





2069 GENERATION-G  
THE GLOBAL CITIZEN

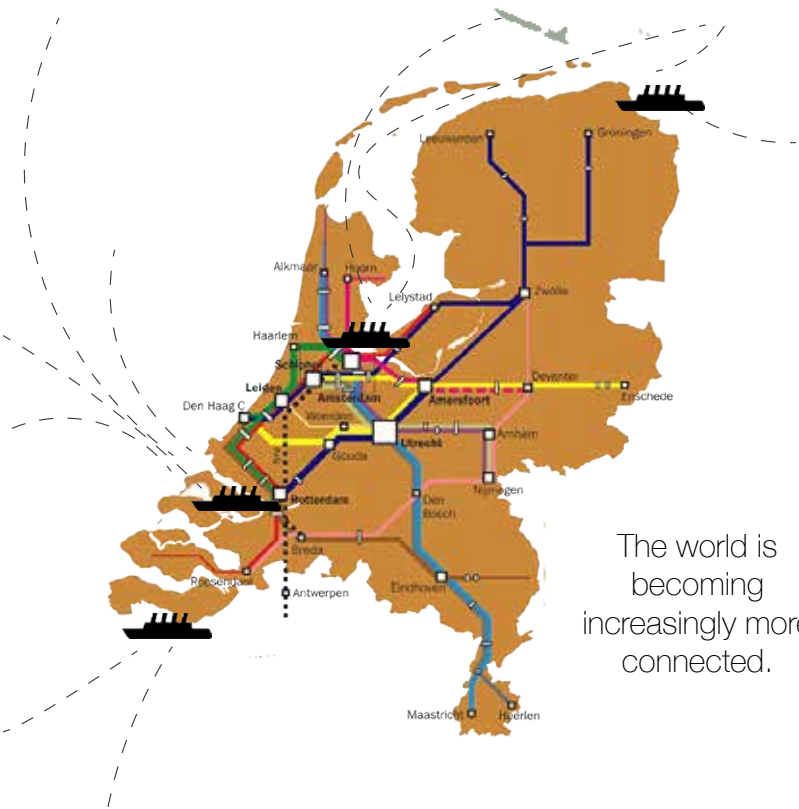
Dutch Identity:



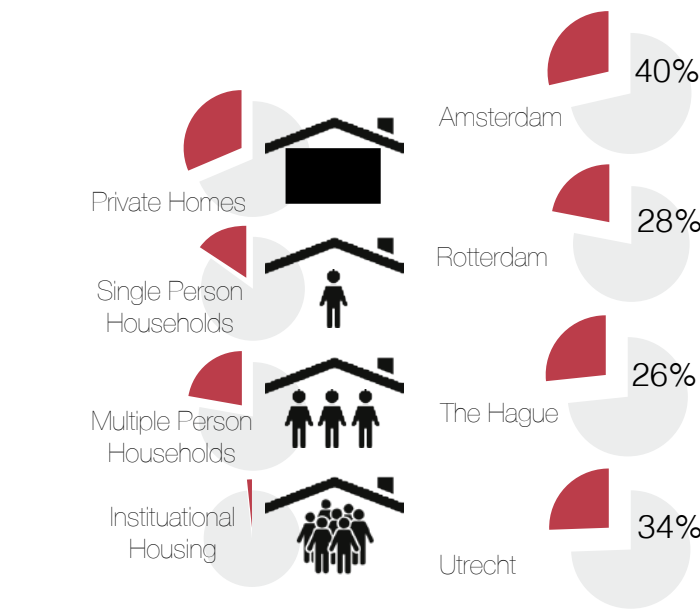
Dutch language  
Kings Day  
Cycling  
Dutch Flag  
Delta Works  
Wind Mills  
Dykes  
The Color Orange



Queen Máxima of the Netherlands:  
“The Netherlands is far too diverse to summarize in one cliché. ‘The’ Dutchman does not exist.”



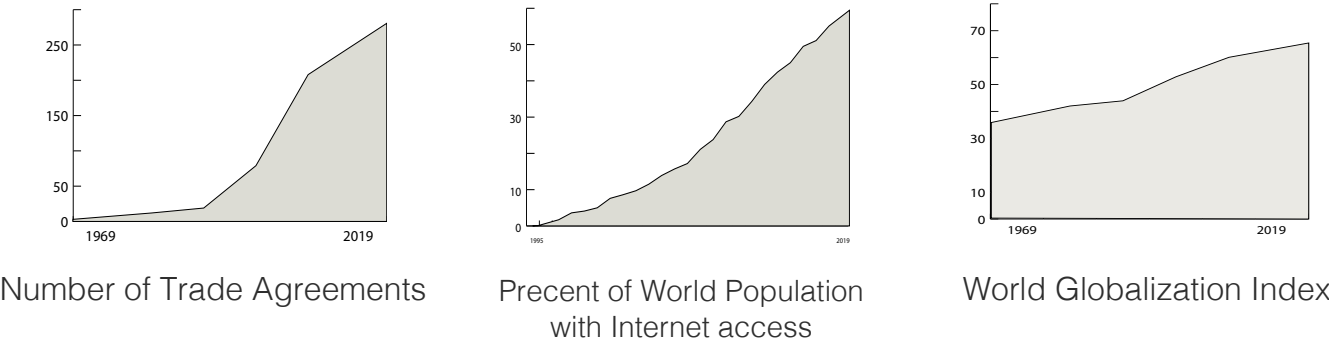
Housing Trends in the Netherlands:




Percent of couples relocating to other municipalities within 4 years of the birth of their first child




Global Trends:






Congregate with your friends and family, meet others with shared hariate or others with different backgrounds. Connect over cooking and eating, Economical cooking option for single person households.



Small scale interdependency Infrastructure to share your resources in a centralized hub. Economical as well as a catalyst for community engagment.



Coeexist  
In effort to accomodate a diverse group of people with varing religious backgrounds you can telecommute to church with others in your community with multuple private gathering spaces and high speed internet.

