

kadaster



Towards Digital Twin; of Living Environment

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Digital Twin of the living environment

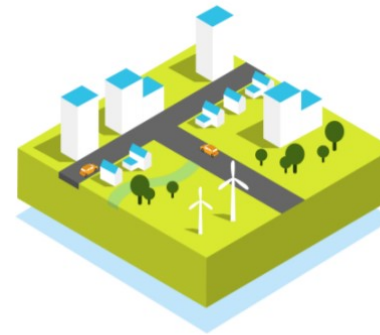
Smart, dynamic, digital representation of the physical world.

”Smart” because you can use it to calculate, predict, simulate and monitor living environment.

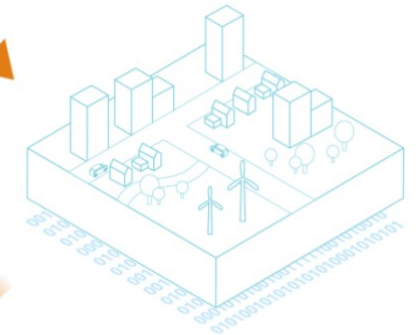
“Dynamic” because of the possibility to use live stream data from objects such as sensors.

Digital Twin is a tool: helps the physical world become healthier, safer and more sustainable.

Fysieke leefomgeving



Digitale tweeling



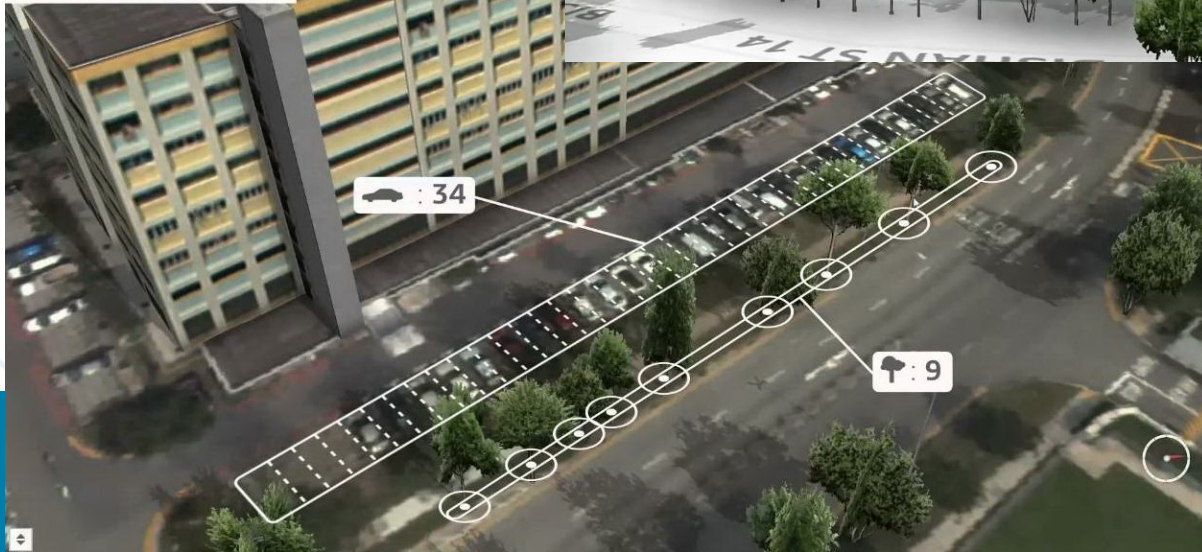
Figuur 1: digitale tweeling fysieke leefomgeving (DFTL)



What makes Digital Twin special/different?

