

## Designing the unplannable - architects and the lure of hierarchical order

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**Abstract:** This paper explores the change from idealized hierarchical model of urban structure to networked model and the interplay of two professions, architects and geographers. Master planning processes of the City of Tampere are used as an example both on the development of urban form and on the partial collapse of hierarchical service network. Some preconditions for planning of the network city are also discussed.

### Hierarchical decentralisation – an ineffective panacea

Idealized concepts about decentralized city and urban hierarchy have had significant influence on the development of urban form. Their impact on the planning practice has come from two directions: from Garden City movement, where Ebenezer Howard adopted a hierarchical satellite model, and from geography, especially from central place theory of Walter Christaller.

Christaller together with Lösch was a key influence in the so called quantitative revolution in geography (Hall 1997: 312). It took place in 60's, which became epochal decade in urban planning. Widespread interest in computational modelling, systems planning and cybernetics along with the output of new planning professions created, according to Hall, the greatest change ever in planning practise. It was transformed from a kind of craft, based on personal knowledge, into apparently scientific activity (Hall 1988: 327). The

influence was further enhanced by rapidly growing number of workforce in the sector. In Finland the number of planning professional quintupled in just 12 years. (Salokorpi 1984: 318). Hierarchical model was easy to adapt as a planning tool - it also reflected the hierarchical organisational structure of public administration and the need to manage information about society. As Lynch has argued, hierarchy is "primarily useful for indexing and cataloguing" (Lynch 1981: 96)

Although the terminology was similar, there was a fundamental difference between architects and geographers in their concepts of hierarchical urban structure. The hierarchy of architects was a result of design intervention, whereas the hierarchy of geographers was a result of economical and social processes. When these two approaches were mixed, a combination of fixed or periodical planning and open-ended and processual planning emerged, producing sometimes curious results.

For architects the quest for ideal form of city has been historically typical, ranging

from aesthetically based artworks to social utopias. Architects could swiftly adopt hierarchical model, because it was already available in their own intellectual tradition. Geographers gave the model academic credibility which was lacking from the conceptions of architects.

Master planning processes launched in late 60's were finished in 70's and by 80's several Finnish cities had a hierarchical system of sub-centres developed to its full extent. The blooming did not last long. The hierarchical model faced societal changes, which it could not absorb. The late twentieth century city became characterized by decentralization of economic activities, increased mobility, complex cross-commuting and fragmented spatial distribution of activities (Davoudi 2003). As the city became all the more complex organisation, the more difficult it was to maintain hierarchy, which constantly keeps relapsing into disorder or different order (Lynch 1981). In poly-centric or networked urban environment different parts of the city take different - and often ephemeral - roles.

Static proximity, one assumption of the hierarchical model, could not be used any longer as an organizing principle of the city.

Traditional urban planning has had defined goals, means and end results, "blueprint plans" (Taylor 1998). However, regardless of sophisticated planning methods and legislation, urban form has shown strong self-generative power. In the utmost end of the present development futile planning is replaced by self-organisation and in the words of Portugali

(1997: 354): "all that is left for us to do, as scientist and planners is to sit and watch, or at best become participants in this huge self-organizing process".

### **CASE: Tampere - Restructuring of the hierarchical order**

Tampere started to apply the model of hierarchical decentralisation along with the development of compact suburbs (lähiö) in 60's. The model was based loosely on the ideas of Ebenezer Howard, Eliel Saarinen and Clarence Perry and it was applied widely in Finnish cities. This was partly due to the influence of professor Otto-Ivar Meurman, who wrote in his book "Asemakaavaoppi", a planning manual for a generation of architects, that "individual settlements of the city must be designed as detached units following the principle of decentralisation" (Meurman 1947: 78) <sup>1</sup>. Master planning became obligatory in 1968 and a major task for the first generation of comprehensive Master Plans was to optimize the size and locations of new urban units and to construct a hierarchical system of service centres.

