

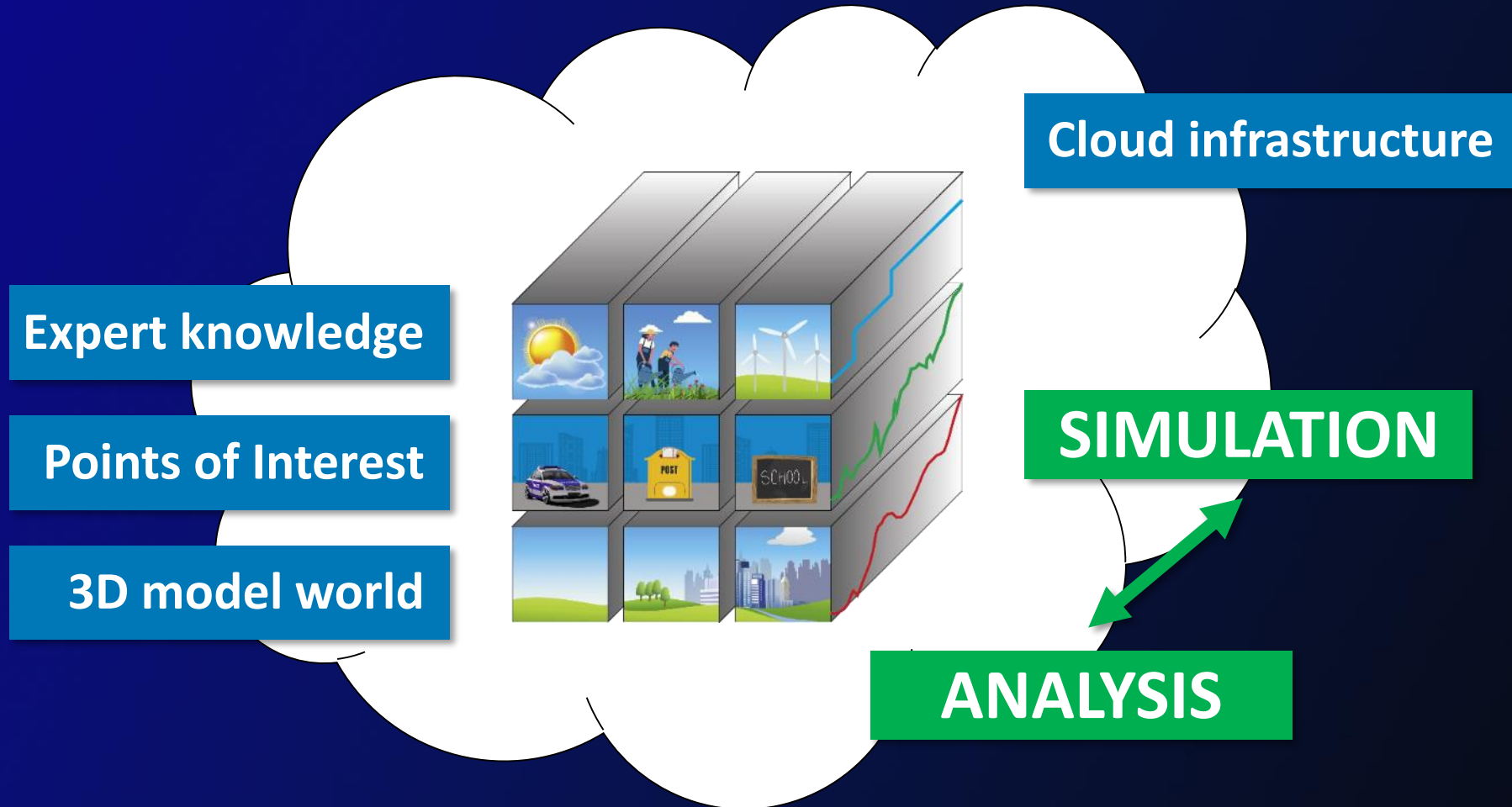


53rd SLOVENIAN LAND SURVEYING DAY

Digital Twin Germany DigiZ-DE

Prof. Dr. Paul Becker
Federal Agency for Cartography and Geodesy

Digital Twin Germany



Digital Twin Germany

Data basis

Resolution:

