



26 July 2024: Session 4

IM and CoDe Synergy

A Case Study On Evolving Traditional BIM Practices

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BIM
Harambee
.Africa



Agenda

- 🏗️ Introduction
- 🏗️ Synergy between CoDe and Information Modelling
- 🏗️ Developing CoDe in practice
- 🏗️ Case study: bridge modelling
- 🏗️ Capitalizing on new initiatives and spinoffs





Introduction

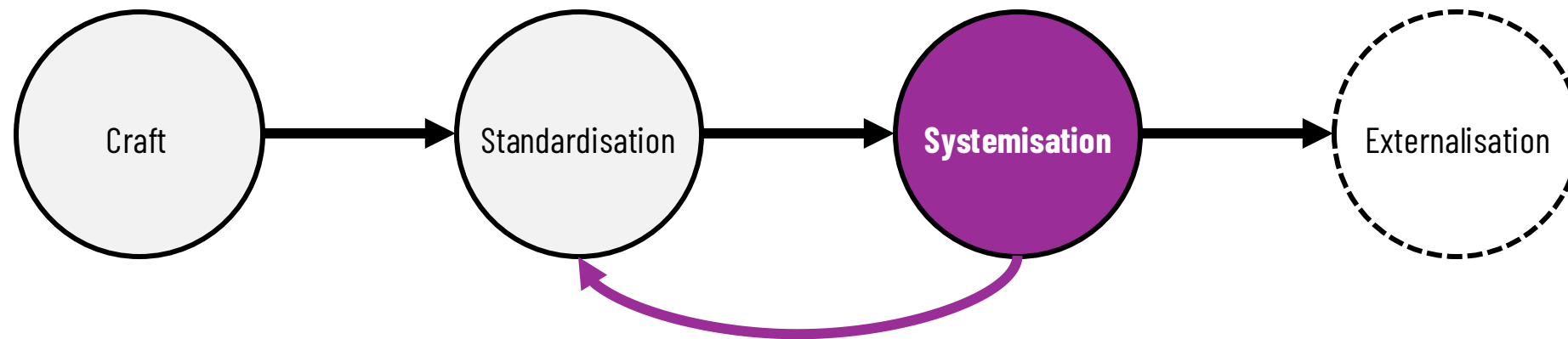
- ⌘ BIM Paradigm
- ⌘ ISO19650 certification and training
- ⌘ Can quickly turn into automation, increase the scale and complexity
- ⌘ Augment capacity, not replacing human skill





Beyond the BIM Paradigm

Understand ***why*** you're adopting BIM, Standardisation itself doesn't solve all problems automatically. The overarching systemisation does.



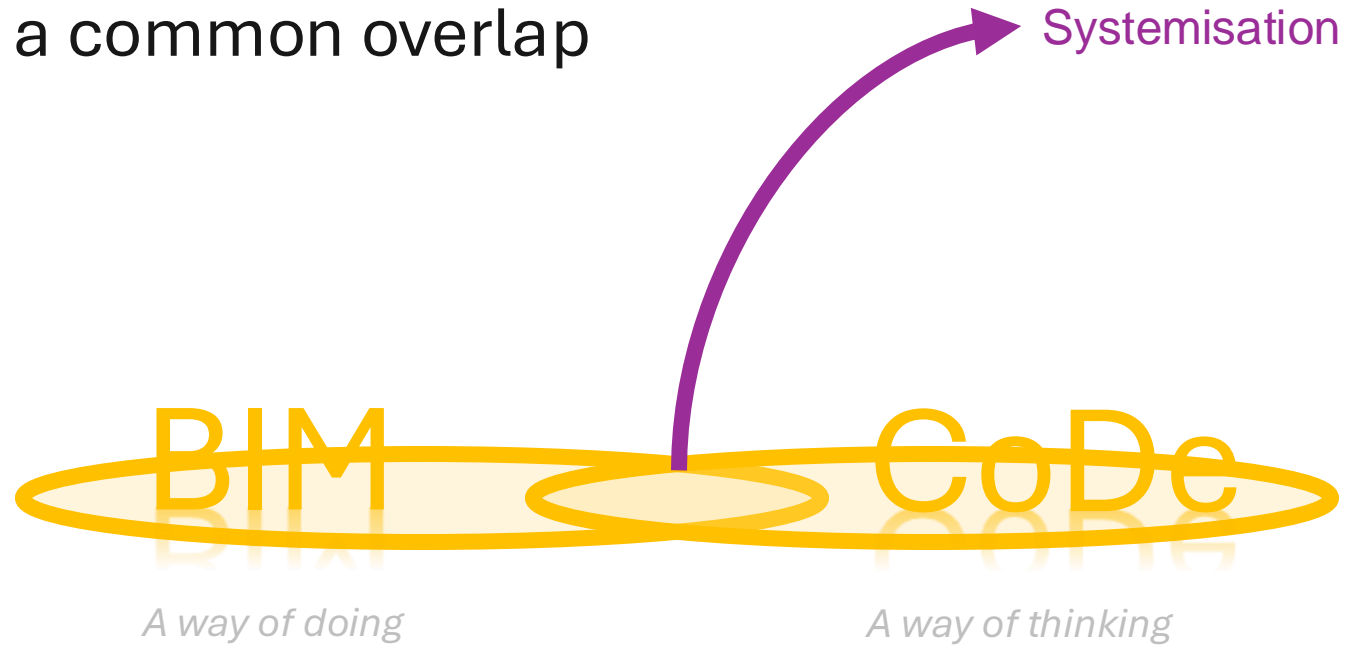
The Evolution of Professional Work (Suskind & Suskind, 2017)





