Towards sustainable systemic solutions of smart roads

INFRA SWEDEN 2030

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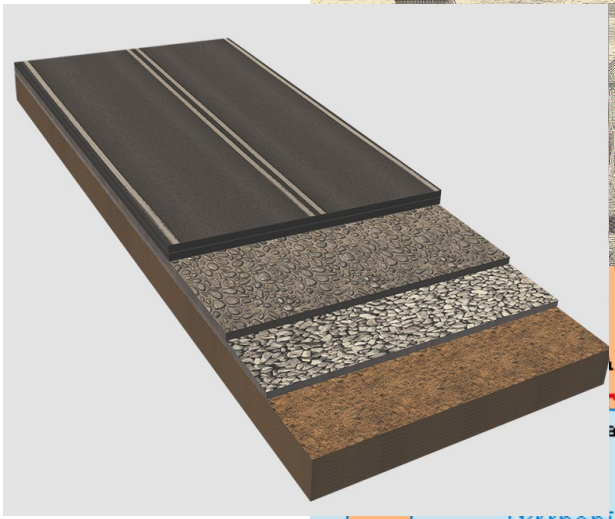
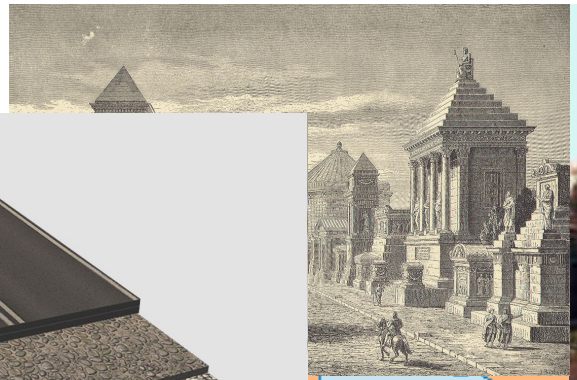
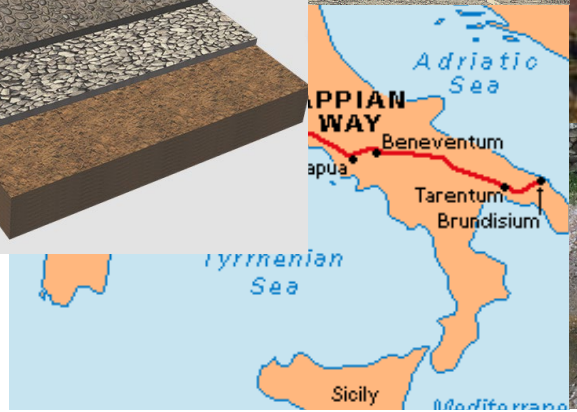
Strategic innovation programmes