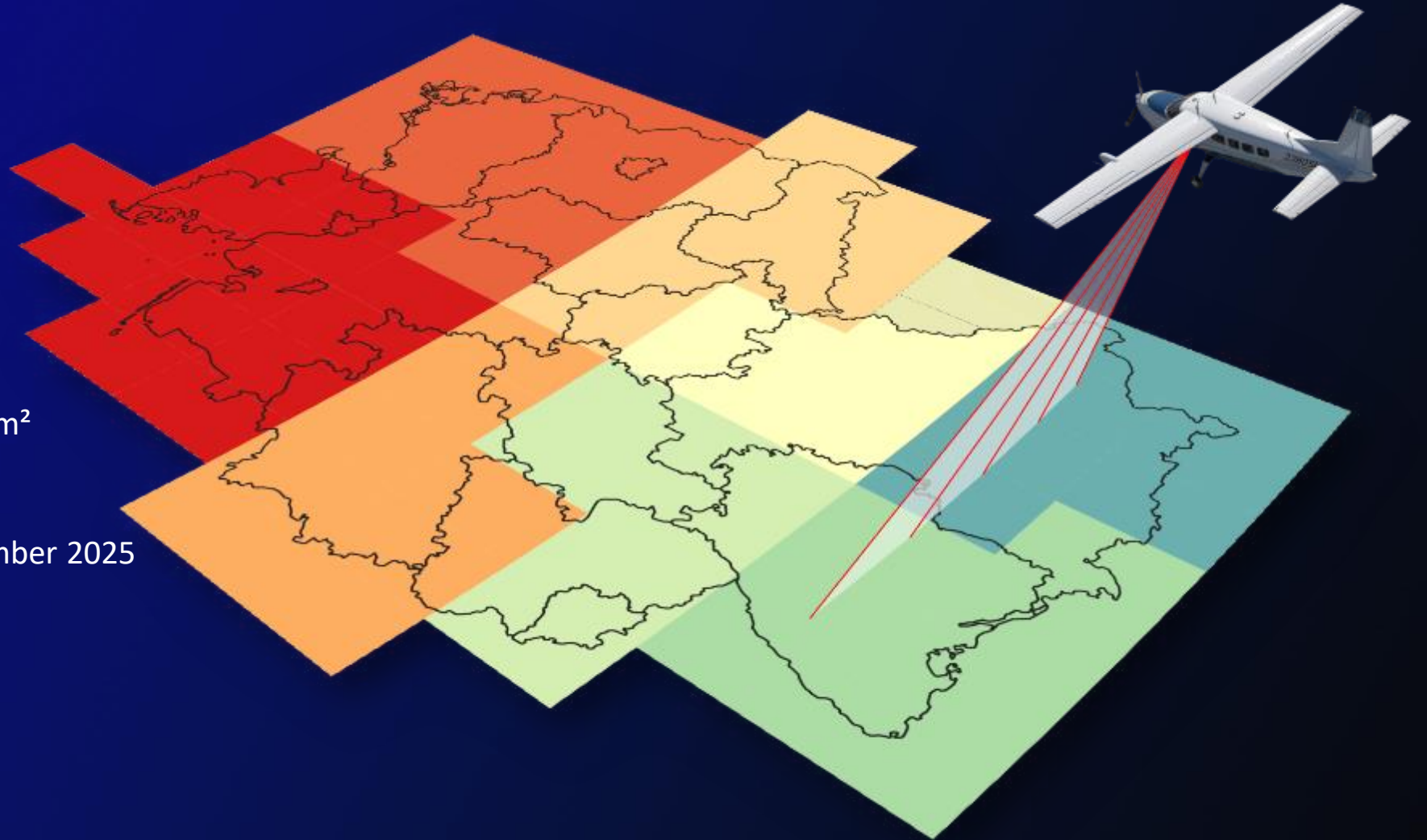
Point density min. 40 points/m²

Completion:

Flights until the end of November 2025

Repetition rate:

3-4 years



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Data basis (Light Detection And Ranging (LiDAR))

1

Light emitted in pulses from the scanner in the direction of flight

3

Detected by the sensor again

4

A point in space is generated from the position, direction, and distance of the aircraft, creating a three-dimensional point cloud

2

Reflected by the object



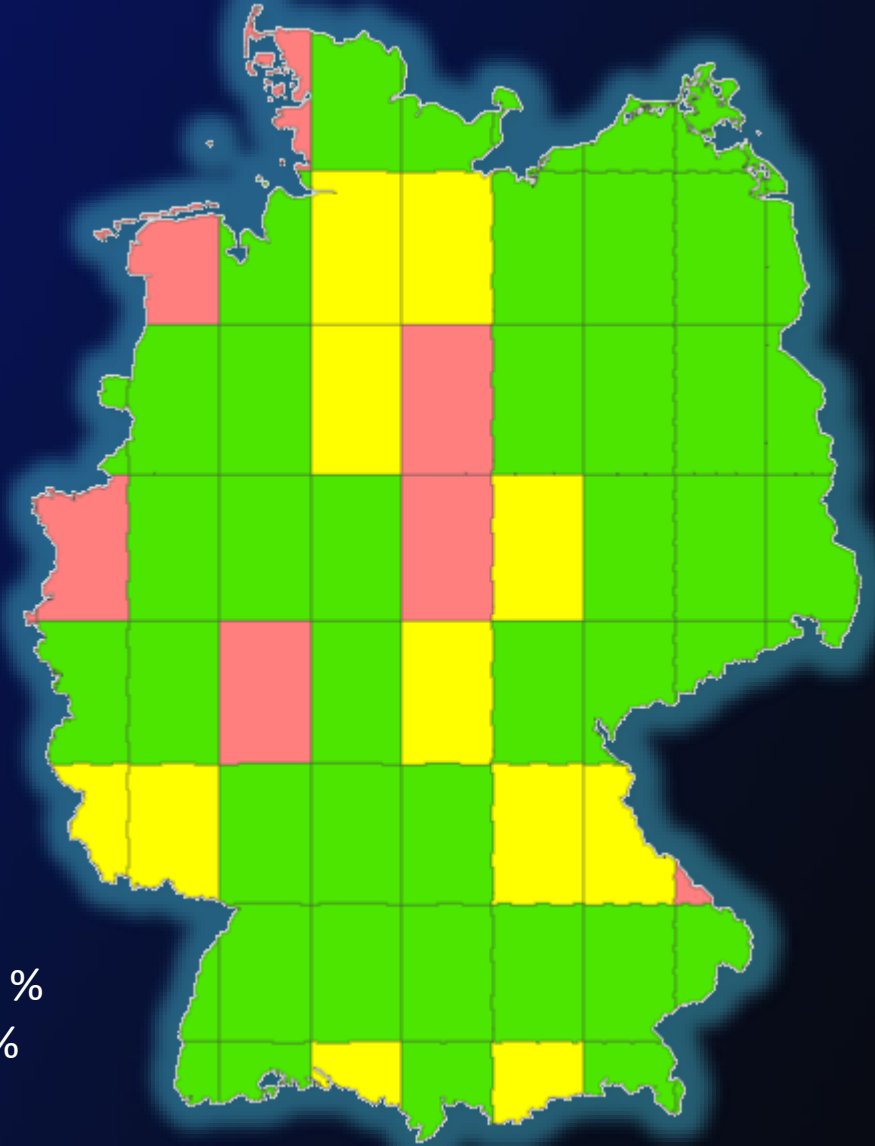
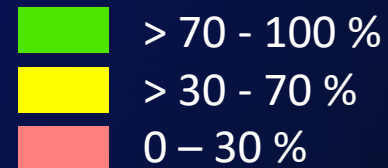
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Data basis - a typical flight pattern



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Flight progress 87 % (as of October 7, 2025)



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Data platform

Data and applications of DigiZ-DE

Provide
Visualize
Analyze
Obtain



DestinE Platform

Digital Twin Germany

Closely connected to other twins!