- Understandable and accepted term by different user groups
- Direct integration between physical and digital world
- Combination of visible and not visible, static and dynamic data
- Seen as tool that helps to tackle a social issues

Examples



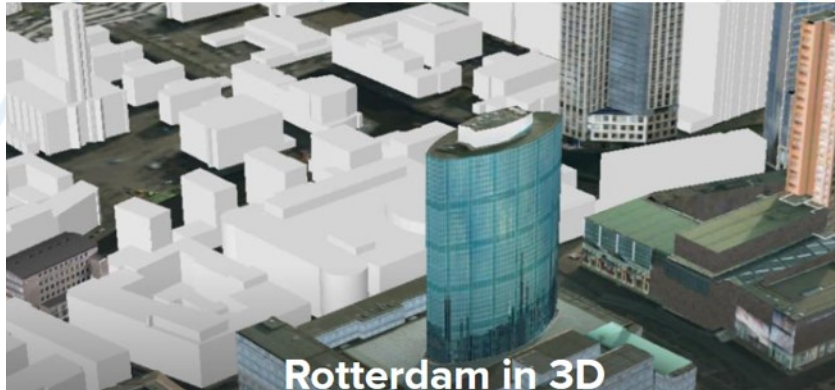


Examples



Rotterdam

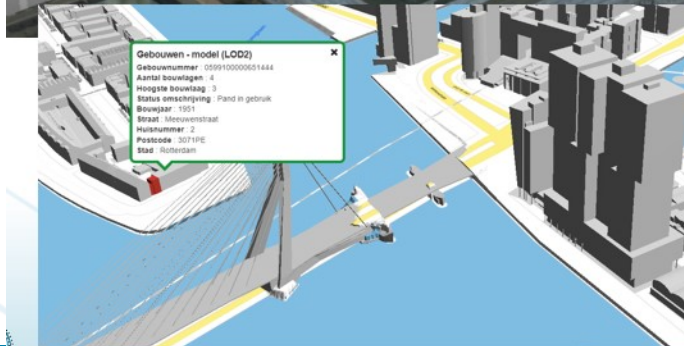
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Rotterdam in 3D

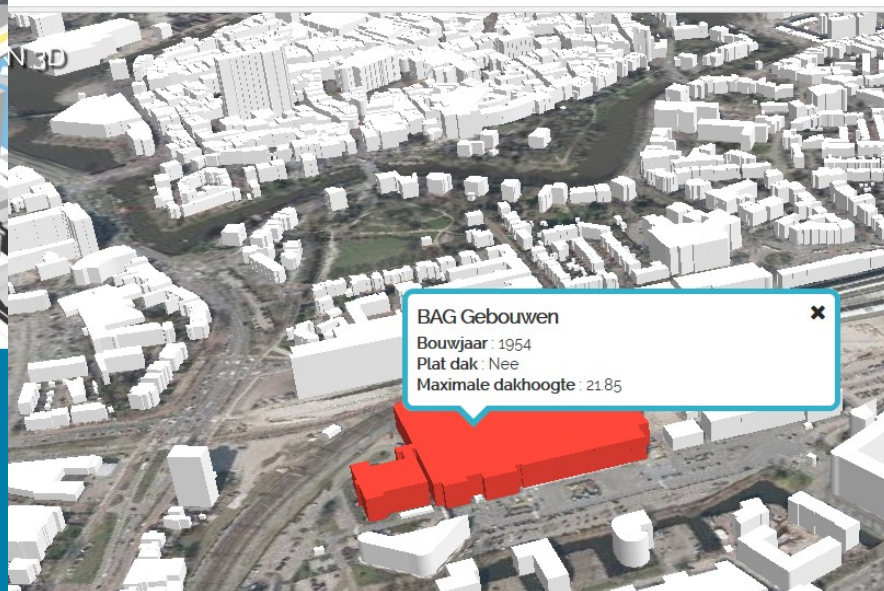
<https://www.nederlandin3d.nl/viewer/#/>

Den Haag



Gebouwen - model (LOD2)

- Gebouwnummer: 0599100000601444
- Aantal bouwlagen: 4
- Hoogste bouwlaag: 3
- Status omschrijving: Plan in gebruik
- Bouwjaar: 1951
- Straat: Meuwissenstraat
- Huisnummer: 2
- Postcode: 3021PE
- Stad: Rotterdam



BAG Gebouwen

- Bouwjaar: 1954
- Plat dak: Nee
- Maximale dakhoogte: 21.85

Amsterdam



Research questions:

- What are the added value of the Digital Twin?
- What do we need to create it?
- What is the role of Kadaster?



