Legolisation

- **Dr. P.H. (Paul) Waarts**
- **P.W.H. (Pieter) van de Werdt, MSc**



Many bridges



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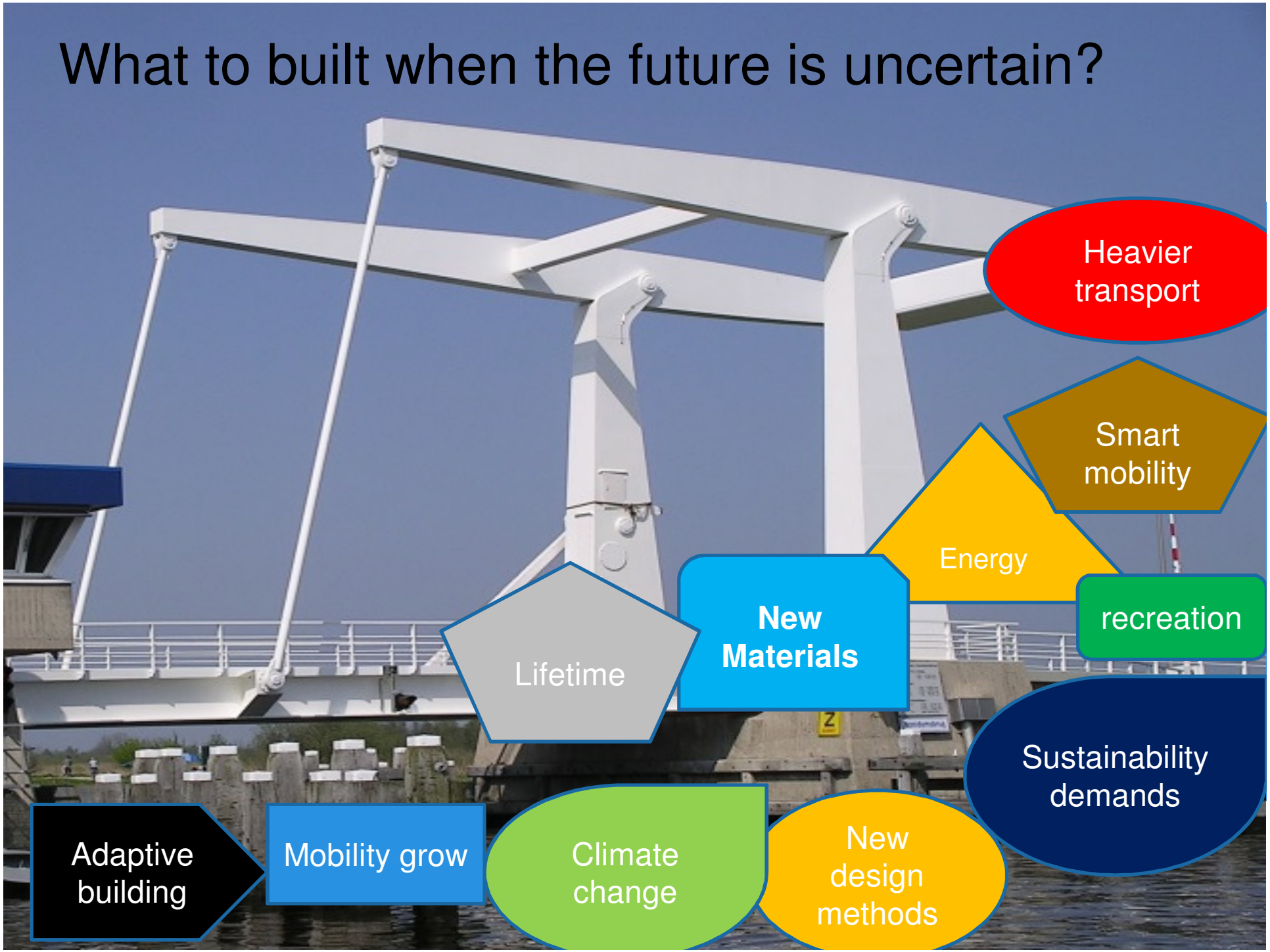
What to built when the future is uncertain?



"Building is putting together an occasional alliance in a bumpy field without resources while reinventing the wheel time and time again for every project"

Jan de Wit, Saxion

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Bridge building nowadays

Learning from other sectors

- Automotive
- Rail
- Building,
- Software
- Ship building

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Earlier times

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Bridges made of lego???

