Evolving Narva Urban growth model for the city of Narva _ Phase 1 OCEAN north - 02.11.2000

OCEAN north_Evolving Narva Urban growth model for the city of Narva _ Phase 1

Modelling Urban Change

Processes of urban Growth and Trans/Formation in Contemporary urban Design

processes

Based on Michel Foucault's writings, Deleuze and Guattari posited that society has undergone a dramatic change from the disciplinary society of the 19th century to the society of control of the late 20th century. Foucault described the 19th century as the breeding age of institutions - in Foucaults words, vast spaces of enclosure [family, school, military, factory] that the individual passes through one after the other during a lifetime. In contrast the latter part of the 20th century witnessed exactly the opposite, the radical erosion of all institutional forms and the emergence of corporate structures that begin to fuse the functions of formerly separated institutions [i.e. factory and school via corporate further education, etc]. This entails that the individual flows more freely between conditions that were formerly bound to a particular time in life.

This societal change has had dramatic consequences on what constitutes the architectural project. The architectural project of the 19th century was established by building typologies [hospital, prison, etc] and ensembles [universities, etc] in response to institutional settings. After the de-institutionalisation of society during the second half of the 20th century architecture fell into crisis as building types that established the architectural project had become increasingly redundant. The gradual redefinition of the architectural project became the actual design process of configuration and reconfiguration in response to the individual and collectives agents that flow more freely between engagements and activities. This re-definition has been enhanced by the crisis of urban design due to the failure of hard-control master-planning in responding to ongoing and autonomous urban changes. The still open question whether architecture and urban design should obey, deny or subvert the logic of the plan thus becomes an extended question of whether our cities should be designed or rather freely evolve.

The primary aim of OCEAN north's research in architectural and urban design in general and the Narva project in particular, is thus to investigate the question of evolved cities vs. planned cities more closely. The research must however first challenge the artificial dichotomy between designed and evolved cities. In doing so it is important to challenge the underlying premises that intentional design interventions and autonomous urban transformation are diametrically opposed, and whether there are other forms of modelling, regulating and managing urban change that allow for indeterminable contingencies to inform a continual urban design process.

1. introduction: evolved vs designed cities the changing project of architecture - from static types to dynamic 2. urbanisms paradigm shift from planning to modelling

A historical inquiry shows that successful models that explain formative processes based on an alternative understanding of type can be found in within other disciplines.

In his Writings on Morphology [1817 - 1824] - the study of the deep structure of form - Johan Wolfgang von Goethe stated that two conditions must be addressed. The first is the condition of Gestalt, a snapshot of a fleeting condition that is in continual formation. The later constitutes the second condition. If the type of a species is thus its Gestalt, it becomes clear that type is an inherently dynamic condition, in other words only one moment between many others in the formative process. Goethe stated thus that everything that has taken a form will immediately be transformed.

Contemporary complexity theory takes the research into formative processes further into the study of diverse set of phenomena such as selforganisation and adaptation. The study of such behavioural pattern and phenomena have been used to model and explain conditions such as the formation of cities, and other examples of complex structures for which there is a need for entirely new paradigms and phenomenologies to describe their behaviour.

The underlying interdependence of formative forces and processes of complexity and formation theory can supply a set of models for contemporary urban design. The paradigm shift in architectural and urban design moves from the reductionism of composition and the incongruence of collage towards an ecological model of interrelated agents and locations within an exchange -enabling environment.

The interest in the dynamic relationship between parts and environments began to enter the discussion of the role and procedure of planning in urban design during the second half of the 20th century. As early as during the CIAM 8 meeting in 1951 in Hoddesdon [UK] the critical questioning of the plan began to take shape. The post-war mood comprised on the one hand of the felt need to provide for fundamental human needs and on the other hand of the anxiety to avoid totalitarian manners of planning in favour of democratic participation and the construction of contexts that stimulate citizens to activity.

The thematic foci of this meeting comprised of the topics of humanism and the organic. The latter was introduced as a renewed interest of urbanists into a holistic approach, that emphasised the relationship between parts, required to be formal and coherent, yet adaptable. While this interest marks an important value shift in urban design, the question of the future role of the plan led to a deep division of the CIAM group, dividing it between the supporters of hard-control planning and those that supported a combined process of ordering and laissez-faire. The conflict was not

resolved during the meeting, as the members were trapped in the attempt to compromise the everyday practices of city dwellers with universal solutions and the difficulty to account for spontaneous conditions in urban culture.

