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three accounts**

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Publication date

2018

Document Version

Final published version

Published in

Intersections and ambiguity

Citation (APA)

Cavallo, R. (2018). Architectural perspectives on infrastructures and city: three accounts. In F. Berlingieri (Ed.), *Intersections and ambiguity: Urban infrastructural figures of the European metropolis* (pp. 98-108). LISt Lab Laboratorio Internazionale Editoriale.

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Architectural perspectives on Infrastructures and City; three accounts.

Roberto Cavallo

Infrastructures and City: spatial contradictions

Contemporary urban areas are more and more confronted with the urgency of accommodating complicated and specific infrastructural solutions in order to satisfy the current demands of an increasingly complex society. In the meantime, while urban areas are working on new infrastructures, the continuous modernization and update of all types of requirements, the reorganization, the reconversion or the substitution of existing infrastructures ask very frequently for engineering and design solutions that are not always able to cope with the contemporary urban conditions. Indeed, particularly in the Western European context and from a spatial viewpoint, the city seems curiously to be almost incompatible with the presence of infrastructures. However, and without doubt, infrastructures have always been primary elements of the city. In fact, all processes of urbanization throughout history arise from the presence of traffic nodes where the interchange of people and goods can take place. These conditions created a natural interaction, and quite often a direct relationship, among infrastructures, the location where they are placed and the making of buildings. In addition, certain kinds of infrastructures are able to combine more than one mode of traffic, such as roads that are able to join together vehicular and pedestrian circulation, facilitating accessibility, development and transformation of urban areas. As Kevin Lynch already suggested in his famous 1960 book *Image of City*, and many others embraced, infrastructures are fundamental elements characterizing the city and its image. However, reversing the terms, many stereotypical ideas about the city assume at least contradictory positions towards infrastructures, accounting them often as barrier, as disturbing elements and even as alien to the city.

It is with this split in mind that we should consider this problematic in contemporary urban areas. Today, in the 21st century, the necessity of improving public transportation networks as an alternative to congested vehicular traffic, together with the

urgency of developing environmentally friendly mobility solutions, poses very challenging prospects onto the current and future coexistence of infrastructures and city. In addition, there is already an existing urban condition to be considered in which infrastructures are entangled with the city and often act as physical barriers. Therefore academics as well as practitioners should study much deeply the various facets of the relationship between infrastructures and the physical layout as well as the functioning mechanisms of the city. Unfortunately, and despite all efforts, logic and management of large-scale infrastructure networks keep avoiding the issue of their spatial specificity missing the link with operative architectural strategies

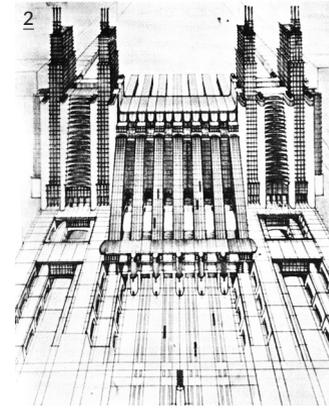
Infrastructures and City: unstable entanglement

An interesting perspective about contemporary infrastructures is the one given by Bernardo Secchi. In his article *Figure della mobilità*¹, he is rightly pointing out the multidimensional impact of infrastructures on contemporary life, questioning at the same time the role of designers within this scope: 'To move persons, things, energy and information, images and ideas, stored in increasingly sophisticated and miniaturized repositories of matter and memory, to utilize the time of movement and stillness to transform them, giving them new identity, roles, meanings and status, to construct the concrete physical and institutional infrastructures of mobility, or what permits and encourages movement and circulation, become a primary task of modern design'. According to Secchi's position, we should accept the inevitable interdependence between contemporary life – and not only urban – and infrastructures as a condition that needs to be envisaged on different scale levels. Elaborating further on the matter Secchi argues that 'it has often been said, and not without reason, that the solutions provided case by case to problems of mobility and circulation of things, people and ideas, are responsible to a great extent for the change, in the modern era, of the occidental cities and territories, of their role, their size and form'.² Moreover, Secchi stresses that this