Geo-information for everyone



Integral object registration

Two pilots



Heat stress and flood



Impact of the greening

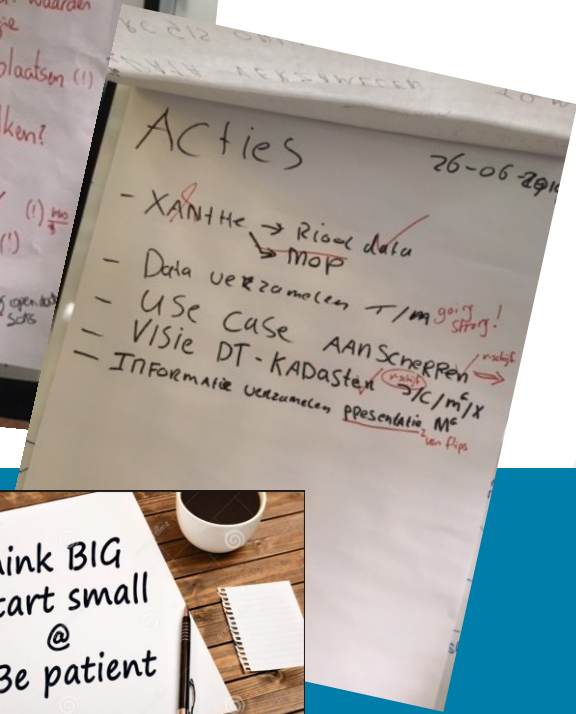
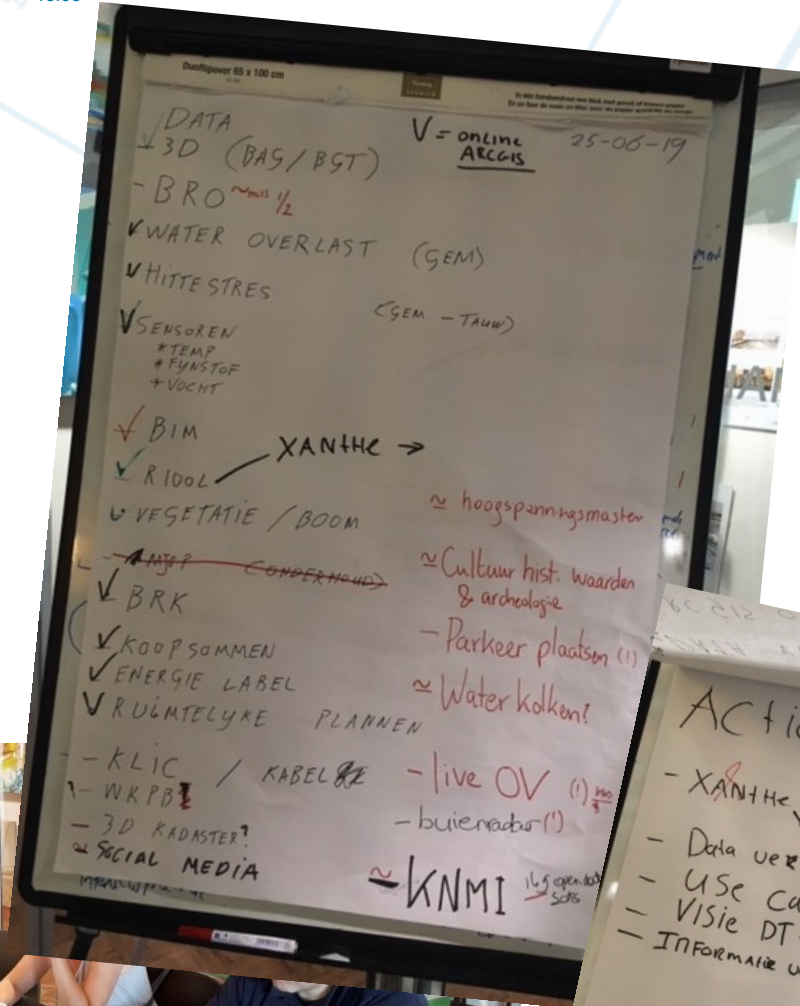


