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LANDMARKS AND URBAN CHANGE

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Abstract

City growth generates urban change. The rapid and intense urban growth generate change not only within city structure but leads to new form of the city. This new form cannot be based on the same rules as past cities which had been remaining almost the same for centuries. Paper focus on definition new form of the city built with independent components rather than as a comprehensive, complex structure. Method of analyzing this new form based on communication theory is defined and presented. The new city components are described.

Key words: urban growth, city form, urban transformation, urban expansion, communication theory.

Introduction

The most important key words describing the city are concentration, diversity and hierarchy. They are essential factors found throughout history from the most ancient cities where they expressed political, ideological and economic power and therefore represented a new form of human endeavour within settlements. The physical manifestation of this control – the ‘citadel’ – was the first recognizable city landmark. From the very beginning landmarks represent values connected with the city and express both its heterogeneity and hierarchy.

A key aspect of city life and city form is ‘change’. City transformation follows social, technological and economic change. City form is shaped by civilization and its values.

Recent city transformation based on urban growth leads us to the essential question about urban form. There has been considerable debate over factors affecting quality of urban development. Most of them refer to three key issues: economy, social cohesion and environment. We focus on spatial form of this modern city structure. We claim that new big cities must be organized in different way than cities in the past. We try to analyze the framework of new city form.

In the second part of a paper we focus on finding a method to recognize the city structure and define tools suitable to design new form of the city.

Urban metamorphosis – city and its transformations

Cities have always been in a state of change since their early beginnings 5000 years ago. This change manifests itself in two ways: first through expansion and second by internal transformation. There is nostalgia for the “good times” of the recent past when everything

was better. Their form and performance were perceived to be better in the past. Actually this state of flux is permanent and has always been present. It is our sense of inertia and reluctance to change that creates this attitude. We seek an ideal city form, be it nodal or compact, but fail to recognize the circumstances change. It is clear that cities of today and the future cannot be like those of the past.

Kevin Lynch in *The Image of the City* (Lynch, 1960) and then in *A Theory of Good City Form* (Lynch, 1980) describes the city as a field of human interaction that owes many of its features to the model of 'organic city' in his terms the city is in a state of permanent change at all its levels. This reflects the vitality of cities. Their essential property of attraction naturally leads to transformation, an unavoidable consequence of a successful city. Urban growth, however doesn't mean, necessarily flourishing city. Megacity is only increased in number of inhabitants city and may have nothing in common with improving quality of life.

We need to define our terms of reference because this subject has conflicting meaning and interpretation. Terms such as 'urban sprawl' are emotive. For clarity we are limiting our paper to urban expansion that increases area and population. This has a variety of labels that can confuse and mislead: 'sprawl', 'expansion', 'city region', 'metropolitan area', 'city agglomeration', 'urbanized landscape', but we want to exclude emotive and judgmental descriptions. City enlargement is simply natural through increase in population.

Historically until the industrial revolution cities were limited in their population. Chandler has examined 4000 years of urban growth (Chandler, 1988). During the Golden Age of ancient Greece Babylon had a population of 250,000 equivalent to contemporary Siena, Stoke-on-Trent, Częstochowa or Granada. At that time Athens was ranked only 3rd with a population of 155,000 on a par with modern Trondheim. By the time the Roman Empire was at its height in the 2nd Century: Rome was the world's biggest city at 650,000 which is equivalent Wrocław in 21st Century.

The Dark Ages saw a decline and it was not until the Middle Ages that Cairo achieved 450,000 in 1350. The first European city to register with a significant population was Paris with only 200,000. Preceding the industrial revolution, at the beginning of the 18th century the largest city was Constantinople with a population of 700,000. European cities at this time included London (population 550,000) and Paris (population 530,000) equivalent to Sheffield and Poznań.

At this time even the largest cities had a form and spaces that could be understood as a whole. But the industrial revolution changed everything. City expansion took on an accelerating rate that is continuing today that has been so dramatic and overwhelming that simple up-scaling of pre-industrial cities is inappropriate. We have experiencing significant urban transformation, generating a new form for the city.

