



Delft University of Technology

在荷兰开发一个多中心都市群地区 基于网络城市概念就荷兰兰斯塔德地区 开发经验分享

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An aerial photograph of the Beijing-Tongzhou region, overlaid with a network of red lines representing transit routes. The lines radiate from a central point in Beijing towards Tongzhou and other surrounding areas. The text 'BEIJING 北京' is positioned to the left of the central point, and 'TONGZHOU 通州' is to the right.

BEIJING 北京

TONGZHOU 通州

TRANSIT-ORIENTED DEVELOPMENT & SMART MICRO CITY 公共交通导向的发展模式与智能微型城市

RESEARCH BY DESIGN ON TONGZHOU NEW BEIJING EAST STATION AREA &
QINGHE RIVER SURROUNDING AREA

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Towards 2050: Developing a Sino-Dutch approach for Sustainable Urbanization

迈向2050年：中荷可持续城市发展工作营

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总建筑设计师、规划师、咨询师，《迈向2050》创始人

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DEVELOPING A POLYCENTRIC METROPOLITAN REGION IN THE NETHERLANDS SHARING EXPERIENCES FROM THE RANDSTAD HOLLAND THROUGH THE CONCEPT OF A NETWORK CITY

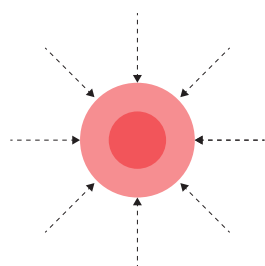
在荷兰开发一个多中心都市群地区 基于网络城市概念就荷兰兰斯塔德地区 开发经验分享

为减少和分解北京与天津的城市压力，京津冀都市圈的形成是由北京、天津、河北省组成且拥有1.1亿居民的多中心城市群。以前，城市如同北京和天津这样的高密度单中心城市，虽然在集聚效应上获益良多，但同时也承受着交通拥堵及生态方面的压力。京津冀都市圈意在以一个多城市中心的系统来发挥其效能，这个系统是由依据城市网络概念在网络中多重核心理想运行而组成的。通过分离和连接的其他卫星城市，在增强城市流动性、经济和生态方面表现的同时，避免了潜在的城市功能不协调运转。转型为一个网络城市对于京津冀地区的发展来说是一次重大的飞跃，但与此同时，对交通网络、水资源管理、经济和环境等方面也提出了巨大挑战性。

荷兰兰斯塔德地区具备构建一个网络城市群的良好条件：无论在历史和自然风景上它都是一个多中心城市区域。通过对兰斯塔德的观察研究，目的在于对网络城市的观察并了解其重要特质。此外，我们将阐明工作方法，这可以为构筑一个运作良好、具有超强竞争力的京、津、冀都市圈项目提供一些借鉴素材。

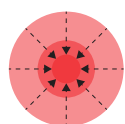
In order to reduce and divert urban pressure on the cities of Beijing and Tianjin, the formation of the Jing-Jin-Ji megalopolis is pursued - a polycentric urban region consisting of Beijing, Tianjin and Hebei provinces, with about 110 million inhabitants. High-density monocentric cities such as Beijing and Tianjin greatly benefit from agglomeration effects, but suffer from congestion and ecological stress. The Jing-Jin-Ji megalopolis is meant to function as a polycentric urban system consisting of multiple cores ideally operating in networks following the concept of a Network City. Through the constellation of detachment and connection, potential urban dyssynergies can be prevented while enhancing performance in the realm of mobility, economy and ecology. The transformation into a Network City can be a quantum leap for the Jing-Jin-Ji area, but is also challenging for the realization of mobility networks, water management, economical clustering and the environment.

The Randstad Holland is a Network City by nature; its roots as a polycentric urban region lay in history and scenic setting. By means of insights on the Randstad, this contribution aims at sharing observations on the Network City and its pivotal characteristics. Furthermore, we will illustrate working methods that could serve as inspiration for the project of creating a well-functioning and ultra-competitive Jing-Jin-Ji megapolis.