Approach "High 5"

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- Kickoff
- Prepare
- Focus week
- Wrap up
- Final presentation



Think BIG
 Start small
 @
 Be patient



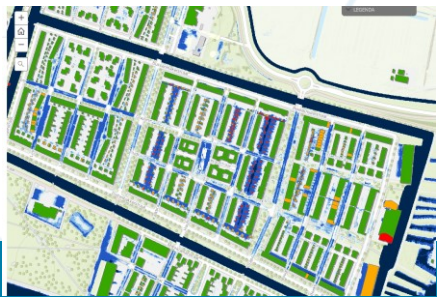
Digital Twin for climate adaptation, problem heat stress and flood

What is the problem?

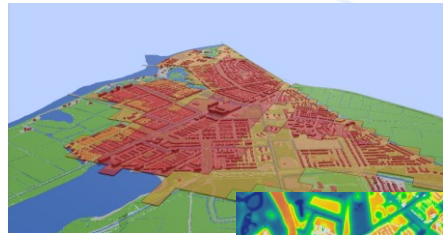


Where is the problem?

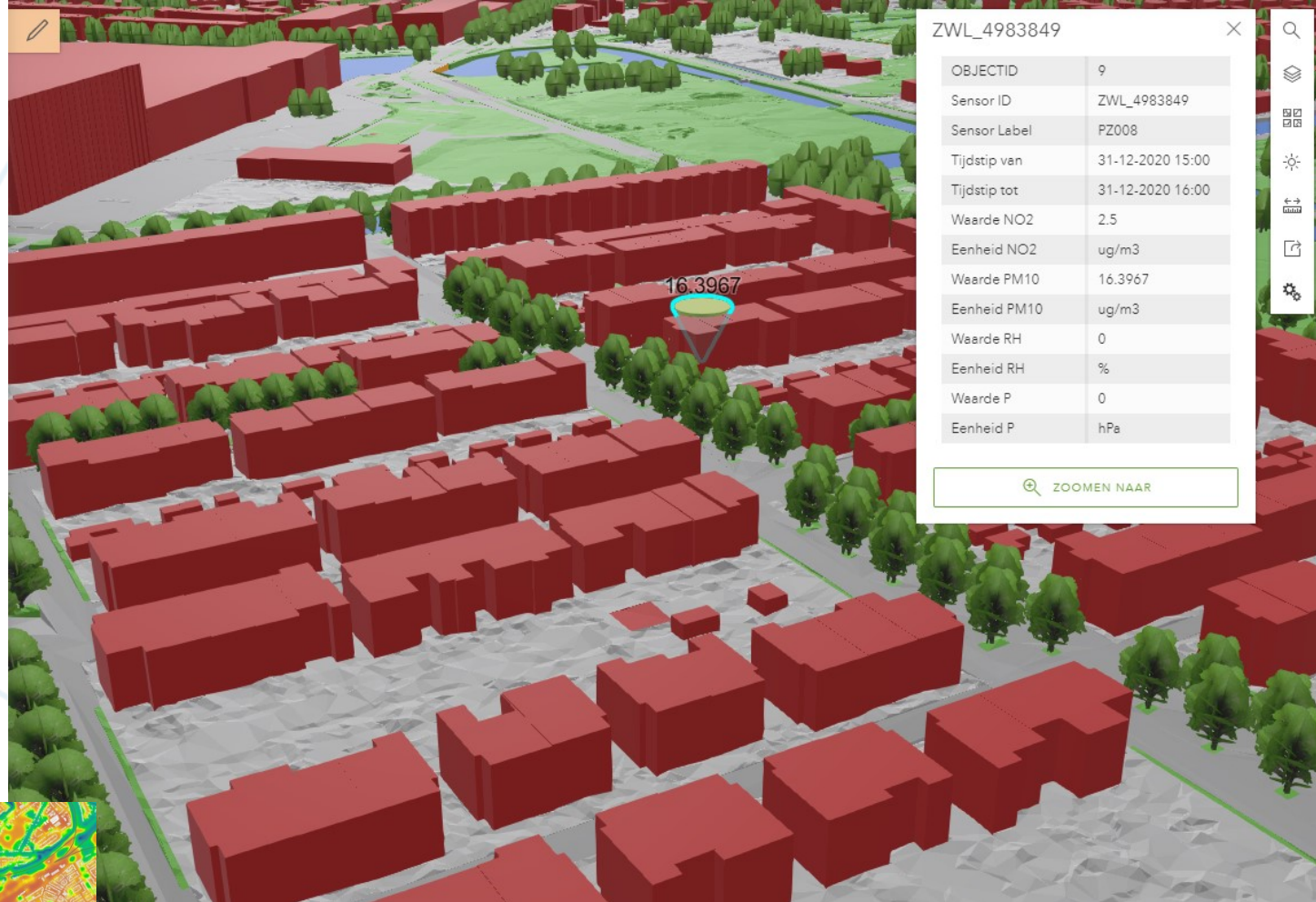
Digital Twin of Living Environment