Between 1850 and 1875 population growth of the biggest cities doubled: London expanded from 2,320,000 to 4,241,000 and Paris 1,314,000 to 2,250,000. According to the United Nations Statistic Division there are 19 cities with populations in excess of 10,000,000. Whereas webpage www.citypopulation.de gives 25 cities which are larger than 10,000,000. It

is clear that our approach to these places must be different to those idealised cities from before the industrial revolution. The idea of ‘Utopia’ remains the compact city which cannot be applied to these large structures. Tokyo at 35,676,000 is the largest city and cannot be formed as Yedo during the Tokugawa shogunate even being one of the biggest and most vibrant urban areas at those times.

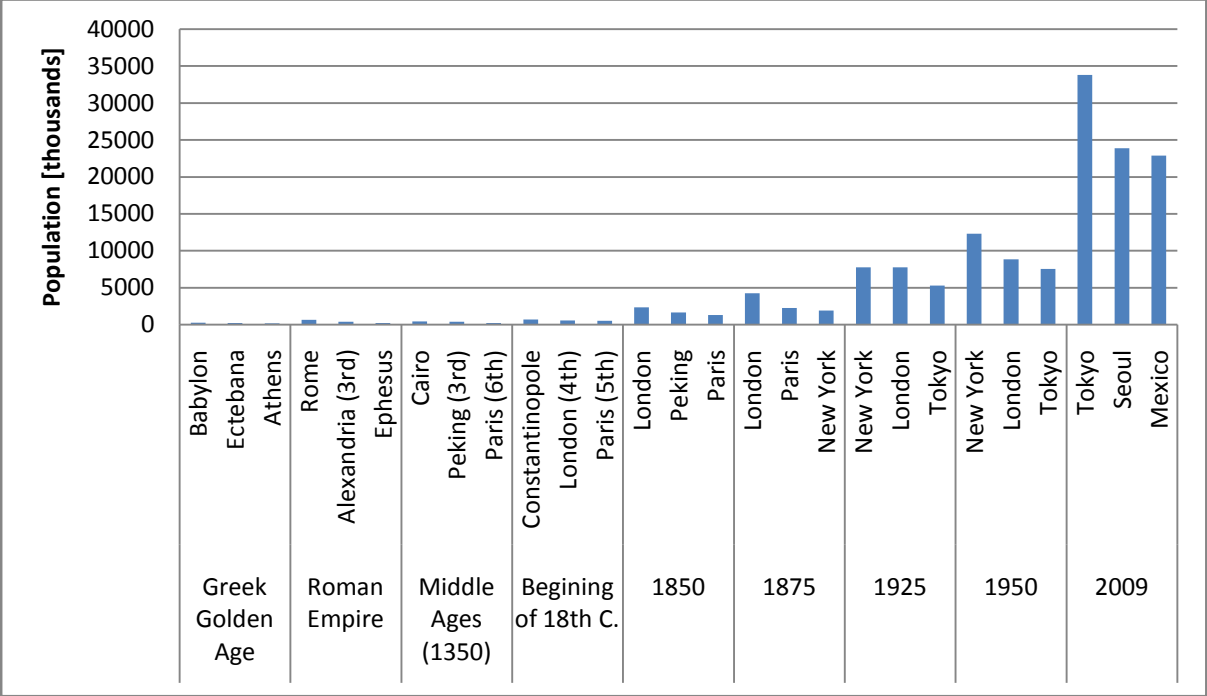


Chart 1. Urban growth (Chandler, 1988; www.citypopulation.de).

The essential question is what is the physical form of that city? In what way does it reflect the complex structure of activities and relationships? Numerous interactions and flows in city structure shape new and still unrecognizable form. Learning from the past is potentially not very useful. The key assumption is that today more than half world population lives in the cities. Recognition of new urban form may be base for improving quality of life.

This growth has two fundamental implications: first expansion into new areas taking more land and absorbing existing structures that once existed outside the city; the second is cultural where expanding diversity of culture and lifestyles combined with increased mobility.

Once a city expands beyond a certain size the traditional monocentric city form becomes invalid because accessibility to a single core cannot be sustained. As a consequence complex polycentric cites evolved but their original historic city centre remained both as a physical entity containing key city buildings and landmarks but also in the hearts and minds of the city population as an image. With expansion through increase in population inevitably a wide spectrum of cultures and social groups become inhabitants giving shape and colour to individual areas. The ‘compact city’ can’t exist within this complexity of spatial form and cultural diversity.