A paradigm shift in the role of roads…



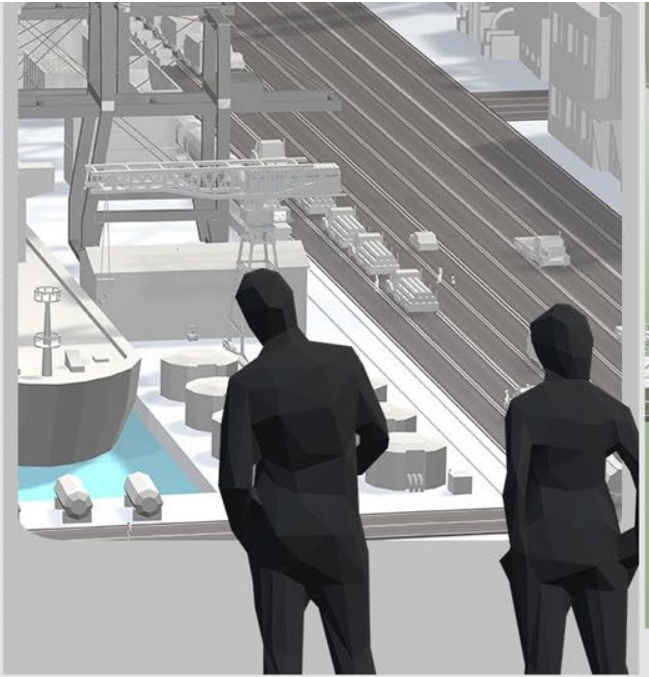




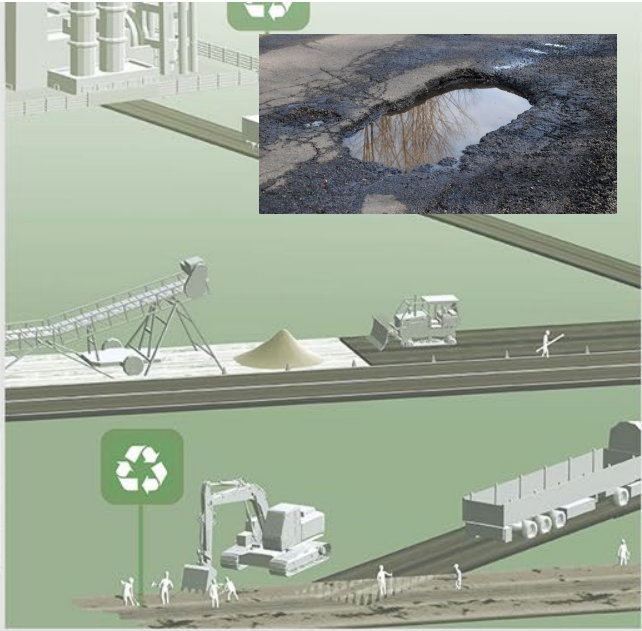
A paradigm shift in the role of roads…

Why are smart roads important?

1. They contribute to a sustainable society

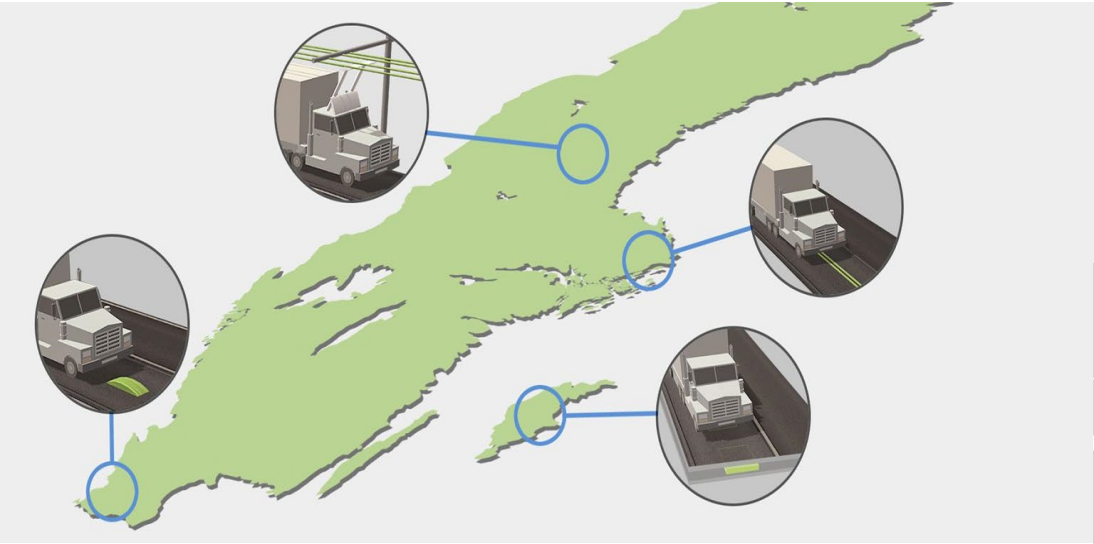


2. They force us to deal with socio-technical complexity in civil engineering subjects



3. They enable us to reduce the gap between scientific knowledge and conservative industry practise

Between technical assesment and real life….



