

To know the Path is to rule the System « Frame - Pattern - Circuit analysis (FPC) »

(New) Town development and the significance of "Urban Frame"

Author: Ir. K.A. Buurmans (& Ir. P.G. de Bois), Delft University of Technology

Abstract

Understanding in what way the Urban Frame -- the complete system of streets, squares and parks, the "hardware" of the city -- nurtures the development and extent of the individual's cognitive map is of the utmost importance. This knowledge will help urban designers, planners and politicians getting a better grasp of the town's socioeconomic functioning as it provides a clear and effective image of the dynamic aspects of urban life. The cognitive map, and for example its modern equivalent GPS tracking, gives clues as to how the urban fabric is actually used. It plots the routes taken and the stops made, in other words, it provides insight into its operation, how it facilitates the "software": Circuit -- the functional system of projected routes and nodes -- and Pattern -- all possible destinations, anchor points, landmarks etc.

The complex whole of individual spatial ritual revolves around two basic notions: (1) the need for insight in the construction of the city as a whole, the "context"; and (2) the need for insight in the parts of that city, the position of destinations, programme and "details". Through these two notions individual meets collective consciousness: without context no idea where, without detail no reason as to why. They essentially provide the basis for mobility and the allied need for orientation, navigation, "wayfinding".

Cities have not all developed along the same paths. Furthermore, a great many New Towns and large urban expansion areas have been laid out based primarily on singularly temporal notions. Understanding the manner in which public domain functions in those respective contexts is vital in the light of today's rapid urban developments. It can be expected that in areas where the Urban Frame does not facilitate use and routing to an optimum extent, the development of a person's individual cognitive map and his/her insight in the construction of the city in its broadest sense will be hampered. Implementation of individual and collective Circuit will then not be self-evident and the actual functioning of the public domain in terms of socioeconomic spin-off, Pattern, will be compromised.

The public domain is subject to this frail and uncertain balance between private and public demands. Various collectively used spaces (e.g. shopping centres, station areas, etc.) are only partly embedded in the public domain and, instead, belong to a private domain. However, what binds these private and public areas, places, streets, is a common need for a relevant and recognisable position within the context of the city, the Urban Frame. The significance of a place, its "genius loci", but also its economical viability, comes with the fit between its function and content and to what extent its users are accordingly provided. Within the changing scopes of governance, the question of public domain concerns first of all the Frame, whereas this is precondition for effective implementation of both Circuit and Pattern.

Workshop 4: The urban environment and "quality of place"
(co-ordinator: Steve Tiesdell)

Session 2: Place Identity (Chair: Claudio de Magalhaes)

Thursday 13th of September 2007, 13.45 - 15.15

- **Karen Buurmans: "To know the Path is to rule the System: Frame - Pattern - Circuit Analysis (FPC)"**
- Sarah Anne Lappin: "Promoting a sense of P.L.A.C.E"
- Kathryn Laine: "Constructing City Identity: The Role of the Built Environment in Supporting Urban Place Identity"

To know the Path is to rule the System « Frame - Pattern - Circuit analysis (FPC) »

(New) Town development and the significance of "Urban Frame"

Author: Ir. K.A. Buurmans (& Ir. P.G. de Bois), Delft University of Technology

Exploring the public city

"[...] *All roads lead to Rome. At night my delirium nurtured itself on that metaphor; I felt that the world was a labyrinth, from which it was impossible to flee, for all roads, though they pretend to lead to the north or the south, actually lead to Rome* [...]" ^[1]

More than anything else, the phenomenon of city is about convergence, spin-off, coincidence of people, ideas, flows and goods. Efficiency with regard to use and necessity of means and measures, time, distribution and yield (economy, in its broadest sense) these are the terms that by definition keep this convergence in line, both figuratively and literally. The public domain is thus simultaneously result of and subject to the frail and uncertain balance between the individual and collective demands that underlie this socioeconomic *raison d'être*. Significance of place, *genius loci*, to what extent users are accordingly provided and henceforth socioeconomic viability, comes with the fit between absolute function and content (programme and form, detail) and relative position within the whole of the urban system of streets and places (context).

Assuming (like Nolli in his world-famous map of Rome) ^[2] that public space comprises all collectively significant domains, it then also encompasses those areas that are technically within the realm of private property. Throughout history the issue of public versus private interest with regard to development, exploitation and conservation of space has been an undeniable factor in urban development. A large portion of collective space is and has always been in fact provided by private institutions, often commercial enterprises, resulting in a controlled, parallel and only part-time accessible world which renders the notion of public space ambiguous. This process has only become more evident in the past few decades with the coinage of terms as "disneyfication" and the rapid increase of thematically labelled peripheral attractions. ^{[3] [4]}

However, what binds all these collectively significant spaces is a common need for a relevant and recognisable position within the context of the city. The question of public space, not just within the changing scope of governance, concerns first of all this urban "Frame", this complete system of streets and places, squares and parks, that mediates convergence of use and users by providing connections and governing flows. Keeping the city operable, i.e. functioning within acceptable parameters as it complexity increases and/or individual and collective demands change, calls for continuous re-evaluation (and subsequent adaptation) of its primary assets. At all times the urban system (form) and its operation are judged on their socioeconomic performance, discrepancies and shortcomings will inevitably trigger transformation. ^[5]

The logic of public space

"I will consider the deeds of mankind and its desires to be similar to the workings of paths, planes and bodies." ^[6]

As stated, public space derives its rationale and significance from the convergence of use and users. In order for use and users to "coincide", in other words for a specific place to attract both programme (investment) and public, obviously, there has to be a match: both investing and consuming parties must know that place exists, a prerequisite that can only be met if facilitated by the place itself. Not only must it be physically accessible, embedded in the urban fabric, it must also be traceable and recognisable, coherent in terms of its location and connotation. And finally it must be integrated in the overall routines and spatial rituals of the relevant audience. These parameters that determine the functioning of public space reach far beyond basic aspects of topography and formal design. They enter the realm of topology and cognitive science.

Workshop 4: The urban environment and "quality of place" (co-ordinator: Steve Tiesdell)

Session 2: Place Identity (Chair: Claudio de Magalhaes)

Thursday 13th of September 2007, 13.45 - 15.15

□ **Karen Buurmans: "To know the Path is to rule the System: Frame - Pattern - Circuit Analysis (FPC)"**

□ Sarah Anne Lappin: "Promoting a sense of P.L.A.C.E"

□ Kathryn Laine: "Constructing City Identity: The Role of the Built Environment in Supporting Urban Place Identity"

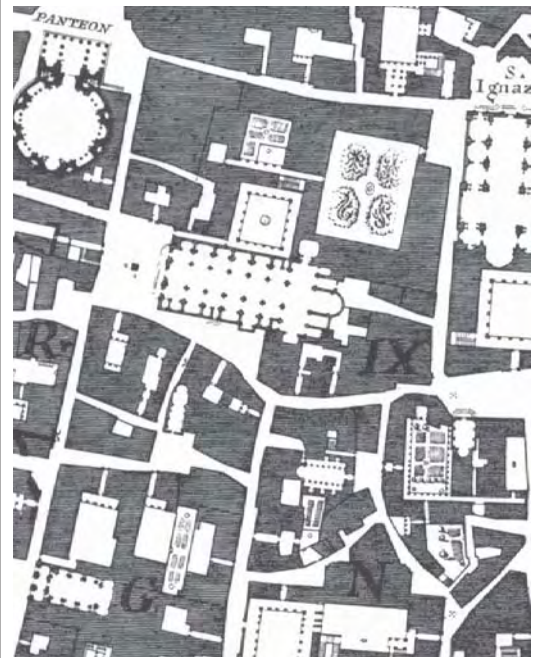
[1]

Presentation and paper are primarily based on the following study:

Karen Buurmans, "The Labyrinth: a design / theoretical research into perception and use of urban structure." Delft University of Technology, 2006 (MSc thesis) ^[1]

[1] Unless stated otherwise, content originates from this work

Fig. 1. Giambattista Nolli, Map of Rome, 1748 ^[2]



[3] [4]

[5]

[6]

1 Jorge Luis Borges, "Death and the Compass." (in: "Labyrinths." 1964, 1970, reprinted in Penguin Classics, 2000)

2 Giambattista Nolli, "La nuova topografia di Roma Comasco." 1748

3 Chuihua Judy Chung / Jeffrey Inaba / Rem Koolhaas / Sze Tsung Leong, "Project on the City 2 - The Harvard Design School Guide to Shopping." Tasschen USA Llc. 2002

4 Maarten Hajer / Arnold Reijndorp, "Op zoek naar nieuw Publiek Domein." NAI Uitgevers, 2001

5 Alexander Tzonis, "Huts, Ships and Botlerracks." Delft University Press, 1992

6 B. de Spinoza, "Ethica." [pars III]

"(H)umanas actiones atque appetitus considerabo perinde, ac si quaestio de lineis, planis aut de corporibus esset." 2

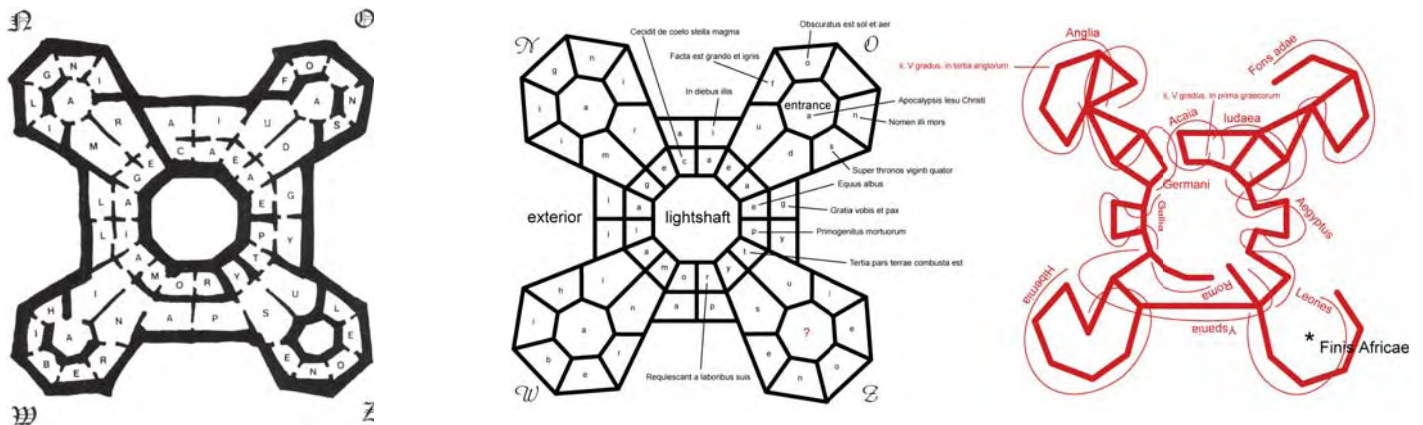
The logic underlying well-functioning public space is herewith defined as twofold: it all revolves around the fit between function and content (programme and form, detail) on the one hand and position within the whole of the urban system (context) on the other. The degree in which an urban element manifests itself self-evidently and identifiably is one of the keys to its success. The complex whole of individual spatial ritual is determined by the extent in which insight can be gained in context and detail. Through these two notions individual meets collective interest: without context no idea where one is, without detail no reason as to why one is there. Location and connotation need to be in accordance. They essentially provide the basis for mobility and the allied need for orientation, navigation and henceforth "wayfinding". [7]

Obvious designations such as "city centre" automatically trigger assumptions as to what to expect, where to find them and what to find there. The better the designative label fits intuitive assumption the more effectively it will find its way into the users' cognitive map. Context and detail, when either one of those fails to correspond to reality, the label loses all significance. [8] [9] Confusion with regard to destination is the result and socioeconomic potential of the place in casu will be compromised. Estrangement doesn't usually work beyond the level of the object and/or the individual. A collective issue such as public space draws from convergence and a common frame of reference. Understanding in what way the Urban Frame adds to this collective picture through nurturing an individual's cognitive map is therefore of the utmost importance.