Digital Twin Germany

Closely connected to other twins!



15. Juli 2025

**Memorandum of Understanding
on the cross-border use of
digital twins**



Digital Twin Germany

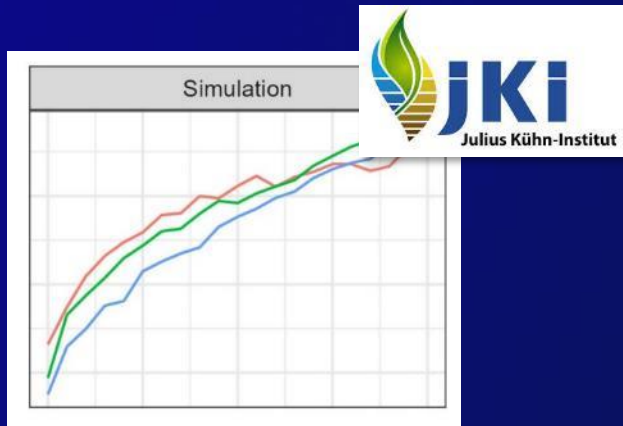
Forest



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Forest – Tree detection

Growth modeling of
forest ecosystems



Segmentation and derivation
of characteristics of individual
trees and vegetation



Derivation of tree fall
risk on railway lines





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Forest - Segmentation of individual trees / vegetation



Derivation of 3D features such as tree height, crown area, etc.

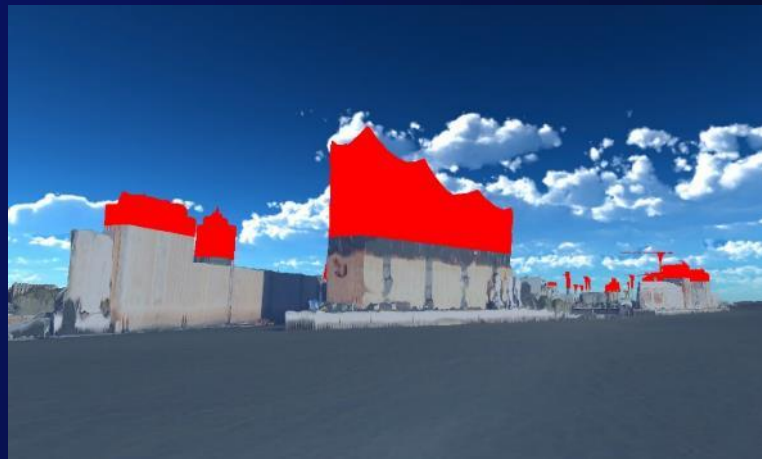
LiDAR-based single tree detection in Hamburg city center
1 | Point cloud in true color representation

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Aviation - Derivation of flight obstacles

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Aviation - Derivation of flight obstacles



- **Electronic Terrain and Obstacle Data (eTOD)**
- **Collaboration with DFS**





Flughöhe: **0 m**

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Flooding - Heavy rain hazard warnings