In 1972 Master Plan (Tampereen yleiskaava 1972) the whole city was designed on the basis of hierarchical service structure. The CBD (Central Business District) remained as a first level centre; Hervanta, Tesoma (a compact suburb in western Tampere) and the Koilliskeskus (compact suburb to be built in future to

<sup>1</sup> "Kaupungissa asutus on suunniteltava toisistaan erillisiksi osiksi hajakeskitysperiaatetta noudattaen." (Meurman 1947: 78)

north-eastern part of the city) were planned as second level centres. In addition to these, there were dozens of local centres with basic set of services (food shop, bank, post office, school, nursery).

A specific study was made to determine the proper size and location of sub-centres. It utilized regression analysis and found the proximity of inhabitants to be the determining factor of the location of basic services. Accessibility as proximity to major road was also analyzed, but the effect of it was weak at the time. Consequently, the existing structure based on proximity was accepted as the model of future development.

Immediately after its completion the presumptions of Master Plan 1972 were challenged. The population estimate was optimistic, Tampere was expected to grow from 160 000 to 250 000 inhabitants by the year 2000 (Tampereen yleiskaava 1972: 9). This was a rough overestimation. Tampere practically stopped growing in mid-70s. The existing population also demanded more living space than was predicted. As a result, there were not enough inhabitants in the new compact suburbs and especially smaller sub-centres were left without the expected services.

The society was also mobilized fast. New arterial roads were built and number of private cars in Tampere rose from 28 000 in 1970 to 36 000 in 1975. (Tampereen kaupungin tilastollinen vuosikirja 1979). New business opportunity was recognized by retail chains and the first proposals for “automarket” retail superstores were submitted. First ones were built in late 70’s, prophetically despite the resistance of Planning Department, which saw large-scale retail as a potential threat to hierarchical service structure.

Well into the 80’s the automarket retail had only minor effect on the service structure. In some reports it was even regarded as a phenomenon of the past (see for example Kaupan tilantarpeet 1990 –luvulla Tampereella 1987). During late 80’s and early 90’s Tampere went through an economic transformation in industry sector. Vast planned industrial areas close to arterial roads were left vacant. Planners were not prepared for the realisation of their potential as retail sites.

An example is the restructuring of services in western Tampere. Unexpectedly developers started to turn industrial district of Lielähti into retail area. The process was executed outside standard planning procedure, because of a loophole in legislation and the existing city plan. The hierarchical service structure in western Tampere collapsed. The original centre of western Tampere, Tesoma, had enough residents to keep a major supermarket, but smaller sub-centres, especially in the north-western part of the city, lost their customers to Lielähti. However, all the public services were kept in their original sites in planned sub-centres. Even today, Lielähti has no public services while it is the most important service node of western Tampere.

The retail concept of Lielähti proved successful. It had utilized the scalar change being built in previously peripheral site between planned sub-centres and was adjacent to major arterial road. New large-scale developments started in surrounding smaller municipalities Pirkkala and Kangasala. City of Tampere could not control the situation. By year 2000 a new scalar level in retail was created in all parts of the city region. Of the second level sub-centres only Hervanta still played major role, Tesoma was becoming subordinate to

Lielahiti and Koilliskeskus - the only properly planned site for large-scale retail - was slowly starting to develop, but in a much smaller scale than "wild" retail developments.

Because of the scalar change, only a minor part of retail trade takes place in the sub-centres of hierarchical service system. Several lower level sub-centres have lost all private services, but they are still in 1998 Master Plan (Tampere - kantakaupungin yleiskaava 1998) marked as sub-centres and the active retail sites, close to arterial roads are marked evasively as production areas with retail activities.

As a result Tampere has developed a hybrid structure of differing networks of retail and other private services and public services. Spatial structure of public services remains as an echo of the controlled structure of welfare society. The changes in the retail network show instead a new powerful spatial logic of network-based economic structure driven by accessibility based on the use of private car. The inequalities in accessibility to services are becoming more evident and new planning strategies ought to be developed to ensure the supply of basic services.

### **CASE : Tampere - Building a stable city on shaking foundations**

Master Plan of 1972 was a major joint effort of different disciplines: architects, geographers, statisticians and traffic

engineers.<sup>2</sup> However, after the completion of the Master Plan growing tension started to develop between architects, who were responsible for urban planning, and geographers, who were responsible for background studies. Master Planning documents and background studies started to speak different languages.