To know the path is to rule the system

"[...] the mind's first function is to reduce the ambiguity and overlap in a confusing situation and because, to this end, it is endowed with a basic intolerance for ambiguity." [10]

The cognitive map provides essential clues as to how the process of orientation and anticipation on behalf of socioeconomic behaviour is facilitated by the public Frame and, hence, manifests itself in the public domain. Because of the linear lapse of time people organise their world in a sequential manner. They move efficiently through the urban Frame, along selective tracks and routes to suit their specific needs, "Circuit". Naturally, public space needs not only to facilitate these individual courses of action, it also should accommodate their convergence, "coincidence", into meaningful and recognisable destinations that in turn provide hot spots and anchor points for socioeconomic development, "Pattern". The cognitive structure of the urban system, the urban context, can thus be described in terms of the following three notions:



- (1) "Frame", the complete network of streets, squares, public space etc.
- (2) "Pattern", all possible destinations, anchor points, landmarks etc.
- (3) "Circuit", the projected functional system of routes and nodes.

"Frame - Pattern - Circuit" (FPC) aims at providing insight in the process of formation, perception and the actual use of urban structure. It distinguishes between the actual structure of the urban context and the behavioural sequences it facilitates. It visualises where the structure fails to facilitate and where potential for improvement lies. Premises with regard to evaluating the level of facilitation is the mechanism of convergence. Analysis is conducted by a combination of methods. FPC provides the scope for interpretation. [12] [13]

[7]

[8] [9]

[10]

Fig. 2. The Monastery Library [11]

- (1) Frame, building plan and apertures
- (2) Pattern, landmarks and anchor points
- (3) Circuit, resulting routing scheme

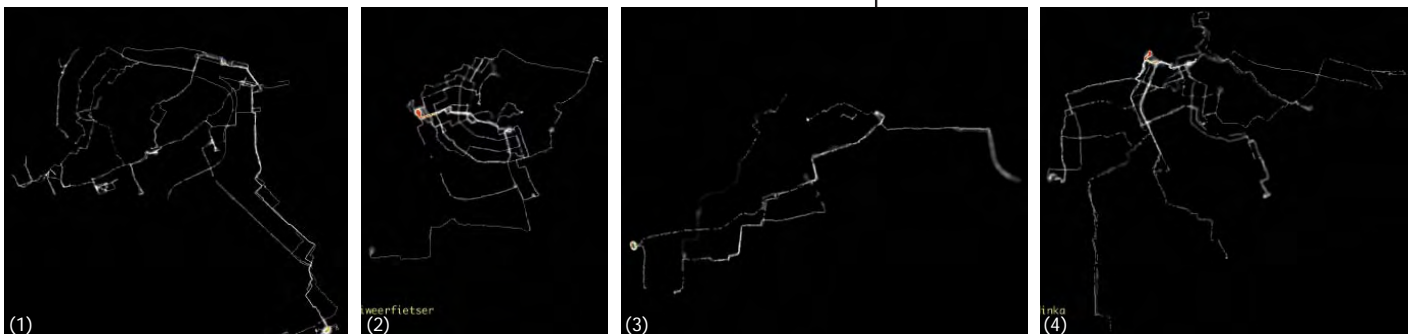
The schemes show the discord between the seemingly logical structure of the building on the one hand and the problematic perception caused by the "labyrinthine" routing on the other. Only when the ground-plan is completely reconstructed, the building becomes comprehensible.

7 Kevin A. Lynch, "The Image of the City." 1960
 8 Umberto Eco, "Function and Sign: The semiotics of Architecture." (in: Neil Leach, "Rethinking Architecture, a reader in cultural theory." Routledge, 1997; 3rd impression 1998)
 9 Robert Venturi, "Learning from Las Vegas: The forgotten Symbolism of Architectural Form." MIT Press, 1972, 1977; Revised Edition 18th impression 2001
 10 Christopher Alexander, "A City is not a Tree." (in: J. Thackara, "Design After Modernism: Beyond the Object." Thames and Hudson, London, 1988 [pp. 67-84])
 11 Umberto Eco, "De Naam van de Roos." Bert Bakker, 1983; 20th edition 1987 [analysis by K.A. Buurmans]

The urban Frame facilitates the connection between the various parts of fabric and townscape, between the physical-spatial and socioeconomic construction of the city in casu. It represents the urban dynamics of that city and it creates opportunities for the genesis of relationships and interaction between the users of the public domain, between both individuals and groups of people regardless of social class or status. The urban Frame exemplifies different ways of life, use and view points and enables (social) encounter. The manner in which the urban frame comes into being, transforms and is laid out, designed (whether it concerns slowly developed historical towns or idealistically plotted new towns) greatly determines the development, functioning and overall quality of public space in each respective case.

Frame can be considered the result of collective public recognition and investment, the "hardware" of the city, whilst Pattern and Circuit compare to individual private interaction mechanisms, the "software" so to say. Frame is conditional for the formation of circuits and the subsequent "coincidence" that ensures an effective implementation of Pattern. Under optimum circumstances this will trigger a self-generating process of investments, the establishment of (private) enterprises and the activation of destinations.

Finding a tool that maps this actual use and allows predictions as to the potential shortcomings and chances regarding the urban Frame in casu is vital. This knowledge will help urban designers, planners and politicians as well as entrepreneurs, investors and inhabitants alike to get a better grasp of the town's socioeconomic functioning as it provides a clear and effective image of the dynamic aspects of urban life. The cognitive map does that and is therefore in theory a useful but in practice extremely labour-intensive example of a method. Alternatives are required. Its modern equivalent GPS tracking, for example, gives similar clues as to how the urban fabric is actually used. It too plots routes taken and stops made, in other words, it provides insight into the Frame's operation, how it facilitates its "software": Circuit, the functional system of projected routes and nodes, and Pattern, all destinations, anchor points, landmarks etc.



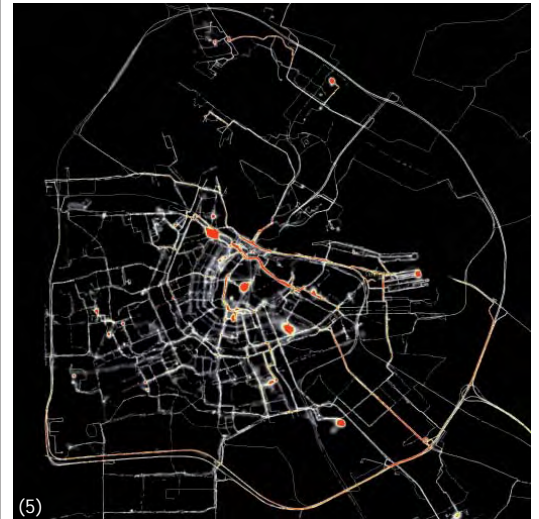
On behalf of an exposition themed "Maps of Amsterdam 1866 - 2000" the project "Amsterdam Real Time, diary in traces" was initiated. The project encompassed equipping a number of inhabitants of the city of Amsterdam with a GPS device that via "satellite tracking" plotted the participants' daily routine with regard to their movements and pauses, correlated to the topography of the city. The resulting map is not the traditional product of a cartographer, but the combined result of the movements of the inhabitants of the city. It is a map that does not consist of houses, streets, squares and parks, but of the actual motions and routes of the research participants. The summation of those individual movements provides a surprisingly coherent overview of the city of Amsterdam and gives clear clues as to the actual use of the town's public space. [14]

It shows the actual use of public space, where people meet, when people meet, it shows their spatial rituals and how overlap in individual routines charges areas with collective significance. It shows exactly how the Frame of the city facilitates the myriad of individual circuits and henceforth how it effectuates the relations between use and users, between destinations, programme, and public. In case of Amsterdam, generally considered to be a textbook example of a well functioning urban system, the resulting image does indeed highlight exactly those streets and places where the city's socioeconomic pattern manifests itself, the "super grid" of lines and axes that gather multimodal movement and attract private investment. [15] [16] [17] But again it is a rather impractical method of research as it draws on the participation of a great number of subjects ...

The FPC tool has been tried and tested for several years both within and beyond the scope of Atelier Almere. It has been used by students and professionals alike, its most notable practical application so far being the Spatial Metro project, an European Community INTERREG III-B initiative (case study on behalf of the city of Norwich). [12] [13]

Fig. 3. Amsterdam Real Time 2002 [14]

- (1) Track of participant named Sanne
- (2) Track of Irene ("good weather" cyclist)
- (3) Track of Jouke
- (4) Track of Adinka



(5) Compilation of all individual tracks

"Every citizen of Amsterdam carries an invisible map of the city in his head. The way he moves through the city are determined by this mental map. Amsterdam Real Time 2002 visualizes these maps."

At this very moment, the Urbanism Department of the Faculty of Architecture, Delft University of Technology, is experimenting with similar applications to add to its array of research and analysis tools.

[15] [16] [17]

12 <http://www.atelieralmere.nl>

13 Spatial Metro, "A Network for Discovering the City on Foot." European Community Initiative INTERREG III-B, <http://www.spatialmetro.org>

14 Waag Society, "Amsterdam Real Time, dagboek in sporen / Amsterdam Real Time, diary in traces." 2002, <http://www.waag.org/project/amsterdamrealttime>

15 Akkelies van Nes, "Spatial conditions for a typology of shopping areas in Dutch cities." TUD, 2004 (paper)

16 Victor Joosten / Akkelies van Nes, TUD 2005 (paper)

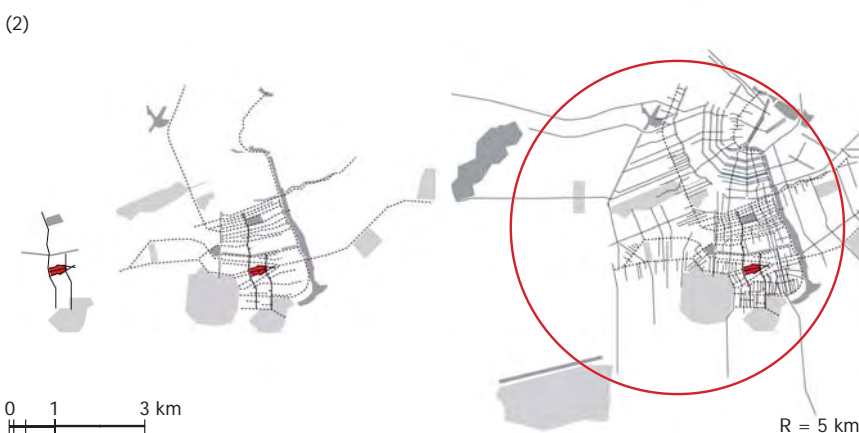
17 Stephen Read, "Flat City: a Space Syntax derived urban movement network model." TUD, 2005 (paper)

The urban Frame ... framed

"The graph eliminates the flesh and blood, as represented by the sinuosities and the flows ... for what is left is the skeleton. As in any skeleton, there are links joined at specific places ... By reducing the complex transportation network to its fundamental elements of nodes & links, it is possible to evaluate alternative structures." [18]

Topology [19] [20] refers to those system characteristics that are not exclusively tied to specific shape and form but rather to functioning and structure (operation). In an urban context topology relates to the fabric's relational parameters, e.g. streets and connections (paths, edges) on the one hand and crossings, destinations and anchor points (nodes, vertices) on the other. These parameters can be used to derive less computational aspects of townscape such as flows, values and elements of concentration, recognition and activity. Whereas topography perhaps determines the basic shape of urban settlement, the more complex the town as a whole gets the more important the topology of the system becomes: destinations, landmarks, nodes (Pattern) and lines of movement, routes (Circuit) are the motors behind its dynamics.