Architecture's crisis caused by the redundancy of static institutional types and inflexible planning operations leading to finite and soon obsolete projects has brought the actual design process increasingly to attention. The contemporary emphasis of design processes could therefore be understood not as the inevitable search for architecture's new project, but rather, process might have become the new project of architecture, as the means to capacitate organisational and material adaptation.

However, even if the new project of architecture has become the transformative process itself the paradox remains that implementation must take place in some way or another without interrupting the formative process. This brings up the question as to what can and ought to be modelled in these processes.

Albert Pope argues in his book entitled Ladders [1996] that urban design must give up its focus on the primacy of form as for instance established by composing buildings as formal autonomous artefacts into compositional ensembles - as urban space in such approaches emerges only as an accidental by-product. He suggests that the focus should shift to modelling space directly. As an inroad to this approach he suggest that space can be thought off and approached through two composites. The first composite is the one of space and form. In this case the articulation of material form is not negated yet subordinated to the role of defining space. This composite sets the material provision for the occupation of space. The second composite is the one of space and time. This composite describes the individual and collective occupation of space. Pope's argument outlines material form as the definition of space and provision for its occupation according to the multitude of individual itineraries and activities that take place within it.

Alex Wall argues in a similar fashion in his essay Programming the Urban Surface [1993] that the articulation of the material surface of the city and its occupation establish a new connective urban matrix that can be approached through a number of coupled surface articulation and surface occupation strategies.

plines

Both Pope and Wall pursue an argument that suggest a notion of an urban fabric that has shifted away from the composition of autonomous and finite built volume only and moved towards a system of spatial and material provisions in relation to shifting patterns of occupation. Pope's and Wall's approach suggests a two-directional organisational adaptive dynamic between the material form that defines space and the pattern and practice of inhabiting space which are thus changeable in relation to one another. This complex dynamic relation challenges the notion of the material form of urban fabric as an essentially static condition. Other discirelated to urban design have long realised this condition, such as urban physiology, which deals with the metabolism of cities, or in other words the flow of materials through cities. Central concern of this discipline is the way in which the region feeds the city with materials, the way materials are distributed and utilised within the city, and the eventual discharging or recycling of materials. Inherent to this logic is the understanding of buildings and built fabric as only temporary storage of materials.

Physiological dynamics have also been of central interest to the architectural movement of the japanese metabolists during the 60's that understood both cities and buildings as adaptable structures. Kenzo Tanges urban projects for Tokyo bay and Kisho Kurokawa Nagakin Capsule Tower are well known examples of this approach. It is clear though that the metabolists did not succeed in devising the models that could work with and be regulated by an ongoing urban transformation. Instead they resorted to compositional methods.

However, the approaches of the metabolists and urban physiologists enable an understanding of the material urban fabric as essentially dynamic. This suggests an understanding of build fabric as a work-in-progress potentially affected by the indeterminate contingencies and forces of autonomous urban change.

In returning to the notion of modelling dynamic relations the instrumental set-up of such operations requires some clarification. A first inroad to this problem is a distinction between what Michel de Certeau describes in The Practice of Everyday Life as the strategic and the tactical. De Certeau describes the strategic as a means of decision making that requires a global analysis of conditions and an established distance to them in order to arrive from as it were from the outside to the solution of a problem. The tactical on the other hand must be, according to De Certeau, in close connection with local conditions in order to arrive at a solution. Taking this distinction into consideration it becomes clear that the strategic can serve only to formulate more general and global approaches while the tactical is in more immediate contact with local events. This suggests that the tactical links intentional interventions with autonomous change and establishes thus the first operative step towards modelling dynamic relations.

