

The Delft Approach to Urbanism¹

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The Department of Urbanism has a global reputation for excellence in research and education. We consider urbanism as a planning and design-oriented activity focused on the (re)making of better urban landscapes. The mission of the department is the following: to advance, share and apply knowledge on how to adapt the built environment to societal and environmental changes and how to apply design, planning and engineering interventions to better satisfy human needs, and to achieve fairer, healthier and more resilient urban landscapes. The core of Urbanism in Delft is formed by the sections of Urban Design, Landscape Architecture, Spatial Planning & Strategy, Urban Studies, Urban Data Sciences, and Environmental Technology and Design. These sections form the basis for inter- and transdisciplinary, context-driven and problem/solution focused research and education. Urbanism involves engineering-, social-, and environmental-based methods and techniques as operative instruments, as well as the development and application of advanced urban data science and geo-spatial information technologies. Besides the development of the disciplines themselves, there is a strong emphasis on the interaction of these fields in terms of theories, methods and techniques, as well as their application via concepts, strategies and spatial interventions.

The Delft Approach to Urbanism

Urbanism as an interdisciplinary approach started in the Netherlands before World War II in the collaboration between Th.K. van Lohuizen en C. van Eesteren which led to the Amsterdam General Extension Plan. It was taken to academia in Delft with their appointment as professors in 1947 and 1948.² The team was augmented with Prof J.H. Froger (Urban Design) and J.T.P. Bijhouwer as visiting professor in landscape architecture.³ These four professors laid out the foundations of what from the early 1990s onwards was formalized into the Department of Urbanism. Their integral research and design approach shaped their teaching in Delft and became part of the standard repertoire of Dutch urban design and planning and landscape architecture practices. Right from the beginning, engineering was part of this approach; design, planning, engineering, and research have been strongly intertwined throughout the history of Urbanism in Delft. The recent developments in urban data and geo-data technologies and its integration in Urbanism research and education, also add the urban data science approach to the design process.

When asked about the Delft Approach, urbanists who adhere to it tend to highlight different aspects of it. Evidently the approach has developed over time, adapting to the needs of society and by the advancement of knowledge, tools and techniques. Also, if we compare Delft urbanism of the present with the situation of the late 1940s the disciplinary basis has become much wider and stronger. Nowadays the Delft approach includes the following ingredients in **varying constellations**:

- **Integration and collaboration:** Spatial planning, urban design and landscape architecture are strongly

¹ The Delft Approach to Urbanism was written by Rients Dijkstra, Maarten van Ham, Steffen Nijhuis, and Machiel van Dorst, with input from many others.

² Bergeijk, H. van (2017). Van Lohuizen and Van Eesteren – partners in planning and education at TH Delft. Published by the TU Delft.

related disciplines, which require knowledge from other disciplines. In 1947 Van Lohuizen called this the unity of town planning ('*De eenheid van het stedenbouwkundig werk*').

- **Connecting research and design:** Spatial solutions result from a **highly analytical approach**. In practice **inquiry** and **study** are the main ingredients combined with **insights** from academic research;
- **Understanding planning and designing the urban landscape as a complex and dynamic system:** **multi-scalar** (from local to regional), **multi-layered**, **multi-perspective**, combining **structure and process**, and **long-term and short-term** perspectives;
- **Spatial thinking and communication:** analogue and digital visual representations such as **maps, diagrams, sketches, and other visualisations as well as 2D and 3D geographical data models** play a crucial role in analysis, plan/design generation and assessment as well as communication;
- **Parallel processes and iterative feedback loops:** Analysis, design and presentation/communication go hand in hand - they are not carried out in series but in parallel, because they influence each other greatly, and they influence each other through feedback loops;
- **A critical, open-minded non-hierarchical attitude:** Teamwork is paramount and hierarchy should not interfere when developing content;
- **Visionary combined with an ambition to create 'facts on the ground':** **imaginative, feasible, evidence-based and data-driven and data-supported** solutions for relevant problems;
- **Spatial design as catalyst:** The process of design brings together a broad range of relevant disciplines and explicitly looks for alliances with other stakeholders such as: civic society, knowledge institutions, government and business enterprises;
- **Socio-ecological inclusiveness:** inclusion of social and ecological aspects in research and design, and interconnecting relevant urban landscape systems, in order to achieve fairer, healthier, and more resilient urban landscapes.

Depending on the task at hand, the emphasis on any of the above components will differ. These dimensions often interact.

The ingredients of the Delft Approach

The different ingredients of the Delft Approach, and the possible interactions between the ingredients, requires some more detailed explanation.

Integration and collaboration

As urbanism impacts the world, its goal is to change that world for the better through design and research. To succeed at this, an integrated approach to knowledge and broad collaboration is essential. Such cooperation and exchange of knowledge and information, takes place on many levels:

- between the spatial design disciplines: planning, urban design, landscape architecture;
- between the spatial design disciplines and other important (spatial) disciplines such as: geography, landscape ecology, urban data science and GIS, civil engineering, environmental studies, urban sociology, environmental psychology, economics, transport engineering, public management, urban studies;

Collaborations with other actors in any spatial development is essential: inhabitants, knowledge institutes, government and business enterprises.