Every movement through the Frame of the city is registered in the brain and becomes part of a person's general knowledge base concerning public space, both with regard to general construction and specific anchor points. But there is a limit to the sort and amount of data that is usually stored. For example, it becomes difficult to remember more than three turns away from one's starting point: "here, you go straight on, the second street to the left and than at the local grocery store to the right." At that point one is usually advised to ask again. How this mechanism affects a person's effective (cognitive) range can be gleaned from the "1st, 2nd & 3rd order" or "Three-Step" analysis method.



1st, 2nd & 3rd order or Three-Step analysis visualises the connected Frame in three turns from point of origin. When the depth map is correlated with an actual cognitive map (usage reach, in this case of a 10 to 15 year-old person living in the Berlage quarter in Amsterdam) it appears they virtually seamlessly coincide. 1st, 2nd & 3rd order or Three-Step analysis is a method to analyse the Frame from an inductive, bottom-up, point of view and it gives a clue as to how the Frame facilitates the area a person has at its cognitive disposal. [21]

[18]

"General topology, or point-set topology, defines and studies some useful properties of spaces and maps, such as connectedness, compactness and continuity. Algebraic topology is a powerful tool to study topological spaces, and the maps between them. It associates "discrete", more computable invariants to maps and spaces, often in a functorial way." [19]

"Topological geometry is "qualitative" and conserves only the most general properties of space. It is more general than projective geometry [...] which conserves only straight lines, which is in turn more general than Euclidean geometry, which is metric and conserves all the features of space relevant to our everyday perception." [20]

Fig. 4. Cognitive map (usage reach) of a boy from Amsterdam Zuid, Berlage, compared to Three-Step or 1st, 2nd, 3rd order analysis [21]

(1) Cognitive map (usage reach), R = 5 km
(2) 1st, 2nd, 3rd order analysis, R = 5 km

The schemes show how much area is disclosed within "turns" from origin. The correlation between reach and surface of the cognitive map and those of the Three-Step exercise is typical for healthy (historical) urban systems. It is a logical consequence of the way the urban frame facilitates the human capacity and process of navigation.

- railway
- private transport (car)
- public transport
- pedestrian & bike routes
- home
- immediate neighbourhood, street
- family, friends
- retail, shopping, cinema
- cafe, recreation area, playground
- school

Some specific destinations, landmarks: (a) Amsterdam Zuid, (b) Bosplan, (c) Sloterpas, (d) Olympic Stadium, (e) Artis Zoo, (f) Central Station, (g) Canal Belt, (h) Sarphatipark.



18 J.C. Lowe / S. Moryades, "The Geography of Movement." Houghton Mifflin, Boston, 1975 (in: Stephen Marshall, "Streets & Patterns." Spon Press, London / New York, 2005)

19 <http://en.wikipedia.org/wiki/Topology>

20 Stephen Read, "Function of urban pattern. Pattern of urban function." Publicatiebureau Bouwkunde, Delft University of Technology, 1996 (doctoral thesis) [pp. 23]

21 Peter de Bois, "STOA-Method for Urban Design and Analysis." Delft University of Technology, 1995

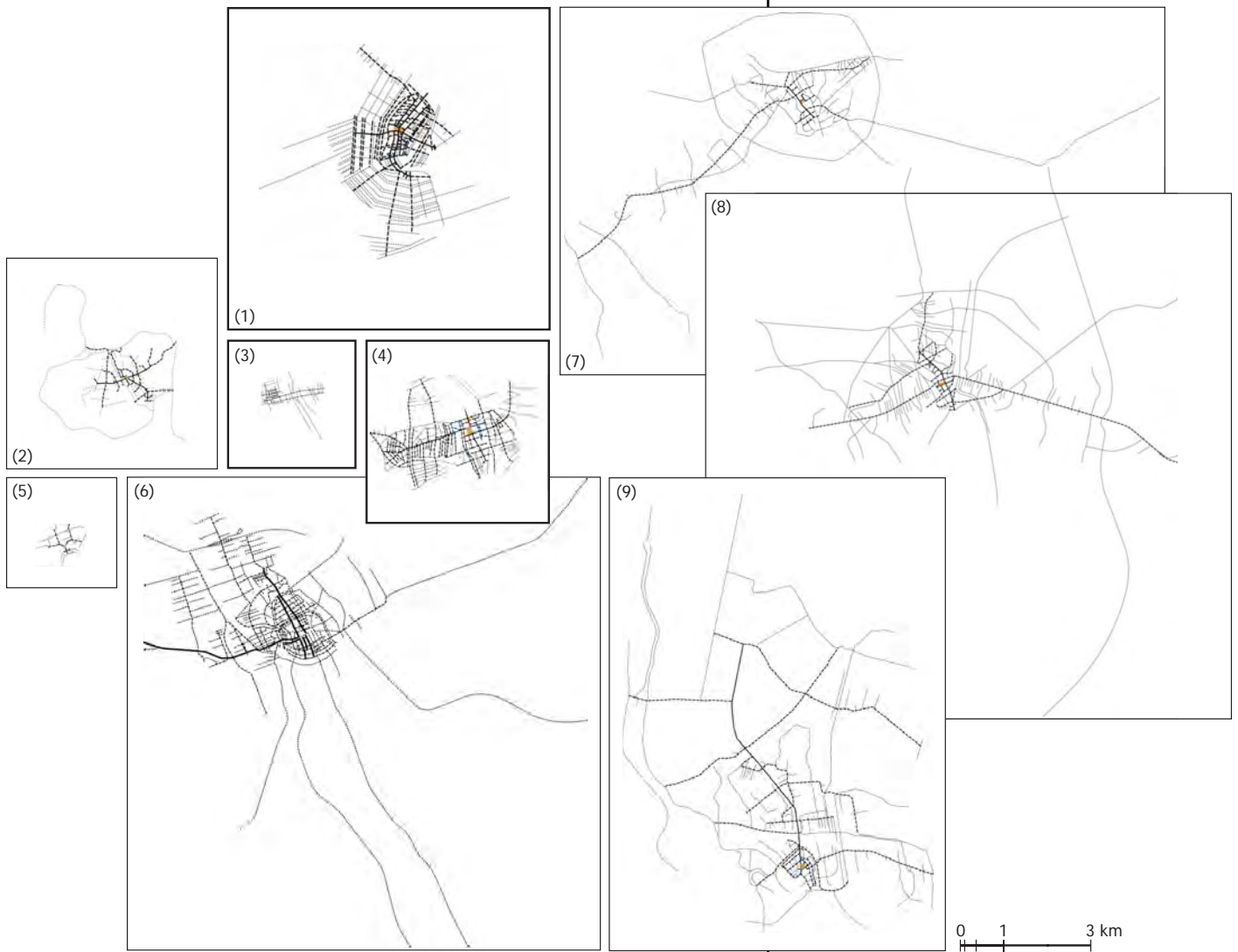
1st, 2nd & 3rd order or Three-Step analysis is a relatively simple “bottom-up” analysis tool to determine topological depth and reach of a specific element in its urban context (local integration) and simultaneously gain insight into “connectivity” and typology of the urban fabric as a whole. [22] [23] Severe “asymmetry” and/or lack of depth with regard to range in general imply shortcomings in the urban Frame and a potentially inefficient or unsustainable situation. Mapping different kind of Pattern elements provides information as the correlation (or lack thereof) between various kinds of programme and the potential spin-off they might generate. The method bridges the gap between bare Frame analysis and spread of Pattern and allows speculation as to the way the town’s topology sustains an individuals cognitive map.

A comparison between the way old and new market squares are positioned in their respective urban contexts clearly shows a discrepancy in what is considered vital to a collective focal point. In older, “organically” grown, towns market squares are generally very well embedded in the urban system. The collective nature of the market square is reflected by its central position and wide reach due to the fact it is often linked to the longer lines that cut through the town’s territory and therewith carry socioeconomic significance. The mid 20th century rise of individual mobility, however, inspired a modal-split based division of traffic flows and consequently of public space to the point that the city in casu fragments, both spatially and functionally. The market square no longer represents the absolute centre where everything naturally converges.

There obviously exists correlation with Space Syntax, a computer programme that algebraically calculates the urban system’s (global) integration parameters and one of the analysis methods also used by the authors of FPC. Main difference is the fact that Space Syntax reckons with straight line(segment)s rather than points of origin and in order to achieve accuracy it requires each and every line of the urban system to be drawn. 1st, 2nd & 3rd order or Three-Step analysis is in that sense a much simpler tool. However, general premises is comparable. [22] [23]

Fig. 5. 1st, 2nd, 3rd order / Three-Step analysis of several Dutch city squares: [24]

- (1) Dam, Amsterdam
- (2) Het Rond, Houten
- (3) Grote Markt, Almere
- (4) Schouwburgplein, Rotterdam
- (5) Stadhuis, Zoetermeer
- (6) Vismarkt, Groningen
- (7) Raadhuisplein, Eindhoven
- (8) Markt, Apeldoorn
- (9) Markt, Gouda



A market square is an example of a place that enables a considerable differentiation in use, attracts a large variety of users and usually occupies a very central and recognisable position in the urban fabric, all during the course of centuries. Its “logic” is a fundamental one, its raison d’être convergence per se. The older cases amongst above comparison show that by their very reach alone. Their Frames facilitate this principle because it is what shaped them.

22 Bill Hillier, c.s. “The Social Logic of space.” / “Space is the machine: a configurational theory of architecture.” Cambridge University Press, 1984 / 1997
 23 Stephen Read, “Function of urban pattern. Pattern of urban function.” Publicatiebureau Bouwkunde, Delft University of Technology, 1996 (doctoral thesis)
 24 Peter de Bois, Karen Buurmans, Frank de Josselin de Jong, “20 pleinen en parken in Apeldoorn.” 2007

Genesis of urban Frame

"The landscapes that are sometimes disclosed are those of the mind. And like the mind, the dream and the city, they are kaleidoscopic and labyrinthine." [25]

An "organically grown" townscape can be seen as the sum of a large number of lower scale (inductive or "bottom-up") developments implemented according to their own generic logic but without an overall scheme. Urban planning, on the other hand, aims at providing such a (deductive or "top-down") scheme starting from the highest relevant level of scale. Both can be determining starting points for either the tabula rasa development of a city as a whole, the infill of its individual parts and quarters or the transformation of its existing fabric. However, despite the fact both approaches result in a composition and layering of (large numbers of) individually logical interventions, neither of them guarantees a clear and comprehensible town plan. In fact, each of them taken to its extreme results in a distinct type of labyrinth:

(1) the inductive labyrinth, a "bottom-up" developed fabric that can be grasped inductively to a certain extent, but is lacking any apparent overall logic (e.g. medieval city centres, Arabic Medinas, informal networks of spaces and movements etc.). The inductive labyrinth poses a challenge because it assumes a level of "inside information" not inherently present in its users. Its multi-layered complexity, the result of temporal and spatial coincidence, provides a myriad of seemingly random choices: everything relates to everything else without an obvious (i.e. sequential) logic or "hierarchy". The resulting congested townscape provides so many options and so few apparent discriminants and pointers that differences and variations lose their guiding significance. There are no exceptions where there is no rule.

(2) the deductive labyrinth, a "top-down" superimposed fabric that is functional from a deductive point of view but that loses its coherence and apprehensive qualities once navigated from within (e.g. New Towns, large urban expansion areas, etc.). The deductive labyrinth poses a challenge because it forces upon its subjects to consciously pass through every level of scale in a strictly serial manner without loops or shortcuts. Its strict singularity, the result of functional and spatial segregation, provides only one option and rules out convergence, coincidence. It results in a townscape so devoid of coherence and anchor points, that neither programme nor users will be able to find their way. Their efforts and investments will remain scattered throughout the system without (generating) the necessary "coincidence". There is no "spin-off" where there is no overlap.



