadly general. An ethical-rhetorical topography is disappearing. The 'common places' (these inadequate principles of the 'life of the mind') are moving to the forefront".[11]

11. Paolo Virno (2007), op. cit., p. 36.

Already in the first chapter of the cited book, Virno will get to the conclusion that the One of the contemporary Multitude is not that of the People – that is, the State – but something even more universal: it this the public intellect and 'common places'.
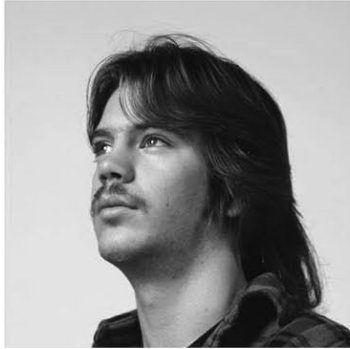
[The Many and the Obsession for Difference].

"Both critical and market-driven approaches to the city (radical and pragmatic) have made a fetish of difference over the last half century: from collage cities and contemporary digital visions of presumably non-standard production (the repetitive differentiation of cellular transformation) to niche marketing, just-in-time production, and consumer profiling. Indeed, the value of difference has achieved such a cult status across all ideologies of architecture and urbanism that, like motherhood and apple pie, it now represents an apparently unassailable consensus."[12]

12.Robert Somol, op.cit., p.326.

Another characteristic that Virno recognises in the contemporary Multitude is that of adhering to the 'principle of individuation', a process which, starting from a common shared basis, has led to the differentiation among individuals. Such a common and shared basis is the universal human condition of the pre-individual to which belong, for example, the domain of language or the abstract faculties of the intellect. The principle of individuation helps us to explain the extent to which the Multitude is a network of individuals rather than a collective unitary entity. [13] The collective condition is not that to which the Multitude tends but, rather, the starting point: individuals emerge through a process of individuation when they, being inserted within a collective condition, start to understand differences and their specificities. The result is an 'unrepeatable singularity'.

13."La Moltitudine non accantona con gesto sbarazzino la questione dell'universale, del comune/condiviso, insomma dell'Uno, ma la riqualifica da cima a fondo. Anzitutto, si ha un rovesciamento nell'ordine dei fattori : il popolo tende all'Uno, i 'molti' derivano dall'Uno. Per il popolo l'universalità è una promessa, per i 'molti' una premessa." Paolo Virno, 'Moltitudine e Principio di Individuazione' from www.filosofia.it, 2001.

The obsession for specificity and difference, as argued by architectural theorist Robert Somol, is also a feature of postmodern architecture – intended as either critical/academic or market-driven – and of its attempt to demolish the principles of Modernism. Collage, contradiction, continuous and parametric variation participation and interactivity, are all instruments – both practical and ideological – of Postmodern design research – or, better, researches, to keep referring to plurality. Such a way of designing is the servile reply to the very essence of contemporary

IV. WOS8, Utrecth, by NL Architects ©MiMoa

societies as collections of singularities.

However, Somol hints to a way of practicing architecture that he recognises in examples such as the WSO 8 station designed by NL Architects and to OMA's Seattle library. This way of doing architecture does neither aim to give an answer to single individualities nor is it subject to the anxiety of creating infinitesimal differences. Rather, the characters of a completely instrumental architecture can be found, by identifying ways of re-aligning public politics and the market to an informed disciplinarity.[14] Rather, in its homogeneity and indifferentiation, it leaves the possibility for new audiences to recognise and re-create themselves in such architecture.

14.Robert Somol, op.cit., p.328.

"Rather than celebrating legible or diverse fragments, a potential contrary lesson for design would be to put a singular thing into the world that attracts disparate interests."[15]

15.Ibid., p.331.

Is not such a description of NL Architect's work a reminder of Paolo Virno's account on the One as a preface to the Many? Is not such a design attitude a more adequate response to the exaltation of differences than those design positions that have the ambition of designing/ generating differences? We could almost state that the station by NL Architects is a 'pre-individual' condition, a condition which is as all-embracing as it is undifferentiated.[16]

16.Paolo Virno (2001), op.cit.