³ Nijhuis, S, Stolk, E & Hoekstra, MJ (2017) Teaching Urbanism: The Delft approach. *Urban Design and Planning*, 170 (3), 96-106.
<http://dx.doi.org/10.1680/jurdp.16.00013>

Connecting research and design

The development and application of knowledge is strengthened by combining design techniques with analysis and research and inquiry. Design is used as a way to apply analytical results and research outcomes to a specific site or territories, as a way to evaluate scenario's (hypothetical solutions), to compare options, to understand better what happens when theory (or data, or steps in research) is applied in practice but also as an engine for invention - as a way of teasing out new and unexpected results. The connections between research and design can take three forms:⁴

- **Research ON design:** Research undertaken on design methods and existing designs, such as precedent analysis, to learn from the past, and as a knowledge base for future designs;
- **Research FOR design:** Research feeds the design process with the ultimate objective to improve the quality of the designed environment and increases its credibility;
- **Research THROUGH design:** Design is a method of inquiry and used as a vehicle to make spatial challenges visual and spatial, explore possibilities and to generate solutions.

Understanding, planning and designing the urban landscape as a complex and dynamic system

To cope with large amounts of data, with often complex subject matter and pertaining to enrich physical environments, a systems approach to analysis, research and design is paramount. Analysis starts with breaking down the complexity of subjects and sites into its constituent elements and finding out what their relationships are. The 'layers approach' (lagenbenadering) is well-known for decomposing the urban landscape into important layers of interest, addressing physical conditions (such as soil, water, ecology), networks (transport, water, energy) and the occupation (urban fabric, land use). A thorough understanding of the separate components precedes integration of topics. This understanding is more and more based on a data-driven approach and therefore it requires the integration of an urban data science approach into the design process, which facilitates the use of complex data in the design process through the use of (3D) geo information and -technologies. This type of understanding also requires planning and design concepts and methods that allow the development of robust structures that are resilient and adaptive, and at the same time provide flexibility and local infill. The connection between research and design is crucial here.

Spatial thinking and communication

In urbanism, there are three activities in research and design in which visual and spatial representations become crucial:

- 1) analysis and evaluation of situations, plans or precedents: simplification, selection, relating and organisation of locational and contextual information in order to gain understanding and acquire design knowledge;
- 2) design generation: origination, development and testing of new ideas and information entailing experimentation, transformation, combination and elaboration;
- 3) presentation and public interaction: effective and comprehensible communication and exchange of ideas and/or situations to a wider audience.

As urbanists deal with spatial research and design, it is evident that sketching, drawing and mapping as well as the use of urban data are powerful vehicles for spatial thinking and analysis, and communication between stakeholders.

Parallel processes and iterative feedback loops

The research and design process in urbanism under the Delft approach makes generous use of - and greatly benefits from - the use of feedback loops. This gives the Delft approach, seen as a method for development of

⁴ Nijhuis et al. 2017 (note 2)

good design solutions in the spatial realm, an 'evolutionary' quality. Research outcomes, analytical results and design ideas are communicated between stakeholders (professional and non-professional alike) and made available for debate. Presenting early and preliminary results, is often required to make this happen: moving back and forward at the same time. The cyclical nature of working under the Delft approach, and the need to develop quick intermediate 'test-results' in order to kick-start the feedback loop, is an important element of the approach. In a similar manner, there is a loop involved in using research, analysis and design.

A critical, open-minded non-hierarchical attitude

To emphasize the importance of a critical attitude might seem redundant in an academic setting. However, the design element and the call for integrated solutions, partially rely on the construction of narratives (storytelling). A critical attitude is required to keep the narrative in check, to make sure that all professional and non-professional input has validity. Open-mindedness is required to allow the debate about new insights and oblique ideas to take place. All within limits of reason. The design process is non-hierarchical where all who are involved in the design process should be heard. In the present era the designer is not the all-knowing expert in the white coat.

Visionary combined with an ambition to create 'facts on the ground'

Practicing Urbanism requires grand visions on the future of (urban) landscapes. These visions can show us alternative solutions for a better world. At the same time, the real power of urbanism is to translate these visions into concrete ideas and projects on the ground. The iterative process of design with feedback loops translates grand ideas into designs and real physical structures. This power to realise projects requires a sensitivity in the design process for existing physical structures and the socio-ecological context of a place; the existing facts on the ground. Contextual design takes these existing structures into account and creates new facts on the ground. In Urbanism this process is evidence-based and data-driven, leading to data-supported solutions for relevant problems.

Spatial design as catalyst.

Spatial design starts with addressing a challenge or a problem, or with the desire to exploit the potential of a place. This then requires a design solution, or a vision of how design can lead to a better city or landscape. Stated ambitions are often abstract in nature, and **spatial design makes these ambitions concrete through visualisation of design solutions**. The translation of an ambition into a concrete design also lays bare the (im)possibilities or (un)desirability of a design solution. Using the process of design as a catalyst for creating solutions, **is also a form of framing**, making things concrete and bringing together a broad range of relevant themes, allowing disciplines to contribute and engage with stakeholders from civic society, knowledge institutions, government and business enterprises.

Socio-ecological inclusiveness

The Delft Approach to Urbanism is sensitive to the inclusion of social and ecological aspects in research and design, and interconnecting relevant urban landscape systems. This takes two forms. First, existing social and ecological aspects form the basis of the design, building upon the existing context. The Delft Approach is explicitly site specific. Spatial design is also used to (re)create new socio-ecological structures based on scientific insights, traditional knowledge and local input. Second, local residents and other stakeholders are involved in the design process through active co-creation, engagement and participation, with the aim to achieve fairer, healthier, and more resilient urban landscapes.

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