

# **ARE YOU READY** for the mobility of the future?



**OVER  
MORGEN**

an Arcadis Company



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## **A sustainable transition to a new mobility era**

If we want to keep our cities liveable and accessible, we need to rethink our mobility behaviour; smart and sustainable mobility has become an important factor for cities to flourish and guarantee a high quality of life. Reducing CO<sup>2</sup> and pollutant emissions from urban mobility is one of the ways to create more sustainable cities and liveable streets.

Today, topics such as urban congestion, air pollution, smart use of public space and other transport issues are high on the agenda at the national and European level. This is particularly true for the Netherlands, where Over Morgen is based. The Netherlands is one of the most densely populated countries in the world; with its extensive network of motorways, waterways, public transport and bicycle paths, the country has an enormous mobility demand, and has always been a front-runner in the field of smart, sustainable and shared mobility.

## **Solutions for the next generation**

At Over Morgen, we are committed to doing our part. Our vision of a smart and sustainable mobility builds on four key pillars:

- ***Mobility as a Service (MaaS)***
- ***Shared mobility***
- ***Smart charging infrastructure for electric vehicles (EV)***
- ***Smart urban mobility***

With our expertise in technology and data, combined with practical, substantive knowledge in the field, we assist public and private organisations in their transition to future-proof mobility. Our data-driven predictive models and tools support cities to design the right policy mix to exploit the full potential of emerging mobility solutions. Over Morgen plays a key role in turning policies into successful projects with tangible results.

## **Our projects**

At Over Morgen, we accompany projects throughout their lifecycle, from idea to implementation. This brochure highlights projects that deliver innovative solutions for urban transport and mobility. These projects aim at bringing profound economic, social and environmental impacts, resulting ultimately in a better quality of life. Together, we work for the mobility of the future.

# *Mobility as a Service*

Mobility as a Service (MaaS) is the future of mobility. It describes a shift away from personally-owned modes of transportation and towards mobility provided as a service. It is the perfect alternative to car ownership; as more travellers adopt it as a main source of transit, it decreases costs to the user, reduces urban congestion and CO<sup>2</sup> emissions, addresses other traffic-related issues such as insufficient parking, and leaves more room for urban redevelopment. This is a necessary step if we want to keep our cities liveable and accessible.

More and more forms of shared mobility are offered on the market, such as cars, scooters and bikes. At the moment, a traveller who wants to make use of these services to get from A to B must install a different app for each service, register, check all different apps to see what kind of transportation is available in the surroundings, and make individual payments for every service.

## **A one-stop-shop for mobility**

MaaS is a one-stop-shop for mobility: it simplifies every traveller's life by integrating planning, booking and payment of different services (shared cars, shared bicycles, public transport and taxis) in one app. The user sees all possible travelling options in one single overview and can choose their preferred trip based on cost, time, and convenience. At that point, any necessary bookings would be performed as a unit. The app also provides direct access to the chosen means of transportation, with public transport tickets and virtual keys to shared cars, scooters and bikes. Thanks to real-time information about the weather, delays and traffic jams, users are always able to make the choice best suited to their needs.

## **AMAZE, the first Mobility as a Service app in the Netherlands**

Together with other consortium partners, Over Morgen has developed **the first Mobility as a Service app in the Netherlands**. Our platform provides effective solutions to cities' urban mobility challenges and enables private organisations to be more flexible in their mobility schemes, all with the end user in mind. Read more about our ground-breaking project for Zuidas in Amsterdam in the project section.





# *Shared mobility*

Shared mobility is steadily gaining popularity as the number of shared bikes, scooters and cars on our streets grows at an unprecedented rate. These modes of transportation provide an attractive, sustainable alternative to regular cars. As fewer parking spots are needed, municipalities are able to optimize their use of public space.

## **Benefits for everyone**

its numerous benefits. But what types of shared mobility should they promote? How can they prevent the discomfort caused by the numerous shared vehicles parked around the city? And how to deal with the needs and requirements of both residents and businesses? If municipalities want to ensure that shared mobility brings substantial advantages to everyone, regulation is needed.