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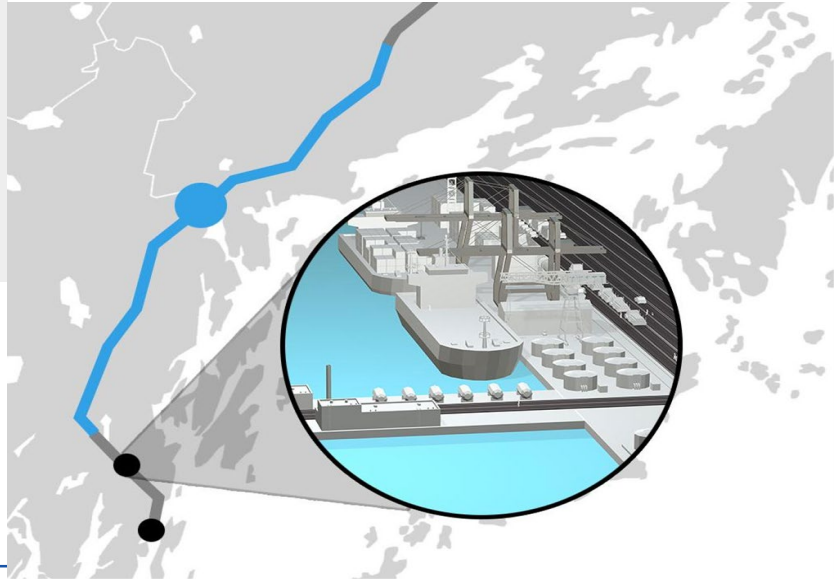


We need to:

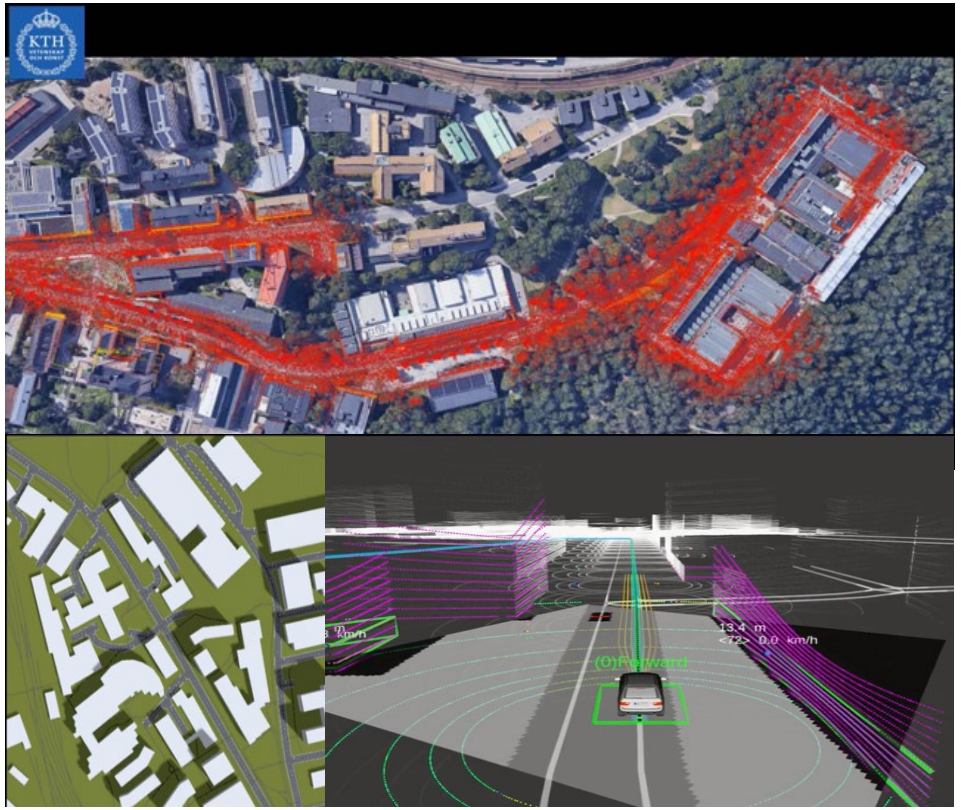
- Evaluate complex systems
- Manage the change process
- Invite new partnerships

Why Campus2030?