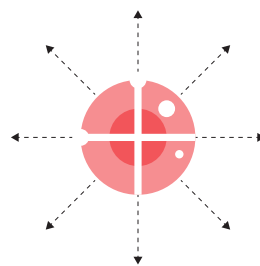
Monocentric cities such as Beijing and Tianjin have the tendency to attract population, facilities and employment.

单中心城市例如北京、天津拥有较大的人口吸引，设施和就业的趋势。



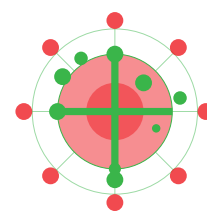
Although agglomeration effects take place, inward traffic and urban pressure can cause congestion and lack of space for ecology.

集聚效应发生，向内的交通和城市压力可引起拥堵和缺乏对生态的空间规划。



By creating multi-centers, specialized economical clusters can be made and space for ecology becomes available.

通过设立不同的经济聚落可以使得生态环境空间得到有效的预留。



An ecological network can be further advanced and mobility is spread out over a larger network preventing congestion.

生态环境网络已得到进一步的优化，由于交通已经分布在了一个较为辽阔的土地面积上有效的防止了交通堵塞的发生。

Roberto Cavallo

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Arnoud de Waaijer

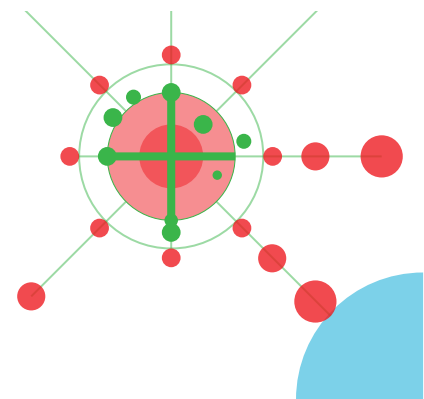
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In a multicentric setting the formation of a bigger urban region becomes possible. Transformation into a polycentric region can be a quantum leap for Jing-Jin-Ji.

多城市中心的聚集使得一个更大的城市群落的形成变成了可能，这种转变也可以被视为京津冀地区的腾飞动力。

The Randstad in 2015. Urban development until 1950 and between 1950 and 2015 is shown. Despite large extensions, the landscape was preserved by central policies.

Sources:
Mapping the territories of the Randstad Holland:
I.R. Pané and O.H. Diesfeldt,
Kadaster, Statistics Netherlands: Bestand Bodem Gebruik
Kadaster: TOP 10 Vectorkaart

兰斯塔德2015年
城市发展在1950年和2015年之间
大量的植被面积被保存在了城市之间地区

兰斯塔德的视角和多中心城市经验

兰斯塔德成为一个网络城市的根本原因首先处于得天独厚的荷兰河口三角洲自然条件下。然而由于位于海平面以下，该地区却是一片必须设置排水系统才能实现适合人类居住的沼泽地质。历史早期阶段这些城市水系统（运河）为货物运输产生了积极的作用。当地政府主导并提倡的运输方式是加强贸易交流和生产流程的分离，并且促进他们的形成发展。城市政府紧密地和当地资本合作，每个小镇根据自己的特色和自然条件发展自己的专长。城市区域之间通过良好的连接开始了竞争，更重要的是与此同时也产生了相互的合作；合作提高了效率，竞争则确保不同职能可以在最适合的平台上蓬勃生长。