condition of interdependency between infrastructures and urban areas is mutual as well as cyclical: 'these changes, in turn, are laying at the origin of a constantly growing demand for mobility. Throughout the modern era, the infrastructure of mobility, on the one hand, and the form, role and size of the city and territory, on the other, seem to pursue each other in an eternal state of instability'.³ Reading this part of Secchi's essay makes again very clear that although infrastructures -particularly the one concerning mobility- and cities are tightly interwoven, their mutual relationship is characterized by a constant state of instability. In fact, probably due to their heterogeneous natures and the involvement of too many and sometimes contrasting factors, it has been persistently very difficult to synchronize and harmonize infrastructures with the city. It is for these reasons that looking at this problematic from an architectural viewpoint, instability expresses very well the spatial condition of infrastructures in urban areas.

As matter of fact, the interesting but probably also striking fact about infrastructures is that they are subject to quick changes. It is in the nineteenth century, with the advent of the Industrial Revolution, that the problem of traffic becomes a pivotal issue for the city. The increasing number of inhabitants along with the transformation and growth of the city on the one hand, and the technological possibilities on the other, have significant consequences on traffic infrastructures and the way they interact with the city. It is exactly in this period that traffic infrastructures started to need their own accommodation in the city, not only in terms of space but ultimately also in terms of buildings. Up to the preindustrial period, overland urban traffic was mainly confined to the use of stagecoaches. Although centrally located in the city, the stagecoach depots were often housed on the ground floor of the existing urban fabric. In terms of architecture, this type of transportation required nothing new, as the depots were fully integrated in the existing buildings and their presence was not distinguishable in the sur-

rounding urban fabric. Even when the horse-omnibus-on-track took the place of stagecoaches, there was still no need for other building accommodations. The first great change came with the construction of railroads. The railroad depots and stations had to vary from the stagecoaches depots simply because the functioning of train and railway track was different compared to the one of highway and street. However, it is remarkable that even decades after its advent, the railway, and notably the station, was not considered to be part of the city. The railroad often stopped at the edge of urban areas and was regarded for years as an alien threatening the beauty of the historical city. Nevertheless, these new urban conditions triggered the interest of several artists and inspired important avant-garde movements like the futurism.



It is in this context that railway stations, and later railway viaducts and bridges, were labelled mere utilitarian buildings, spatially and architecturally too 'unstable' for the city. Not being assimilated by the city as fully-fledged elements, the railroad buildings paradoxically represented the perfect ground for experimenting and applying new construction techniques using steel and concrete. In this way the transportation on track developed its own outward expression, but not as result of a well developed architectural thinking or as a strategy aiming at integrating infrastructures and city. Only the reception building of representative stations was erected out of stone, explicitly showing the need for a connection with the rest of the city, although primarily only in terms of appearance. According to this practice, many railways have been built in the past without considering their integration into the surrounding (urban) environment. On top of this, stations as well as railway yards, due to the expansion of cities and the rapid developments around railway terminals, ended up being completely enclosed by urban fabric, giving rise to spatial disconnection as well as fragmentation, commonly visible in phenomena like ribbon developments and fringe belts.⁴

Infrastructure and city: does architecture matter?

Architects 'are not the technicians or engineers of the three great variables – territory, communications and speed. These escape the domain of the architects.'⁶ This is what Michel Foucault said in 1982 during an interview with Paul Rabinow. While recognizing that architecture does not play always a pivotal role, particularly if taking into consideration specific technical facets, accepting its total marginalization in the above mentioned discussion feels extremely inappropriate. If it's true that the design of bridges, highways, canals, harbours, aqueducts, railroads and so on, as products of mainly engineering work, does not primary need the involvement of architects, it is then at the other end also legitimate to emphasize the importance of managing the impact of these complex realizations in terms of their spatial performance and their assimilation in the urban territory. This is likely to be the domain of architecture.