[25]

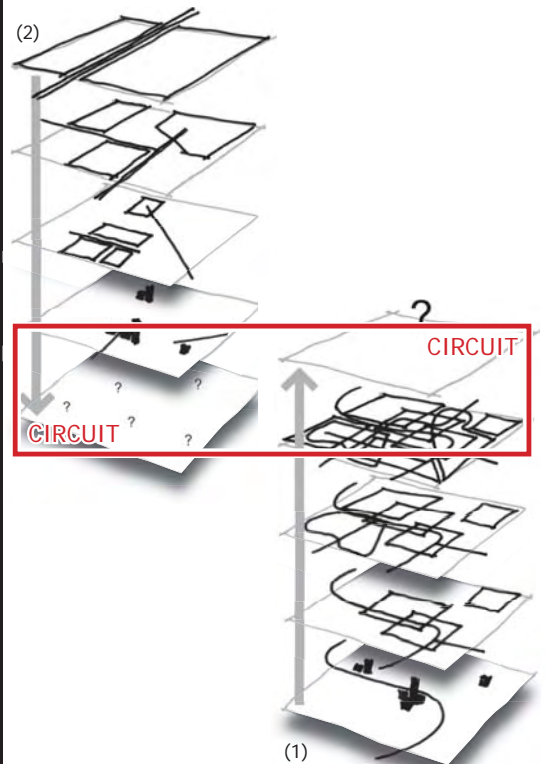
Fig. 6. The urban labyrinth [26]

- (1) the inductive labyrinth
- (2) the deductive labyrinth

serial, deductive, top-down



dominant FRAME / following pattern



following frame / dominant PATTERN



paralle, inductive, bottom-up

Fig. 7. Toulouse - Le Mirail, plan by Team X [27]

- (a) Existing medieval town of Toulouse, a classic example of an inductive labyrinth, a parallel Frame
- (b) Candilis and Woods's (Team X) design for an urban extension of about 100.000 inhabitants, perhaps the most extensively realised example of a deductive labyrinth, a serial Frame.

25 Aldo van Eyck, "Pavilion Arnheim: a place for sculpture & people." (in: J. Donat, "World Architecture 4." London, 1967)

26 Karen Buurmans, "The Labyrinth: a design / theoretical research into perception and use of urban structure." Delft University of Technology, 2006 (MSc)

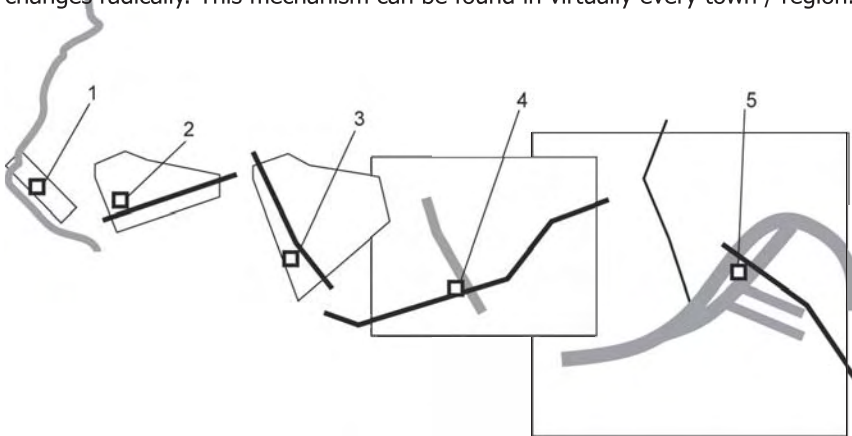
27 Spiro Kostof, "The City Shaped." 1991, [pp. 91]

The inductive labyrinth

"[...] I [...] find the most joyful delight in unravelling a nice, complicated knot. And it must also be because, at a time when as philosopher I doubt the world has an order, I am consoled to discover, if not an order, at least a series of connections in small areas of the world's affairs." [28]

The city of Amsterdam shows an effectively functioning urban Frame. Situation of Pattern is based on the summation of individual Circuits which closely follow those elements of the urban fabric that interconnect the top-down "super grid" and the bottom-up district and neighbourhood fabric. The gradual development of Amsterdam in the course of time and the continuous process of transformation has resulted in a Frame that thus optimally mediates between external accessibility and internal connectivity. Every phase of expansion and transformation was building on and extrapolating from the then existing fabric. Changes are therefore not just about simply adding to the Frame but explicitly also about (re)evaluating the position of each and every element, line or location, whether preexisting or new, within the network as a whole.

The city developed a Frame that to this day is perfectly capable of simultaneously comprising intentions and functions of overlapping, contrasting, competing and/or complementary nature. A series of urban axes deeply rooted within the system and sorting effect throughout all levels of scale are where convergence occurs in every meaning of the word. The illustrations on the following page show how these axes are typical in the emergence of an inductive network. Case-study is the development of Rotterdam from its earliest phase around 800 AD till the present day. It indicates how each phase is determined by a dominant orientation along certain Frame lines that guide the town's evolution and expansion before it reaches a pivoting point and direction changes radically. This mechanism can be found in virtually every town / region.



Preliminary stages in the development of a city can still be detected by means of the resulting parallel framework that reflects foregoing stages in the organisation of the townscape. The lines that performed a dominant position in the preceding phase adapt to the new situation and undergo a functional-spatial transformation in correspondence to their new role and position within the Frame of the city. However, regardless of ongoing expansion and transformation these predominant axis of programme and disclosure (Circuit) largely remain vital to their immediate territory and level of scale. The overall result is this already mentioned "super grid" which spreads surprisingly evenly throughout the fabric (Frame), interconnecting its separate parts and main destinations (Pattern). Programme, both existing and new, usually follows.

The axes concerned here accumulate their privileged position over time, on top of the general needs a local street has to meet. From the start, these lines fit territorial requirements of connectivity, continuity and reach and therefore facilitate additional super-local function. Reconfirmed time and again they become firmly embedded within the town's physical, economical and psychological structure. Having stood out from the rest of the frame, having established themselves as adequate carriers, these lines and axes correspond to a generic need for and sense of distinction, signification function and scale. They play a vital role in the process of recognition and identification, both from individual and institutional point of view. As such they provide main means for orientation and "wayfinding" in a(n increasingly) complex environment. [31]

[28]



Fig. 8. Position of retail in Amsterdam centre [29]

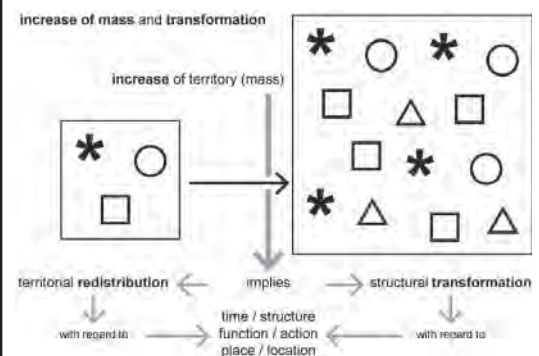


Fig. 9. Urban growth & relocation of Pattern [30]

Schematised example of how a particular programmatic element may relocate with every transformation phase as a result of keeping up with shifts in significance of axes caused by increase of territory and subsequent change of focus in terms of development and investment. It concerns institutional and commercial Pattern alike.

[31]

28 Umberto Eco, "The Name of the Rose." Secker & Warburg, 1983, 1992

29 Victor Joosten, "Shops and Blocks, how block typology influences the natural movement economic process, Berlin and Amsterdam," Delft University of Technology, 2005 (MSc)

30 Peter de Bois, "STOA-Method for Urban Design and Analysis." Delft University of Technology, 1995

31 Robert Venturi, "Learning from Las Vegas: The forgotten Symbolism of Architectural Form." MIT Press 1972, 1977; Revised Edition 18th impression 2001

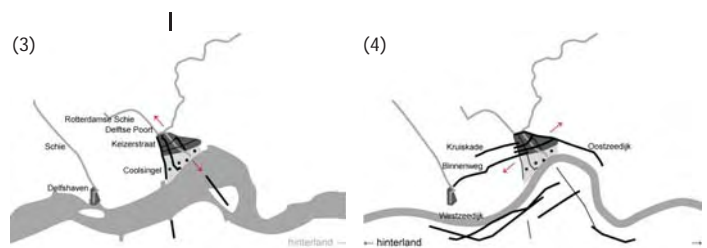
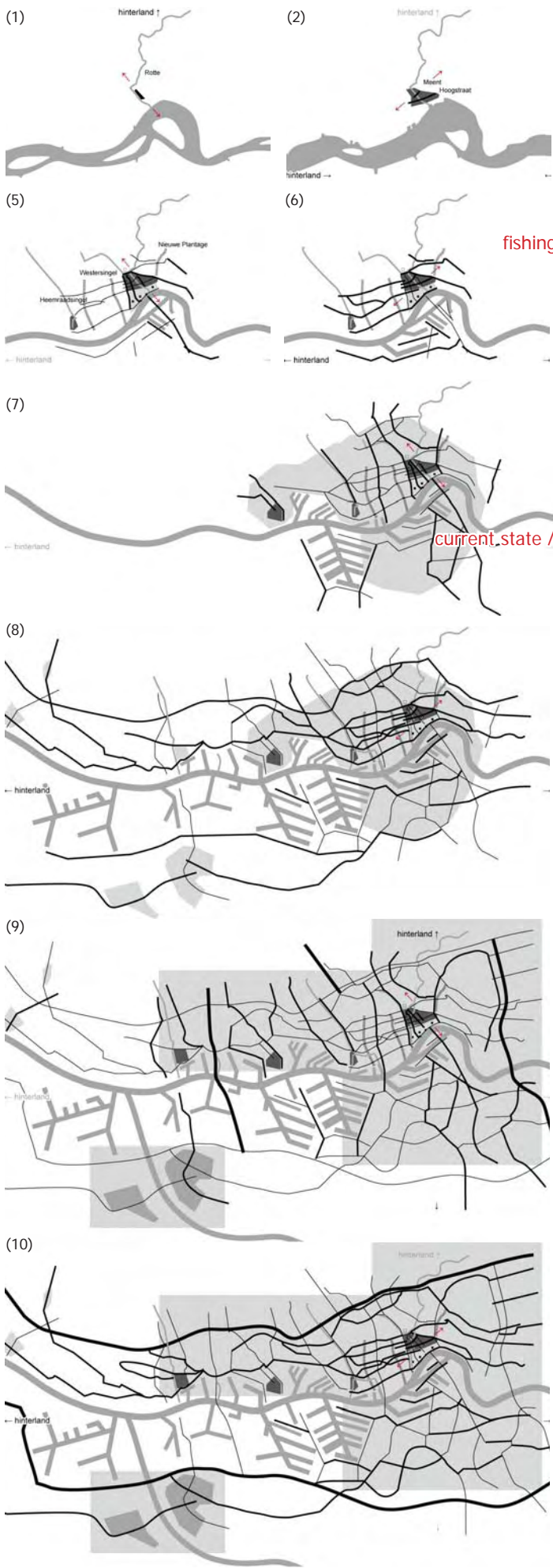


Fig. 10. Frame analysis of Rotterdam region [32]

fishing settlement (1)

(11) the local transformation processes of The Hague, Delft and Rotterdam have reached a level that surpasses their local contexts. The extended A4 highway directly connects the Randstad with Antwerp which provides the opportunity to "downgrade" the existing A13 and give it function more appropriate to the level of the Randstad South Wing.

current state / prognosis (11)



The described bottom-up or inductive development produces an environment with irrefutable though often unintended labyrinthine features. Labyrinthine in the sense that some structural order underlies the positioning of individual elements, even though this order does not reveal itself instantly to the beholder. Labyrinthine in the sense, thus, that there may occur a discrepancy between the cognitive and topological structure of the fabric, i.e. between the actual Frame of this situation and the perception and operation of this Frame.