Initially it is crucial to distinguish between three different types of models. The first type is the explanatory model that outline how systems or conditions relate to and influence one another without showing the actual processes and phenomena of change. Conrad Waddington's epigenetic landscape is one example. The second type is the descriptive model, which depicts the actual phenomenon without explaining its underlying structure. The third type is the generative model, which is different from the second one only in so far as it projects and unfolds an event in time rather than aiming at reproducing it. Both the explanatory and the descriptive model are powerful analytical devices while the third model can serve as a testing device for intentional activation, catalysation or acceleration of phenomena of change. While all three types of models have their specific potential role in modelling urban change, it is specifically the general indistinction between the descriptive and the generative model that proves to be particularly useful, as this composite model can oscillate between analytical and generative operations. This ability makes it so far the most advanced tool for monitoring and regulating transformative processes. Time-based modelling by means of digital animation has recently become the predominant technique for process-based design, as digital animation has the capacity of modelling a multitude of forces and behaviours within an environment of increasing complexity. It is precisely this capacity that allows the modelling of the relation between a dynamic material form that defines space and its occupation in a bi-directional sequence of appropriation and adaptation.

The question whether architecture should obey, deny or subvert 'the plan' is therefore no longer one of opposition [either/or] or difference in kind of intervention but rather of difference in degree of intervention synthesising both control and laissez-faire in architectural and urban design. This synthesis is based on an ongoing analysis of the effects of interventions and autonomous change through perpetual re/modelling. In doing so the processes of change that underlie architectural and urban design have become their central project.

Evolving Narva

Differential Urban Growth and Formation

3. urban change as a project for Narva

The primary aim of OCEAN north's proposal for Narva is to develop a capacity for urban change on the basis of the cities potentials. Consequentially this entails the avoidance of a finite hard-control master-plan and a related single trajectory from urban analysis to project implementation. OCEAN north's proposal consists therefore of a set of open guidelines that outline desirable urban development aims based on the potentials of Narva, while remaining flexible enough to be adapted to unanticipated changes. While being strongly related to one another the development guidelines maintain enough independence to be reviewed and modified both separately and in relation to one another. The urban development guidelines are accompanied by a set of organisational strategies and polices that outline the necessary critical operations towards the flexible implementation of the guidelines, as well as the modelling and monitoring of Narva's urban transformation. Through this set-up urban analysis becomes a constant activity of monitoring change and capacitating intervention informed by the registered changes, in other words instrumental adaptation of the projected development.

If life in Narva is to be improved it is important to start from an analysis of existing potentials for such improvement and to look for emergent new potentials. Master-planning operations commonly outline such potentials and project requirements over one delimited period of time only before articulating and implementing the plan. This often leads to situations in which master-plans when eventually fully implemented have lost their relevance in terms of the most current requirements and potentials. In order to satisfy the needs of the Narva's citizens and to profile it as a competative city within the baltic region it is thus necessary to always understand its most current needs and potentials.

This entails in other words as stated above a constant monitoring of the changes that the city undergoes. Crucial to this analysis is an understanding of the cities operative relation on a macro-scale to its region and to the country and Europe at large, on the city scale to the various systems that make up the specific character of the city, and on a micro-scale to the components that make up the urban systems specific to Narva. Modelling urban change is thus not only a question of modelling in time, but also of modelling dynamic operative relations across various scales.

OCEAN north's proposal prioritises thus the capacity of the urban fabric of Narva to adapt dynamically to changes, while developing a profile of a role model for cultural, economical and ecological integration on the basis of improved and diversified infrastructures and provisions for various desirable scenarios to unfold over time. This includes the aim of achieving a greater diversity of public spaces and activities, as well as of the build fabric of the city to cater for this diversity. The assumption is that diversification of programmes and activities and their linking will achieve a greater capacity for adaptation. Multiple space use and time-based management of urban space are integral part of this approach.

4. time-based operations and techniques

In order to enable a proposal based on dynamic modelling it is necessary to device a number of time-based operations and techniques that allow for a rigorous instrumental modelling set-up.

These operations and techniques include:

4.1 Critical Parameter Choice and Mapping The selection of those urban systems and conditions that are to be analysed for their potential of stimulating desirable urban development is crucial. This selection must address the aforementioned relations between the city and its wider context [region, country, EU] and its urban systems and components [city culture and social make-up, economy, ecology, infrastructure, etc]. The selected conditions must be carefully analysed in relation to their precise organisational structure and the influences and forces that impact urban change. The mappings must include past and current situations in order to understand changes that have already taken place and still ongoing transformations. On the basis of these initial maps a set of maps can be drafted that outline undesirable changes or blockages of desirable changes. On the basis of the critical parameter choice and mapping it is possible to draft a first set of strategies to overcome apparent problems and can in extension become the basis of a further analysis through re/combinatory mapping.