The tremendous transformation of city and territory by the increasing speed of 'urban flows' needs, at least in spatial terms, to be envisaged, needs the involvement of architects and designers at different scale levels. One of the issues constantly deserving attention is that after years of coexistence, infrastructure buildings are also somehow integrated into the city and become an important part of its image. To make them survive continuous changes is not always possible but in many cases worth a try. Another important matter is the presence of several kinds of infrastructures in the city and their great influence on the way other buildings in the surrounding areas are designed or transformed. The interaction of these buildings with infrastructures is often the leading architectural theme of these interventions. Infrastructures are often superimposed on the city, generating interesting situations where the contrast between built and unbuilt spaces requires specific architectural solutions. Herein lay most challenges for designers, particularly towards the search for new solutions in transforming urban infrastructures. Ultimately, only by actively engaging in the thinking, in

the designing and in the making, as well as participating in the debate (and not only the academic one) will architects be able to effectively claim a role in the spatial transformations of both infrastructures and cities.

In this framework there is a strong need of considering the different scale levels involved in the topic and, more specifically, the interference between these scales. A very important matter is the intertwining of the identity or memory traces, related to a specific urban area on different scale levels, with the infrastructural dynamics. Within this perspective, specific historical and socioeconomic knowledge play an important role, particularly in understanding the mutations that took place in these particular urban areas. In other words, to be able to transform them, it is essential to understand the place specificity connotations of infrastructures. Some of the topical questions would then regard the role of the network, the meaning of dialectics and conflicts between old and new or the problem of measuring performance and effectiveness in terms of space of both developments and transformations in urban areas.

Many issues turned on by transforming infrastructures are often characterized by similar trends. However, it is impossible to act following a general strategy of intervention. The relationship between the singular (infrastructural) building, the problematic of the surrounding urban area and the changing infrastructures are in every single case too specific and complicated to allow general operational conclusions. At the other end, we can all agree that the performance of infrastructures must also be measured in terms of their spatial assimilation. For these reasons, and in order to properly contribute to the on going and future discussions, there will be a persistent need of pursuing further studies about the interrelations between infrastructure and city.

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1. Secchi, Bernardo, 'Figure della mobilità', *Casabella* (739-740, 2005-2006), 80-83.
 2. Secchi, 'Figure della mobilità', 82.
 3. Secchi, 'Figure della mobilità', 82.
 4. For a detailed explanation about fringe belts, see Busso von der Dollen, 'A historical-geographical perspective on urban fringe-belt phenomena', in Terry R. Slater, *The built form of Western cities. Essays for M.R.G. Conzen on the occasion of his eightieth birthday*. (Leicester: Leicester University Press, 1990), 319.
 5. For more information look at the book: Emma Mandelli, *I percorsi del Principe a Firenze. Rilievo integrato tra conoscenza e lettura critica* (Florence: Alinea, 2005).
 6. Paul Rabinow, *Space, Knowledge and Power, The Foucault Reader interview with Michel Foucault*, translated by Christian Hubert. (New York: Pantheon, 1984), 244.
1. **MARIO SIRONI, 1922. Suburbs.**
source: Agnoldomenico Pica, *Mario Sironi*. (Milan: Edizioni Del Milione), 1955.
 2. **Drawing. The elevated sidewalk. Front cover of the magazine SCIENTIFIC AMERICAN, July 26th 1913.**
source: Jean Castex, *Chicago 1910-1930 Le chantier de ville moderne*. (Paris: De la Villette), 2010.
 3. **Drawing. Milan Central Station project by Antonio Sant'Elia, 1914.**
source: Source: Reyner Baughman, *Megastructure; urban futures of the recent past*. (New York: Harper & Row), 1976.
 4. **Drawing. Overview of the Vasarian Corridor.**
source: <http://michelangelo Buonarroti-etornato.com/tag/corridoio-vasariano/>
 5. **Photograph of part of the Vasarian Corridor with the Ponte Vecchio in the background**
source: <http://www.turismo.intoscana.it/allthingstuscany/tuscanyarts/vasari-exhibit-uffizi/>