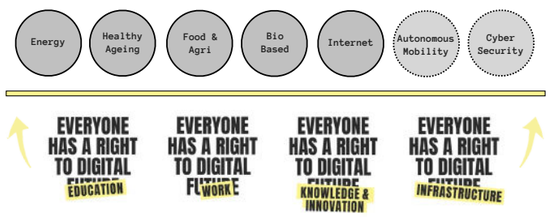
GRONINGEN DIGITAL CITY HAS PLANS FOR SMART MOBILITY

Nick Stevens, Chief Digital Officer for the Dutch city of Groningen, asks how we can put ourselves in the position to exploit the opportunities offered by technology, while mitigating the risks? By learning how to move towards an uncertain, if exciting, digital future.

Stevens says that Groningen's first principle is that everyone has a right to a digital future, which means many different things, affecting all aspects of life and living, see infographic below (the broken line around the two circles on the right indicate they are work in progress).

KNOW YOUR RIGHTS



Source: Groningen Digital City

So how is Groningen, a small city, two hours north of Amsterdam, going to achieve a digital future for all its citizens? Transport is a key area and the one that Stevens focused on. The origins of the modern city are medieval; hence many streets are narrow and the population is dense, packed into a relatively small area. Also, it is a young city (for Europe) – the average age is 37 and there are 60,000 students, but that doesn't mean older people can or should be ignored.

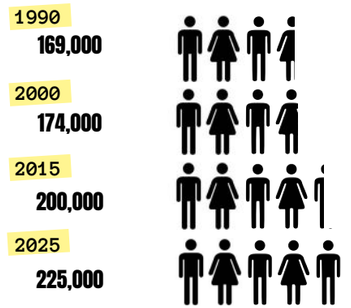
Transport now

Today, 3 percent of daily journeys are taken by public transport, 36 percent by car and 61 percent by bike. Cycling has been encouraged by making it hard for car drivers in the city, where it is not possible to move from one square to another – it is exactly 40 years since the city authorities did this. At the time it was highly controversial, as most cities were planning around cars. It has been a big advantage though as, unlike most cities, Groningen doesn't have to worry about getting cars out of the center as they aren't in it.

For future transport needs, the city is looking at whether it should encourage greater use of public transport or bicycles. Another factor to consider is the rapidly rising population, up from 169,000 in 1990 to 200,000 in 2015. It is expected to reach 225,000 by 2025 (see graphics opposite). Hence, one of the city's biggest concerns is avoiding gridlock in future and it believes that multi-modal transport is the default way to make a city livable and have a sound economic future.

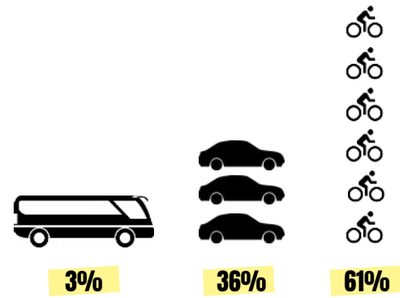
Stevens said, "We need to think more about getting people out of their cars, looking after older people and less able people for whom bikes aren't the answer, and especially how they get into the city from the extensive, surrounding rural areas: Accessibility is a key part of a city's livability."

GRONINGEN'S GROWING POPULATION



Source: Groningen Digital City

DAILY JOURNEYS IN GRONINGEN BY VEHICLE



Source: Groningen Digital City

CLUSTERS AND EXPERTISE

Source: Groningen Digital City

Where to start?

The big question is, where to start? The city is looking at intelligent, connected transport. As Stevens commented, "If you can't control the flow of traffic, there is no point connecting it and it won't be intelligent. We've had smart traffic lights that change to let ambulances through safely and that give bikes priority in wet weather for three or more years."

Now the city is looking at how those extended periods at traffic lights for some traffic affects the rest of the city, and taking more elements into consideration -- for example, looking at weather forecasts as part of traffic planning, including which direction the wind will be blowing, etc.

The city is still fine-tuning its traffic management plans in readiness for autonomous cars. It is looking to collect near real-time, open data on bikes, which is harder to collect than on cars and buses.

It is also looking to use Google Maps and anonymous data from citizens' mobile phones via the carriers. Stevens said, "So we are working on this platform and intend to harness the capabilities of 5G."

Already two Dutch Ministries have formed a partnership, called Talking Traffic, with local and international businesses to improve everyday traffic flow. Stevens said the idea is that the data from traffic regulates traffic. See image in RH column.

He explained, "The partners are looking at three things – how we get bigger data, how will we use the cloud and what information services we can provide from the data?

Testing autonomous mobility

There is collaboration and cooperation between the government, education and businesses on autonomous vehicles. The plan is to do this country-wide. At the moment, Groningen is working on a Dutch-level standard but wants to upgrade to a European Union-level standard. In future, people will be able to deploy solutions knowing they will work because they are standardized. The work Groningen is doing now will save many development years later across Europe.

You have to look at systems and services, vehicles and users and you have to listen to people, Stevens said. If you don't, all of this will be for nothing. Users' anxieties about implementing data-driven control and, in future, solutions such as self-driven cars, include:

- privacy;
- loss of jobs;
- questions about liabilities; and
- worries about cybercrime.

Land, water, air

Test regions for autonomous mobility include:

- highways, rural, city and provincial roads – cars, buses and trucks, bikes, pedestrians;
- national and local rail lines – trains, passengers and bikes (put on trains);
- airport and drone center – aircraft and drones; and
- canals and the harbor – boats, ships and port equipment.

Stevens stated, "You need vision and to understand where you are today. Groningen has the only rural 5G 'field lab' [that is using the real world as a laboratory] in the world and hopes to be the first 5G city in Europe, offering Wi-Fi, LoRa and 5G." This work too is a partnership between many organizations, including the city, KPN, Vodafone, Ericsson and Huawei.

The plan is to test autonomous mobility, then test 5G in a rural area, then build a full 5G-enabled city. Stevens issued an invitation to everyone to go to Groningen and learn with the city.