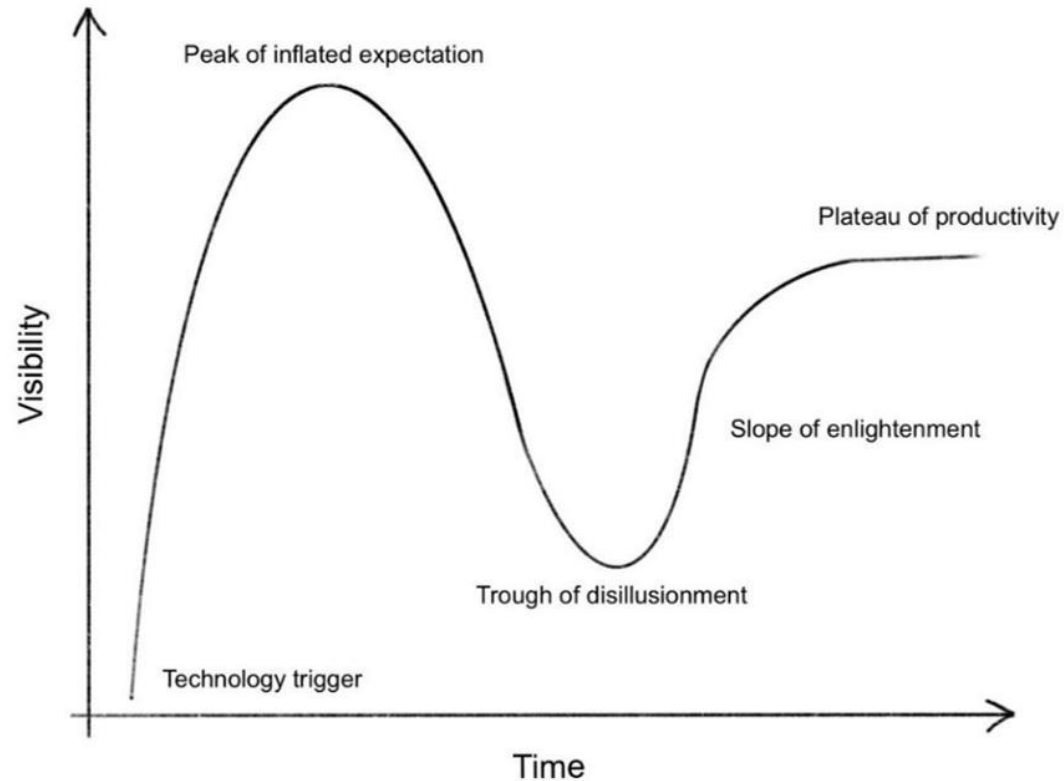
IM and CoDe Synergy

Two share a common overlap

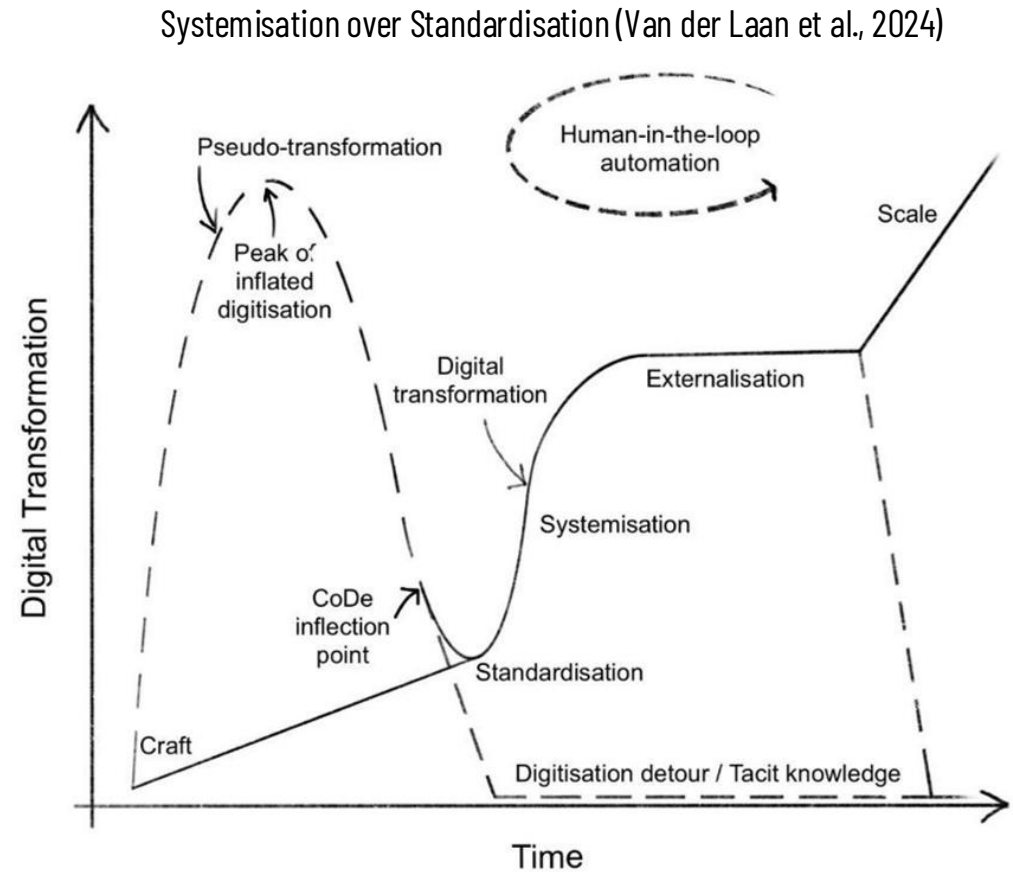




Digital Transformation



Typified Gartner Hype Cycle (adapted from Gartner, 2023)



Systemisation over Standardisation (Van der Laan et al., 2024)