As explained by Somol himself, it represents the moment in which, after fifty years of design researches promoting a 'vision of the heterogeneous', it is possible to replace 'difference and diffidence' with 'indifference and intention'.[17]

17.Robert Somol, op.cit., p.326.

An alternative position to that sustained by Somol is offered by the Dialectic City as theorised by late German architect Oswald Mathias Ungers. This is based on giving weight to differences not by reducing them – through the principle of individuation – to infinitesimal specificity

but by giving them a political and dialectic value for the construction of a collective city. The contemporary city is not a 'unicum' but is constituted by parts which are complementary "in each of which a special urban aspect is developed with a view to the whole. Every part has its own special features, without however being complete or self-contained."[18] Complementariness is a characteristic of the city which overcomes the sheer sum of different parts: "Every part, every place primarily exists for itself and only evolves in its complementary relationship with another, self-contained place. The places are like autonomous entities, like small microcosms, independent worlds, with their own special features, advantages and disadvantages, integrated in a layer, urban macrocosms, a metropolis and landscape made up of these small worlds."[19]

18. Oswald Mathias Ungers and Stefan Vieths, The Dialectic City, Skira Editore, Milan, 1997, p.20.

19. Ibid., p.20.

[The Professionalization of Social Practices]

"Thirty years ago, in many factories there were signs posted that commanded: 'Silence, men at work!' Whoever was at work kept quiet. One began 'chatting' only upon leaving the factory or the office. The principle breakthrough in post-Fordism is that it has placed language into the workplace. Today, in certain workshops, one could well put up signs mirroring those of the past, but declaring: 'Men at work here. Talk!'"[20]

20. Paolo Virno (2007), op.cit., p.91.

As we have discussed above, the Multitude faces and finds orientation in the world through the 'general intellect'. According to Virno, the main problem of making public those generic activities of the intellect emerges as soon as those are made public within a non-public and non-political sphere: 'publicness without a public sphere'.[21] On the one hand, the domain of labour acquires traits which are typically political; on the other hand we witness a de-politicization of the Multitude.

As observed by Sylvère Lotringer in the introduction to the English edition of the 'Grammar of the Multitude', "Immaterial workers are

21. "My thesis, in extremely concise form, is this: if the publicness of the intellect does not yield to the realm of a public sphere, of a political space in which the many can tend to common affairs, then it produces terrifying effects. A publicness without a public sphere: here is the negative side — the evil, if you wish — of the experience of the multitude." Paolo Virno (2007), op.cit.

22.Sylvère Lotringer, forward by, in Paolo Virno (2007), op.cit., p.17.

23.The main difference between Virno and Sennett is related to the elitist condition described by the former as opposed to mass/Multitude condition analysed by the latter. For Virno the labour force of Post-Fordist economies is constituted by the Multitude as an individual and collective condition. Even when not specialised, such a labour force is highly 'intellectual'. Virno's argument for 'the intellectuality of masses' does not mean to imply any 'erudition' of masses, rather it hints to the fact that their ways of working, living and communicate is based on some generic faculties of the intellect: "I hardly need to say that I do not refer in any way to any imaginary erudition of subordinate labor; I certainly do not think that today's workers are experts in the fields of molecular biology or classical philology. As was already mentioned in the preceding days, what stands out is rather the intellect in general, the most generic aptitudes of the mind: the faculty of language, the inclination to learn, memory, the ability to abstract and to correlate, the inclination toward self-reflection. The intellectuality of the masses has nothing to do with acts of thought (books, algebraic formulas, etc.) but with the simple faculty of thought and verbal communication." Paolo Virno (2007), op.cit., p.108.

24.Richard Sennett, 'Capitalism and the City' from the documents of the symposium 'Symposium city: daten zur stadt unter den Bedingungen der informationstechnologie' 11.11.2000, ZKM Karlusrushe, III chapter 'flexibility and indifference'.