## **Designing the right policy mix**

At Over Morgen, we support local authorities in creating the most appropriate regulatory framework for the deployment of shared mobility. With our in-depth knowledge of the field, we assist in drafting policies and tender frameworks, in order to reduce uncertainties and build up capacity to make structured and informed decisions.

We provide a comprehensive and coherent picture of technologies, new mobility services and business models as well as detailed recommendations to avoid bottlenecks and disruptions. Our predictive data models can be efficiently employed to establish where potential users of shared mobility services are likely to be located, and which neighbourhoods are best suited to implement the new schemes. With the support of data and our expertise, we offer policymakers the best toolkit to lead the transition to the new mobility era.

Read more about our shared mobility policy framework for the city of Nijmegen in the project section.

# *Smart charging infrastructure for electric vehicles*

With an increase in electric vehicles, there is greater demand for charging solutions. The Netherlands is a leading country in the development of EV charging infrastructure, with almost **55.000 public regular charging points** and over 1500 DC fast charging points. Over Morgen has been a fundamental part of this development.

## **Networks of charging stations**

Some municipalities operate with an on-demand system. Upon request an individual charging point is installed in a location close to the user's home. The recent increase in electric vehicles and the necessity of charging infrastructure on the workplace and other locations give rise to a different type of charging demand. It becomes necessary to think of **charging points as a network**.

## **Planning ahead**

Municipalities have to anticipate future trends and developments in the field, such as the number of electric vehicles on the streets and the drivers' preferred locations for charging; they have to understand the needs of the end users; they need to ensure that the charging infrastructure is accessible, safe and well integrated in the direct surroundings, and that the local energy network can support the requested capacity. Lastly, they need to devise an appropriate financial exploitation strategy.

## **Data is key**

Over Morgen has been developing a set of tools to make this task easier. We use **data driven predictive models** to make accurate predictions for these trends. They allow municipalities to take a proactive approach and plan the charging network in advance. Over Morgen designs a network that is flexible and adaptive, focussing on charging hubs with strategic fast chargers and regular chargers in the right place.

## **Making the decisions that matter**

At Over Morgen, we believe in combining expertise in technology and data with practical, substantive knowledge of the field. Our EV tools help make complex issues understandable and find easily workable solutions. In The Hague, we have accompanied the installation of the public EV charging infrastructure from roughly 15 to 1500 charging points. Read more in the project section.

# *Smart Urban Mobility*

The pressure on available space is increasing, and urban development projects are at an all-time-high. If we want to design our future cities in a smarter, cleaner way, we have to make our mobility more sustainable.

## **Liveable streets- the dream of a modern city**

Reducing car use while enhancing the quality of public spaces and improving the provision of public transport, walking and cycling facilities: this requires a different take on traditional mobility, and often the courage to experiment with disruptive technologies. We have to move away from car-based planning and towards a people-centric, sustainable approach that creates opportunities for active, healthy mobility while meeting accessibility requirements.

## **Smart mobility meets urban development**

Understanding how a city's mobility system should evolve is complex: it requires profound knowledge of the needs, preferences and demands of end-user groups, paired with an in-depth understanding of urban development, project management and financing to promote sound policymaking and enable attractive business models. Over Morgen plays a connecting role by establishing channels of cooperation between public administrations, urban developers and mobility suppliers. With our expertise in project management, spatial economic development, stakeholder cooperation and finance, we advise urban developers and public administrations on how to optimise the integration of new mobility concepts into their spatial planning, in the tender and design stages.

## **Customised solutions**

The analysis of the situation is always the starting point to define which approach will be the most attractive. In metropolitan areas, for example, Mobility as a Service is often a viable solution for shortage of space and insufficient parking. More remote locations could be made easily accessible by improving the public transport link.

For the Blue District in Utrecht, we have developed an innovative urban mobility concept that will turn the area into the healthiest, most bicycle-friendly district in the Netherlands. Our tailor-made, integrated mobility plan for Feyenoord City in Rotterdam will help transform a challenged area into a lively neighbourhood and promote a healthy lifestyle. Read more in the project section.