Graphical illustration of the Digital Transformation Curve (DTC)





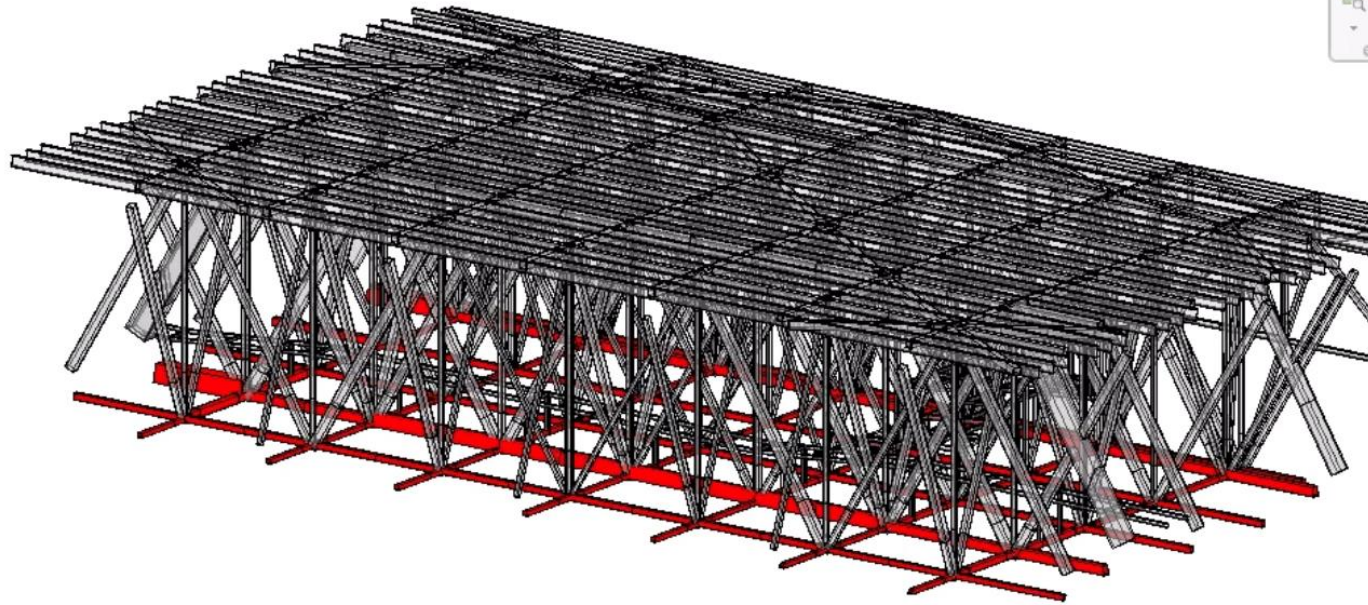
Zutari's CoDe team has adopted this philosophy to develop customized tools and integrated data-pipelines to deliver value-added services across various large-scale projects.