In accordance to the cognitive notion [33] the inductively established urban Frame can indeed be regarded a "parallel" system, both in terms of its operation and its physical manifestation. It allows different individual sequential circuits, flows, collective socioeconomic processes and subsequent spatial interventions to follow their own courses, literally along parallel lines. The flexibility and intrinsic capacity for transformation a Frame like this possesses is directly related to the way the streets of the system are mutually interconnected. Naturally, in order to facilitate the intrinsic variety of needs certain differentiation in typology of streets is also important. [34] Based on the specific properties of the fabric and the socioeconomic demands that come with urban development to maintain optimum balance the Frame will be subject to a certain type of intervention. Assessment on the basis of its "cognitive structure" leads to the following: [35]

Structural characteristics: **Type of transformation / desirable intervention:**

FRAME	PATTERN	CIRCUIT	everything is fixated, no real transformation whatsoever (1)
frame	PATTERN	CIRCUIT	"optimisation", reprofiling & capacity boosting (2)
frame	pattern	CIRCUIT	relocation of programmatic elements, functions (3)
FRAME	PATTERN	circuit	rerouting / diversion of people & traffic movement, flows (4)
frame	pattern	CIRCUIT	"Urban Acupuncture" (5)
frame	PATTERN	circuit	superposition of new structure and routing, "intranet" (6)
FRAME	pattern	circuit	redevelopment, e.g. of problematic Post-War quarters (7)
frame	pattern	circuit	all things variable, demolition, eradication, "tabula rasa" (8)

(**BOLD CAPITAL** = fixated, unquestionable, dominant / regular = variable, questionable, following)

The Frame's operation is determined by the networks of use associated with programme elements throughout different levels of scale. Where these networks overlap the system is charged with extra potential, sometimes to the point of congestion. Subsequent transformation and/or expansion may urge elements to relocate. Whether relocation is an option depends on the Frame's status quo, the social profile, the type of element and the contextual improvements in terms of accessibility and spin-off provided by the new situation. Whilst some inductive networks shift or distort, others will stay in place, sustained by collective memory and consequent value. As far as the Frame goes, in principle there can be distinguished three dominant prerequisites, physical conditions, it needs to harbour: (1) parallelity, (2) connectivity, and (3) continuity.

The deductive labyrinth

"And Daedalus was puzzled how to find
The secret ways of what he himself design'd." [36]

Even though the brain processes information in a parallel manner, the translation into conscious thought and effective action inevitably results in a serial flow. After all, things are undertaken in a sequential manner (e.g. conscious thought, communication and action) require consecutive steps. In contrast to the parallel process of long-term development in "regular" cities, the initial set-up of rationally planned, rapidly developed areas is thus per definition serial in nature.

As opposed to the inductive labyrinth the deductive labyrinth is almost always the result of "top-down" implementation of some sort of clear and strict overall notion. Interpolating from this overview, dividing plan and territory into ever smaller, both programmatically and spatially defined, bits and pieces, the resulting organisation cannot prevent a lack of coherence and intuitive signification when reasoning back outwards from a lower level of scale. In combination with the artificial and abstract quality of the overall notion, the model and conception of society that underlies the planning strategy and that just like every model is doomed to only cover part of a far more complex reality, as well as the intrinsic aim to prevent known spatial conflict, this produces a sequential logic that is singular, one-way and therefore, inevitably, insufficient.

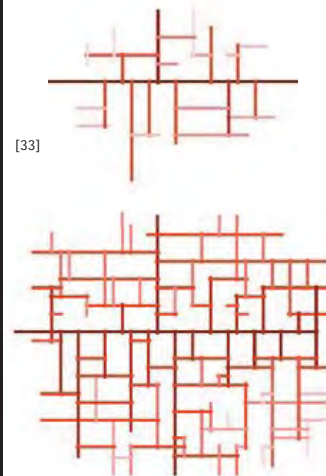
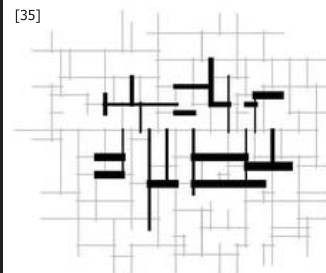


Fig. 11. Spatial and typological differentiation [34]



Above schemes visualise the changing significance of individual paths within an expanding network. The centre images plot typological differentiation based on isovists.

[36]

33 http://en.wikipedia.org/wiki/Parallel_processing

34 Egbert Stolk, "Onderste Boven." Delft University of Technology, 2005 (MSc)

35 Karen Buurmans, "The Labyrinth: a design / theoretical research into perception and use of urban structure." Delft University of Technology, 2006 (MSc)

36 P. Ovidius Naso, "Metamorphoses." 1st century AD [Book the Eight, 166-68] (translation: Sir Samuel Garth, John Dryden, et al, 1717)

"[...] ita Daedalus implet
innumeras errore vias vixque ipse reverti
ad limen potuit: tanta est fallacia tecti."

Apart from the limitations of the planning process an sich (time and governance) and in line with the present-day virtually autonomous traffic machine a major factor is that planned situations and New Towns in particular come into existence based on the functionalist premises that places and routes are tailor-made for their respective functions. As far as the facilitating network goes, at best they are equal and complementary, adequate according to their respective ideological and physical concepts, but without qualitative difference. After all, there is only one option, there are no alternatives. This and other spatial conflict-avoiding strategies prevent (all, not just the undesirable) natural flows and relationships from emerging, from exercising their self-generating effect, to the point that the townscape in casu fragments, both spatially and functionally.

Examples of deductive urban contexts in Holland are large scale post-war expansion areas (1960th, 1970th), extensive suburban (1980th, 1990th) and several prominent New Towns. The New Town of Almere (1969) for example, which has functioned both as case-study and test case, is a particularly interesting case of a serial urban Frame. From its conception it has rapidly developed according to the original plans. Today, the town houses about 180.000 inhabitants, spread over a threesome nuclei. Further growth to 350.000 inhabitants has recently been agreed upon. Whereas this additional programme was not but sketchily incorporated in the original plans it raises questions as to the consequences for the operating spatial model and the quality of existing fabric, both already experiencing the limitations of their conception anyway.

Between utopia and non-place

"Things fall apart; the centre cannot hold;" [37]

If the "bottom-up" organically grown (medieval) city centre is to be found on the one side of the labyrinthine spectrum than the ultimately "top-down" planned new town can be found on the other. Though New Towns come in all shapes and sizes they can roughly be divided into three groups: (1) outpost, (2) colony and (3) overflow. Despite obvious differences with regard to purpose their main form and structure characteristics always are the result of a clearly defined strategy based on (a) time - short term planning process - (b) technology - "economy" & production - and (c) ideology - sublimated overall social notion. And finally, of course, the aspect of situation (d) although it is often actually the relative or even absolute absence of a facilitating underlayer with (historical) anchor points that plays part in location and design.

	outpost	colony	overflow
time	Richelieu, Rennes etc. in France	all American cities like New York and Washington DC	New Delhi, India
technology	Roman military "castra"	the "Spanish Law" towns from the time of Spanish and Portuguese supremacy	New Towns in England and Scotland
ideology	New Lanark and other settlements directly connected to some kind of industrial production process	Ancient Greek "Neo Polis"	Zeeveld, Almere, Eijlstad and the Noordooipolder villages
situation	border conditions	frontiers	productive environment
			healthy environment
			recreative environment

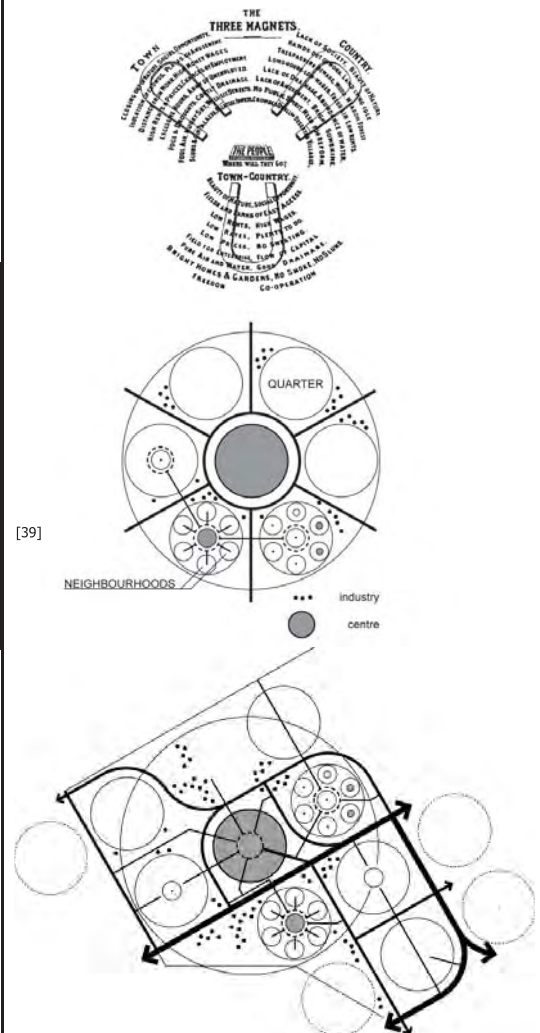
It is an idée fixe to expect it is possible to create a complete city from scratch. No urban concept or model can capture all aspects of urban life. The fact that the notion "urban" has proven almost impossible to define is testimony in itself. New Towns are, paradoxically, imperfect and incomplete by default. To attain the spatial stratification and functional complexity so characteristic of an integral urban system transformation is inevitable. Analysis based on the FPC template however provides the means towards generating urban Frame.

The city of Almere falls in line with the Dutch tradition of empoldering and creating new land. As is the case with most New Towns, Almere is situated a stone's throw from a larger, older city on which it is to a certain extent functionally and socioeconomically dependent. Although planned on new land Almere clearly also falls in the "overflow" category. It is to provide a green and spacious living environment for the ever expanding population of Amsterdam. The overflow motive combined with the colonisation aspect and the mixture of ideological and technocratic notions led to a very pragmatic urban strategy:

- (1) a top-down instigated physical-spatial organisation of the urban Frame
- (2) a deliberately conflict avoiding singular spatial stratification
- (3) an equality oriented social concept
- (4) an alleged tabula rasa setting, virgin land
- (5) lack of historical context in terms of preexisting structures

Fig. 12. Almere, amalgam of different models:

- (1) Garden Cities of Tomorrow [37]
- (2) the segmented city [38]
- (3) schematic compilation



Several pre-existing ideological theories that contributed to the resulting town plan of New Town Almere:

- (a) "Garden City", but without required autonomy;
- (b) "Green Belts" that due to the combination with infrastructure separate rather than connect;
- (c) "Polycentrism" that indeed focuses on separate spatial entities but largely omits the intrinsic interconnections;
- (d) "Neighbourhood Unit" concept that appears more of a commercial template than a social one; and
- (e) "Segmented City" in the most literal sense.

