



REPORT STUDY TRIP SINGAPORE



Study trip to Singapore for Connekt members

At the request of a number of our members, Connekt organized a study trip to Singapore. During this study trip we visited the ITS World Congress 2019 that took place from 21 to 25 October 2019. Various company visits were also on the agenda. We look back on a journey full of impressions and inspiration. We summarize the most important findings in this study trip report.

Kick off at the Embassy

The Connekt delegation started their Study trip with a networking reception at the Dutch Embassy in Singapore. At the Embassy the expectations from the Singaporean people during the entire week were discussed. TNO, that opened an office as a regional hub for South East Asia, was able to introduce the delegation to the smart mobility developments in Singapore. Take aways:

- Public transport is key. The government is highly investing in their public bus fleet, sheltered walkways, doubling the rail network and
- Private vehicle ownership is made unattractive. It is super expensive (price range \$50.000 to \$90.000) to buy a car and get a certificate that allows you to have a car for max 10 years.
- Every single private vehicle has an onboard unit for the Electronic Road Pricing system.
- 12% of the total land is allocated to roads.

Visit GovTech



The Connekt delegation was introduced to the transformation of Government Digital Services towards building a Smart Nation Infrastructure. It was very impressive to see the active and leading role of the government in the technology innovation. The government is developing their own applications in collaboration with local startups. They have created several logistics applications (like trade trust) but are not very active in digital smart mobility services yet.

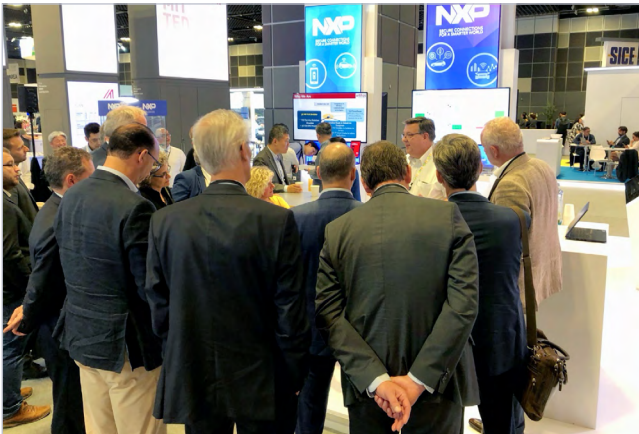
Visit Quilt.ai

Quilt.ai is a startup in machine learning and artificial intelligence connecting millions of human conversations and expressions across public social, news, blog, institutional sources, and search engine trails. They were able to share some fascinating output using their artificial intelligence solutions. Quilt a.i. were very keen about their moral and ethical correct usage of the many technological possibilities. The discussion between both parties was about who is deciding the morality of how humans design, construct, use and treat artificial intelligence.



Visit the ITS World Congress

- **ITS Hamburg** shared information about the ambitious smart mobility developments that are taking place in Hamburg right now. And we were invited for the next ITS World Congress that is taking place in Hamburg.
- **TomTom** showed how electric driving demands dynamic availability data from charging points and how TomTom is enabling Connected Automated driving through their mapping.
- **NXP** showed their solutions on how to secure connection for smart mobility. Deep dive in technology behind data security.
- **Nedap** was showcasing their solutions for vehicle detection and vehicle access control. Which can solve a lot of issues regarding the effective use of public space. The same spot can be a load station from 9-11 am, and a parking spot with live availability from 11-18 to become a bike station for the evening.
- Rob Olde Heuvelt, who was also a member of the delegation, took us to the **Dynniq** booth to present their smart mobility solutions.



After the tour everybody had some free time to explore and connect with others on the ITS World Congress.

In the late afternoon we finished our presence at the ITS World Congress with several demo's at the HERE booth.

Dutch Dinner

During the Dutch Dinner, over 55 Connekt members who travelled to Singapore during the ITS World Congress, came together to connect with each other and share their thoughts and experiences on the ITS World Congress in Singapore. We thank Intertraffic for being the sponsor of this Dutch Dinner.





Seminar Effective City Logistics

The study trip started on Wednesday with a Seminar on effective city logistics organized by the embassy. Together with Frits Bisschop, Nico was presenting the Dutch developments in city logistics. Together with the Singaporean panellists there was a discussion on possible opportunities for the Dutch to collaborate with the Singaporean. It became clear that the biggest challenge in Singapore is the scarcity of space and lack of drivers. This is why

the government is promoting the sector to collaborate and why it supports tech driven pilots in making the city logistics more effective. In the seminar everyone came to the conclusion that the success factors for zero emission are: electrification (charging infra), the need to monitor the CO₂ performance of all parties involved (with BigMile for example) and do research on technological solutions to reduce emissions.



Seminar Safe, Efficient & Sustainable Smart Mobility in Singapore and the Netherlands

The day continued with another seminar focused on safe, efficient and sustainable mobility. Both the Dutch and Singaporean government were presenting the smart mobility developments but were also sharing the challenges they are facing. In multiple mixed groups we worked to solve a Singaporean and Amsterdam use case.

The panellists all referred to the KPMG AV readiness index where the Netherlands is ranked number 1, and Singapore ranked number 2. The Netherlands retains its lead by doing many things consistently

well, including investigating AVs' use in freight and logistics and passing new legislation. Singapore is the number 2 thanks to the government that is positioning the city-state as a center for AV development with the deployment of a simulated urban test-bed and plans for driverless buses. Besides the leading developments in autonomous driving, other similarities between the countries were discussed. Singapore is seen as the gateway to Asia, as where the Netherlands is the gateway to Europe for many businesses.