25.Richard Sennett, 'A flexible city of strangers', http://mondediplo.com/2001/02/16cities.

mobile and detached, adaptable, curious, opportunistic and cynical, also toward institutions; they are inventive and share knowledge through communication and language; they are mostly de-politicized, also disobedient."[22]

The de-politicization of contemporary society is also a relevant question in Richard Sennett's thought[23]. He calls it 'indifference', a behaviour that – derived in principle from the flexibility and the short-term experience proper of contemporary economic systems – is applied to both the workplace and the city in general. According to Sennett, the new economy – whose main features are flexibility as a novel form of production and globalisation of labour and capital – has negative repercussions on the workplace as on the city, as far as both their social and material (the homologation of spaces and 'skin architecture') aspects are concerned. "Just as flexible production produces more superficial, short-term relations at work, this capitalism creates a regime of superficial and disengaged relations in the city."[24] Indeed, it is in the city that the cosmopolitan elite establish its power while at the same time refusing to wield it as a civic duty. The indifference of the 'global elite' inhabiting contemporary cities together with the question of 'uncivilized communities' – as inherited by modernity – are, for Sennett, the two worst evils for the public life of the city.

In such a 'flexible city of strangers' the lack of mutual relations is extreme. People spend much of their time working, often for short-term duties that deprive them of the time to carry out a public life, thus driving them to neglect their own families. The paradox is related to an incapacity of establishing consistent relationships, not even among colleagues: "[…] this lack of mutual engagement is one of the reasons it is so hard for trade unions to organize workers in flexible industries or businesses as in Silicon Valley; the sense of fraternity as a shared fate, a durable set of common interests, has been weakened."[25]

Our opinion about this point is that, while we accept the argument of a

lessening in democracy within a system deprived of trade unions, this is not necessarily a consequence of the wider lack of social relationships. It seems as if Sennett is handling this issue from within a large traditional factory. The productive structure of Silicon Valley, for instance, is not made of large companies based on a vast pool of un-specialized labor force who enters the factory each morning at the ringing of the bell and spends eight hours together daily. Rather, we are talking of a dynamic agglomeration of companies whose highly educated and remunerated staff continuously moves from one firm to another, gaining the necessary experience that will allow them to set up their own businesses – either in Silicon Valley or elsewhere. In such a context personal relations among workers – far from being as superficial as we are used to understand – overcome companies' boundaries and give life to organizations which are more or less formal and fairly different from the traditional trade unions.[26]

26.Cfr Anna Lee Saxenian, *The New Argonauts. Regional advantage in a global economy.*, Harvard University Press, Cambridge (MA) and London, 2006.

While the indifference described by Sennett is a social transposition to the public sphere of a behaviour that was created within the production system, Virno refers to a de-politicization of the Multitude – and to the related public condition of the intellect – as a manifestation of the current overlapping of Labour, Political Action, and Intellect. Human experience does not consider them anymore as separate.

Since contemporary economy is based on sharing and cooperation among individuals and not on clear rules of production, Post-Fordist production modes increasingly tend to include within their sphere of influence all those activities that once were seen as essentially political – in particular, activities of virtuous performance in which the goal of the performative act is not the final product but the performance itself. In particular, the tertiary and quaternary sectors are the ones in which the political activities are most evident. For this reason, the Multitude is de-politicized: there is too much of politics in its labour life.[27]

27.Paolo Virno (2007), op.cit., p.51.

Contemporary production is political since it uses language –

communication – as a productive means. Hence, the creative industries
of today are those industries that produce the very means of production
– that is, communication.

If we consider the architectural debate around the urbanisation of
innovation environments, Virno's insistence upon the transposition of
attitudes – that belong to the Post-Fordist Multitude - from the everyday
to the workplace seems to us particularly relevant. Those attitudes result
from the 'socialization' that is currently permeating production systems
despite having taken shape outside of those systems.