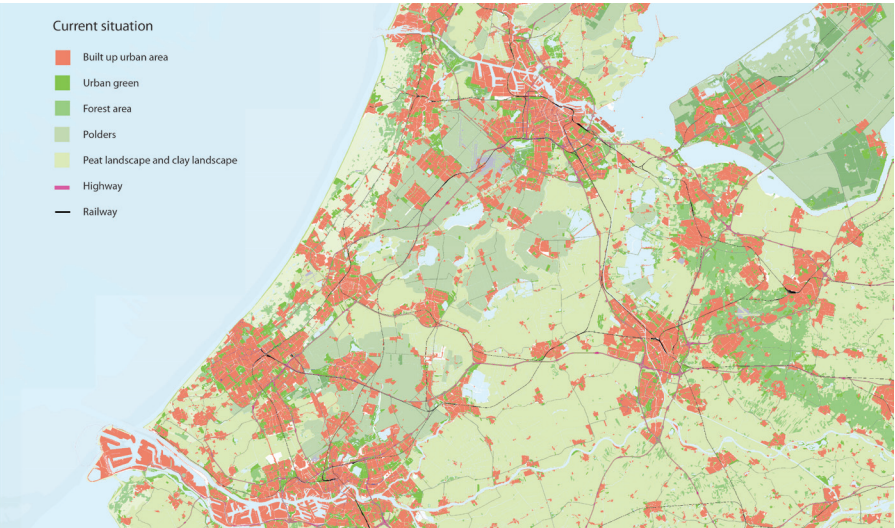
保证兰斯塔德地区持续的作为一个有竞争力的网络城市群，不是依靠城市自身而是通过精细的规划和不断地接受挑战和不断地适应新的环境。第二次世界大战后，荷兰的城市面临着巨大的住房建设需求。1950年开始，兰斯塔德的周边区域的扩张，已经威胁到了城市之间的开放性景观和多中心网络城市的特性。在当时的荷兰，政策制定者和城市规划者就保护区中心植被保持达成了广泛共识。经过一系列政策出现和演变，为实现当时预期的目标中央政府起到了指导和干预的作用。

经过三十年的多中心城市郊区化，中部景观成功保持了其开放性，生态和农业职能被地方机构在固定的生态范围内发展。于此同时，核心城市的竞争力已经被持续的城市去中心化严重削弱了。以自上而下空间政策制定，使得政府在财政上不堪重负，更加严重的是没有和其他重要城市的需要相结合，例如：发展相应的经济体聚落、高质量的新型交通干线。

如果在一个单中心城市集聚效应是通过紧密的交通联系和市场规模来实现，那在一个多中心城市，经济专业化配置、集群化和良好的工作联系则是关键的组成部分。他们需要通过从网络中相邻的地区互相“借用”竞争力、知识和市场来创建集聚效应，从而达到生产上的最大功效。为了面对世界其他地区即将产生的强大的经济体，荷兰国家的经济形态需要从生产转向更有利可图的先进服务型经济。在这种经济中，强有力的创新可以创造更多的附加价值，而专业知识相互作用的良好建设环境中这种优势得到加强。所以，聚落分布和连接的重要性更是成为了重中之重。多中心城市群则是满足这些需求的理想环境，荷兰积极地创造这样的城市环境并且完成了相应地进行经济转型。

Perspectives on the Randstad and experiences with polycentricity

The roots of the Randstad as a Network City lay in the specific natural circumstances of the Dutch river delta. Situated below sea level, the area consisted of marshy land where a system of drainage ditches had to be made to make this territory habitable.