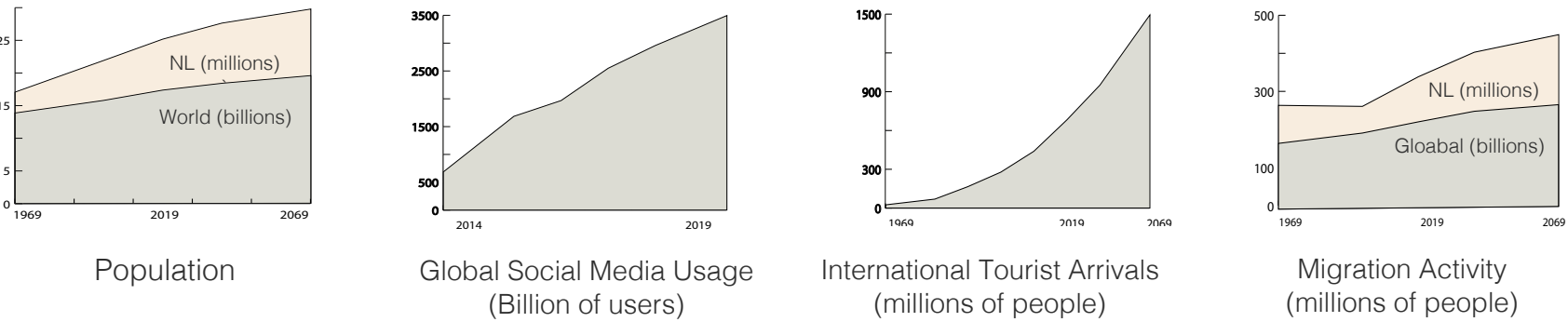
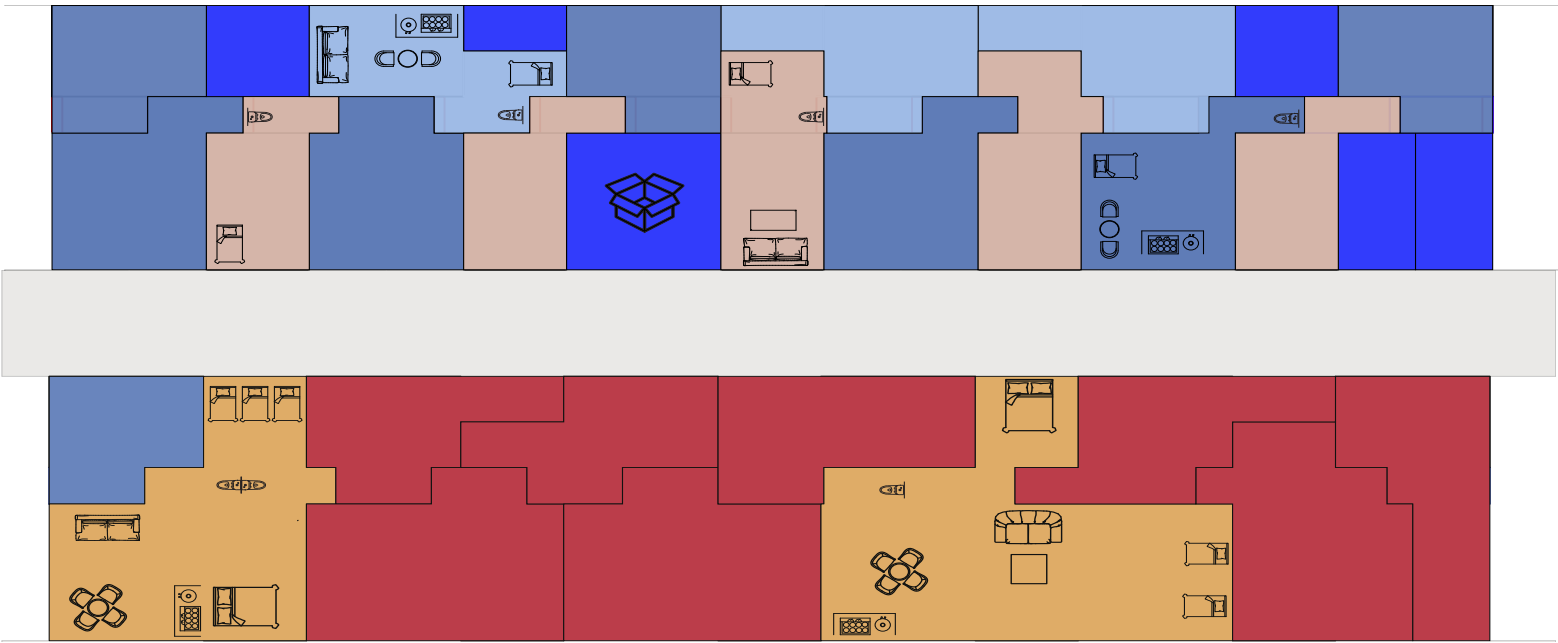
2069 GENE-G  
THE GLOBAL CITIZEN

Flexible approach to housing

In response to the influx of people to the MRDH region due to globalization and the ambition to create 25,000 housing units in the Netherlands.

Flexible grid system based on a central unit for 1-2 occupants contains kitchen area, and a bathroom unit. Additional chunks of space and bathrooms can be leased. if smaller families become more common in the future the extra space between units (having access to private bathrooms but not kitchens) can be rented as Airbnbs or storage units.

Allowing students and individuals to live within the same buildings as families of varying size. This system also allows people to option to stay in one place as their family grows.