Mumford claimed that nomads rather than farmers, established the first cities (Mumford, 1961). Nomads were innovative, outward looking, had a sense of shared spaces and had

to be good communicators: these attitudes and skills are essential in city development. There are nomadic behaviours today where people move into cities for economic reasons, bring with them their culture. They have mobility within the city, and to other cities, spreading their culture and absorbing the culture of others.

Modern expanding cities differ from the compact nodal development of the past which builds from a clear centre that holds all key activities. Present cities cannot contain these important activities at their traditional centre they naturally generate new magnets for developing new important functions. For example, new infrastructure with good accessibility attracts retail, leisure, employment, housing etc leading to independent zones that have a relationship to the city but rely on connections based on transportation. Their structures are not derived in the same way as historic city cores but rely on nomadic movement from centre to centre. They express and reinforce the nomadic tension between 'movement' and 'place'. The city therefore takes on an ever increasing complexity of relationships with its expansion. This complexity needs to be understood and given a sense of place.

Present cities cannot be 'read' like a novel any more. 19th century model has gone. There is no point of return. We have to find method of understanding new concept which looks rather like Borges' short stories than Galsworthy's or Mann's novels. 'The Aleph and Other Stories' rather than 'The Forsyth Saga' or 'Buddenbrooks: Verfall einer Familie'. Our culture and lifestyle is different today than it used to be in the past. Why our cities should remain the same?

Sense of places – theoretical background

Individuals find the new city structure incomprehensible. But how can these complex structures be understood? Although each component of the city is developed in a rational functional way when viewed in isolation, the overall structure as a city lacks cohesion and form. The motivation in developing these areas necessarily focuses on their own goals and aspirations and does not generally include wider 'city' values. They are individual solutions to individual sites without recognition of the 'big picture'. Lynch indicated that city can be understood only as a field of interaction between the environment and the inhabitants (Lynch, 1961; Sieverts, 2003). We need to understand our cities across a number of levels and this is achieved through 'sense of place'. Without clear imagery places lack value and meaning, they are not rooted to their location, they have no context, no relationships to adjacent districts. They could be anywhere. In order to provide a clear structure first we need sense.

Secondly, we need to express this sense; so we need imagery – a visualisation of a concept. We need to create physical expression to hold a mental image: we have to visualize the invisible.

'Images have the quality to convey and transport not only quantitative and qualitative information but also emotions and moods. They are just as suitable for making comments with the multiple meanings and are thus a good resource for communication in day-to-day living, because they can constitute a bridge of understanding between different interpretations. Good images can aid orientation, they can bring people together, and they can focus on and inspire

interest in a plausible goal.' (Sievert, 2003)

Our vocabulary is sensory communication. It is why we may use a **communication model** as the theoretical base of our research (Guiraud, 1971) We found this method useful as urbanised or even only build-up area uses the system of signs to communicate ideas by means of *message*. It implies the object – a thing, an idea, a phenomena – spoken about named *reference* and the system of signs used to express the message – *code*.

The essential issue in this theory is *message* transmitted by *emitter* and obtained by *receiver*. Message that relies on a relationship between the *Emitter* and the *Receiver*. It is clear that we need a medium to transmit message.

If the book is the *message* – writer is *emitter*, reader is *receiver*, the story is the *reference* and the letters and language are the *code*. Only those who are able to read and understand the language can get a message. Others can see the message but cannot get it.