# MEET AMAZE, the first Mobility as a Service app in the Netherlands

Over Morgen is currently working on implementing Mobility as a Service (MaaS) in Zuidas, an international business district in Amsterdam and one of the most important office locations in the Netherlands. Hundreds of commuters travel to and from the district every day. Congestion, shortage of space and insufficient parking are already pressing issues. Moreover, this area will undergo major construction works over the next 10 years to improve the accessibility of the district by public transport and by road. The Dutch government sees these renovation works as an opportunity to try to change travel behaviour and shift people towards more sustainable modes. They are launching a new project to introduce Mobility as a Service (MaaS) to the district.

Together with a consortium of partners, Over Morgen has created **Amaze, the first commercial, complete Mobility as a Service app in the Netherlands.** It will allow travellers to plan, buy and pay for their whole trip from one single app. The aim is to give commuters a smarter alternative to driving a car to and from

Zuidas and to make their trip smoother, more sustainable and more efficient while improving the accessibility and liveability of the district.

Amaze will combine public transport with shared mobility, including car sharing, scooters and bikes, in a bid to cut congestion and pollution. The aim is for the app to create personalised daily recommendations for the best way to travel, based on learning the individual commuting habits of employees. The journey planner will show the price and the environmental impact of every trip. The app features a loyalty programme with a system of incentives, where users can collect sustainability points by choosing the most environmentally-friendly travel option. The app can also be linked to the travellers' agenda for maximum comfort and flexibility.

Amaze is expected to be launched in December 2020 and will have nationwide coverage.

If you want to know more about what our MaaS platform has to offer, feel free to contact our advisers.

# CITY NIJMEGEN shared mobility for everyone

In an effort to reduce CO<sup>2</sup> emissions and congestion, and to allow more room for public space and green areas, the municipality of Nijmegen is taking a major step towards the implementation of shared mobility. Numerous providers of mobility services see this as a promising development, and are eager to take part in this ambitious project.

The main challenge for the municipality is choosing the most viable type of shared mobility to promote, and making sure that efficient parking regulations are in place, in order to avoid causing discomfort to residents. They also need to take into consideration the needs and requirements of service providers and end user groups, to be able to define appropriate regulations and prevent possible bottlenecks and disruptions. In order to design the right policy mix, the municipality of Nijmegen asked Over Morgen to assist them in developing their policy framework on shared mobility.

The main goal is to make Nijmegen an attractive, sustainable and liveable

city, while maintaining accessibility requirements. Together with the municipality, Over Morgen explored how shared mobility can best be implemented in the city; we looked at different types of shared vehicles and sharing systems (station-based vs. free-floating) in order to establish which concept would be the most appropriate. Based on our findings, we developed a customised policy framework to help the city implement the new strategies.

We made use of our in-depth knowledge of the field to draft a concept that allows policymakers to exploit the full potential of this emerging mobility solution while enabling market players to invest in a profitable way. This detailed, tailored regulatory framework will help mobility stakeholders and public administrations make the right decisions and implement the best sharing services that will maximise benefits for everyone.

Do you want to know more about how we can help you draft sound policies and choose the best shared mobility service? Feel free to contact our advisers.

# DATA TOOLS TO PLAN NETWORK of EV charging stations in The Hague

The number of electric cars in The Hague is increasing, and this trend will continue to grow. In order to be ready for the future, the municipality asked Over Morgen to make a forecast on the number of electric cars to come, and to make recommendations on the type of charging infrastructure that needs to be installed to meet the rising demand.

**We used a geographic information system (GIS)** to establish where residents, visitors and commuters are likely to charge their EV. We used data on the function of existing buildings to determine the probability of electric vehicles originating from there. The buildings were categorized according to their main user group: resident, commuter or visitor. We then calculated the EV probability based on different factors, such as the amount of privately owned vehicles, the availability of private parking, the different types of business and the proximity to touristic points of interest.