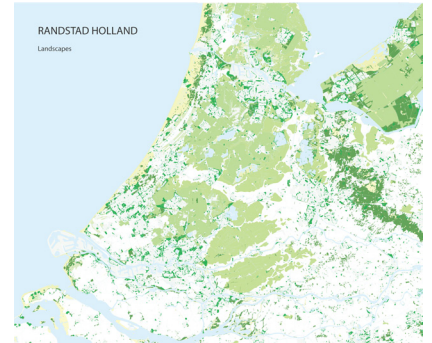
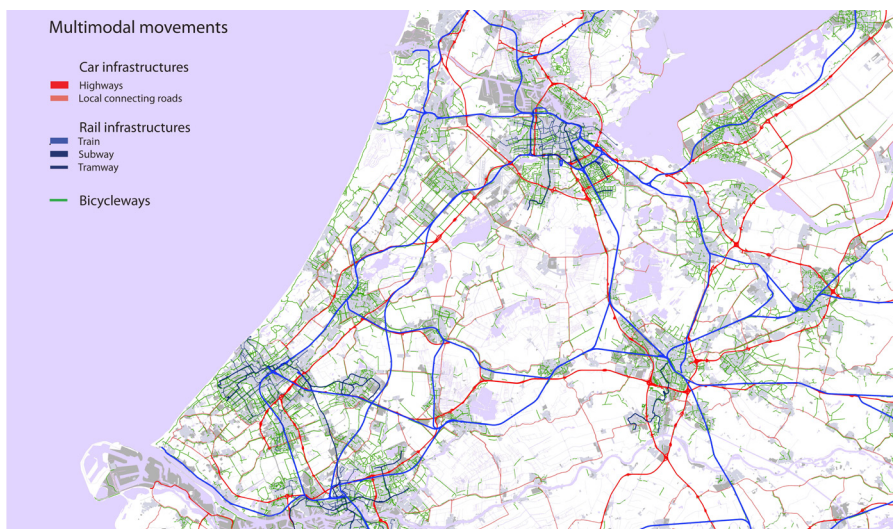


A positive side effect was the presence of these waterways providing an excellent means for local transportation of goods at an early stage in history. The locally oriented transportation meant enhanced trade exchanges, separated production processes and their advancement. City governments collaborated strongly with local stakeholders; each town began to develop their own specializations based on local properties and scenic characteristics. Through these excellent connections the urban areas started to compete and, more importantly, co-operate simultaneously; cooperation increased performance, ensuring that functions were allocated where they flourished best.

Maintaining Randstad's qualities as a competitive Network City does not come by itself; careful planning and adaptation remain as ongoing challenges. After the Second World War, the cities in the Netherlands faced a vast demand for additional housing. Starting from the 1950s, extensions around the larger cities of the Randstad threatened the open landscape, highlighting the outdated monocentric character of cities. Amongst policy makers and urban planners in the Netherlands, a broad awareness arose for the need of protecting the valuable landscape. A series of evolving policies started and to reach the desired goals; the central government took a directive and intervening role.

After three decades of polycentric suburbanization, the landscapes were successfully kept open and ecological, and agricultural functions were nurtured by local bodies that functioned within the set ecological contours. At the same time however, due to ongoing suburbanization, the competitiveness of the core cities severely weakened. The intervening spatial policies which had been applied from a top down perspective, became financially uneconomical and more importantly had not been able to incorporate important urban requirements such as appropriate economical clustering and high-quality mobility links.

If in a monocentric setting agglomeration effects come about by close proximity



The landscapes of the Randstad in 2015. The preserved landscapes were well-nurtured by local bodies.

Sources:
Kadaster, Statistics Netherlands: Bestand Bodem Gebruik.
Deltares, UtrechtVos, P. & S. de Vries 2013: 2e generatie
palaeogeografische kaarten van Nederland (versie 2.0).
Downloaded [march 6th 2016] from
www.archeologieinnederland.nl.

2015年兰斯塔德的景观,中部林区被很好的保护起来。

Urban areas and mobility networks of the Randstad in 2015.

In the polycentric setting, precise connections are made in the dispersed urban setting. Clusters can be enforced via mobility networks. The networks for different distances and speeds intertwine and work together.

Sources:
Kadaster, Statistics Netherlands: Bestand Bodem Gebruik
Kadaster: TOP 10 Vectorkaart

2015年在兰斯塔德的移动网络

在多中心的设置精确的连接都在分散的城市环境做出。集群可以通过移动网络来执行。针对不同的距离和速度的不同网络相互交织而共同努力。



The map indicates the competitive region in development around Amsterdam (Northern Wing). Coherence in clustering is achieved by consultation and cooperation, and includes the key project of the Zuidas. The map also indicates the mobility projects of the high-speed line which integrates the Randstad in the ABC (Amsterdam, Brussels, Cologne) region and the Erasmuslijn, strategically urbanizing rural areas between Den Haag and Rotterdam.