"The emotional situation of the multitude in the post-Ford era is
characterized by the immediate connection between production and
ethicality, 'structure' and 'superstructure,' the revolutionizing of the
work process and sentiments, technologies and the emotional tonalities,
material development, and culture. Let us pause for a moment to consider
this connection. What are the principal requirements of dependent
workers today? To be accustomed to mobility, to be able to keep up
with the most sudden conversions, to be able to adapt to various
enterprises, to be flexible in switching from one set of rules to another,
to have an aptitude for a kind of linguistic interaction as banalized as
it is unilateral, to be familiar with managing among a limited amount
of possible alternatives. Now, these requirements are not the fruit of
industrial discipline; rather, they are the result of a socialization that
has its center of gravity outside of the workplace. [...]The post-Fordist
undertaking puts to good use this practice of not having routines, this
training in precariousness and variability. But the decisive fact is a kind
of socialization (and by this term I mean the relationship with the world,
with others, and with oneself) which essentially comes about outside of
the workplace, socialization essentially beyond work. [...] Now, however,
nihilism (the practice of not having established practices, etc.) has entered
into production, has become a professional qualification, and has been
put to work. Only one who is experienced in the haphazard changing
nature of the forms of urban life knows how to behave in the just in time

factories."[28]

In other words, the contemporary worker provides himself with all those instruments that traditionally did not belong to the realm of labour but were part of a social reality existing outside of labour. For instance, the nihilist attitude that has been identified by sociologists – like Simmel – as peculiar to the formation of the man of modernity is transformed today into a tool for labour. In the same guise, cynicism and opportunism become today sentiments with technical and professional importance.

Therefore, we can understand the relevance of the architectural analogy between the urbanisation of the workplace and the professionalization of social practices. At the same time, we can appreciate the importance of considering the necessary instrumental switch from a fixation on the scale of the office building to that of an office district. Finally, we can recognize the significance of starting to take into consideration spaces marked by enhanced urban qualities, mix of actors, a variety of intense activities, all features that build up towards a more favourable environment for the current production modes than the common monocultural district. So, we comprehend the new generation of projects in which those spatial and formal relations which are typically urban in nature are purposely applied onto the workplace. We have ourselves repeatedly hinted to the fact that the need for sharing on which the knowledge economy is grounded calls for intense relations among a variety of actors. Moreover, we have reminded how it is the city which constitutes the privileged environment for such relations to take place. Perhaps, by defining the action of design as an active constituent of wider economic strategies we are unconsciously contributing to the professionalization of those spatial relations that are proper to the everyday and the extra-labour time. That is, those relations that belong to urban life.

[The Post-Fordist City.]

In the previous paragraph we have followed Virno's argument about the current professionalization of those social attitudes that traditionally did not belong to the realm of labour. We can then easily take a step further: the missed distinction between social practices and labour practices makes economy's dictates permeate every aspect of living and, we can add, every part of the city.

Yi Yi is the title of a movie directed by Taiwanese director Edward Yang in 2000 that provides a precise as much as ironic exploration of the contemporary society of his country. The movie, released a year after its American 'counterpart' – Sam Mendes' American Beauty – aims to offer an examination of society from within the life of a Taiwanese family. Paradoxically and differently from what could be thought, the family in Yi Yi expresses better than its American counterpart the Post-Fordist aspects of life. This is particularly true for the ways in which work infiltrates every aspect of life, even the most intimate and personal, thus becoming the obsession shared by many characters in the movie.

Therefore, the overlapping of work over all spheres of living – movement, leisure, dwelling, and learning – is totally something of our time. It comes from the lack of distinction between labour and non-labour time, as explicated in Virno's fourth thesis of the Multitude: 'For the post-Fordist multitude every qualitative difference between labor time and non-labor time falls short.'