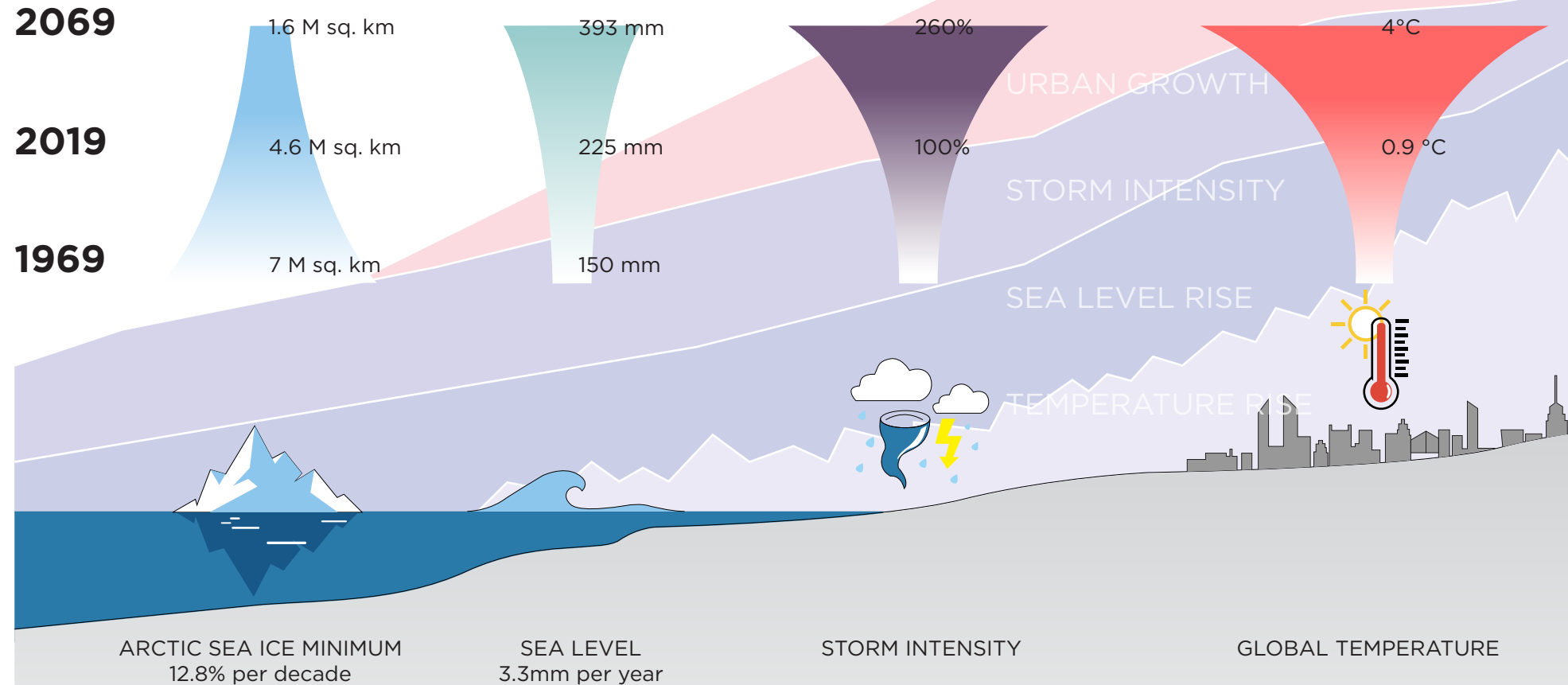
# HYDROOG

Global warming modifies precipitation patterns, amplifies coastal erosion, lengthens the growing season in some regions, melts ice caps and glaciers, and alters the ranges of some infectious diseases.

2069

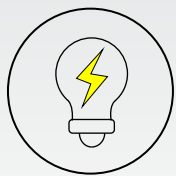
2019

1969



## Costal impacts

- The frequency and intensity of storms are changing
- Precipitation is increasing
- Ocean temperatures rising
- Rising acidity in the oceans has significant impacts on coastal and marine ecosystems.



## Energy

- Climate change will affect how much energy is produced, delivered, and consumed in the World
- The demand for energy used for cooling is expected to increase up to 20%



## Agriculture

- Lower crop yields and reduced quality due to rain, storms, hail or saturated soil; and extended periods of drought and in the absence of adequate irrigation.
- Damage to production resources by hail, storm or lightning.



## Nature

- Higher risk for ecosystems that depend on precipitation.
- Increasing risk of natural fires.



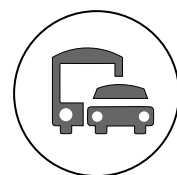
## Recreation

- Climate change will lead to decrease of recreational activities.



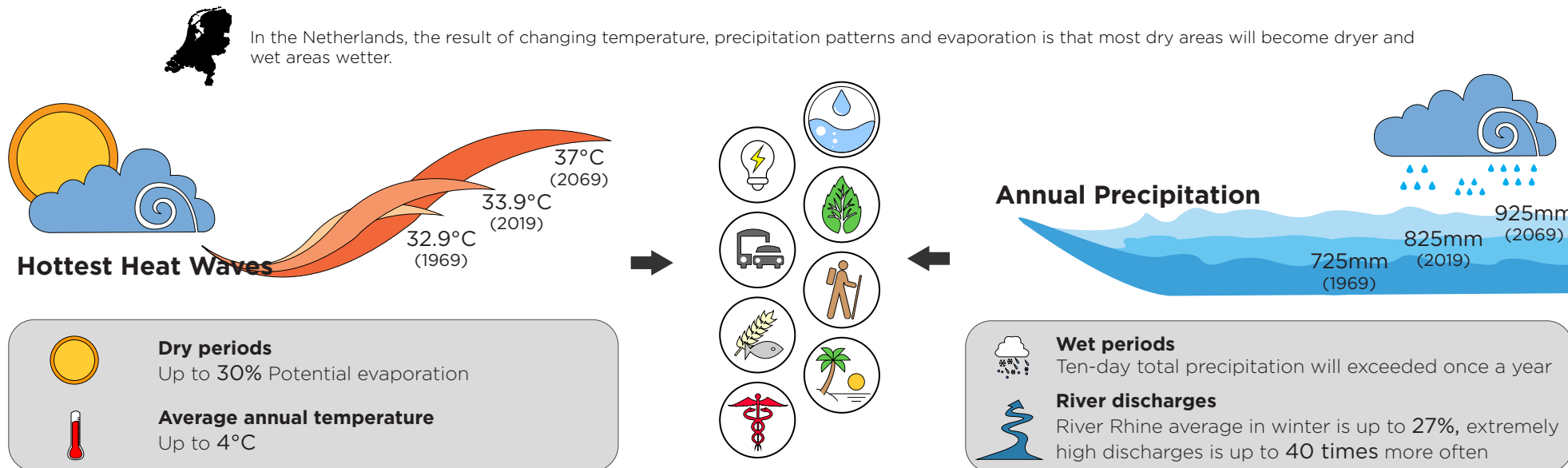
## Health

- Temperature rise will lead to reduced mortality during winter and increased mortality in summer
- More heat stress caused by extreme weather conditions
- Air quality will deteriorate during hot summer
- Greater morbidity and mortality, more hospital admissions, reduced productivity



## Mobility

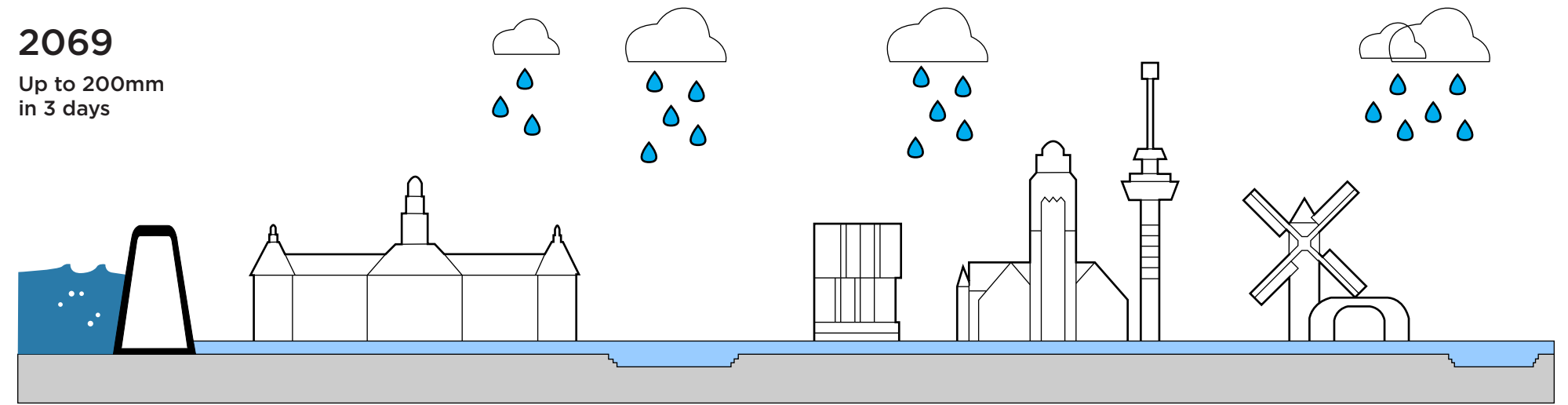
- Traffic disruption will increase due to extreme weather
- Damage to roads will increase during summer heat waves



In 2069, the Netherlands is only prepared for rising sea levels. Dikes and levees, pump stations and retractable barriers, polders and reinforced dunes have all been erected in a national initiative to hold back the floodwaters of the North Sea. On the other hand, they are not ready for droughts and extreme precipitation.