With the **SparkCity model**, co-developed by Over Morgen, we calculated the estimated number of electric vehicles

per building, which we then aggregated into building blocks. Based on this analysis, it was possible to determine the number of public chargers necessary to meet the charging demand in 2017, 2020 and 2025. Additionally, we analysed the areas designated for public parking in order to optimise the installation of EV chargers in parking lots. This allows the municipality to design a public charging network that guarantees that both the requested capacity and the geographical coverage are met.

Our analysis resulted in the outline of a planned network of public chargers on existing parking spaces, taking into account the future demand and all relevant spatial factors. Thanks to this pre-designed network, the municipality has all the necessary tools to take a proactive planning approach and coordinate the installation of charging stations on optimal locations.

Interested in knowing more about charging infrastructure and our data tools? Feel free to contact our advisers.

## THE BLUE DISTRICT: sustainable mobility for healthy cities

Over the coming years, Cartesiusdriehoek in Utrecht will undergo one of the largest sustainable urban redevelopment projects in the Netherlands and be transformed into a healthy urban living district, the Blue District. This groundbreaking concept is based on the theory and research into the world's Blue Zones, where people are known to enjoy longer and happier lives. On behalf of MRP Development and Ballast Nedam Development, Over Morgen has designed the new sustainable mobility concept for the future residents of the area.

The main challenge was finding ways to design a project that would actively promote change in the residents' mobility behaviour and encourage them to walk, use bicycles and car sharing as a main means of transportation, thereby making car ownership less attractive. It was necessary to take into account several influential factors, such as measures to reduce parking spots for private cars and promote car sharing, and to make predictions on how much charging infrastructure would have to be installed in the area. Based on these and other findings, we have developed a mobility

concept that gives priority to measures for walking and cycling, followed by shared electric mobility and public transport.

This smart urban mobility project incorporates the three major trends that will shape the future of mobility: electrification, sharing and autonomous driving. We have worked in close collaboration with the architects and urban planners to come up with a city design that fully integrates this people-oriented, sustainable mobility approach and encourages a more equitable and people-friendly use of public space.

In the coming years, Cartesiusdriehoek will become a bustling urban area with lots of greenery, plenty of space for socialising and healthy food options. All urban amenities will be easily accessible from the residential areas; walking and cycling will be the main modes of transport. A pedal in the right direction.

Interested in knowing more about how smart urban mobility solutions can contribute to the quality of life in your city? Feel free to contact our advisers.

# FEYENOORD CITY: smart mobility for better living

Feyenoord City in Rotterdam is a unique, extensive urban redevelopment project that will transform this area into a dynamic, lively neighbourhood with multiple housing typologies, an abundance of sports facilities and high quality public spaces. The introduction of a new 63,000-seat soccer stadium is the catalyst for a structural redevelopment that will implement a local socio-economic program, promote an healthy lifestyle, and offer smart mobility solutions as well as a CO<sup>2</sup>-neutral energy supply. Together with other stakeholders, Over Morgen is working on the mobility concept for the area.

An important factor is the Modal Shift, which encourages a step away from car usage towards different means of transportation. Preference has been given to mobility concepts and modalities that contribute to the liveability of the area. The goal is to make car ownership obsolete; the plan promotes the use of bicycles through the installation of parking facilities and aims at reducing the use of cars and parking spots by improving the public transport link and stimulating the use of other disruptive technologies.

Apartment complexes are planned in a way that makes walking and cycling the best and fastest way to leave the buildings.

We are currently looking into the possible implementation of a Mobility as a Service system for the Parkstad Zuid plot. The aim is to guarantee the availability of electric cars and bicycles for residents and users at any time. The project is expected to start with 20 MaaS cars. The vehicles will be made easily accessible by stationing 10 cars in the public space and another 10 in a dedicated mobility hub that has the potential to serve other common purposes, such as a logistics hub or a common area for garbage collection.

Thanks to the increased room for bicycle storage, the introduction of the MaaS service and the proximity of the area to the train station, the project aims at reducing the need for parking spots by 60%.

The Feyenoord City project is expected to be finalised by 2024.

If you want to know more, feel free to contact our advisers.



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Our smart and sustainable mobility solutions are designed to create healthy cities and liveable streets”

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