Flooding



Heat stress



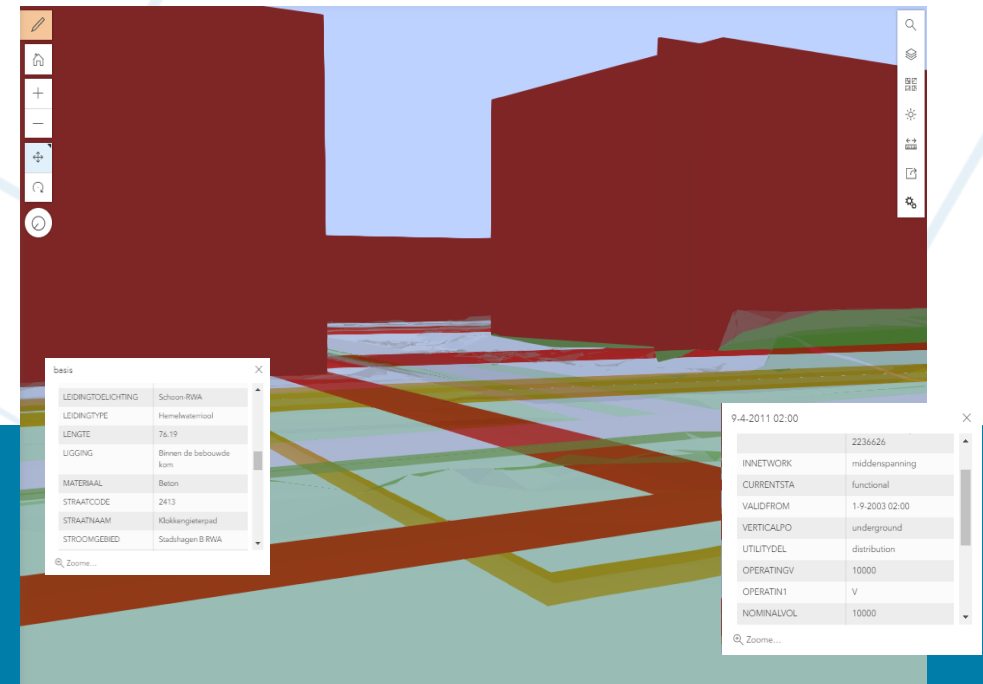
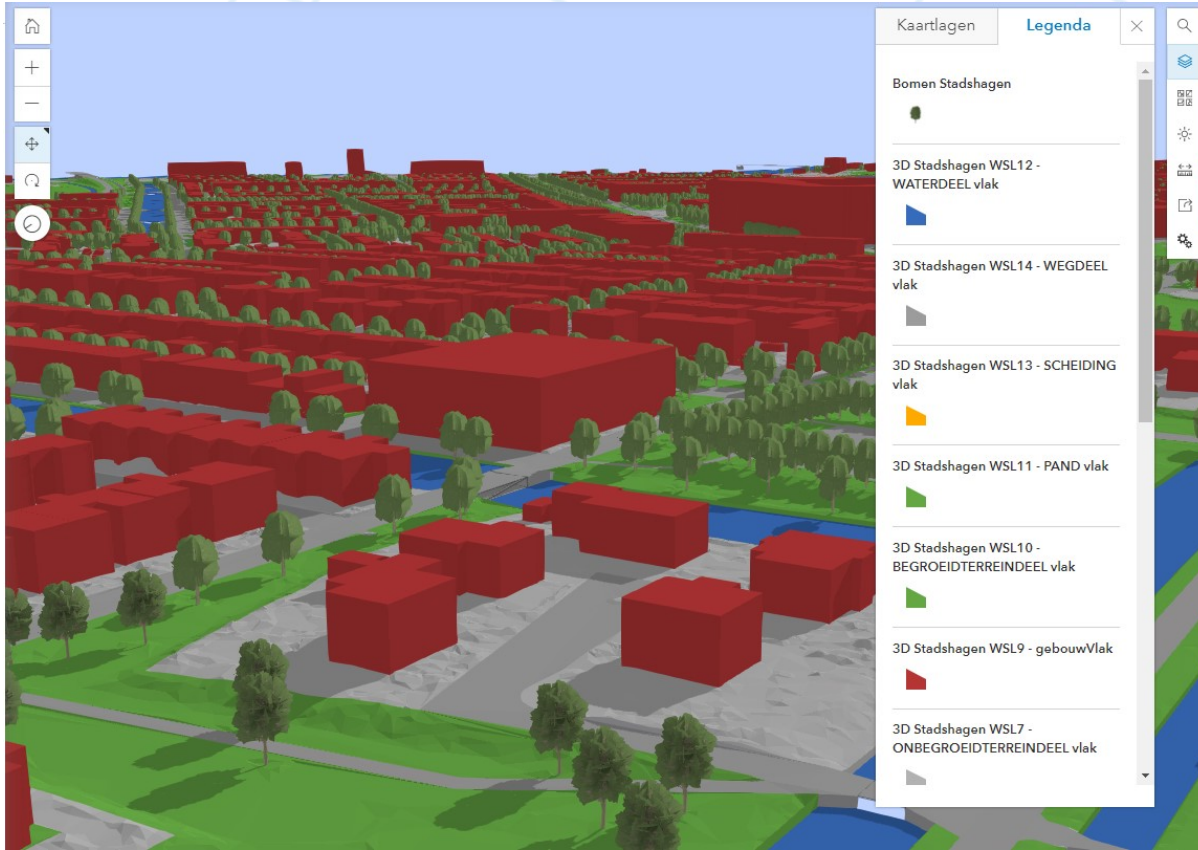
ZWL_4983849	
OBJECTID	9
Sensor ID	ZWL_4983849
Sensor Label	PZ008
Tijdstip van	31-12-2020 15:00
Tijdstip tot	31-12-2020 16:00
Waarde NO2	2.5
Eenheid NO2	ug/m3
Waarde PM10	16.3967
Eenheid PM10	ug/m3
Waarde RH	0
Eenheid RH	%
Waarde P	0
Eenheid P	hPa

ZOOMEN NAAR



Digital Twin for climate adaptation, problem heat stress and flood

Digital Twin of Living Environment







Digital Twin for climate adaptation, impact of the greening

Digital Twin van de leefomgeving - High5 resultaten

Disclaimer:

Dit is geen officiële website van het Kadaster. Deze omgeving dient uitsluitend voor onderzoek naar nieuwe methoden en technieken bij het Kadaster. Deze toepassing is gemaakt als onderdeel van experimentele innovatie op het gebied van Digital Twin van Leefomgeving.