2069

Up to 200mm in 3 days



urban water retention & urban heat island adaptation



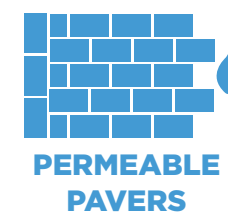
GREEN ROOF

Green roofs are designed to intercept rainfall, which is slowed as it flows through the vegetation and a drainage layer, mimicking the predevelopment state of the building footprint. Some of the rainwater is stored in the drainage layer and taken up by the vegetation, with the remainder discharged from the roof in the normal way.



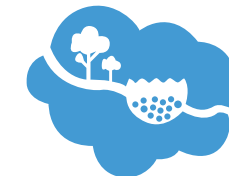
RAIN WATER HARVESTING

Rain water harvesting is similar to "cistern technology". Runoff from roofs or other impervious surfaces is captured and treated to a minimal level and used for non-potable needs - for things such as watering gardens, flushing toilets, laundry, etc.



PERMEABLE PAVERS

Permeable pavers provide a transportation surface that lets water soak down through the gaps between individual pavers into a rock chamber below. The rock chamber is designed for bearing strength and water holding capacity. Water moves out of the voids in the rock chamber and percolates down through the soil, helping recharge ground water, filtering out pollutants, and cooling the water while releasing it slowly.



WATER SEDIMENT BASINS

This is an embankment built across a depressional area of concentrated water runoff. It traps sediment and water running off farmland above the structure, preventing it from reaching farmland and water bodies below.



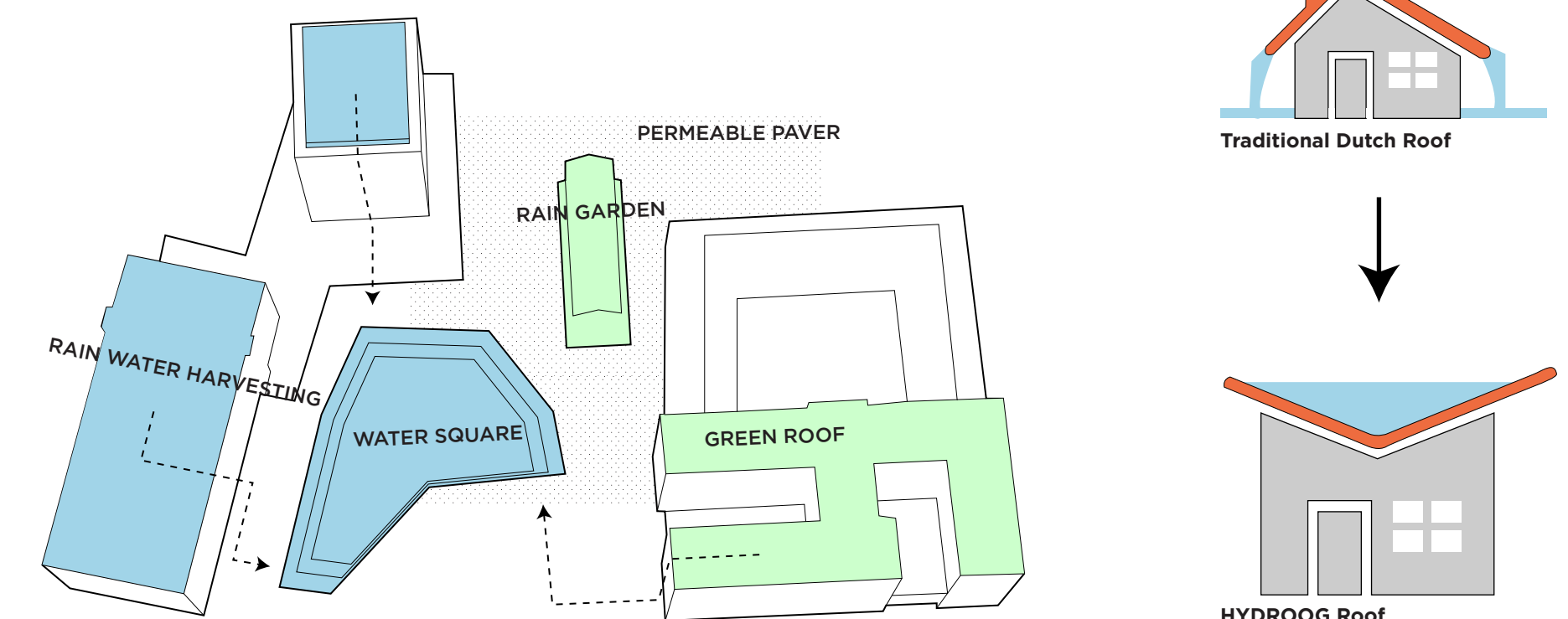
BIOSWALE

Bioswales are vegetated drainage ways that provide an alternative to buried storm sewer pipes. Bioswales may be cheaper to install and provide water quality benefits that storm sewers can't provide. Bioswales are designed to infiltrate runoff of from frequent, small rains and convey large runoff events to receiving streams. A bioswale has a perforated subdrain, a sandy soil mix, and strategically spaced berms to facilitate infiltration of small runoff events.



RAIN GARDEN

Rain gardens rely on natural soils that typically allow water to infiltrate and percolate through the soil at acceptable rates. Below ground, rain gardens feature a natural, healthy soil profile that lets water move down through it.