37 Ebenezer Howard, "Garden Cities of To-Morrow." 1902

38 W.F. Geyl, "De Gelede Stad." 1947

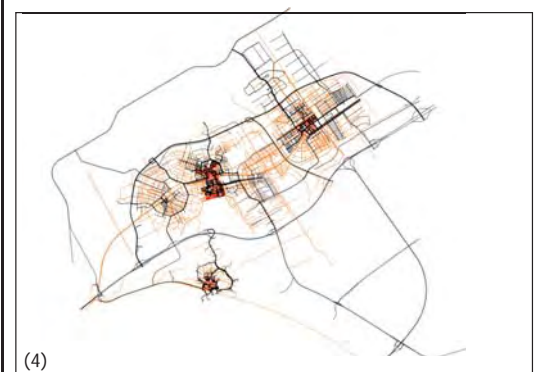
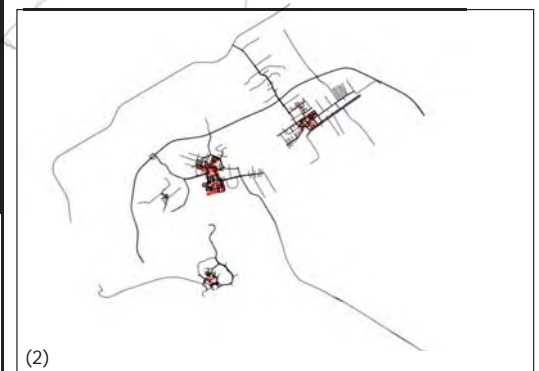
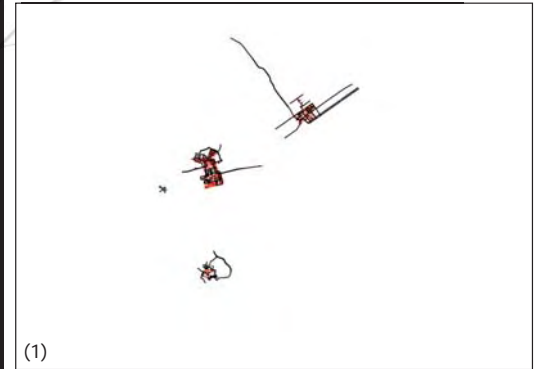
39 William Butler Yeats, "The Second Coming." 1921



Fig. 13. 1st, 2nd, 3rd order / Three Step analysis

- (1) accessibility (sub)centres by car, 1st step
- (2) accessibility (sub)centres by car, 2nd step
- (3) accessibility (sub)centres by car, 3rd step

The centres are insufficiently connected to the lowest level urban fabric. The internal relation between the four centres is virtually absent and connection from one to another and to other parts of the city in general is only available by passing through the entire infrastructure hierarchy. Over all, there is a severe lack of accessibility and connectivity. The system is only accessible from outside in.



(4) accessibility centres by car and bike, total



Fig. 14. 40 households in Almere Buiten ^[40]

- (1) routing by bike, (2) routing by car

The overall plan for Almere is a hotchpotch of sometimes only partially adopted ideologies, in principle each with their own merit yet with problematic consequences as well. ^{[38] [39]} And because the accompanying planning process was marked by efficiency and technological feasibility, good ideas and intentions of the planners and designers in spite, the town that emerged bears the undeniable limitations of a singularly pragmatic and outdated spatial strategy with as its most pregnant trademark stringent functional separations on virtually all levels of scale. The factual problems of the city are corresponding: the city is a collection of fragments, enclaves, a series of unilaterally connected districts and neighbourhoods that are decidedly introverted, each separately linked to the highway but not to each and therefore comparable to "gated communities".

Despite the fact the city is barely thirty years old, social and physical wear are already beginning to take their toll on the older districts and neighbourhoods. Since every place is equal with regard to (lack of) facilitation the argument of location and context of an individual dwelling as distinguishing qualities loses validity. Consequences are corresponding: social relationships and the accompanying spatial rituals are only seldom initiated and if they are often only on a temporal basis. Investments in and transformation of existing fabric are put off because rules are stringent, contextual reasons absent and, financially, moving is the more feasible option. Resulting volatile settling habits bring forth socioeconomic stagnation and rapid segregation. The public domain is left void and uninspired due to the lack of involvement and commitment.

The city really is a top-down labyrinth. Individual identification with the town as a whole and with its separate parts is limited. To cut a long story short, there is a severe imbalance in the way different elements in the city are used by its inhabitants. The highway and the ring road figure disproportionately in intraurban movements whilst significant programmatic anchor points such as shopping centres and recreational destinations like parks and water areas barely register and are in fact underused. The socioeconomic spin-off the city needs to develop and maintain itself is not facilitated and loses momentum immediately upon try. The excess of public domain, both in terms of parks, squares and infrastructure, is a heavy burden on the Municipal budget without yielding obvious qualitative (or quantitative for that matter) spin-off.

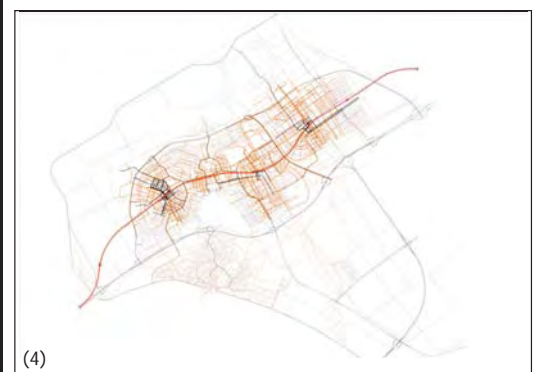
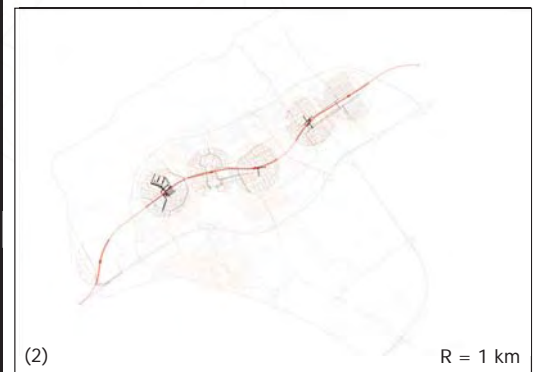
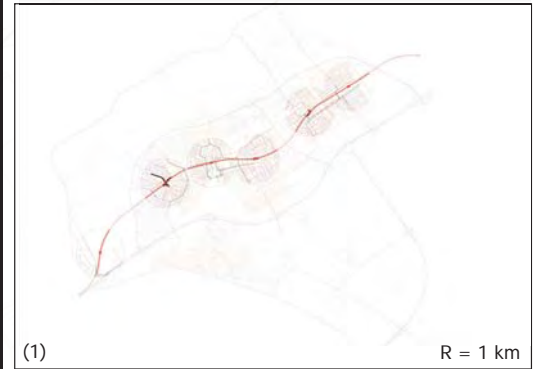
40 Carloes Pollemans, "Suburb+." Delft University of Technology, 2004 (MSc)

Fig. 15. 1st, 2nd, 3rd order / Three Step analysis



- (1) accessibility train stations by car, 1st step
- (2) accessibility train stations by car, 2nd step
- (3) accessibility train stations by car, 3rd step

The train stations are badly connected to the urban frame, especially for cars. There hardly is a middle scale frame with long(er) lines that make the intermediate connections causing a loss of urban potential. In comparison, the bike network is much more extensively implemented, but overall there is barely any interrelation, "coincidence" and overlap between the four main modalities.



Consequent and rigid enforcement of infrastructure partition prevents the different traffic modalities (car, bus, train, bicycle and pedestrian) from meeting causing different flows to require different cognitive maps that only sporadically overlap. Those spaces where flows finally converge are vast empty spaces dedicated solely to the omnipresent traffic machine. Not in the least do they function as socioeconomic backbones. Infrastructure only adds to the lack of spatial coherence and reinforces the tendency of typological repetition on the levels of district and neighbourhood. The natural need for variation and distinction is not met which means that orientation and identification are insufficiently facilitated. The city is barely legible to its own inhabitants. Many keep getting lost when venturing outside their own immediate realm.

This is largely due to the previously described development of the city and the way the urban Frame, i.e. the public system of streets, parks, water areas and squares, facilitates (or rather: does not facilitate) the general and specific social, functional and spatial needs of its users. Individual (bottom-up) Pattern does not develop and institutional (top-down) Pattern generates little spin-off, because the Frame does not facilitate the formation of meaningful and coinciding Circuits.

frame **PATTERN** circuit superposition of new structure and routing, "intranet" (6)

(4) accessibility stations by car and bike, total

The inhabitants of the city should be facilitated by an adequate urban Frame in order to gain access and to and use space according to their pluriform needs. The current top-down "tree-like" network of the city of Almere does not suffice. After all, users of the urban Frame should be able to anticipate the urban setting when it comes to choice of movement, route and destination. The resulting individual circuits are the result of a qualitative assessment of efficiency and proficiency. Efficient are those circuits that enable users to combine and relate a variety of tasks and destinations. Walking the dog for example usually takes a predetermined route and fixed amount of time but often it is combined with some other actions, whether deliberate or unplanned, such as the occasional last minute and/or spur of the moment purchase. Necessity and profit combined with recreation and coincidence ... the better the urban Frame facilitates the formation of overlapping Pattern (spread of destinations) and complex cognitive Circuit the healthier the town in casu will function.



In a complete and healthy urban Frame users and potential investors are allowed to stay on their own level of scale, literally within their own “frame of reference”, when moving from one action to the next. Hence, they will gain (more) insight in potential for programme, destinations and specific qualities of areas and places. In Almere the infrastructure model and functional segmentation of its territory makes this impossible: considering the town's fabric from the two generic viewpoints -- (1) top-down, the highway and the hierarchic drainage-like system of ring road, avenues and local roads; and (2) bottom-up, the system of neighbourhood streets, footpaths and bicycle tracks -- it can be concluded that both on the level of the town districts and the city as a whole the Frame is lacking coherence. The Frame is lacking an “intranet”.

On the level of the districts and neighbourhoods streets are generally short and very local. They only serve the directly adjacent dwelling areas and play no part in connecting neighbouring areas. However, when combined with the existing network of bus lanes and avenues the system as a whole can be relatively easily transformed into a coherent and interconnecting network that facilitates the currently lacking layer of multi-modal and multi-functional urban axes. The example of Almere Buiten shows this can be achieved by through the existing fabric by inserting some minor, yet precisely determined and crucial “missing links”. By doing so, a connection is realised between the separate districts and neighbourhoods and the centrally localised Evenaar (“Equator”) Avenue. The Evenaar literally becomes the socioeconomic backbone of the whole quarter. [41]

A similar intermediate system is required to shift the spatial concept of the city as a whole from “gated” to “related”. Cutting through the different existing and stringently separated levels of scale and relating (1) existing foot and bicycle paths, (2) the green network, and (3) currently present anchor points such as stations, squares, and (water) parks and, give way to an urban Frame that will be more adequate with regard to supporting the town's social and economical dynamics. Investment in and transformation of areas and buildings is likely to follow these interventions. It will facilitate a bottom-up development that will focus on the interior of the city rather than literally “bypass” via the highway.

It is striking that already during construction this notion of parallelity existed. Decrease of prospected programme in Almere Haven in favour of a rapid start in Stad is one example of a decision suggesting an almost traditional approach with regard to urban development. Unfortunately, under pressure of production quota the physical representation of this coherence was never realised.



Fig. 16. Impression of the dominance of the serial infrastructure, the functional vacuum: [41]

When one enters the city of Almere all one encounters is the infrastructure void. Only right up the very end of one's journey programme, housing usually, is actually facing the road. The model for Almere is a consequent inversion of what happens in a traditional city. Normally where flows converge programme gathers, but not so in Almere, or in most New Towns and 20th century layouts: infrastructure is considered a drainage system and complete isolated.