Definitie:

Een slimme, dynamische, digitale representatie van de fysieke wereld met gebruikersvriendelijke visualisatie van de bovengrond en de ondergrond.

Slim omdat je ermee kan **rekenen**, **voorspellen**, **simuleren** en monitoren. Een DT is geen doel op zich. Een DT helpt om de fysieke wereld beter te laten functioneren (gezonder, veiliger, duurzamer).

Reminder

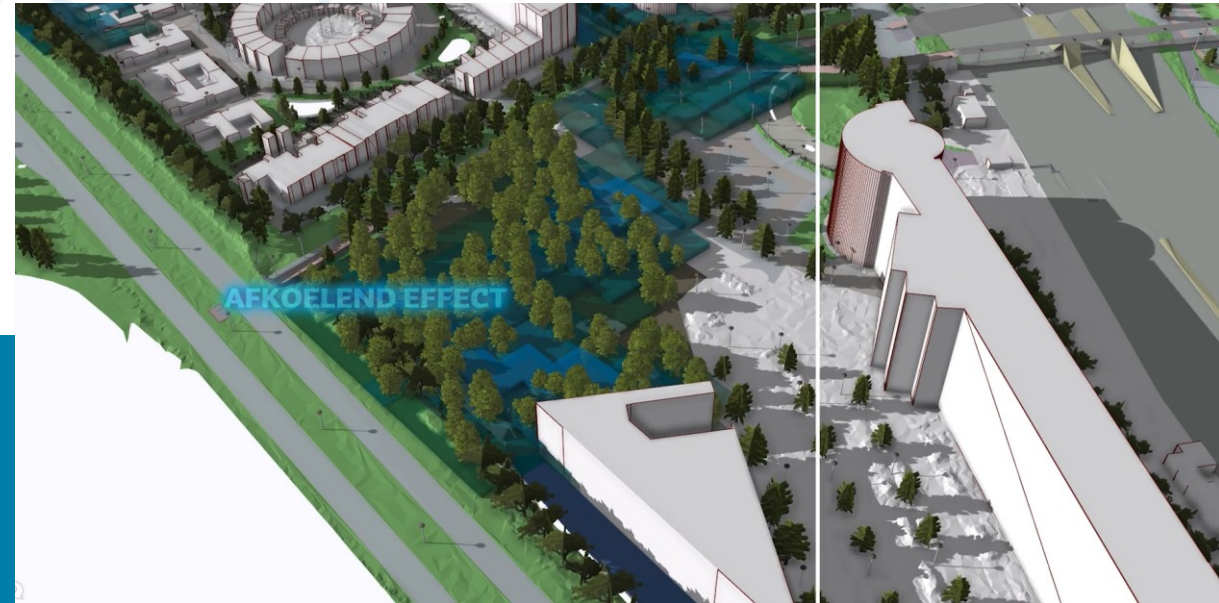
De eerste stappen richting Digital Twin

"High 3"





Digital Twin for climate adaptation, impact of the greening





First reflections

- There are more than one DT
- DT \neq 3D but very important part of DT
- DT \neq Smart City but is a tool that helps cities and people be/act smarter
- DT can be a platform for static and live stream data integration
- Open data, open - standards, user-friendliness (visualization) very important



Digital Twin – conclusions

- Becoming an important tool that strength the dialogue between stakeholders, users, suppliers etc.
- Provides insight into the effects of social developments such as climate adaptation
- Helps sharpen the problem definition and make any discussion points/problems visible
- Help increasing the involvement of residents
- Thanks to the same common DT basis we can compare and combine the results from different users.
- A common, current and reliable basis from the government needed as a source for common use in all kinds of digital twins' themes.





Reminder

Practical Digital Twin cases in the Netherlands

Keynote: Digital Twins | How can DT support legal certainty?





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Thank you

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