"Social time, in today's world, seems to have come unhinged because there is no longer anything which distinguishes labor from the rest of human activities. Therefore, since work ceases to constitute a special and separate praxis, with distinctive criteria and procedures in effect at its center, completely different from those criteria and procedures which regulate non-labor time, there is not a clean, well-defined threshold separating labor time from non-labor time. In Fordism, according to

Gramsci, the intellect remains outside of production; only when the work has been finished does the Fordist worker read the newspaper, go to the local party headquarters, think, have conversations. In post-Fordism, however, since the 'life of the mind' is included fully within the time-space of production, an essential homogeneity prevails."[29]

29. Ibid., p. 102.

Furthemore: "Labor and non-labor develop an identical form of productivity, based on the exercise of generic human faculties: language, memory, sociability, ethical and aesthetic inclinations, the capacity for abstraction and learning. [...]The productive cooperation in which labor-power participates is always larger and richer than the one put into play by the labor process. It includes also the world of non-labor, the experiences and knowledge matured outside of the factory and the office. [...]The crucial point here is to recognize that in the realm of labor, experiences which mature outside of labor bold predominant weight; at the same time, we must be aware that this more general sphere of experience, once included in the productive process, is subordinate to the rules of the mode of capitalistic production."[30]

30. Ibid., p. 103.

It is evident how Virno's account – that, as we have noticed, finds a parallel in the tendency towards the urbanisation of innovation environments – is distant from Ludovico Quaroni's description of the challenges of the 1960s – in a still 'Fordist' era. According to Quaroni, the working class quarter, located in close vicinity to the workplace – the 'quartiere di fabbrica' (factory quarter) defined as a 'prejudice' to be erased – has to be replaced by quarters that are neither too far apart nor too close to the workplace and that guarantee the existence of a space – intended both in terms of 'visual space' and of 'temporal space' – between the territory of work and the territory of collective and individual living. "We dream of a working class quarter matched to every factory, and with its houses, all identical, aligned according to some hierarchic principles" [our translation].[31] According to Quaroni, the worker does not appreciate seeing the chimney of his workplace while going back home, nor does he like counting his colleagues among

31. "Si sogna, per ogni fabbrica, il suo bravo quartiere per gli operai, con le casette tutte uguali allineate secondo criteri gerarchici." Ludovico Quaroni, 'Città e quartiere nella attuale fase critica di cultura' in La Casa n.3, Edizioni De Luca, Roma, 1956, p.22.

32."Le case non dovranno essere, possiamo ancora dire senza preoccuparci troppo, distanti dal luogo di lavoro, ma nemmeno troppo a contatto con esso: un certo spazio è necessario, spazio visuale e spazio di tempo. […] Chi ha lavorato tutto il giorno nella stessa fabbrica, e quasi sempre allo stesso tedioso, abbruttente lavoro, avrà soprattutto bisogno di <<distrazione>> e di <<divertimento>>." Ibid., p.22.

33.Rem Koolhaas, 'JunkSpace' in oma@work.a+u, May, 2000.

34.Richard Sennett, 'Capitalism and the City' from the documents of the symposium 'Symposium city: daten zur stadt unter den Bedingungen der informationstechnologie' 11.11.2000, ZKM Karlusrushe.

35.Ibid.

his neighbours. Furthermore, in Quaroni's view, such a scenario is not possible to exist since dwelling is not based on the single individual – the worker - but on the family, that is made of individuals that are different in terms of sex, age, etc., hence who will have different jobs and workplaces.[32]

The 'visual and temporal separation' between work, dwelling and leisure has lost meaning inside a production system that, as noticed by Rem Koolhaas in his essay Junkspace, forces us to a 'permanent weekend': "There once was a relationship between leisure and work, a biblical dictate on opening and closure. Now we work harder, stuck in a permanent weekend. The office is the next frontier of Junkspace. Now that you can work at home, the office aspires to the domestic; because you still need a life, it simulates the city."[33]