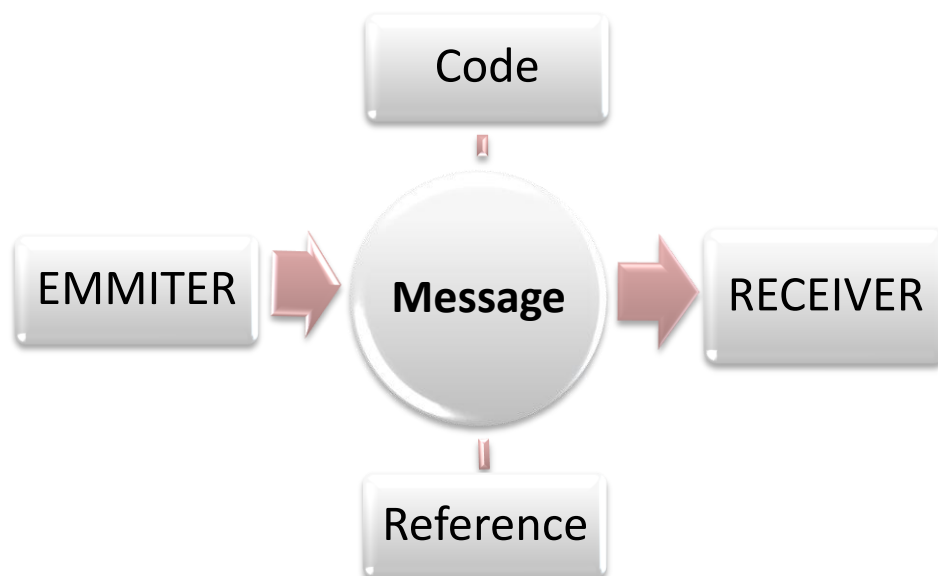


Figure 1. Communication diagram (Guiraud, 1971)

There are six aspects to communication which we can apply to city expansion giving a framework of understanding and to enable us to test and compare particular sites (Mironowicz, Ossowicz, 1997).

The *referential function* (relies on relationship message-reference) gives an objective, verifiable, legible information about subject of the message. Information is essential. In terms of understanding the places we need to be answered important questions such as: *Where do I go? How do I recognise 'arrival' point? How do I enter this part of the city? How do I remain orientated?*

The *emotive function* (relies on relationship emitter-message) communicates the sender's attitude to reference. Express emitter's point of view. Personal, subjective opinion is essential (*'what poet has been thinking?'*) to understand the essence of the message. It describes and defines values. In terms of understanding the place it may express opposite urban values such as:

- public versus private,
- positive v negative,
- open versus closed,
- common versus individual,
- selfish versus altruistic,
- commercial versus social,
- power versus cooperation,
- control versus freedom

and many others.

The *cognitive function* (relies on relationship message-receiver) prompts the receiver's response to the act of communication. Involvement and encouragement to participation is essential for a successful development. It generates an emotional response but the response can change with time influenced by personal familiarisation and through historic change. Popular attitudes change, for example many landmark buildings today were criticised when they were built, and this is also a product of the management of change and a common resistance to change. The general public may have a positive response in contradiction to 'professional' opinion. The whole outcome of communication cannot be created it is a response. However change in cities is inevitable (as change mind is part of change).

The *poetic function* (relies on relationship message-message) shows the formal qualities of message. This represents all aspects of quality; physical form, spatial order, functional relationships, links and transport, services.

The *metalingual (symbolic) function* (relies on relationship message-code) defines meaning of the code. Identify significant codes and meaning is essential. Understanding enriches experience and increases value. Appreciation of a place deepens with knowledge: its history, significant events, possibly just a name, symbols etc but only if they are understood.

The *phatic function* is responsible for maintaining process of communication. 'Staying in touch' is essential. The communication process must be ongoing but it happens at different levels and can be controlled though time. Are the participants involved or have they left the room? When city areas lose this communication they decline.

Designing new layout – searching new framework

New city structure requires a new form. The scale and dimensions prevent the adoption of a single simplified entity. We have to recognise its diversity; we have to accept the city holds many millions of people who have different lifestyles and values. Spatially cities are vast and cannot be observed from a single viewpoint. The city naturally expands under its own momentum but we have to accept human ability to understand only a fraction of the whole at any one time. Human interaction is limited by our ability to understand our position within the city. This is not a criticism but acceptance of reality and we aim to give value to this phenomenon. In pre-industrial nodal cities **hierarchy organised and managed diversity** by locating important functions and therefore interactions in a single compact centre that was essential to city living. Now crucially, **diversity manages hierarchy**. Post-industrial cities experience structural urban growth where expansion generates diversity. If this diversity isn't allowed to develop because the city model prevents it, then the city fails to flourish. How should we manage hierarchy within these diverse areas? Human understanding of cities is best rooted in distinct areas, each identifiable within the city, together with their connections to

other ‘environments’. This reflects a city scale federal organisation which promotes cooperation rather than central control.