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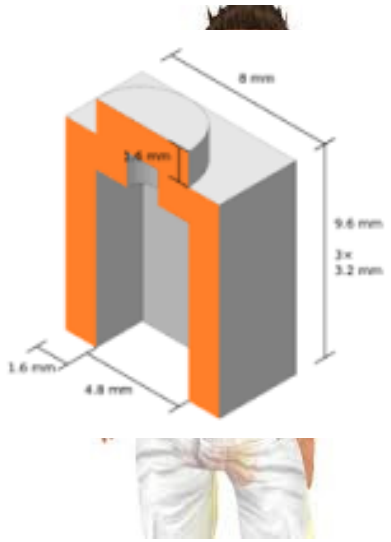
Eco design and re-use
Modular system en innovation

- Standardised elements
  - Interfaces (studs)
  - Dimensions
  - Function



- Innovation per module
  - Sustainable

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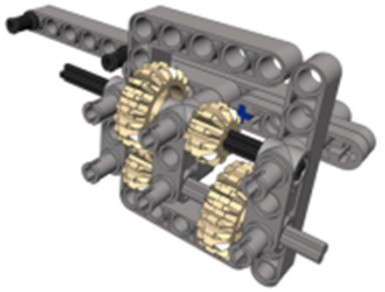
Cost efficiency by standardisation, variety by modularisation

- Basic design once →
  - "Variants" with respect to looks
  - Low design price per product
  - Design faster

- Consequences for products
  - Better quality
  - Faster building
  - When required: a variety in looks

- Consequences for maintenance
  - Low price (parts)
  - Better (more experience)
  - Faster



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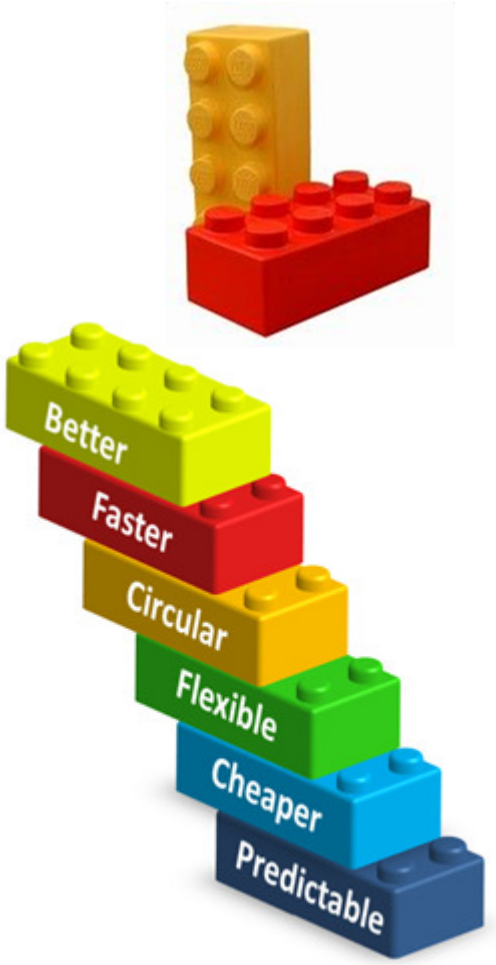
Our aim

- Design process of legolised bridges
- Building legolised bridges

– **Better quality**
– **Faster, built and maintained**
– **Sustainable, circular: re-use,**
– **Adaptive/flexible**
– **Cheaper to built and maintain**
– **Predictable**

X2



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North-Sea region

- North-sea countries are the countries with movable bridges.
- Standardization requires volume & international knowledge
- Re-use needs an international market (each country has few bridges)

Not only civil engineering partners

- Technical (Mechanical, Electrical, Software)
- Organisational (LEAN, BIM, Project management)
- Policy
- Lego

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Collective challenge

de Stentor

Zeker 60 miljoen extra nodig voor opknappen verouderde bruggen

31 mei 2014 | Laatste update: 31 mei, 11:44

DE REDACTIE.BE

"Onderhoud van bruggen en wegen rampzalig"

University of Salford MANCHESTER

UK's ageing bridges focus of research symposium

Wednesday 13 Apr 2016

Share

...ynes, Director of Civil Engineering and convenor o...players like AECom, Laing O'Rourke, Costain and...

...e expectancy, and to make matters worse the EU...

...Kommunen ist

Viele Verkehrswege in Deutschland sind in die Jahre gekommen, besonders schlecht steht es um die Brücken. Laut einem neuen Gutachten ist jedes zweite von 66.714 Bauwerken marode, für deren Erhalt die Kommunen zuständig sind, ...

Discussion

- Collective challenge
- Do you believe in Lego?

- Do you recognize parties in your organisation that would be interested?
- And how about cooperation in one or several pilots?

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