4.2 Re/Combinatory Mapping Techniques Re/combinatory mapping techniques exploit the possibility of overlaying the initial analytical maps of the various selected urban systems and conditions and thus to investigate the actual or potential dynamic relations between the different systems. Re/combination of the data-base in form of the maps becomes the catalyst for formulating a coherent and inclusive approach to the various dynamics that influence urban change. Re/combinatory maps deliver multiple sets of relations over time that can be brought forward into digital animation as a further advancement towards modelling urban change.

4.3 Digital Modelling of Urban Change Digital animation has the capacity of depicting transformation in a continuous and seamless manner. These digital time-based modelling techniques can thus serve to integrate intentional urban changes with autonomous transformation in an interrelated descriptive manner. In doing so digital animation techniques embrace the double potential of being used in an analytical and generative way and are therefore central to OCEAN north's operative mode in urban design.

5. Narva Differential Growth and Development Guidelines

The Guidelines are developed as a set of scalar relations:

5.1 Narva - EU

Further to the Narva City Planning Offices aims to trigger European funding for the urban development of the city OCEAN north's proposal outlines the following guidelines:

5.1.1 Cultural Integration

Cultural and social integration is central to OCEAN north's proposal. This includes efforts that aim at establishing a greater mix of Estonians, Estonian Russians, and Russian Russians of all levels of education and income rate. The majority of the guidelines and strategies outlined below share cultural and social integration as a central agenda. Among the most predominant strategies feature firstly economic diversification and job generation to attract predominately Estonians from other parts of the country to move to Narva, secondly the indiscriminate provision of cross-cultural education and leisure activities, and thirdly the gradual erosion of the national boundary between Estonia and Russia as a cultural and social barrier. The later is based on the evident advantage of a multi-cultural context over national protectionism and cultural homogeneity. In this way Narva can profile itself internationally as the forerunning city in cultural integration between eastern and western European cultures. In addition this kind of effort would ensure an increased interest and investment of the EU into Narva and its surrounding region.

5.1.2 Environmental Improvement

The environmental improvement of Narva has evidently become insuspensible. In recognising this the city has already taken strong measures, which are in need however to be integrated into a coherent set of urban development guidelines. In coupling the gradual environmental improvement of the city with firstly a coherent green space development and the urban densification and de-densification strategy outlined below it becomes possible to improve the environment selectively according to need and resources. The improvements include the Narva riverbed and embankment as a linear park in order to make the national boundary more attractive as a space for outdoor activities and as a connective space.

5.1.3 Infrastructural Improvement

The proposed diversification of public transport follows the model of Curitiba City in Brazil in establishing efficient connections between living and workplaces, and enabling social betterment and cultural integration by means of extensive cross-national boundary movement. The diversified infrastructure serves to benefit the emergent micro-economies of narva's microregions, as well as the cross-border cultural and economic exchange.

5.1.4 Culture / Infrastructure / Environment Bundle

Cultural, environmental and infrastructural interventions are strategized first separately and subsequently as a co-ordinated set of guidelines with the aim of maximum benefit from each investment. Once again the example of Curutiba City in Brazil will serve as a role model.

5.2 Narva and its region

The relationship between the Narva and its region must be thoroughly investigated, not only in view of the cities urban metabolism, but furthermore to strenghten its performance and image and expending them you the cities boundaries.

A first guideline is the enhancement of Narva's tourist attraction value. Narva could thus become not only a stopover on route from Tallinn to St. Petersburg, but rather become an attractive destination in itself. The latter entails the need for co-operation guidelines with Ivangorod as a bicultural attraction, Narva Joensuu as a side-side attraction, and several inland locations as landscape, cultural or historical attractions.

A second guideline is the enhanced deployment Narva's key location in regional freight transit. This potential can be utilised to enhance existing and evolve new local micro-economies, by channelling goods for consumption or further manufacturing into the city.