We are analysing city structure using the communication tool and need to ask ‘what in this context is the message?’ We have established that it is appropriate to discuss the city as a whole; we need to divide the city into distinct and comprehensible areas or component parts. These components are defined by 4 attributes: **boundary, pattern, hierarchy** and **substance** (Mironowicz, Ossowicz, 1997). In the past Lynch has described city elements forming the city as paths, edges, districts, nodes and landmarks (Lynch, 1960). However we claim that 4 of these elements are basic features whilst *district* represents an area which would naturally be composed of those 4 elements. His analysis is visual whereas our approach is based on semiology. We therefore refer to the city to be formed with ‘components’ each containing physical form but also meaning and values. We therefore refer to Lynch where relevant but aim to broaden the analysis to include all attributes of our ‘components’. These components are parts of a city that can be identified using the following 4 features:

1. *Boundaries* (connected with structures defined as ‘edges’ by Lynch)

Boundaries give components definition. Boundaries can be ‘hard’, formed by strong features that can also create barriers: roads, railway lines, rivers etc These are impermeable and can separate components, often the only way to cross these edges are at single points: bridges or tunnels, alternatively by tortuous long routes. One consequence is to force movement away from pedestrians to vehicles.

However boundaries can also be ‘soft’ with fuzzy edges: for example linear green areas adopted by components to either side of boundaries that meander. Soft edges are permeable and offer stronger links between components.

2. *Pattern* (includes ‘paths’ defined by Lynch)

Pattern is the three-dimensional appearance of the component. It might be generated by the layout of lines such as paths, roads, etc or with the built form that occupies the spaces in between the lines or a combination of both. Components have a consistent pattern within themselves. This takes Lynch’s concept for paths as channels for movement and extends the definition into pattern which encompasses the whole component

3. *Substance* (material and constituents)

Substance is the “flesh on the bones”. Within a component they are the physical elements that build a component. It is important to accept that substance will vary between components but individual components can comprise variation within themselves without affecting their integrity.

4. *Hierarchy* (includes nodes and landmarks defined by Lynch)

Boundaries, pattern and substance are essential physical elements that create components whereas hierarchy gives sense by creating spatial order. Hierarchy gives a sense of place by organising relationships. Hierarchy organises boundaries, pattern and substance.

Boundaries, pattern and substance need to express hierarchy.

Boundaries need to respond to adjacent components, they will have links and entrances that vary in importance. They might express qualities of openness, security, welcome or exclusion. They enable or disable connections. The links form gateways that can be em-

phasised to a greater or lesser degree.

Pattern and substance express hierarchy through their physical form, modifying our perception through the use of street widths, building heights, axis, vistas, architectural form, landscaping, signing, works of art. Understanding of pattern leads us to the idea of important 'points' described by Lynch as 'nodes' which are strategic spots within the component. They are an important tool in expressing hierarchy.

Although this approach begins to articulate hierarchy and therefore an understanding of place, as a physical entity, it doesn't provide the imagery to express its value and meaning. This is done with landmarks.

Generally landmarks are considered to be visual points for orientation. They are used to create and control views, they emphasise place, so their role is limited to their physical attributes. In terms of semiology landmarks have a greater significance in that they transmit essential value and meaning. It is only through landmarks that we can understand places: it is only landmarks that touch our minds (Clerici, Mironowicz, 2009).

As a consequence it is only through landmarks that we can understand cities.

'Mental images control and colour our perception, they can serve to amplify, to promote specific signs of our environment as symbols of dynamic change and to combine them with images of the future, which are based more on a change of meaning than on real and already accomplished structural change. They stand for the 'principle of hope' for a changed world' (Sievert, 2003)

Hierarchy makes sense not only of 'components' but the organisation of components as the new city structure. We understand that individual components will vary in their nature. They may also vary in their importance and therefore connections to other components and to the city overall. Furthermore, groups of components relate to one another in the formation and expansion of cities. In organising cities the components are the initiators for determining the basic structure.

This is the antithesis of relying on communication design as the exterritorial framework for development. If components are arranged first then it is their links that follow naturally within this new context. Their boundaries, pattern and substance as we have seen can allow comprehension within a hierarchy expressed with landmarks.

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