Visit Plug and Play

The Connekt delegation was welcomed at Plug & play's office in Singapore. Plug and play is a worldwide known innovation platform. They are trying to help corporates with disruption and new business challenges by the connection with startups through acceleration programs, corporate innovation and venture capital. Plug and Play shared that the startup ecosystems are mostly driven by the government. The Singaporean government and Plug and Play invest in many Southeast Asian startups.

Besides an introduction from Plug and Play, we were introduced to 4 of the startups connected to Plug and Play.

- **Ascent** is an Urban Air Mobility platform that make cities more connected by offering ride-sharing and on-demand flights within and between congested cities. Ascent wants to utilise helicopters today and EVTOLs in the future. Ascent has first mover advantage in Asia with technology to aggregate customer demand, manage the supply of helicopters and helipads powered by a proprietary algorithm to optimise routes and allocate inventory.
- **QIQ Global** develops fast charging- and battery technology called ultracapacitors for electric shared vehicles and has launched electric last-mile vehicles in Vietnam, Singapore and Japan. Their mission is to develop and provide ultracapacitors energy storage systems to the electric vehicle industry as they say that electric vehicles today are not designed for high utilisation purposes to serve as taxis or for commercial ride-sharing economy due to the limitation of lithium-ion batteries.
- **SharingOS** is focusing on a niche to provide full-stack, white-label mobility sharing solutions, rather than being a mobility sharing operator such as Lime or Bird. Although the market of mobility sharing has a huge growth potential, currently most of the operators are loss-making. They are now making a profit by working with large mobility corporations who want to enter this space.
- **Chorus Mobility** showed their Blockchain solutions for connected vehicles and autonomous machine-to-machine payments.

Networking dinner



The delegation finished their day with a networking dinner with 9 Singaporean guests divided in 3 theme tables; Mobility as a Service, Intelligent access to smart cities and artificial intelligence in smart mobility.

Visit Applied Innovation Exchange Capgemini

The last day in Singapore started with visiting the Applied Innovation Exchange of Capgemini Singapore where Capgemini is identifying value creation for clients by working with local partners and startups. The delegates were introduced to some programs that aim to accelerate the growth of Singapore-based innovative technology product companies through winning contracts with government agencies and large enterprises, as well as facilitating new growth capital into the companies. Again, the delegation was confronted with the leading role the government in Singapore is taking by investing in tech startup ecosystems. Capgemini also invited 3 startups to present their solutions; Haulio, Xjera Labs and IglooHome.

Visit SUTD

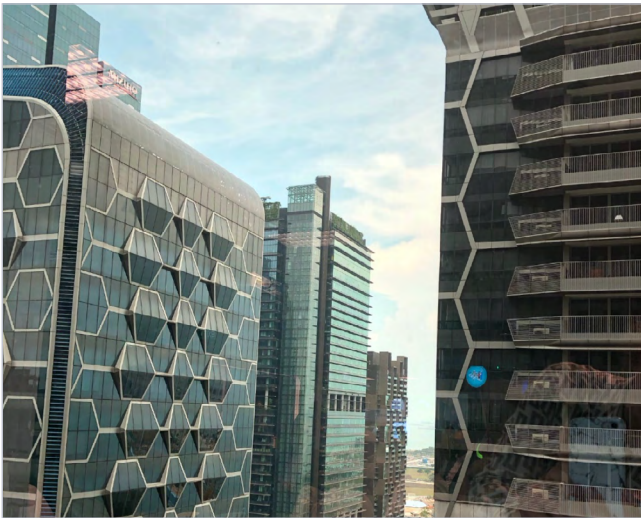


The trip continued with a meeting with professors from the Singapore University of Technology and Design focussing on their AI developments and the Drone research and industry projects. Their vision: SUTD AI is an integrated, multi-disciplinary programme which takes a holistic approach to the education, research and industry implementations of AI Technologies. They look beyond near term solutions toward fundamental AI challenges to develop transformative capabilities for the long term.

Their aviation program focusses on the new Changi airport, the connection with the ground floor transportation and how to reduce emissions. Regarding drone developments, the SUTD presented the Transformable Hovering Rotorcraft (THOR). It is a novel and unique hybrid Unmanned Aerial Vehicle (UAV) that combines the range and speed of a horizontal fixed-wing platform with the hovering and manoeuvrability of a rotor-wing inspired by nature.

Visit Deloitte Excellence Center

After a quick lunch on the SUTD campus, the delegation headed back to the city center to visit Deloitte's excellence center on future mobility. The focus of the discussion was on the biggest challenge in smart mobility; cultural differences and human behaviour. Why Grab won against Uber in Singapore is a good example of the need to understand the local culture.



In Singapore, and Asia in general, tech adoption is way faster due to their culture. And because of the amount of pilots, the speed of law adaptation is very fast in Singapore. They were sharing their thoughts on the need to start of having a big customer base is more relevant when starting a business than developing the right applications and services.

Deloitte believes that an independent trusted 3rd part, that has mandate by the government, should somehow secure all the data that is generated.



Wrap up

After a quick summary and wrap up of the trip, we ended our trip to Singapore with a local dinner at the Asian food Market.

Connekt