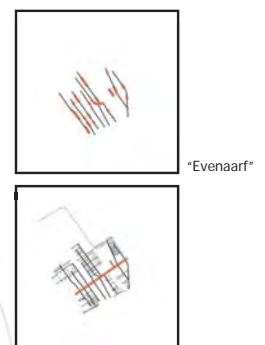


Fig. 17. Transformation of the Evenaar (Equator) avenue and the whole district of Almere Buiten by detecting & mending critical missing links [41]

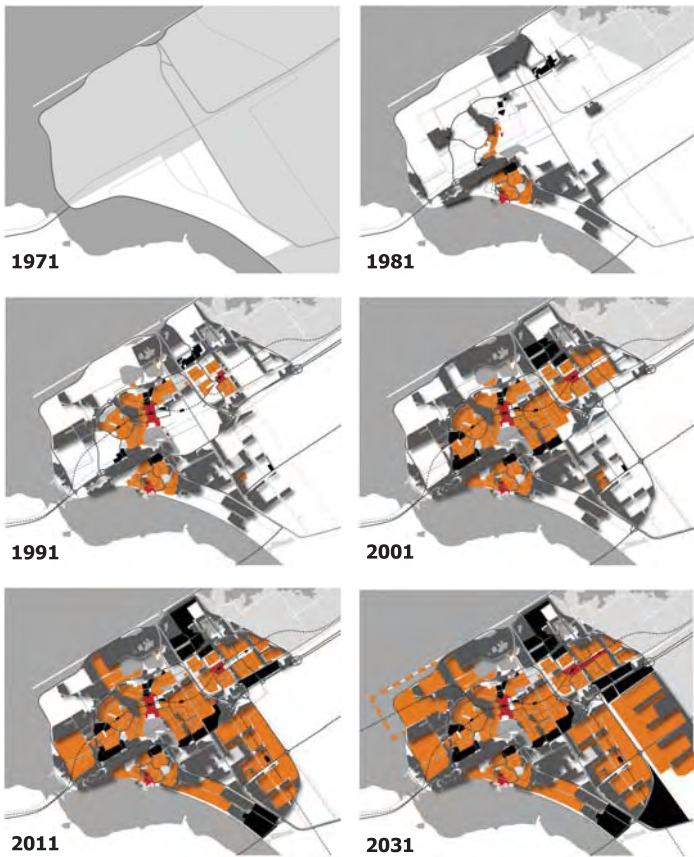
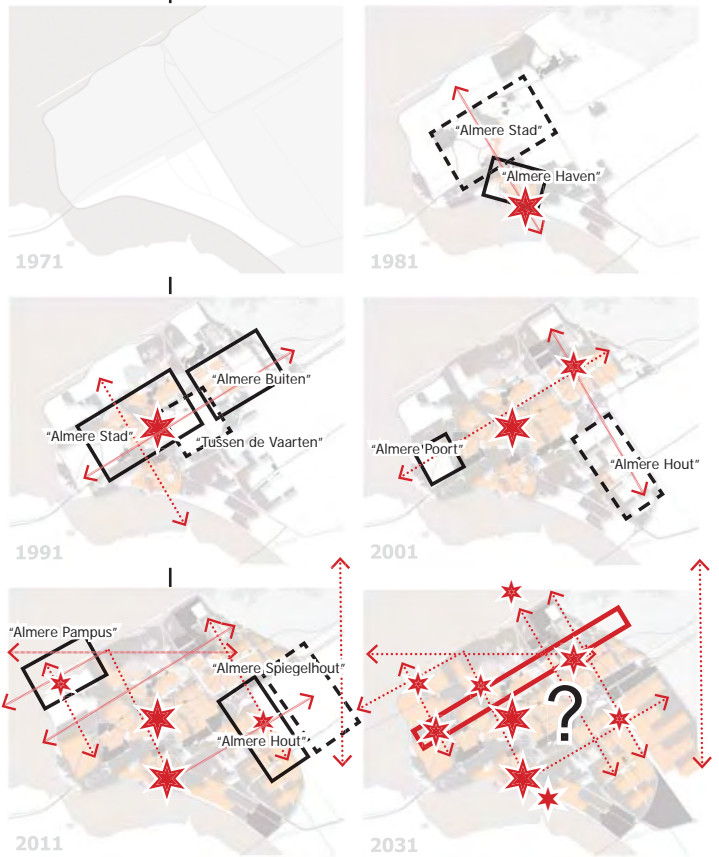
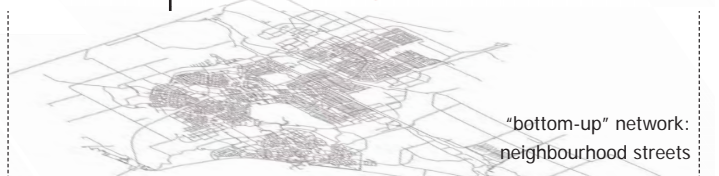
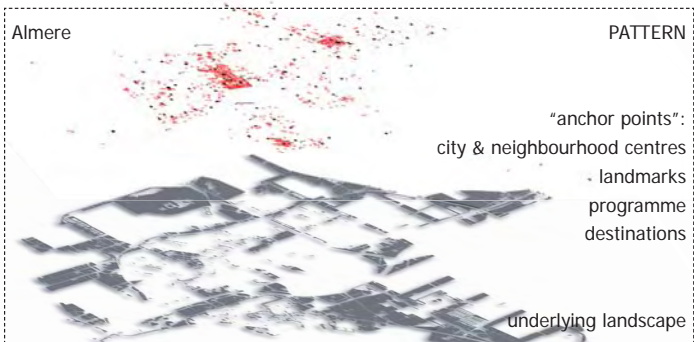
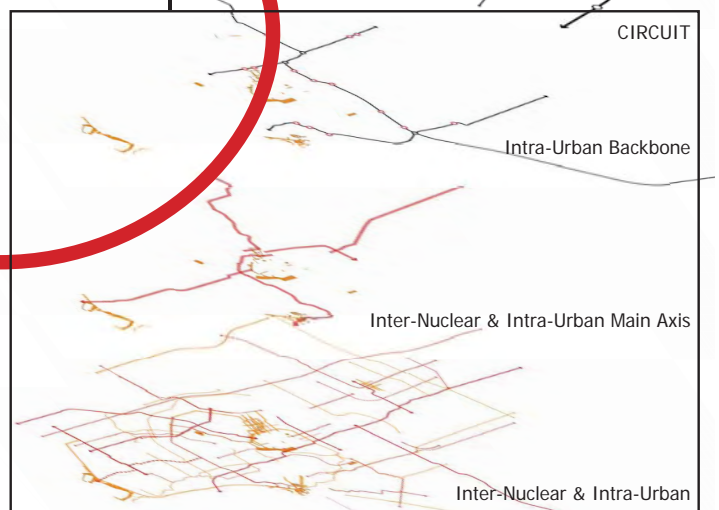
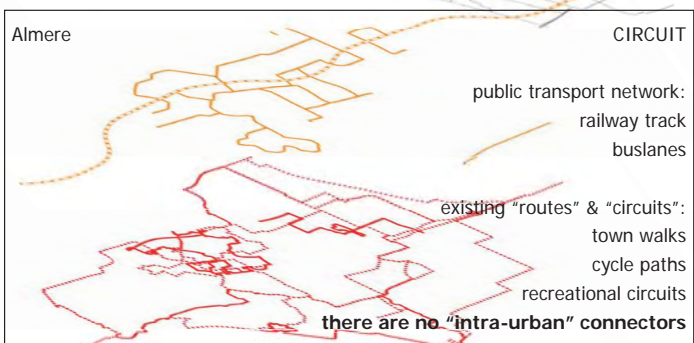
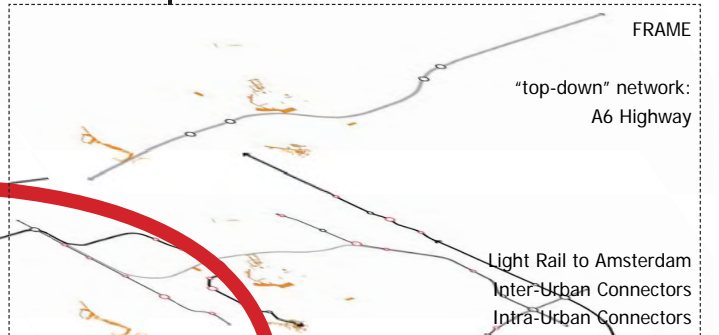
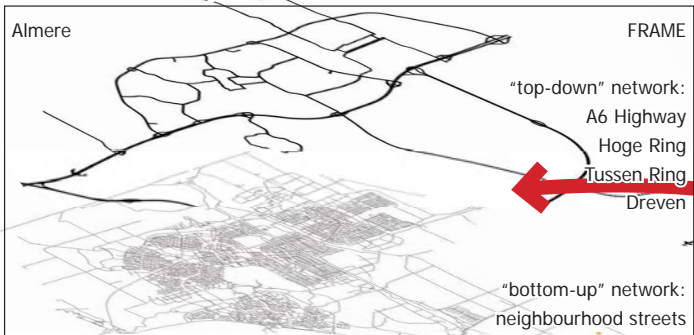


Fig. 18. The development of New Town Almere from start to present [42]



↑ Fig. 19. Frame / Circuit intervention concept [42] ↓



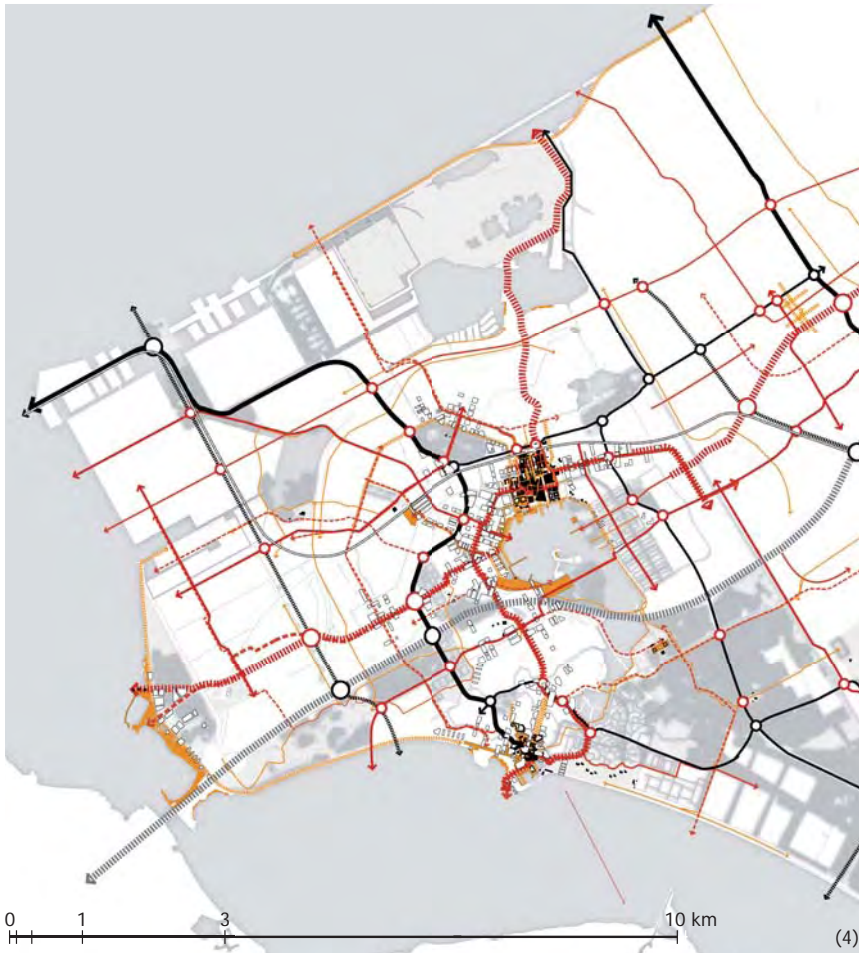


Fig. 20. The resulting "intranet" and its separate layers ^[43] ↑ compilation (1)



top-down network (2)
interconnecting urban axes (3)
bottom-up network (4)

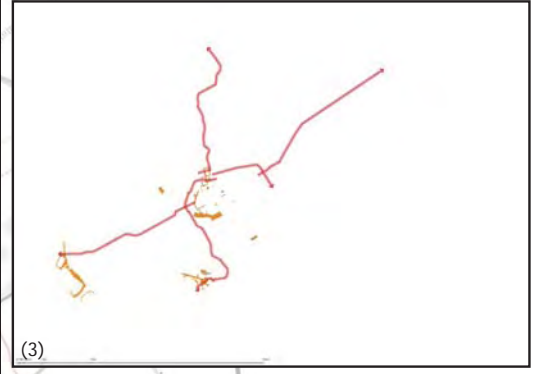


Fig. 21. Three-Step evaluation of intervention ^[43]



(1) existing situation "Stedendreef"
(2) new intraurban axis between Stad & Haven
(3) impression of existing bus lane (new axis)

According to its FPC assessment the Frame of Almere should be complemented with an overlap-inducing intranet, consisting of a considerable number of new intraurban connections, urban streets and axes, avenues, and a system of district and neighbourhood streets that function as the integrating basis of the public domain. Detecting and mending strategically vital missing links in the existing segmented infrastructure (continuity and connectivity) works towards this completion. Reassigning modality flows and reprofiling existing space should provide the starting points for parallelity. That way an urban Frame could emerge that effectively establishes relationships between the multitude of Pattern elements and hence provides the basis for healthy self-generating socioeconomic dynamics that draws less heavily from public funds.

