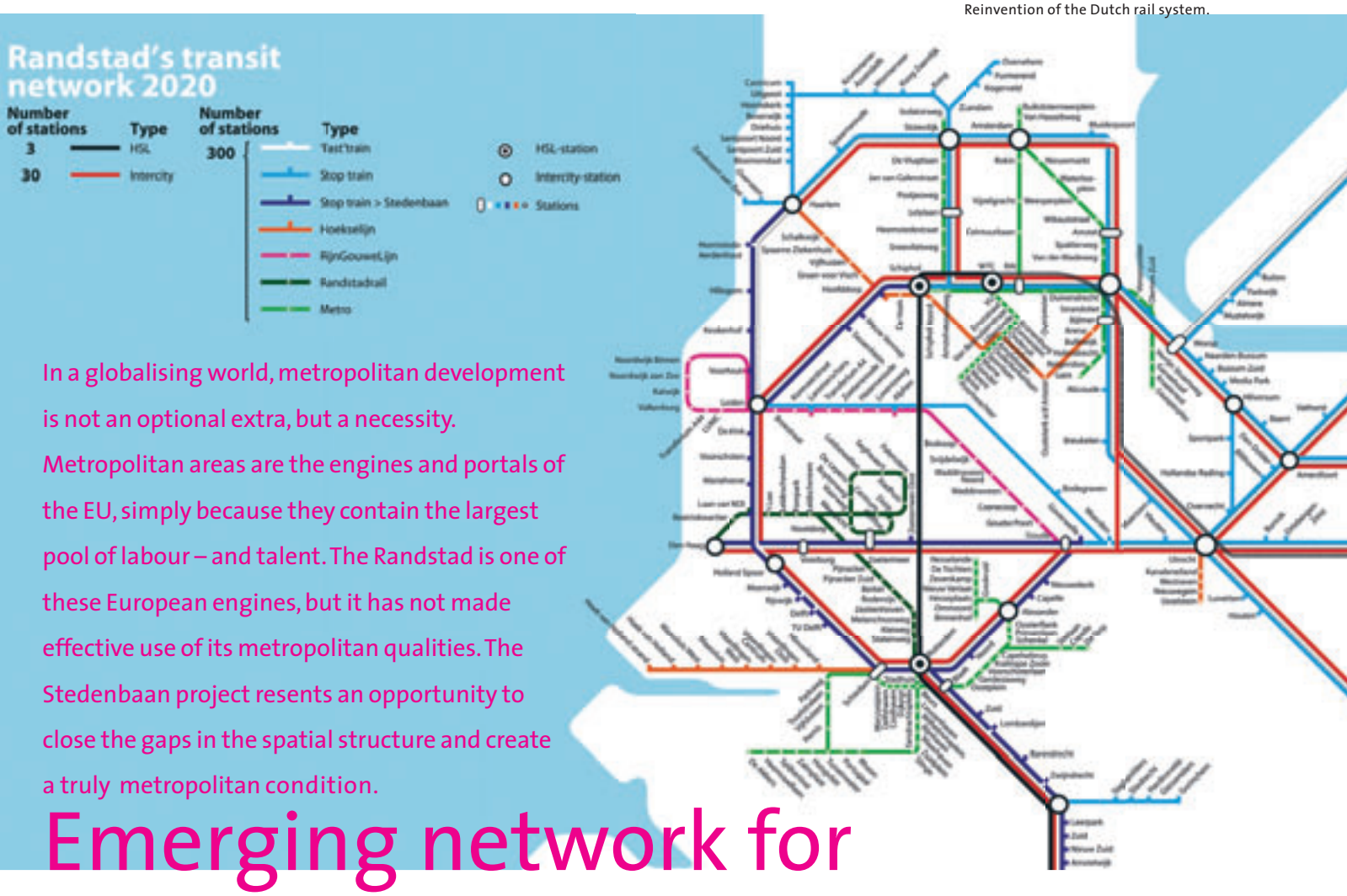
Reinvention of the Dutch rail system.



In a globalising world, metropolitan development is not an optional extra, but a necessity. Metropolitan areas are the engines and portals of the EU, simply because they contain the largest pool of labour – and talent. The Randstad is one of these European engines, but it has not made effective use of its metropolitan qualities. The Stedenbaan project resents an opportunity to close the gaps in the spatial structure and create a truly metropolitan condition.