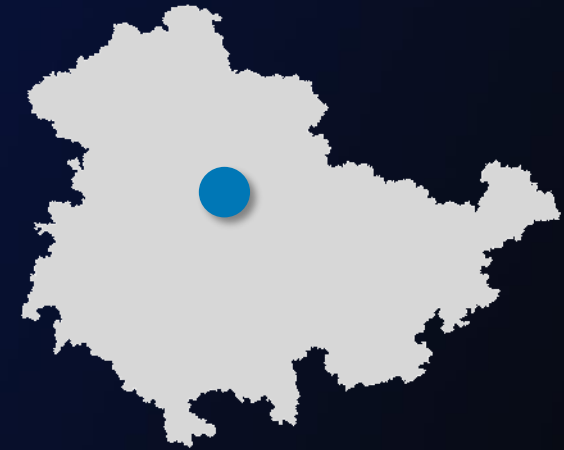


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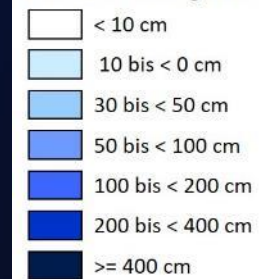
Flooding - Heavy rain hazard warnings



Example Erfurt

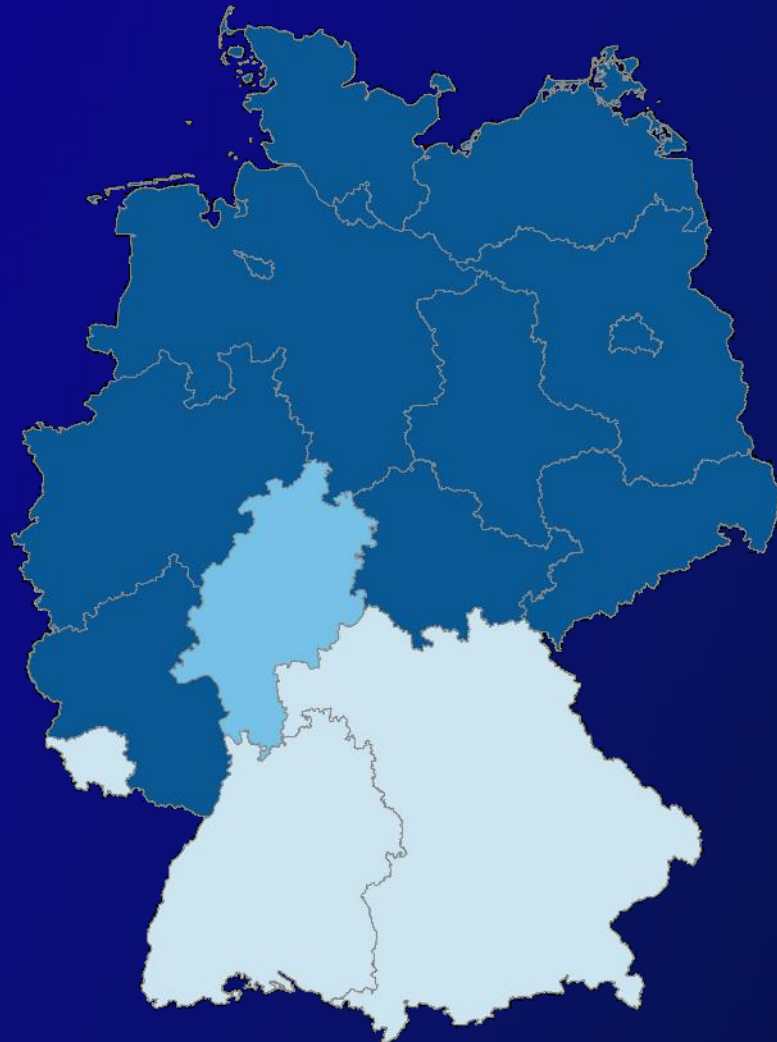


Max. Überflutungstiefe



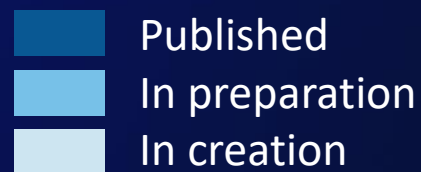
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Flooding - Heavy rain hazard warnings



12 von 16 federal states completed

Nationwide completion: 2026



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The future: Decision theatre





BKG

Thank you
for your attention.

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