JUNE JULY 2019

DELFT SCENARIOS – RESILIENCE

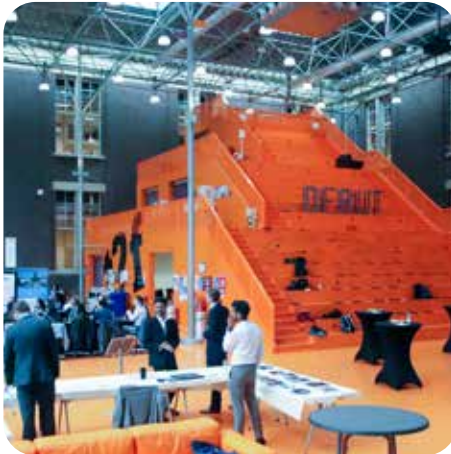
global trends and ambitions; local strenghts, weaknesses, opportunities, and threats; driving forces; critical uncertainties and four extreme scenarios  
#architectureschool #bureaubakker #delft #design #imadethat #kentucky #netherlands #resilience #scenarioPlanning #studyabroad #ukcod #urbandesign



delft, netherlands



our local transportation



exploring delft



london, uk



antwerp, belgium



ghent, belgium



inbetween touring europe...



brainstorming resilience



touring the region



maeslantkering, netherlands



paris, france



developing the stories



florence, italy



2nd maasvlakte, netherlands



typical studio lunch



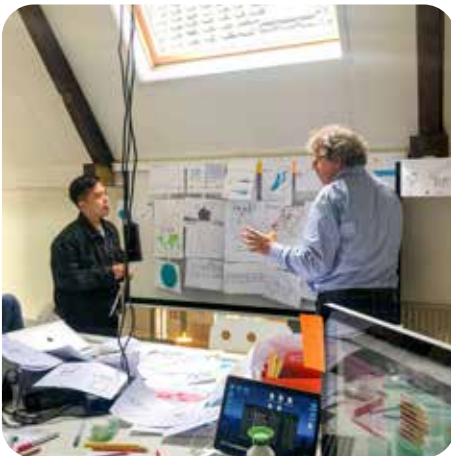
after lunch break



rotterdam, netherlands



budapest, hungary



graphic design workshop



first sketches of extreme scenarios



afsluitdijk, netherlands



schiermonnikoog, netherlands



towards the newspaper







# MOBI-D

## THE FUTURE OF AUTONOMOUS VEHICLES


### GIVE UP THE WHEEL




- 12 billion people drive daily
- 8 million of those people are within the NL
- 13 million die every year due to car wrecks
- 94% of those accidents are due to human error



- Every one in two people in the Netherlands own a car, while the average car could hold 4-5 people
- Traffic jams are increasing, and were up 20% from 2018 to 2019

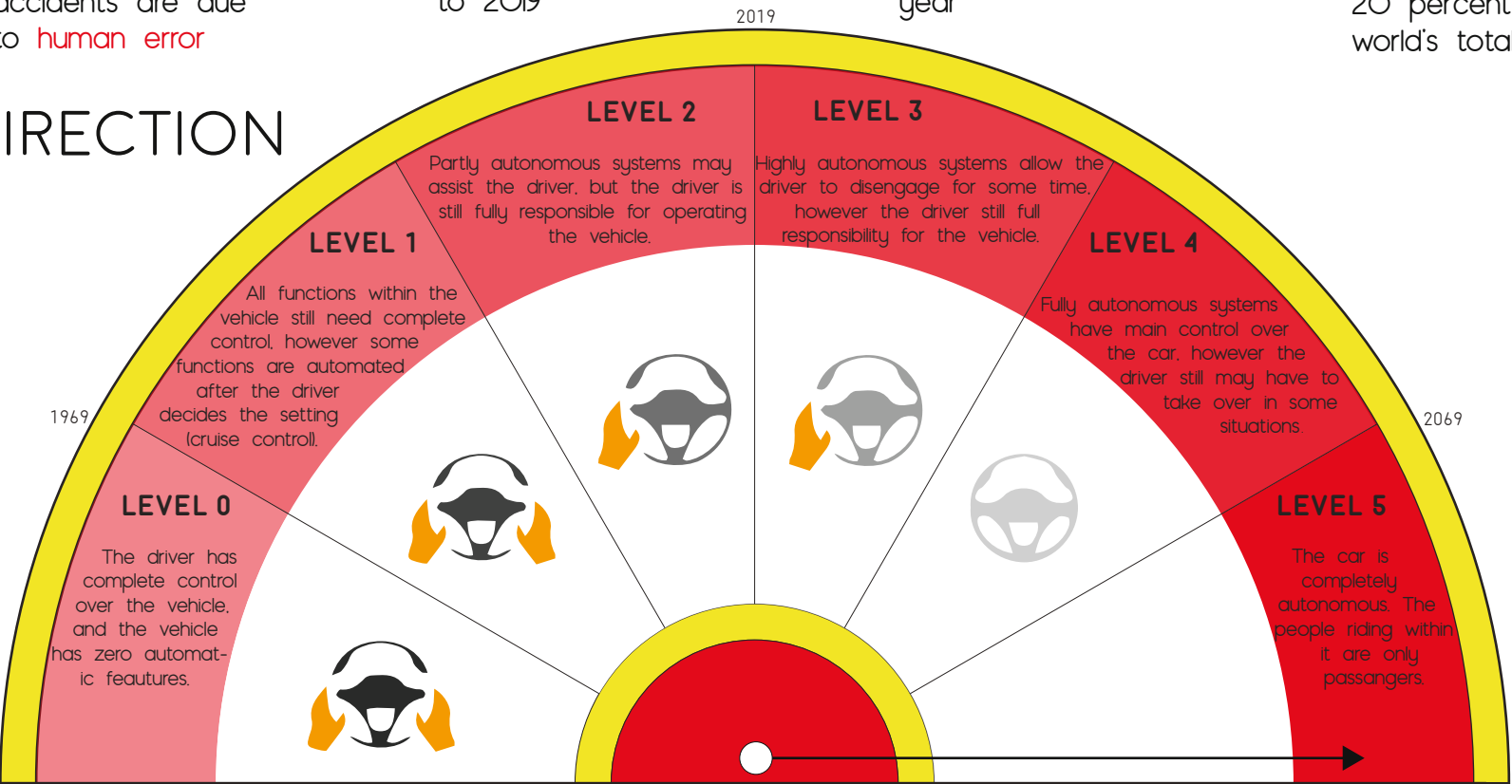


- The average car cost in the Netherlands is around €20,000
- The average cost of car insurance within the Netherlands is around €1,000 per year



- Car pollution is one of the leading causes of global warming
- Cars release about 333 million tons of carbon dioxide into the atmosphere annually, which is 20 percent of the world's total

### THE DIRECTION



### HOW IT WORKS

- IoT Sensors: to monitor all movement
- IoT Connectivity: for constant updates and communication between vehicles
- Software Algorithms: to collect data and help determine the best course of action




### THE DIGITAL TWIN

According to the KPMG Autonomous Vehicles Readiness Index, the Netherlands is proving to be the world's readiest country for the introduction of driverless vehicles. This has to do with something called the digital twin. In short, a digital twin is a digital or virtual copy of a real-life structure or thing. A digital twin is utilized to connect the real world to the virtual world. This can help with autonomous vehicles because with the digital version of the world in its storage, an AI machine learning vehicle can maneuver the real world through comparison and recognition.


Luckily, the Netherlands has an extremely planned infrastructure. Therefore, all the information needed make the digital twin for the environment already exists. This will allow for an easy transformation into a Level 5, fully autonomous city. As a mid-sized city within the Netherlands Delft has room to grow. Implementing this system within Delft will result in several positive changes.