Emerging network for the Randstad metropolis

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Illustrations: Zandbelt&vandenBerg (unless indicated otherwise)

Most people's idea of a metropolis is dominated by skyscrapers – and that scares them. This is hardly surprising, but ill-founded. Skyscrapers dominate central business districts, but the rest of a metropolitan area consists mainly of green suburbs, business parks, universities, seaports and airports, landscape parks and, in the polynuclear Randstad, a dozen historic city centres and an awful lot of water.

A metropolis is just an urban region that provides the widest choice of nearly everything: houses, jobs, schools, leisure activities and, essentially, transport. A good public transport system is a basic requirement for a metropolis, but is sadly lacking in the Randstad. Of course, the car will continue to dominate the modal split, but with the intensification of development around station areas and improved interconnectivity there is an opportunity to develop a proper alternative to the car in the 10 to 30 kilometre range: a rapid transit network.

BLUE-YELLOW CATERPILLARS

The Dutch trains crawl like blue-yellow caterpillars through virginal green meadows, ferrying commuters; day in, day out. The public transport system in the Randstad already works like a metropolitan transit system. But it performs even worse than the outdated transit system in London because it was not designed for the purpose. National railway systems are built to unite a country, both economically and socially: to make it possible to do business in another region, or to visit your aunt at Christmas (and stay for a week). They are not meant for intensive use by hundreds of thousands of people each day. But this is exactly what we have been doing for decades in the Randstad. For short distances the trains are too heavy to accelerate rapidly, so they do not stop very often. The frequency of services is too low and the seats take up too much space, leaving no room for standing passengers. We urgently need to redefine the hierarchy in our transport system: besides the national system served by InterCity trains we need a metropolitan transit system daily commuting in the 10 to 30 kilometre range.

FRENCH LESSONS

How is this done elsewhere? Many metropolitan areas have dealt with this issue before. A classic example is Paris. Forty years →

after London it introduced the *chemin de fer métropolitain*, the current metro. This system runs underground most of the way and has a maximum reach of approximately 10 kilometres. After World War II Paris suffered from severe congestion and its outer districts had become slums. To overcome these problems a fully-fledged masterplan for expansion was carried out as conceived. Five new towns were built and served by a new form of public transport, the RER, a rapid transit system built between 1965 and the 1990s. Ten lines fan out from the city for some 35 kilometres in all directions, with a total journey time of under an hour.

Two lessons can be learned from the Parisian experience. One is that Paris remains more or less a monocentric metropolis. Like most French transport infrastructure, all the RER lines run to the heart of Paris. They are all intensively used, to such an extent that to prevent a total gridlock in the *centre ville*, a circle line (*l'orbitale*) has been introduced. This is a big difference from the Netherlands where journey patterns are much more 'criss-cross'. The Randstad is clearly polynuclear.

The second lesson is that enormous energy and determination are needed to stick to the plan and carry it out as conceived. This may seem obvious, but the experiences with the Betuwe cargo line and the High Speed Line (HSL) clearly show that the Dutch political system makes it impossible to carry out such plans as originally intended. A multitude of stakeholders and other parties have the rand power to influence the planning process and endlessly force through amendments, hampering implementation.