As major compact suburbs developed, with lower than expected density and mobility started to increase, geographers acknowledged the problems inherent in the hierarchical model. In a service structure report already in 1979 they stated, that "the traditional view of city as a hierarchically organized structure has less explanatory power than was thought" (Palvelutaso Tampereella 1979: 6). The report criticized the lack of consistent policy in the development of services. This was partly a response to political decisions allowing out-of-town retail developments.

Architects did not respond. Hierarchical model had already become a useful tool for planning and despite criticism from geographers, Planning Department did not seek alternatives for hierarchical service centre model. Automarkets and other unwanted retail developments were simply not accepted as part of the planned service structure and their importance was downplayed. Subsequent planning documents (see for example Master Plans of 1977, 1982, 1988 and even 1998) adopted this view.

During late 1970's and 80's geographers observed the decline of small sub-centres, the absence of services in outer suburbs and the extending travel distances to basic

<sup>2</sup> For the purpose of simplicity "geographer" is used in this text as an overarching term to include geographers, regional scientists and political scientists, who all share scientific approach to urban space and processes.

services. Planning Department relied persistently in the service network of 1972 and the planning documents usually did not present negative developments. The Master Plan of 1988 (Tampereen yleiskaava 1988) mentioned emerging problems of smaller sub-centres, but concluded that several areas are still incomplete and the service network is likely to be completed. Underdeveloped centres were regarded more or less as exceptions.

During 90's the service structure changed quickly and the planners could not catch up with it. In 1995, a background study made by consultant (Rasimus 1995) concluded that Tampere had already twice the amount of large-scale retail floor-space compared to other Finnish cities and as a result local shops were vanishing.

The sub-centre network was heavily modified. In 1988 Master Plan there were 37 active local centres (*lähikeskus*) and additional 11 to be built, making up total of 48 local centres. By the completion of the Master Plan 1998 the number of intended local centres had suddenly decreased from 48 to 38. Besides, several existing local centres now had lost food shop, the single most important basic service.

Again planners did not accept the change. Neither the dramatic growth of large-scale retail space and the decline of local shops or the trimming of service network made their way to the official documents. The Master Plan 1998 states: "Despite recent changes the decrease of services has not

been extensive. For this reason the hierarchical service network is maintained as structuring principle"<sup>3</sup> (Tampere - kantakaupungin yleiskaava 1998: 32)" And the aim of the network was left unchanged: "to restrain uncontrolled locating of retail activities and especially large-scale units"<sup>4</sup>. (ibid.: 9).

The reluctance of Planning Department to give up the model of hierarchical service structure and the inability to provide alternatives has partly led to *laissez faire* situation, especially in the use of vacant industrial sites. Major changes in retail were accepted into Master Plans after they were built, which is clearly visible in the development of Lielähti retail district. Under the powerful political influence of retail developers planning had turned from active to reactive.

Geographers had predicted majority of the changes beforehand, but the hierarchical model was persistently used by architects as structuring principle. To certain extent this is understandable. Architects had to make decisions about the future and it would have been impossible to return from "scientific" hierarchical model to subjective design-based solutions. As Lynch has argued, "lacking alternative conceptual schemes, we find it difficult to discard this obvious (hierarchical) model" (Lynch 1981: 96). A new theory was needed, but such was not available.

<sup>3</sup> "Viime vuosien muutoksista huolimatta palvelujen väheneminen ei ole ollut kovin mittavaa. Tästä syystä yleiskaavassa on säilytetty hierarkkisen palveluverkon periaate (...). (Tampere - kantakaupungin yleiskaava 1998: 32)

<sup>4</sup> "(...) Palveluja koskevilla yleiskaavamerkinnoilla on tarkoitus estää kauppalpalvelujen ja erityisesti kaupan suuryksiköiden hallitsematon sijoittuminen. (Tampere - kantakaupungin yleiskaava 1998:9)

## Network city - a way out of hierarchical order?

Both the methods and intellectual and technical tools of planning, mostly inherited from the tradition of comprehensive planning, are becoming out-dated. City has changed profoundly and according to Sudjic "the equipment we have for making sense of what is happening to our cities has lagged far behind these changes". (Sudjic 1992:297 quoted in Amin and Thrift 2002:3)