## A LEVEL FIVE AUTONOMOUS CITY


### THE BENEFITS




- Driverless cars are a much safer option for the road. They are not affected by distractions, alcohol, drugs, or emotion. They are purely analytical, quicker to act, and more accurate than human drivers.



- Driverless cars can pick up multiple people traveling in the same direction. Driverless cars can detect traffic delays and accidents. The vehicle may reroute the path to the destination in advance to avoid a time-consuming stop.

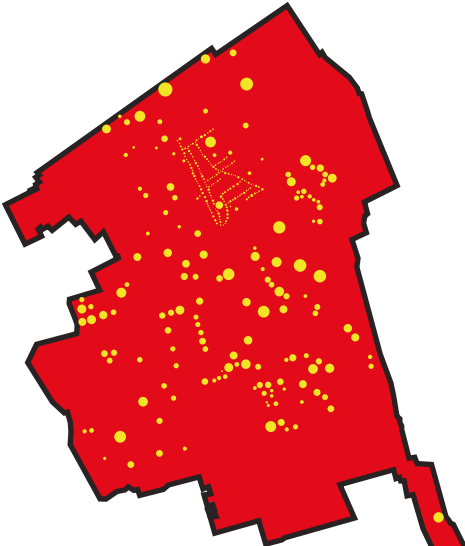


- Driverless cars can pick up people wherever and whenever, therefore there is no point in anyone owning their own vehicle. Because autonomous vehicles are safer, accident-induced costs are eliminated.




- Driverless cars will not be completely environmentally innocent, however with their efficiency, it will be a step in the right direction. With significantly lessened traffic, the emissions will be cut down immensely.


### THE DELFT EXPERIENCE




Delft's Current Parking Plan (2019)




Delft's Predicted Parking Plan (2069)




Added Green Space



New Housing Options



More Public Meeting Areas



Wide Open Streets

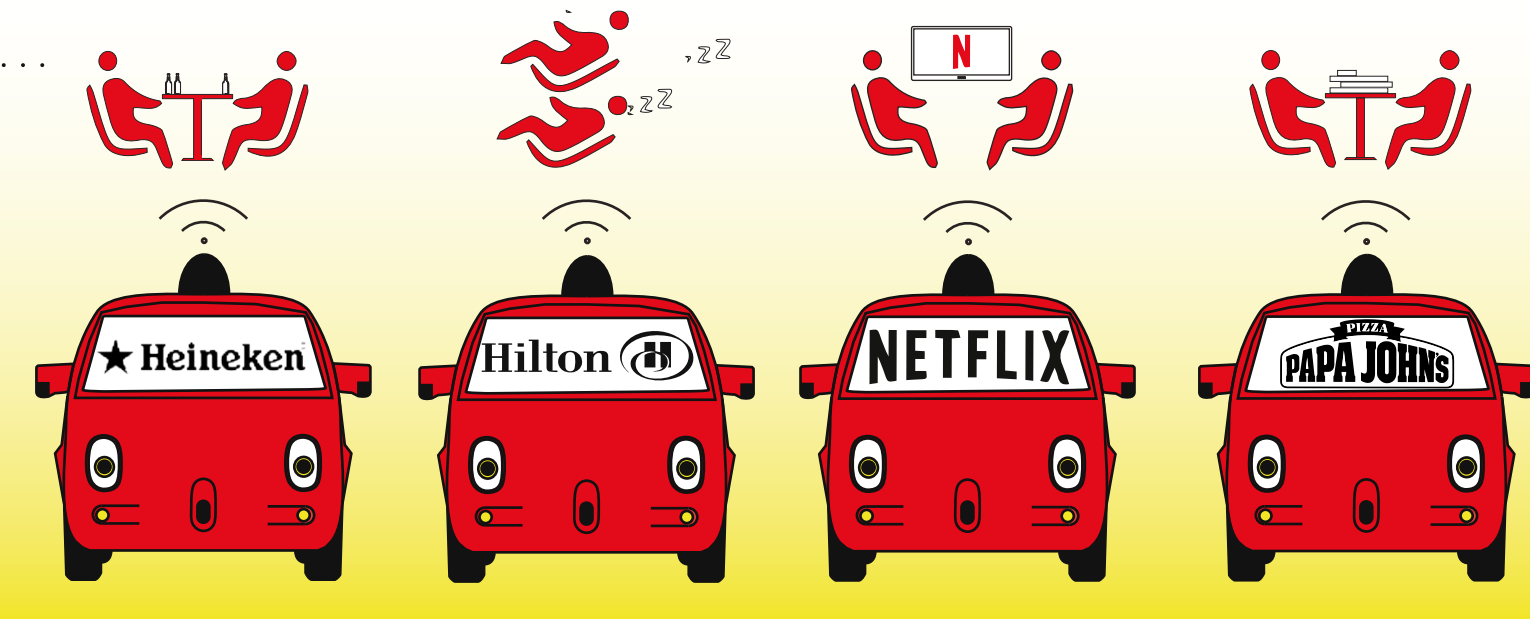
By implementing level five autonomous vehicles throughout the city of Delft, a major infrastructure change will be allowed. On the first map of Delft, the red dots represent public parking areas. However, after the implementation of self-driving vehicles, all parking could be moved to the outskirts of the city. The areas that once were for parking purposes can be reconfigured into public meeting places, new housing, or even green space. Furthermore, the use of self-driving, IoT connected vehicles will eliminate the need for stop lights and traffic signs. This will offer a more simplistic and open scene on the streets.

### A NEW LIFE...

WHERE YOU CAN:

- Have a beer
- Take overnight trips
- Find entertainment
- Grab a bite to eat

...IN A CAR!





# UrbanHUBdelft

## Turning Urbanization into Collaboration



### Growing Urbanization and Tech Economy

European populations are steadily migrating to urban regions. As a result, cities have become the desired destination for innovative companies and skilled workers. Due to this increase in economic opportunity, **job growth** is concentrating in cities and **rural populations** are choosing to move to cities.



### Why Cities are Cultivating the Tech Ecosystem

As a result of this increase in urbanization and growing tech economy, certain cities are becoming **hubs of both tech industry and social life** - forming their own identities within the tech ecosystem.



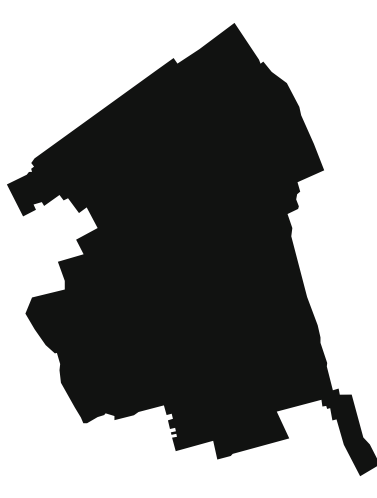
### Acknowledging Tech Innovation Opportunity in the Netherlands

If we zoom into the Netherlands, Dutch technological prowess is not concentrated only in its capital city. **Numerous booming tech hubs** can be found all over the country. The 6 largest Dutch cities are also among its largest tech hubs.