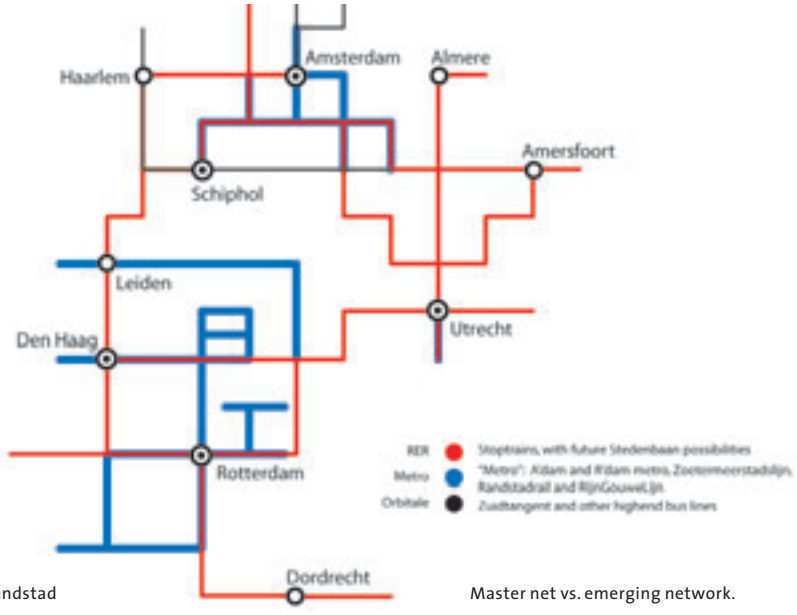
DUTCH DISEASE

This is a general obstacle in Dutch planning, which has two causes, it seems. Local authorities are more powerful than regional authorities and so local interests always prevail over regional ones. The second reason is a simple lack of vision and resolve. There are many parties involved, but no-one owns the problem. If something goes wrong, no-one can be held accountable. Neither does any party feel responsible for the bigger, long-term picture. This Dutch disease has already frustrated urban and suburban development in the 'South Wing', one of the most densely builtup areas in the Randstad that includes The Hague and Rotterdam. An enormous urban field is under construction right now in the area between these two centres. The 'VINEX' suburbs [1] in this area make up the largest component of this new development, next to business parks, regional parks and greenhouse complexes. Together they amount to a city of 100,000 residents, equivalent to the size of Delft – but without the jobs and the city centre that normally go with it. They are supposed to have a bilateral relation with their mother city: live in the suburb; use the mother city for work and facilities. In reality, the VINEX residents use their new homes as a strategic location in the web of the Randstad's (motorway) network. Their daily urban system covers a territory that extends on average about 20 kilometres from their house in several directions, whereas the mother cities of the VINEX districts are only five to ten kilometres away.

An attempt was made to think of these housing schemes as a complete development package, but it failed. Now every city has its own suburb, with nothing in common except that they look the same. The legacy of the attempt at some form of coherent development programme is the Randstadrail and the N470, a regional road. These two stepchildren are worthy in themselves, but by no means do they form a true network. They mainly connect the suburbs to their mother cities.

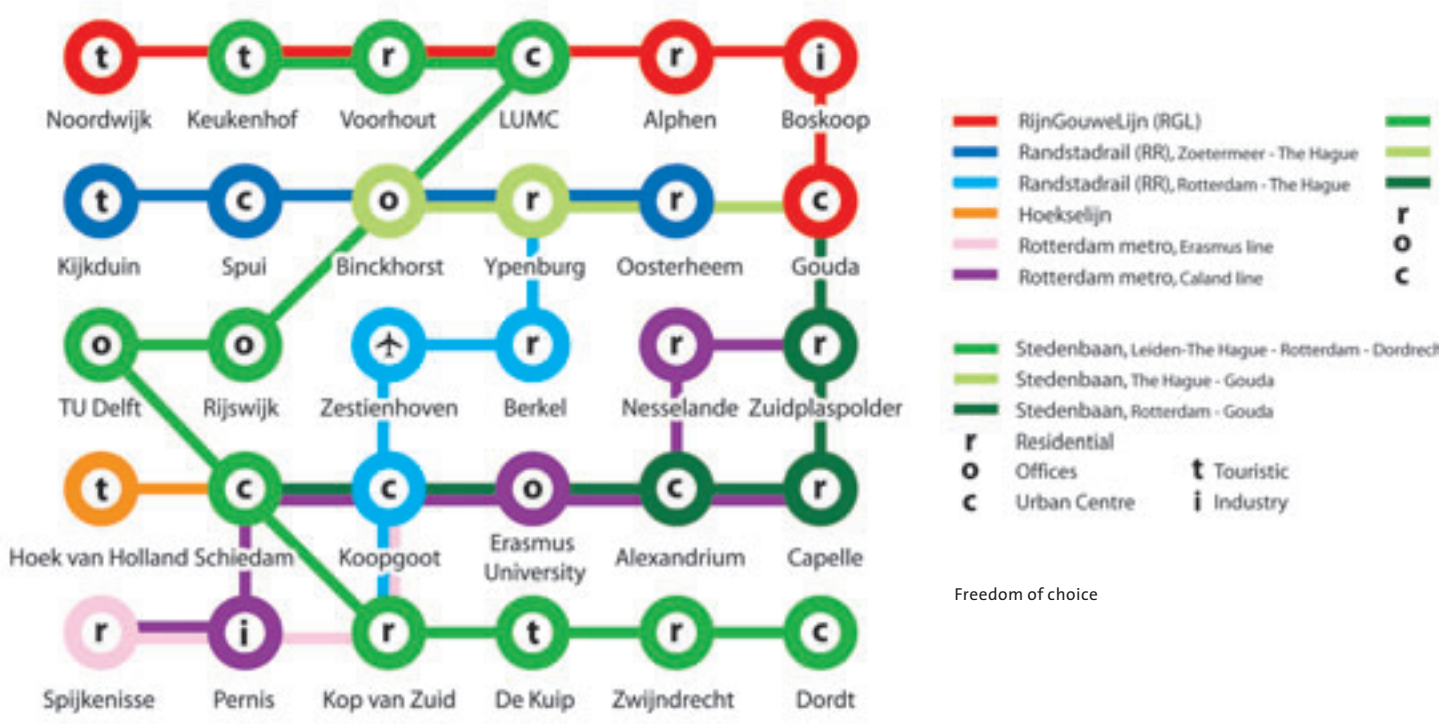
The planning of new rail infrastructure took a slightly different course. There was not even an attempt to create a coherent network; the construction of a single line is considered difficult enough. The Randstad is now blessed with a whole series of separate plans for rapid transit lines. In the South