5.3 Narva – Ivangorod

Primary guideline is the erosion of the national boundary between Estonia and Russia as a cultural and economic barrier. The aim must be collaboration rather than competition. The collaboration can include the emphasis of an enhanced bi-cultural tourist attraction value, as well as concerted efforts in cultural exchange, education, the creation of cross-border job opportunities and economic diversification through an enhanced circulation of goods and workers.



density policy map





5.4 Narva – Innerurban Systems

The guidelines for Narva's inner-urban development are developed in such a way that each of them can be implemented separately or in combination with one another. A system of re/combinatory mapping is deployed in order to enable for a freedom of choice and selection in terms of the currently most pressing developments in relation to available resources, without loosing a necessary coherence between the different systems.

5.4.1 De/densification and Diversification Guidelines

In recognising the need for an increased urban density of population and built fabric while lacking an increase of population, it becomes necessary to strategically de/densify selected areas in terms of population and build

fabric and to relocate those in areas selected for densification. This guideline works hand in hand with the programmatic diversification of areas, with particular respect to the micro-regions. The combined densification and diversification guideline serves the purpose of offering a greater mix of job opportunities and micro-economies in every neighbourhood, as well as shortening travel routes and time from home to work.

The de/densification of selected areas is strategized together with the evolving green network and environmental improvement guidelines.

OMA's project for melun-Senart serves as a role model for the combined de/densification and diversification guideline. (see references)







existing industrial structures + housing







| projected ind | ustrial stru |
|---------------|--------------|
|---------------|--------------|

| industrial | 5.4.3 Infrastru |
|---------------------|----------------------------------|
| multi story housing | As stated bef |
| single house | the model of C |
| 1rst class road | ment and cult ary movemen |
| 2nd class road | gent micro-ec der cultural ar |
| 3rd class road | |
| bus line | |

foot and bicycle paths

uctural Development and Diversification Guidelines

fore, the proposed diversification of public transport follows Curitiba City in Brazil (see references) in establishing efficient between living and workplaces, and enabling social bettertural integration by means of extensive cross-national boundnt. The diversified infrastructure serves to benefit the emerconomies of narva's micro-regions, as well as the cross-bornd economic exchange.



existing housing + public services: cultural, sports, healt care, education







existing building density and programmatic diversity



projected building density and programmatic diversity

| | multi story housing |
|--|----------------------------|
| | single house |
| | sport fields and stadiums |
| | health care |
| | schools and universities |
| | culture and administration |
| | leisure facilities |
| | commercial |

projected housing + public services: cultural, sports, healt care, education



existing road infrastructure



existing road infrastructure + bus network



existing road infrastructure + bus network + minibus networkfoot-



existing road infrastructure + bus network + minibus network + bicycle path system



new road infrastructure + bus network + minibus network + bicycle path system

highway The public transport guidelines include the implementation of a new Minibus system with flexibly re-locatable bus-stops as developed for Curitiba 1rst class road city. The aim of this new system is a more efficient means of public transport that can be more easily adapted to changing transportation require-2nd class road ments, while at the same time being optimised in relation to user and pollution ratio. 3rd class road The strategic relocation of the cross-border customs area to the south bus line allows for a relieve of the city centre from the massive traffic caused by this programme. foot and bicycle paths minibus line



existing road infrastructure + traffic flow



existing road infrastructure + traffic flow scenario 1









transportation system is based on an evolutionary approach related to the growth of the city and its population. It is managed by URBS (Urbanisation of Curitiba), a mixed capital company, and is being constantly developed and tuned by the Curitiba Research and Urban Planning Institute (IPPUC), a true laboratory of ideas which changed the fate of the city.

existing road infrastructure + traffic flow scenario 2

existing road infrastructure + traffic flow scenario 3



existing green space network + sports & leisure attractors





projected green space network + sports & leisure attractors + foot-& bicycle path system



existing sports & leisure attractors





projected sports & leisure attractors + foot-& bicycle path system

southern one.

| green | In additi |
|---------------------------|-----------|
| | the dev |
| leisure lacinities | circulati |
| sport fields and stadiums | sports a |
| | Both the |
| foot and bicycle paths | system |
| | which a |
| | such as |

tion a new foot- and bicycle path system is strategized together with velopment of the green space network. The aim is to optimise the tion between the micro-regions, as well as the circulation between and leisure attractors located within the green space network.