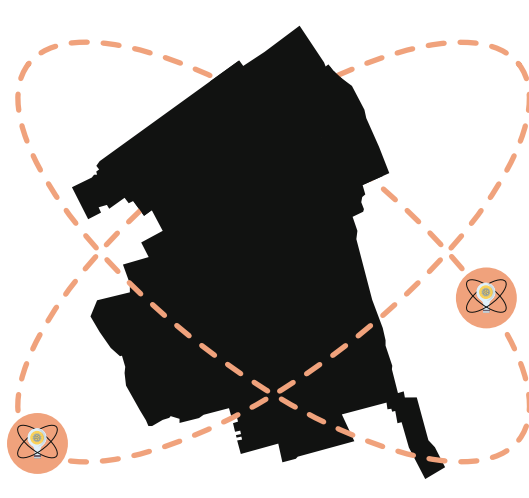


### Connecting the Dutch Tech Hubs

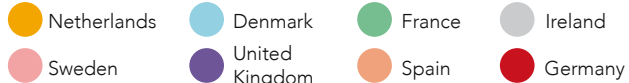
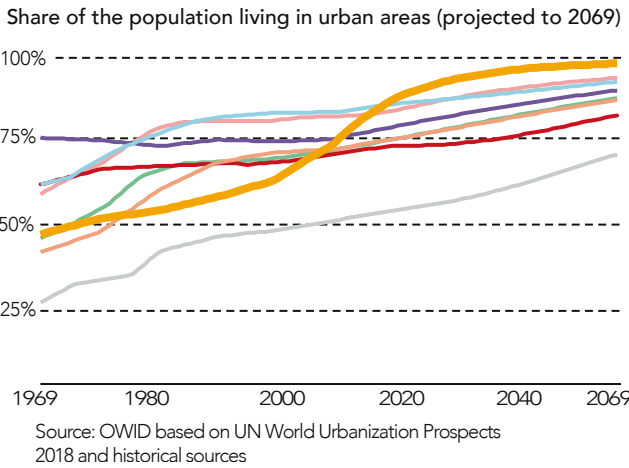
The Dutch ecosystem benefits from **interconnectivity** in a number of ways that help drive the flow of knowledge, talent, and capital. Exchanges amongst counterparts, whether founders or investors, **enables the flow of useful ideas and knowledge** throughout the Dutch tech ecosystem.



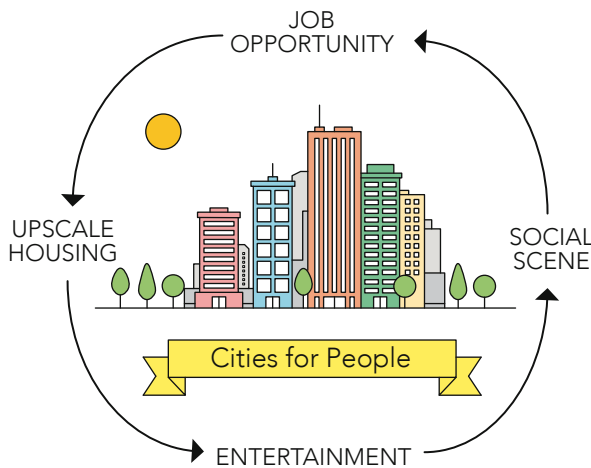
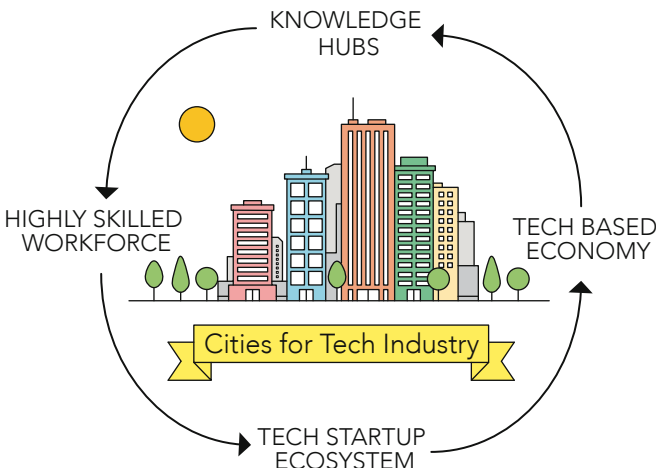
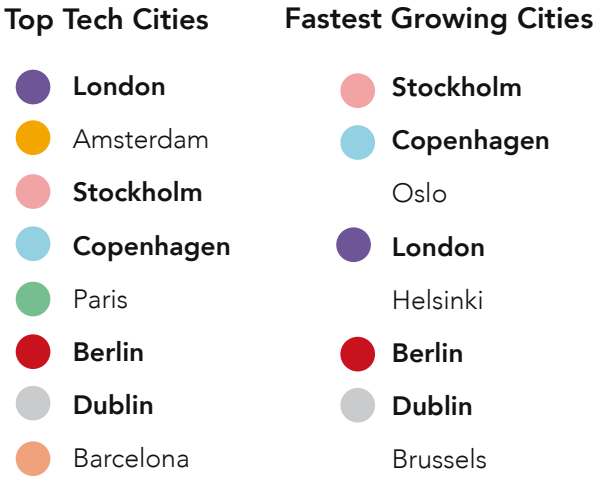
### Creating a Hub Identity for Delft



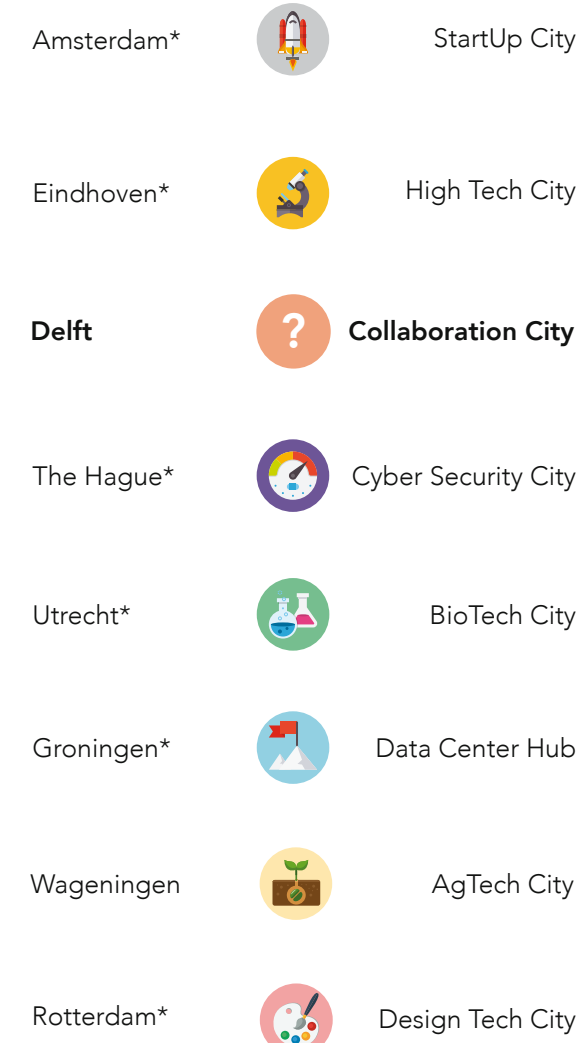
### UrbanHUB Implementation in Delft



The tech industry is taking the European economy by storm – Europe's tech industry growth dramatically outpaces the rest of the European economy, with **5 times the growth** than that of other industries in the last 20 years.