Paris



Randstad

Master net vs. emerging network.



Freedom of choice

Wing alone there are at least five. However, this accumulation of separate development may also have its advantages, although it is a pity that any benefits will be down to sheer luck rather than foresight.

EMERGING NETWORK

In the spring of 2007 the HSL between Amsterdam and Rotterdam will come into operation. The new HSL line will free up capacity on the 'old' line between Leiden, The Hague, Rotterdam and Dordrecht. The Stedenbaan project will make use of this capacity by introducing a commuter train service with 'metro quality' on this line and on the Rotterdam-Gouda and The Hague-Gouda lines by replacing, extending and upgrading the current local stopping train service. But there is more to come.

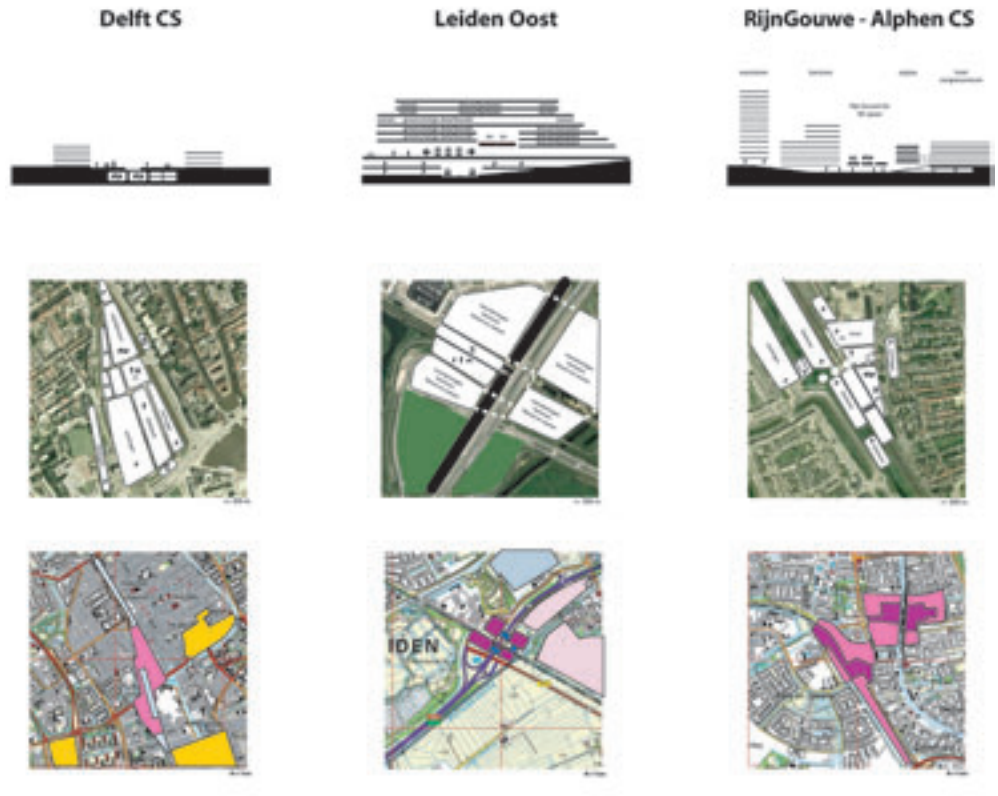
The Stedenbaan project offers the opportunity to link together several concepts into a single rapid transit network, greatly increasing the number of destinations in the 10 to 30 kilometre range that can be reached comfortably. The shrewd aspect of this emerging network is its bottom-up strategy. In the complicated Dutch political context, it is easier to create a transport network in incremental stages than by imposing a top-heavy masterplan. Stedenbaan will connect no less than five different transit lines. Randstadrail, the most prominent, is a RER-like rail connection between Rotterdam and The Hague that links their Vinex suburbs and includes the Zoetermeer Stadslijn (city line). There are plans in an advanced stage of development for the RijnGouwe line between Gouda, Alphen aan den Rijn and Leiden, to be extended later to the coast. Last August the extension of the Rotterdam metro system to Nesselande was opened, and a forward connection to the Zuidplaspolder is a possibility. The Hoekse line will be upgraded and run from Schiedam to the coast. These developments will allow people to travel more easily from one place to another and expand the sphere of their daily activities. For example, someone living in a Schiedam suburb will be able to go to the cinema on a weekday night not just in Rotterdam, but also in The Hague or Zoetermeer, or for a student living with his parents in Alphen to study in Leiden, The Hague or Gouda.