If hierarchical decentralisation has become futile as a planning model, what could be the alternative? The variety of concepts explaining the dispersed, polycentric urban structure may be misinterpreted as a variety of solutions in planning practise. This is not the case. Kirmo Mikkola wrote as early as 1967 referring to Christopher Alexander, an early critic of hierarchical model of urban structure, that: "Typical to the age of doubts we live in is, that Christopher Alexanders "A City Is Not a Tree" – probably most important theoretical text on urban planning since Camillo Sitte, Howard and Charte d' Athens – is a kind of anticathechism, which defines, what should not be done, but can not present positive alternatives"<sup>5</sup> (Mikkola 1967: 11). To this day only few systematic approaches to define planning methods for new urban form have emerged (Pakarinen 2003: 13)

Obviously the new model can not be as rigid as its predecessors, it may not be a model at all, but more a conceptual

framework. The concept of "network city" is one alternative.

Network city is understood as a new urban formation typical for informational or network society. Social, economical and technological aspects of network society have been widely discussed (for example Castells 1996, Borja and Castells 1997, Graham & Marvin 2001, Batten,1995). However, the theoretical framework of the concept itself is not yet well founded and a clear typology and empirical tools are yet to be found (Kloosterman and Musterd 2001).

A fundamental difference is that in the network society proximity is less relevant for social organisation. Network city ought to be modelled by studying the different flows between nodes, instead typical models of using different land-use zones (Hajer and Zonnefeld 2000: 347).

A significant attempt to operationalize the concept of network city and to describe the flows and nodes of urban form has been the Netzstadt –method developed by Franz Oswald and Peter Baccini (Oswald and Baccini, 2003). They define urban system as "an all-encompassing three-dimensional network with diverse social and physical links" (ibid.: 46). Their method is based on morphological and physiological indicators and as an open framework it can be extended to include different analyses.

There is now something similar in urban planning to the situation of 60s. Some of the vocabulary of systems planning and cybernetics has returned along with the

<sup>5</sup> "Tyypillistä sille epäilyksen vaiheelle, jota elämme, on, että Christopher Alexanderin artikkeli "Kaupunki ei ole puu" - Camillo Sitten, Howrdin ja Carte d' Athensin jälkeen kenties merkittävin teoreettinen kirjoitus kaupunkisuunnittelusta - on eräänlainen antikatekismus, joka ilmoittaa miten ei saa tehdä, mutta ei vielä pysty esittämään positiivisia vaihtoehtoja." (Mikkola 1967: 3-4, 11)

introduction of concepts of complexity and chaos. New information systems are capable of executing complex analysis and large-scale computational modelling, but unlike the computers of 70s, no special technical expertise is needed to use basic software. It is even possible that new shared tools can bring different disciplines together. GIS systems can serve as a common platform or workbench for both architects and geographers.

Present situation raises some optimism, but it shares some risks that led to the failure of previous modelling attempt. The foremost problem is, that a theoretical background ought to be created to avoid the problem of using GIS as a “methodology that needs applying” (Hall 1997: 311). Complexity cannot be tackled without new theories. Campbell and Fainstein argue that “planning methodologies, which were once built upon the assumption of scarce, incomplete data need to be revised to deal with the coming flood of data” (Campbell and Fainstein 2003: 11)

Some new disciplines have also emerged. As an example, future science, only born in 60s, has now reached maturity. According to Pakarinen (2003), theory of architecture and urban planning can benefit from advances in the discipline, which also legitimates future as a field of academic research.

Finally, proceeding from analysis to action needs particular attention. All too often analytical descriptions of the city have been transferred directly into design principles. This has already happened with the modernist CIAM manifesto (Mikkola 1967: 11) and the concept of network city is now facing the same challenge (Davoudi 2003).

In urban planning, both innovative design and information-based planning ought to co-operate. For architects, this means need to extend their understanding of urban processes, and to geographers, steps towards more solution-oriented approaches. A common vocabulary and respect to the distinct traditions of professions can provide a productive basis for the necessary renewal of urban planning.

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