Sources:
Mapping the territories of the Randstad Holland:
I.R. Pané and O.H. Diesfeldt,
Kadaster, Statistics Netherlands: Bestand Bodem Gebruik
Kadaster: TOP 10 Vectorkaart

地图所示项目

地图展示了竞争非常激烈的阿姆斯特丹周边地区，然而通过相互的磋商，城市之间形成了项目上的合作，例如阿姆斯特丹南站开发。图中还显示了“ABC地区”（阿姆斯特丹，布鲁塞尔，科隆）在交通、高铁上的合作，鹿特丹和海牙之间的保护林等。

Project for Zuidas Amsterdam -

Model:studiotransue
Picture: studiotransue

阿姆斯特丹南站地区项目

大规模的基础设施转变为全球性城市生态网络。主要合作伙伴是阿姆斯特丹市政府及铁路和公路建设的国家基础设施机构。现状的建议和现状照片

and size of markets, in a polycentric urban setting economic specialization, clustering and well-functioning connections are critical components. These need to be created by means of well-targeted interventions that create agglomeration effects by ‘borrowing’ competition, knowledge and markets from neighboring areas in the network. In order to face upcoming economies in other parts of the world, the country’s economy needed to move away from manufacturing towards a more profitable advanced services economy. In such an economy higher added values are created by strong innovation, which takes place in well-developed built environments facilitating the interaction of specialized knowledge. These requirements emphasise even more the importance of clustering and connecting. The polycentric region is an ideal setting for this and the Dutch have actively worked to create such urban environments and transform their economy accordingly.

荷兰兰斯塔德：21世纪，重新定位网络城市的工作模式

为了城市转型过程的充分实现，对持续改善兰斯塔德经济、交通和空间特征的需求是21世纪初期很明确的议题。将多中心城市区域作为系统，而其履行任务的能力就是通过建立城市联系网络，并被视为组织城市的流程概念进行推广。联系网络是有效组织和规划复杂系统的方法，如经济，流动性和生态学等等。尽管这些城市化进程在不同的方面各有发挥，但如需运作良好的网络体系仍需要超越领土来创造集聚效应。

现今的荷兰网络组成方式，针对每个相关主题，协调各个实体并且实现互相协调来发挥其最大效能和优势。所有资本在早期即参与并确保了所有获益得到明确和妥善分配。通过这种方式，运作良好的城市系统和稳固的金融基础的实现是可以被预期的。政府层面的协调工作仍然存在，通过在城市发展的必要基础设施上提出指向性的投资方案和主导发展计划，项目对政府部门投资的依赖也大大削减。

Randstad Holland: working methods on repositioning the Network City in the 21st century

In order to adequately perform in urban transformation processes, the need for constant improvement of the economic, mobility and spatial characteristics of the Randstad was a clear issue at the beginning of the 21st century. The powerful notion to think of polycentric urban regions as systems, and their ability to fulfil tasks, was promoted by the concept of creating networks that organize urban processes. Networks are an efficient way of effectively organizing complex systems such as economies, mobility and ecologies, by realizing the relevant chains. Whereas these urban processes play at all scale levels, well-functioning networks need to exceed



territorial barriers to create agglomeration effects.

In the Dutch network approach used nowadays, coordination entities are organized for each relevant topic, through which directions are set in order to accomplish good performance. Early involvement of all stakeholders ensures all interests are identified and properly addressed. In this way well-functioning urban systems and a solid financial basis for the stakeholders can be realized. Coordination still exists at the governmental level by directive investments in the necessary infrastructure for urban developments, and via appointed key projects for crucial chains within the networks, resulting in a severe reduction in the need for investments by the public sector.