The sociological counterpart to both the philosopher's sharp analysis (Paolo Virno) and the journalistic observation by Rem Koolhaas gets overloaded with strong criticism in Richard Sennett's words: "My argument is precisely that flexible capitalism has the same effects on the city as in the workplace itself. Just as flexible production produces more superficial, short-term relations at work, this capitalism creates a regime of superficial and disengaged relations in the city. This dialectic of flexibility and indifference is a challenge both to those who live in cities and those who study them."[34] In Sennett's view, Post-Fordist work, that is based on short-term duties based on dynamic team work, leads to sharp increase in the workers' stress and commitment but at the same time it also weakens the relations among workers and between them and the companies. The sense of indifference – or of missed devotion – proper of the contemporary cosmopolitan individual towards his own city is the same feeling he has for the company where he is employed. Indifference is linked to the state of 'flexibility', to the shortness of the working period for the same company. "This conjoined alteration in the time of labor and the space of cities is what we are living through today, expressed in geographic impermanence, the effects of impermanence on standardization in the public realm, and conflicts between work and family, office and home." [35]

[A less grey footnote? Urbanism's authonomy and the 'win-win scenario'.]

Starting from the last observations of the pervious paragraph, we wil try here to reach a conclusion by attempting to anwer the initial question: can urbanism have its own agenda?

In order to do this we will follow two lines of thought. The first wants to confirm urbanism's authonomy as a discipline that, while responding to some extra-disciplinary demands and requirements, is based on peculiar rules and thus keeps its own independent status; the second proposes the possibility for a 'win-win scenario' able to pour over the city that desire for collectiveness and socialization that characterizes the economy of innovation, by exploiting the very resources cumulated by such economy and that can thus be used to 'city-making'.

[1] The authonomy of urbanism.

When in 2008 Lawrence Barth, senior lecturer at the Architectural Association Graduate School in London, gave the introductory lecture to the course 'Reason of Urbanism', he stated the course's goal as that of looking for the reasons for which urbanists act on the city as they do and, by extension, the reasons for which urbanism itself exist. When was our discipline – urbanism – born? 'Have you ever even asked yourself?' It is common opinion locating the causes for the emergence of urbanism and planning in the industrial revolution. Industrialization, the common argument goes, led to a whole set of abrupt changes that begged us for inventing new disciplines – like sociology and indeed urbanism – in order to handle those changes. To put it another way, industrialization would have pushed man to build a specific discipline to understand the city and the urban. Conversely, Barth's argument goes in favour of a different attitude towards the city that should not be regarded as the direct product of some other causes. Urbanism was not born out of industrialization, but when a different and new line of thought about the government of western cities emerged. In other words, urbanism is grounded on those

same questions that constitute the foundations for the government of a democratic western state: the analysis of the static elements and of those undergoing transformation, and the choice of the elements to be conserved or changed; the creation of the institutions capable to assemble the plurality and intensity of the 'multiple' while at the same time being aware of the risks inherent in keeping many actors and situations together. We have to stop thinking that cities are determined by something external to them – industrialization and capitalism – and Virno's examination of the contemporary Multitude comes to help in this respect. Indeed, it helps us understand modes of thinking – of governance and of production – that are paralleled by the simultaneous shaping of the contemporary reasons of urbanism. To reiterate, the Post-Fordist city is not simply the product of a linear cause-effect process fired by the Post-Fordist economy; rather, it is the product of a novel way of reasoning on the city. In this way we can continue to state urbanism's autonomy. And stating the undisputed autonomy of urbanism means locating its origin: its constitutive act determines its specificity as a discipline, a discipline with its own rules.

[2] Win-win scenario

We have always thought that the possibility for a 'win-win scenario' – that is, a perspective capable of satisfying the needs and desires of all the various parts involved – could be a naive proposal, particularly if not specifically located. The possibility for a 'Civic Industry' in Taiwan, based on some current experiences of high-tech industries relocating in inner-city locations that are reviewing their physical substance – their buildings – by embracing more permeable diagrams towards the surrounding, now urban, conditions, is specific enough to allow us to push forward an argument for a 'win-win scenario'.