As well as offering residents in the region a wider choice, the greater connectivity of the new network will expand the catchments of a whole range of facilities and amenities (e.g. swimming pools), making it easier to generate sufficient income for their operation and maintenance. Stedenbaan taps into unsatisfied demand. Of course, as long as the total population does not grow, total demand will not increase dramatically, but it will rise gradually as our needs and wishes continue to grow. On the other hand, the average household size is decreasing, which means more homes will have to be built to house the same number of people. Our recreational needs will grow, too, both for built facilities, such as retail and sports facilities, and for outdoor recreation – more beaches, urban parks and water-based recreational facilities at the lakes in the Green Heart, like the Kager Plassen. Possibly the most exciting opportunity is that connecting several transit lines will generate a larger critical mass to support programmes now considered wholly out of reach.

UPGRADE

Interestingly enough, most of these lines – the RijnGouwe line, Randstadrail, Stedenbaan and Hoekse line – run mostly on existing tracks. The really new element will be upgrading both their hardware and software. Improvements in the software will be twofold: more convenient and attractive vehicles, and more frequent services, which will be stepped up from once every 30 minutes to six trains per hour in each direction in 2014.The hardware upgrade will involve building new stations. Of the 48 stations on the Stedenbaan, 16 are new, three of which have already been planned: Ypenburg, Schiedam Spaland and Sassenheim. On the strength of the network's improved centrality and accessibility, new development will be →

clustered around the stations and provide part of the financing for the construction of the network. In the meantime, Stedenbaan will be restricted to the southern part of the Randstad, with extended branches to Schiphol Airport and Haarlem. In the long run opportunities exist to connect it to the range of regional transit systems in the north, including the Zuidtangent, the Amsterdam metro system and North-South line. We would then have a rapid transit network covering the whole Randstad.



Three case studies. (source: Deltanet)

CAR CONNECTION

The rapid transit network also provides an opportunity to combine car and train. These high-quality public transport systems always emphasise access to stations by foot, bicycle and local public transport. However, it is not a strange idea to consider cars as well. Good Park & Ride facilities will enlarge the catchment area of the stations and allow people to drive to their local station and get on the train in the morning without the problem of traffic jams or high parking charges. The stations would only have to be well positioned in the local road infrastructure, because the car serves as feeder only.

Places that are very well connected to both the regional road and rail networks can rapidly develop into an edge city. European edge cities have a couple of features that set them apart them from North American ones. The European version is served by high quality public transport and parking is more efficiently solved by stacking the cars in buildings or on top of shops. The buildings do actually have an entrance for pedestrians, making them more attractive places to go to, even without a car.

Rotterdam Alexandrium is a good example. Over the past two decades it has accumulated sufficient critical mass, with the construction of a ring of suburban areas, to support the Oosterhof local shopping centre. Once accessibility was improved with a metro stop, an intercity station and a motorway exit, the shopping centre evolved into a mega 'home furnishings' mall. (True regional shopping malls are not permitted in the Netherlands.) Alexandrium is also an important office park and is the home of NRC newspaper and Coca-Cola among others. Not every Stedenbaan station will grow into such an edge city, but some will.

New developments around the stations, accessible to a large number of people, will give the network as a whole a metropolitan dimension. Stedenbaan is a tool to diversify, intensify, specialise and reorganise the set of local conditions. Diversification can be achieved by adding new functions to monofunctional areas; intensification by the construction of new buildings, thus avoiding greenfield development by making more efficient use of existing urban areas. Station areas can become more specialised by attracting activities within a specific field, such as knowledge intensive companies, and making connections between stations more attractive. Reorganisation can be achieved through regeneration; deprived neighbourhoods will be revitalised by their new centrality and accessibility. Stedenbaan can contribute to an urban renaissance.