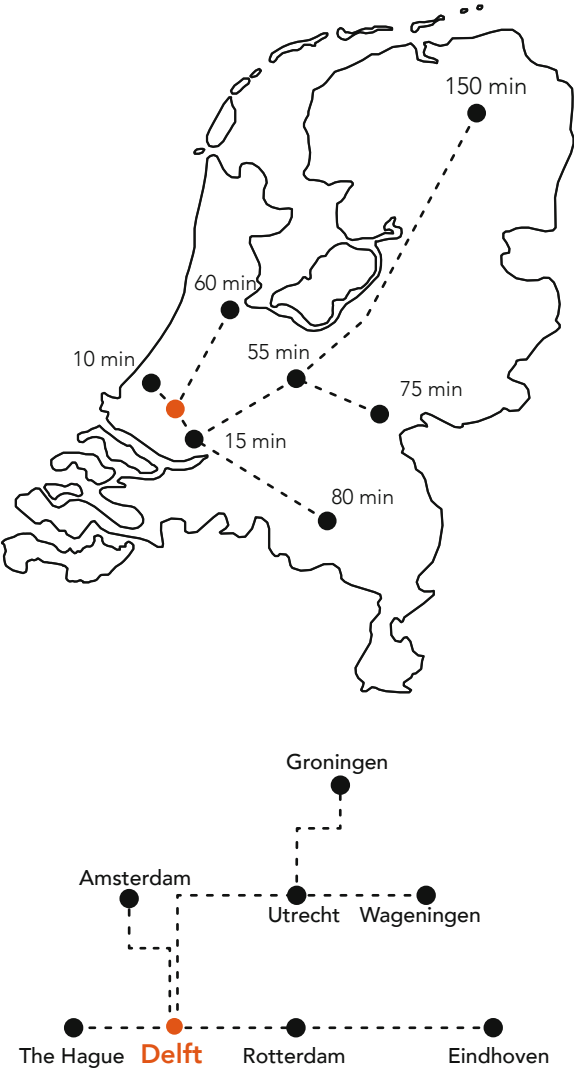
However, Europe's tech community outside the Top 20 hubs continues to flourish – **53% of all tech-related meetups now happen outside of the Top 20 hubs** in the region, up from 42% in 2014. **This is an opportunity for Delft.**



\* The 6 Largest Dutch Cities

With the **# 1 startup business climate in the European Union**, its highly educated pool of tech-savvy experts, and its open corporate business culture, the Netherlands has created a rare startup ecosystem in Europe.

### Travel Time from Delft



In order to capitalize on this vibrant tech ecosystem, the **point of connection** for these tech hubs will be Delft. Delft is already **centrally located** amongst the most populated region of the Netherlands, and can be **easily accessed via existing train routes** from all parts of the country.

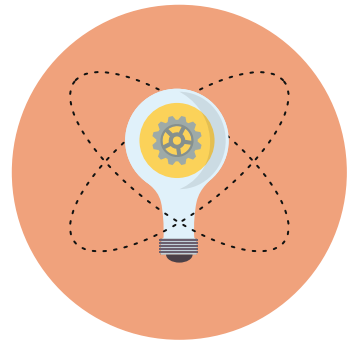
**TU DELFT**  
produces a **young, highly educated, diverse** population

**INCUBATOR**  
23,000+ Students  
students living & working amongst other students produces **ideas & collaboration**

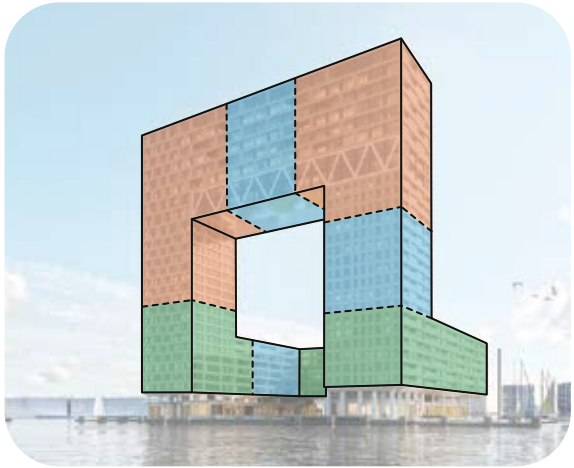
**RESOURCES**  
YES!Delft startup incubator  
university **laboratories & research** initiatives, a community of tech experts

**PROXIMITY**  
Centrally Located Among Dutch Tech Hubs  
**spread ideas** easily to the Dutch & European tech markets

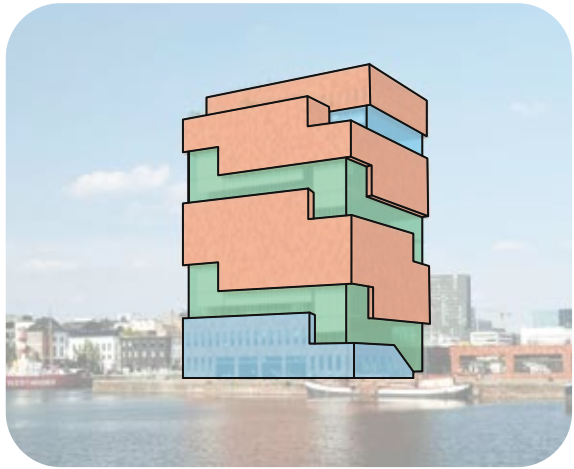
**COLLABORATION CITY!**



In order to capitalize on these innovation-cultivating qualities of Delft, UrbanHUB interventions will be built within Delft's technology park on the perimeter of campus. These interventions will provide **upscale apartments that will be desirable to recent graduates and young professionals**. Additional amenities include co-working and collaboration zones, conference and lecture spaces, and social areas like restaurants, cafés and bars – all aimed toward the goal of promoting the spread of ideas.



Live Work Collaborate



These interventions will provide the opportunity for recent graduates and young tech professionals to **come together in a suitable and enriching environment, expand their ideas, start a business or collaborate with others.**