It has often been claimed that the argument for an urbanisation of innovation environments, sustained by urbanists, can prove convincing to the actors of economy that are involved in the processes of innovation.

This is because such urbanisation would enhance forms of sociability, mix and intensification that, properly belonging to the city, are today recognised as essential attributes in order to stimulate creativity and interaction – the very bases of contemporary production.

In other words, there is a whole set of unexpected qualities that are being required by new capitalism and that could lead to more 'equalitarian' projects: the urbanisation of innovation environments or the search for integration are often considered important to improve the performance of the new modes of the economy. However, it cannot be doubted that they are also vital for the improvement of social life.

Urbanity, intensity, collectiveness, cooperation, collective learning. These concepts are all capable of sounding attractive to the economic actors as they can act as positive contributions to the mechanisms ruling the economy. While aiming at them, we can also, in parallel, try to build up an agenda that, by making use of the same resources, aims at creating benefits for the city and its citizens.

It is on those premises that we can propose a scenario in which all involved parts – either active or passive – manage to get some benefits either through the mediation of the State or of parastatal agencies like universities, or through a novel sense of responsibility by the main recipients – the firms and companies of the new economy. The specific input for such a process to be instigated can be found in the use of private investment in order to reinvent the collective.

If, for example, we take a look at the case of Taiwan – while reminding its uniqueness and exceptionality in terms of the success of the 'innovation challenge' in a previously low-wage-based economy - we can spot a form of capitalism that, in its Post-Fordist declination, has managed to guarantee a certain degree of equity. It is often reminded the important role played by the central State for Taiwan's modern development. However, it has to be noticed how the State has not interfered in the

processes of the economy: the whole history of Taiwanese development has unrolled through the proliferation of agencies that were characterised as parastatal institutes pursuing the goal of supporting competition and collaboration and, then, of laying the foundations for a fertile innovation environment for private enterprises. The State thus acted as the balancing force of the interests of economic actors, by distributing resources throughout the whole regional territory. The dialectic between State and Economy was guaranteed by the socio-political condition of Taiwan as well as by the exceptional disjunction between State and society. In this way a scenario that can indeed be defined as 'win-win' started to take shape with, on the one side, the actors of economy and, on the other, society – at various levels. Further evolution and implementation of the Taiwan model could be achieved through what we have defined above as the 'Civic Industry', that is, a private sector that, still engaged in a dialectic relationship with political institutions, could contribute – through its resources and infrastructures – to the definition of new spaces with collective/civic meaning.

Keeping the benefit of doubt on the possibility of actually realising a win-win scenario, we end here our grey footnote. Robert Somol has suggested to shift objective - "The challenge for a design politics today is not to provide for aesthetic and economic difference, but rather to project a credible vision of the collective"[36] – and has anticipated a possible way out: "In circumstances where that market exists as an all-too-well established ground, as in the United States, it is not clear that this project can translate as successful. When moving away from a now institutionalized critical project (that is, the understandably American reaction-formation to a fully commercialized world of business as usual), how is it possible to extend the projective, as opposed to complicit, traits of yes? If the genius of the Dutch experiment was to commoditize politics, to open a social bureaucracy to entrepreneurial risk and invention, the US context may demand the reverse, the politicization of the economy, to capture private investment for collective pleasures, a reinvigorated form of bottom-up eminent domain."[37]

36.Robert Somol, op.cit., p.328.

37.Ibid., p.328.

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Official website Queen Mary BioEnterprises Innovation Centre: http://www.qmbioenterprises.com/

Official website St John Science Park: www.stjohns.co.uk

Official website University of Cambridge: http://www.cam.ac.uk

Official website Urban and Regional Innovation Research Unit: http://www.urenio.org

Contacts

Sabrina Puddu
Dipl. Ing./Arch.   MA Urbanism - Architectural Association
sabrina@urbanaarchitettura.com
sabrinapdd@gmail.com