The 'rapid transit network' as a whole not only offers an excellent alternative means of transport to the car, but it also interconnects all these different development programmes and environments to form a more coherent and richer whole.

ATELIER ZUIDVLEUGEL

The Atelier Zuidvleugel, set up by the Province of Zuid-Holland to explore options for the 'city plan' for the South Wing, is analysing the spatial development opportunities of all the Stedenbaan station areas. The research team have already drawn up an inventory of the development potential in terms of land area, based on the 'spheres of influence' of each station defined by a radius of 1200 metres. The 48 spheres of influence investigated by the Atelier Zuidvleugel have an accumulated territory of 18,000 hectares. Of this enormous land area only 2800 hectares, a sixth of the total, is available to be transformed in the decade between 2010 and 2020. Almost two-thirds of this development potential involves the regeneration of existing, predominantly residential urban areas.

These maximum possible growth models have been juxtaposed with the regional development ambitions for these sites, which are based on housing needs. The South Wing housing needs assessment estimates

Rotterdam airport: new centralities boost new developments. A project by Witteveen+Bos and Zandbelt&VandenBerg.

that 175,000 new homes will be required between 2010 and 2020. Of these, 60,000 are needed to replace existing inadequate housing and the remaining 115,000 will be additional stock. Around 40-55,000 of these new homes are projected around stations, with the Stedenbaan stations accounting for 25 – 40,000.

The ambitions and space for intensification differ per region. The Haaglanden region has a healthy wish to raise the density of development. The Rotterdam region has a greater potential for growth than its current programmes suggest. The Midden Holland region (Gouda and surrounding area) seems to be overambitious, with a growth projection three times larger than it can reasonably be expected to accommodate in the space available. Moreover, the redevelopment potential is unequally divided between the various stations, with ninety per cent of the growth potential concentrated in about a third of the station areas. The stations in the Haaglanden region and the area around Leiden central station, in particular, have plenty of space.

Another research team, at Delft University of Technology, has been established to determine the same potential along the other lines in the network (i.e. not the Stedenbaan).

They have identified four categories of stations in the network:

1 Stops that simply enjoy being hooked up to the network, as an entry point of the network. They give the network sufficient critical mass and enrich its overall value by adding additional destinations. These stations will be used more intensively and activities in the surrounding area will orientate more towards the station. Development potential is modest.
2 Opportunity areas with plenty of space for new development, since their once peripheral location has now become more central. Car accessibility is good. Connection to the rapid transit network has considerably raised their development potential.
3 Transport hubs, where several lines and modalities come together. Access by car may be poor. Typical examples are the major stations in the Randstad, such as Rotterdam Central and Leiden.
4 'Empty' stops, which do not generally supply a large number of passengers but enrich the overall network value. These include stations in regional parks, water-based recreational areas and beach resorts.

JAPANESE STYLE

The Japanese *keiretsu* (business alliance) can serve as a role model for developing the system using a bottom-up strategy. The *keiretsu* is a set of affiliated companies in diverse fields, from a railway company to a construction firm and retail giants. The development would proceed as follows: private railway companies are developed in tandem with new stations, the station areas are initially developed as retail hubs, and then the wider area around the stations are prepared for residential development. In essence, the new territories are first made more accessible, giving them a more central position than before. Then consumers and employees are lured to these places to shop and work. And finally, the stops become centres offering attractive and convenient residential accommodation. The *keirestu* is responsible for the initiative, real estate development, construction and maintenance. Since it is also the owner of department stores and other property at the stations, it has to constantly innovate to keep consumers coming. Instead of 'hit and run development', there will be a continuous cycle of design, construction, maintenance and improvement.

A few lessons can be learned from these experiments:

– Acknowledge that power to control development is limited.
– Share a clear ambition by setting up a long term vision (what kind of city do we want to live in?).
– Use this vision to build alliances.
– Deliver in small portions, step by step, leaving enough freedom to other stakeholders, private or public.

Stedenbaan itself offers an opportunity to make a start with a coherent spatial network for the Randstad through a public rapid transit system. The metropolitan condition this will create is good for people and business.

Note

1 VINEX is the Dutch house-building programme for one million new homes between 1995 and 2015, most of which are being built in major new urban extensions.

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