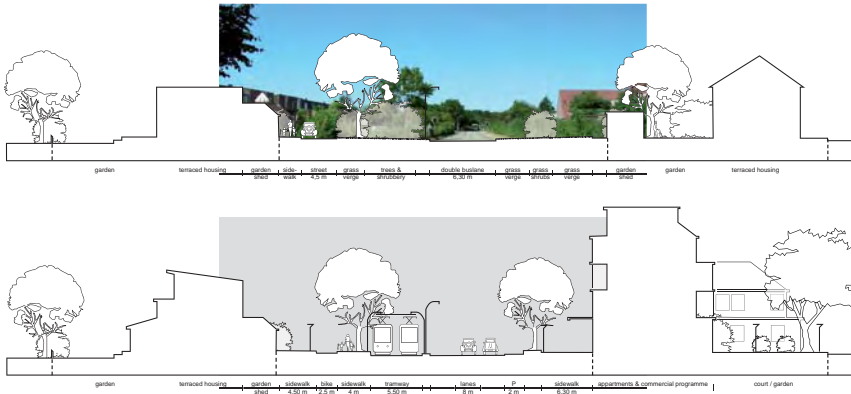


Fig. 22. Design detail: new axis, crosssection ^[44]

- (1) existing situating, standard bus lane profile
 - wide buslane with no facing programme, nothing but back yards & fences, unsafe, major physical barrier
 - large amounts of derelict shrubbery & unused space
- (2) new situation, urban axis & mixed function
 - buslane becomes tramway & double lane + car parking
 - terraced housing & back yards are replaced with appartments & commercial programme, utilities etc.

The envisioned system of multi-modal multi-functional urban axes connects the separate areas of the city directly with the existing centres. The way external connections (Amsterdam, Utrecht, Amersfoort) are implemented into the urban Frame is also of great significance. Especially exactly which connections are established and which are not will determine how well the network as a whole functions as a parallel system. It is very well possible to generate an adequate Frame without reconstructing the entire city. The existing supply of streets is indeed fragmented but has potential to fit and fulfil the role of integral underlying fabric. Existing bus lanes for example can easily be transformed in urban axes that carry all modalities of traffic and hence also provides conditions for implementing new programme and bottom-up architectural adaptations.

An effective relationship between Frame, Pattern and Circuit and consequent positive effects regarding the built-up of an individual's cognitive map eventually results in a more fruitfully functioning public domain, as the facilitating role of the transformed urban Frame with regard to movement and destination compensates for the current lack of collective coincidence. It is this psychological principle that feeds the town from below, that makes parties eager to invest in certain locations and programme, that creates a self-sustaining basis for development and transformation. It also enables public authority to guide private investments, create opportunities, with relatively minimum effort. Therefore, as stated, Frame can be considered facilitating "hardware"; it is precondition for effective implementation of both Circuit and Pattern.

Quality of place

"[...] but I have called it "Between the Lines." I call it this because it is a project about two lines of thinking, organization and relationship. One is a straight line, but broken in to many fragments; the other is a tortuous line, but continuing indefinitely." ^[45]

Central to all these studies is the concept of defining urban structure in terms of Frame, Pattern and Circuit. This concept primarily aims at combining, integrating and interpreting all those different research methods in order to gain coherent insight into the physical-spatial and the socioeconomic characteristics of both serial and parallel (urban) systems. This knowledge is vital to the urban task in general and the development of New Towns and large expansion plans in particular. In its current state Almere is a town like many other modern towns, possessing great and unique qualities yet failing to consummate their potential as of yet. An incomplete urban system is a primary cause. The fact that Almere finds itself at the threshold of a new period is so far more by hit than wit, but if implemented prudently it could prove a restart for its existing fabric too.

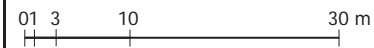


Fig. 23.

(1) connectivity

(2) parallelity

(3) continuity

[45]

44 Karen Buurmans, "The Labyrinth." TUD, 2006 (MSc)

45 Daniel Libeskind, "Jewish Museum." Berlin, '89 - 2001 17

For the planners and designers responsible it means they should be very aware of the matter of context, the prerequisite of their task. When discussing the question of "quality of place" form often proves secondary to function. No Medieval or Renaissance master builder could ever have foreseen the uses certain spaces have gathered today, let alone designed them for those purposes (e.g. terraces). And yet they operate completely naturally and are highly valued. Something beside their original purpose and construction makes them literally "fall into place." The city has always found itself clenched between public authority and private interest but with political rethorics no longer accepted and economical drive too short-term focused a return to the essence of "what makes a city" is inevitable. No cosmetic surgery, no botox for public space.

Present-day individualist society is a labyrinth. The world has become a motley collection of so-called lifestyles. But the influence of lifestyles on the functioning and use of the public domain is overrated. ^{[46] [47]} Income, education and ethnical background do factor but even those count primarily towards Pattern. Users still gather from diverse backgrounds in the same old streets and places that have always been functional-spatial anchor points. The part public space should play is therefore providing the necessary and desired spatial framework and functional coherence in order to facilitate that effective and self-sufficient socioeconomic process. Frame - Pattern - Circuit aims at unearthing and operating these generic aspects of urban life. After all: more than anything else, the city is about convergence; coincidence of people, ideas, flows and goods.

Literature and acknowledgments (a selection)

- Christopher Alexander, "A City is not a Tree." (in: J. Thackara, "Design After Modernism: Beyond the Object." Thames and Hudson, 1988 [pp. 67-84]) ^{[10] [21]}
- <http://www.atelieralmere.nl> ^{[12] [**]}
- Peter de Bois, "STOA-Method for Urban Design and Analysis." Delft University of Technology, 1995 ^{[30] [32]}
- Peter de Bois / Karen Buurmans / Frank de Josselin de Jong, "20 pleinen en parken in Apeldoorn." Delft University of Technology, 2007 ^[24]
- Jorge Luis Borges, "Death and the Compass." (in: "Labyrinths." 1964, 1970, reprinted in Penguin Classics, 2000) ^[1]
- Karen Buurmans, "The Labyrinth: a design/theoretical research into perception & use of urban structure." Delft University of Technology, 2006 (MSc) ^{[26] [35] [42] [43] [1]}
- Chuihua Judy Chung / Jeffrey Inaba / Rem Koolhaas / Sze Tsung Leong, "Project on the City 2 - The Harvard Design School Guide to Shopping." Tasschen, 2002 ^[3]
- Umberto Eco, "De Naam van de Roos." Bert Bakker, 1983; 20th edition 1987 ^[11]
- Umberto Eco, "The Name of the Rose." Secker & Warburg, 1983, 1992 [pp. 394] ^[28]
- Umberto Eco, "Function and Sign: The semiotics of Architecture." (in: Neil Leach, "Rethinking Architecture, a reader in cultural theory." Routledge, 1997; 1998) ^[8]
- Aldo van Eyck, "Pavilion Arnhem: a place for sculpture & people." (in: J. Donat, "World Architecture 4." London, 1967) ^[25]
- W.F. Geyl, "De Gelede Stad." 1947 ^[38]
- Maarten Hajer / Arnold Reijndorp, "Op zoek naar nieuw Publiek Domein." NAI Uitgevers, 2001 ^{[4] [46]}
- Jos Hartman, "Een park voor Almere." Wageningen University & Research Centre, 2005 (MSc, minor) ^[47]
- Bill Hillier, e.a. "The Social Logic of space." / "Space is the machine: a configurational theory of architecture." Cambridge University Press, 1984 / 1997 ^[22]
- Ebenezer Howard, "Garden Cities of To-Morrow." 1902 ^[37]
- Victor Joosten / Akkelies van Nes, "Shops and Blocks, how block typology influences the natural movement economic process, Berlin & Amsterdam," Delft University of Technology, 2005 (MSc & paper) ^{[16] [29]}
- Spiro Kostof, "The City Shaped." Thames and Hudson, 1991, [pp. 91] ^[27]
- Daniel Libeskind about his design for the Jewish Museum in Berlin, 1989 - 2001 ^[45]
- J.C. Lowe / S. Moryades, "The Geography of Movement." Houghton Mifflin, Boston, 1975 (in: Stephen Marshall, "Streets & Patterns." Spon Press, 2005) ^[18]
- Kevin A. Lynch, "The Image of the City." MIT Press MIT / Harvard College Press, 1960, 1997 ^[7]
- Akkelies van Nes, "Spatial conditions for a typology of shopping areas in Dutch cities." TUD, 2004 (paper) ^[15]
- Giambattista Nolli, "La nuova topografia di Roma Comasco." 1748 ^[2]
- P. Ovidius Naso, "Metamorphoses." 1st century AD [Book the Eight, 166-68] (translation: Sir Samuel Garth, John Dryden, et al, 1717) ^[36]
- Carloes Pollemans, "Suburb+." Delft University of Technology, 2004 (MSc) ^{[40] [41]}
- Stephen Read, "Function of urban pattern. Pattern of urban function." Publicatiebureau Bouwkunde, Delft University of Technology, 1996 (doctoral thesis) ^{[21] [23]} □
- Stephen Read, "Flat City: a Space Syntax derived urban movement network model." TUD, 2005 (paper) ^[17]
- Spatial Metro, "A Network for Discovering the City on Foot." European Community Initiative INTERREG III-B, <http://www.spatialmetro.org> ^[13]
- B. de Spinoza, "Ethica." [pars III] ^[6]
- Egbert Stolk, "Onderste Boven." Delft University of Technology, 2005 (MSc) ^[34]
- Alexander Tzonis, "Huts, Ships and Bottleracks." Delft University Press, 1992 ^[5]
- Robert Venturi, "Learning from Las Vegas: The forgotten Symbolism of Architectural Form." MIT Press 1972, 1977; Revised Edition 18th impression 2001 ^{[9] [31]}
- Waag Society, "Amsterdam Real Time, dagboek in sporen / Amsterdam Real Time, diary in traces." 2002, <http://www.waag.org/project/amsterdamrealtime> ^[14]
- http://en.wikipedia.org/wiki/Parallel_processing ^[33]
- <http://en.wikipedia.org/wiki/Topology> ^[19]
- William Butler Yeats, "The Second Coming." 1921 ^[39]

[46] [47]

46 Maarten Hajer / Arnold Reijndorp, "Op zoek naar nieuw Publiek Domein." NAI Uitgevers, 2001

47 Jos Hartman, "Een park voor Almere." Wageningen University & Research Centre, 2005 (MSc, minor)

[*] Unless stated otherwise, content originates from this work

[**] The research concerning Almere is part of the portfolio of Atelier Almere, a MSc graduation laboratory of about 25 Urbanism and (Landscape) Architecture students from Delft University of Technology and Wageningen University.