- **Smart roads are Cyber-Physical System:**
  - Require up front consideration of aspects such as circularity, side-effects and trustworthiness;
  - Increase functions and services that depend on the road;
  - Change the business models of the infrastructure sector.

As none of the stakeholders has a systemic responsibility, this process is not subject to a natural market mechanism. Therefore, we run a societal risk of not properly addressing the paradigm shift, implying **lost opportunities, increased cost and risk of uncoordinated solutions**.

A coupling between AR and a Virtual Twin



Campus2030 outcomes

Campus2030 aims to become a fertile environment that serves as an **important nursery of ideas for students, researchers and industry stakeholders to test out new smart transportation ideas.**

……*Custom made sensors* that, at the same time, contribute to enhanced safety of autonomous driving as well as help extend the lifetime of the road itself……

…….*Support for standardization* of smart transportation, such as electrified- or autonomous vehicles, that helps optimize the sustainable design and maintenance of the integrated infrastructure…..

……*Identification of technology bottlenecks* in the vehicle-to-infrastructure communication, when rolling out the 5G network needed for enhanced data processing speeds and availability…..

A human perspective: includes the female

We must include women’s use and design of Virtual/Augmented Reality

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Campus2030:

- Gender data gap
- User experience in AR/Virtual Twin

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Women in AI
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Campus2030: bringing perspectives together

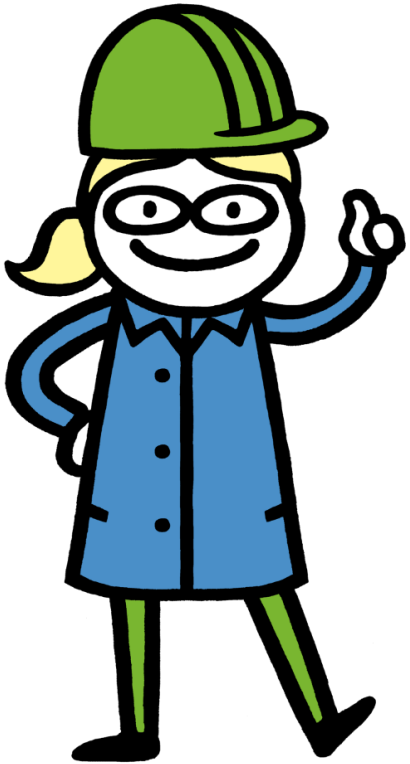
For *new stakeholders*, Campus2030 will provide an opportunity to enter the transport infrastructure sector and establish cross-disciplinary partnerships.

For *current stakeholders*, it provides a unique environment to test out the systemic challenges of their own solutions and find an opportunity to interact with a wide range of experts.

For *KTH and international engineering students*, it enables the creation of exciting multidisciplinary projects and further opportunities to engage with the involved stakeholders.

Fas1: 2020-2023

Important upcoming events:



- 9 Dec 2020: Hackathon
- 10 Dec 2020: Kick-off
- Feb 2021: first AR experience on Campus
- Fall 2020/Spring 2021: roll out of first use-cases:
  - Stakeholder workshops
  - Technical developments
  - AR demonstration
  - User-interaction feedback

Welcome to join Campus2030!

A collaboration between 3 KTH Competence centers + 3D Interactive Sthlm AB

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Welcome !

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