建立有竞争力的城市区

建设网络的概念在基础设施走廊和多模式节点集群的发展中初具规模。其中一个走廊以 NoordVleugel (兰斯塔德北翼) 命名。该项目旨在开发一个世界级专业化的商务中心, 将在荷兰阿姆斯特丹南部的Zuidas得以实现。在当地, 上升的城市密度和经济活动与合作得到了极大地刺激。此外, 在史基浦国际机场通过其周边有吸引力的商业园区获得发展和扩张的好处的同时, 阿尔梅勒的周边城市地区也将提高其居住环境。同时, 政府投资改善城市之间的连接性和实现了在Zuidas的重要节点位置上研发的重点项目。为了开发并实现项目上多方多层面的介入, 并使它运作良好, 并联合该区域内的重要业主组成了名为“阿姆斯特丹都市圈”的管理实体组织。在这里, 通过提议和协商的多循环程序, 制定了对该地区最佳的开发分配方案和最终产生具有法律约束力的发展协议。由此, 一个具有国际竞争力的经济服务区出现了。

Zuidas是该地区具有带头作用的重点项目, 有利于将不同类型的交通网络进行整合。整合城市、城市功能、各层级的交通基础设施、公共空间和生态环境等任务, 形成了一个同化很多攸关利益的极其复杂挑战, 最后当地政府引导并把这些元素整合为一个设计的过程。为了达成协议, 一系列的设计方法被制定, 并咨询不同的相关方并发起讨论。最终得出名为DOK的模型: 一个关键的基础设施解决方法, 在这其中, 不同的交通网络可在同一个整体项目中得以优化。

Building competitive urban regions

The notion of building networks took shape in the development of clusters on infrastructural corridors and multimodal nodes. One of these such corridors is Noord Vleugel (Randstad Northern Wing). The project consists of developing an international, highly-specialized business center to be realized at the Zuidas on the south side of Amsterdam. Here, increased density and enforced economic activities and cooperation are greatly stimulated. In addition, the neighboring city of Almere will develop high-quality residential environments, while the international airport of Schiphol benefits from both developments, and expands with an attractive business park in its proximity. Simultaneously, the government invests in improving the infrastructure networks to the required connectivity level, and in an important node and area development project at the Zuidas. To develop and realize this multifaceted intervention, and moreover, to make it function well, the main stakeholders on the territorial level joined forces in an organizational entity called Amsterdam Metropolitan Area. Here, through a multicyclic process of propositions and consultations, guidelines were formulated for the optimum distribution of developments over the area, ultimately leading to legally binding agreements on these developments. In this way, an internationally competitive region for service economy has been created.



Transforming massive infrastructure into an urban sphere respecting the ecological network. Main partners: Municipality of Amsterdam and other national infrastructural bodies. Photo's: <Luchtfoto zuidas 2012> Pro Rail

阿姆斯特丹南站地区项目

转变大规模的基础设施将其纳入城市的一部分, 并保证和尊重其生态网络。

项目主要参与方是阿姆斯特丹市政府及铁路和公路建设的国家基础设施机构。图片为现状照片

Breda Centraal: the city is repaired, unifying town and station into one building. Main partners are construction companies and the City of Breda.

Sources: Bredacentraal and Your Captain Luchtfotografie

布雷达中心：全市在一个建筑修复统一城镇和车站。主要合作伙伴是建筑公司和布雷达市。左图是模型，右图是在建的建筑物。



The Rotterdam Centraal terminal organizes the urban fabric in such manner that surrounding developments can be left to the market, enabling more rapid developments.

Sources: www.rijksoverheid.nl and Bureau Spoorbouwmeester www.spoorbeeld.nl

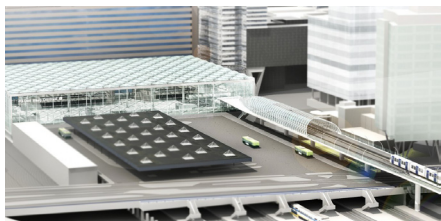
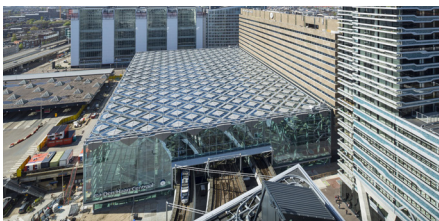
鹿特丹中央车站的规划方式，将城市周围的发展可以留给市场并且实现更快速的发展。



Den Haag Centraal Station was upgraded to a multimodal hub and commercial property was redeveloped. The Erasmus line was integrated.