Both the new mini-bus system and the enhanced foot- and bicycle path system are used to increase the north-south connections within the city, which are particularly problematic because of other infrastructural arteries such as the traintracks that devide the northern part of the city from the







projected green space network



existing green space network + housing





5.4.4 Green Space Development and Diversification Guidelines

The urban green space development follows to primary strategies. The first strategy outlines the development of a city-wide gradient of green spaces. This means that no location in the city excludes green space. The gradient green space smoothly varies in degree from location to location without interruption even in the most densified urban neighbourhoods.

The second strategy outlines the development of a network of green spaces enabled by the urban de-densification of areas. This new green space network includes another network of sports and leisure attractors and is thought of as a high-quality environmental development.

The combined strategies for the development of green spaces enables the emergence of what can be called a landscape urbanism. The latter will deliver to Narva a unique profile as a city that is desirable to live in or visit and can thus contribute positively to its economic development.



single house

multi story housing

projected green space network + housing



existing commercial activity





projected commercial activity





the island + projected new program + infrastructure



Gradual reuse, renovation and upgrading of built environment

Gradual mix of production and educational activities: - textiles small production units: - Fashion education, production, showrooms Techno textiles, industrial applications other types of production

5.4.5 Dynamic relations between micro-systems and macro-structures

As part of the bi-cultural exchange programme between Estonian and Russian cultural/commercial pockets of integration and trans-border exchange are strategised.

One such special zone can be the island (A) in the Narva river. Access from both countries granted this area can become a first testing ground for resource share, mutual and collective education and new shared microeconomic developments.

Another special zone can be newly established tax-free zones located on the new major border crossings from Estonia to Russia. The allowance

mies.

The existing border crossing (B) from Estonia to Russia could become a passage route inclusively for local inhabitants from both sides, and a strong stimulant of local cross-brorder trade.

A powerful link between between micro-economies and regional transit can be established in form of micro-retail and micro-manufacturing plants. The sweat shops of East London can serve as a model of combining working and living on several floors of the existing buildings

River renaturation program

RRIVATE/MUN

PALITY/EU

Cultural exchage program

the old town + projected new program & volume

for the retail of tax-free goods can serve to further establish micro-econo-





existing commercial activity + housing

projected commercial activity + housing

| _ | |
|---|------------|
| | commercial |

single house

multi story housing

To enhance the productive dynamics between micro-systems such as neighbourhood micro-economies and macro-structures such as regional freight transit it is necessary to strategize time-based programming and a related ultra-short-term lease of urban space. A set of respective strategies include the setting up of an urban space management group. The Spitalfields Space Management Group in London can serve as an example. In order to enable Spitalfields Market to remain in operation while the intended selling of its respective grounds gave it an uncertain future, the Spitalfields Space Management Group was established to lease the available space on a six-month lease basis. This new group collaborates with the representatives of the local micro-businesses the so called Spitalfields Small Business Association.





existing industrial infrastructure + green space network





existing industrial infrastructure + green space network



existing industrial infrastructure





Guidelines

In order to strenghten Narva's economy and to make it less vulnerable to unanticipated change a set of production diversification and distribution strategies are pursued. The aim is to evolve a diverse network of industrial production and services across the entire urban matrix together with a number of intensified production and service hubs. Heavy industry is suggested to be relocated at the periphery of the city in consideration of least ecological disadvantages. These peripheral heavy production locations are connected via a gradated production and service network across the city down to the level of new micro-production and service units within the micro-regions. Inner-city hubs of environment friendly high-tech industry and improved service sectors tie into the production and service network and the infrastructural network of the city.



industrial

5.4.6. Economic Development and Production Diversification and Distribution





projected development of green space network + public services infrastructure

projected development of green space network + housing

preliminary conclusions

development.









6. Modelling Narva's Urban Evolution

Digital Animation techniques are utilised to demonstrate how the urban evolution of Narva can be thought of and modelled. OCEAN north's aim is to device these modelling techniques in the second phase as a tool for negotiating the various development aims and strategies developed by the different teams that have worked on this first phase towards Narva's urban



projected development housing + industrial infrastructure



projected development housing + public services







projected development housing + commercial activities











projected development of commercial activities

projected development of industrial infrastructure



projected development of public services infrastructure









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