Sources: Pro Rail

海牙中央站已经升级到一个多式联运枢纽和商业功能也被重新布置。



Developments on Erasmuslijn are tailor-made depending on local circumstances.

Erasmuslijn的发展则取决于当地的实际发展情况。

左：Pijnacker站。右：Leidschenvveen的城市发展



The Zuidas is a key project because of its backbone role for the region, favoring the integration of the different types of networks at the local level. In this key project, investments in city, mobility and ecology are combined. This task of integrating city, urban functions, transport infrastructure of all levels, public space and ecology, generates the very complex challenge of assimilating the many interests at stake. The integration of these elements into one design was developed in a process initiated by the local government. To reach an agreement, a series of design proposals was made and discussed in consultation with the different parties involved. In the end, the consultation led to the so-called ‘DOK’ model, a pivotal infrastructural solution in which the different networks can be improved in one holistic project.

建造不同规模层次的交通流动系统

运作良好的交通网络对于网络城市中所需的相互交流非常重要。从基础设施角度来看，中央政府和基础设施筹划的各方正在努力优化交通移动系统以同时操控不同程度的速度和距离来确保各层级的运作模式。在兰斯塔德，更大区域的整合也称为热门话题。高速铁路网络被建造使得兰斯塔德整合进入更大的ABC（阿姆斯特丹 - 布鲁塞尔 - 科隆）区域。在这里，荷兰中央政府决定着重关注一系列重点项目，如连接城市的高速列车站以及良好连接的公共空间。根据当地的实际情况和相关资本的需求，在上图中这六个项目中，每个不同策略都是显而易见的。

为了使兰斯塔德更加具有可持续性，通过TOD模式推动的区域空间整合正在各处筹备和发展。一个较小规模的例子是两个主要城市的连接：鹿特丹和海牙。项目改造了一个未充分利用的铁路线由乡村铁路线变成名为**Erasmuslijn**的大都市线。该项目包括新的空间发展，使得区域发展和优化交通充分融合的。这里项目的特点在于通过线形空间概念整合了住房，就业，设施和完善的公共空间。此外，项目让当地较低的规模水平的指导做法在高度一体化的城市项目中找到了自身定位。

Building with transit mobility systems at different levels of scale

Well-functioning mobility networks are key to the interaction required in a network city. From an infrastructural viewpoint, the central government and the relevant infrastructural parties are working to advance the transit mobility systems to simultaneously operate at different degrees of speed and distance, ensuring intermodality on all levels. Also for the Randstad, integration in the wider region is topical. A network of high-speed railway lines has been constructed, integrating the Randstad further into the larger ABC (Amsterdam-Brussels-Cologne) region. Here the central Dutch government decided to focus on a series of key projects involving high-speed train stations, where all modalities and connections to the cities, as well as excellent public spaces, are combined. Depending on local circumstances and on the stakeholders involved, a different approach is visible in each of these six projects.

To make the area of the Randstad more sustainable, spatial integration of regions by means of Transit Oriented Development (TOD) is taking shape everywhere. One smaller scale example is the connection of two key projects, Rotterdam and The Hague, via the transformation of an underused train line in farmland, into a metropolitan line called Erasmuslijn. This project includes new spatial developments reaching full integration with regional development and transit. The projects here are characterized by the integration of housing, employment, facilities and well-functioning public space organized in a linear city concept. At this lower-scale level, the approach in process guiding directive bodies also allows local developments to find a place in highly integrative urban projects.