But what is the purpose?





Real-time Optioneering



Dynamo Player

Element_Filter_Creation ?

Author : None provided

Inputs

Element to select Bottom Chord

Show or Hide Zone NotEquals

Zone ID

Outputs

Filter Name

Filter Name

Filter Name

Run complete

vm_ifc_bind.rvt

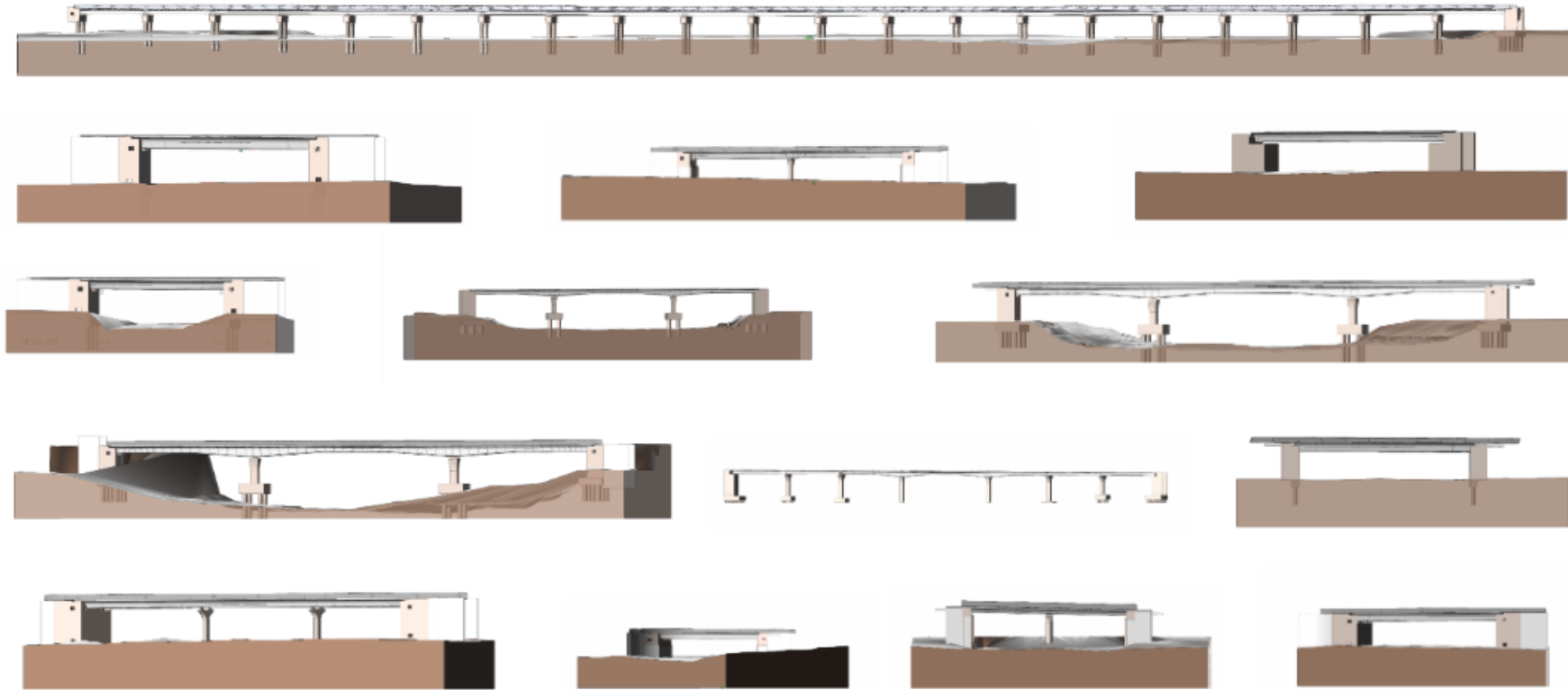


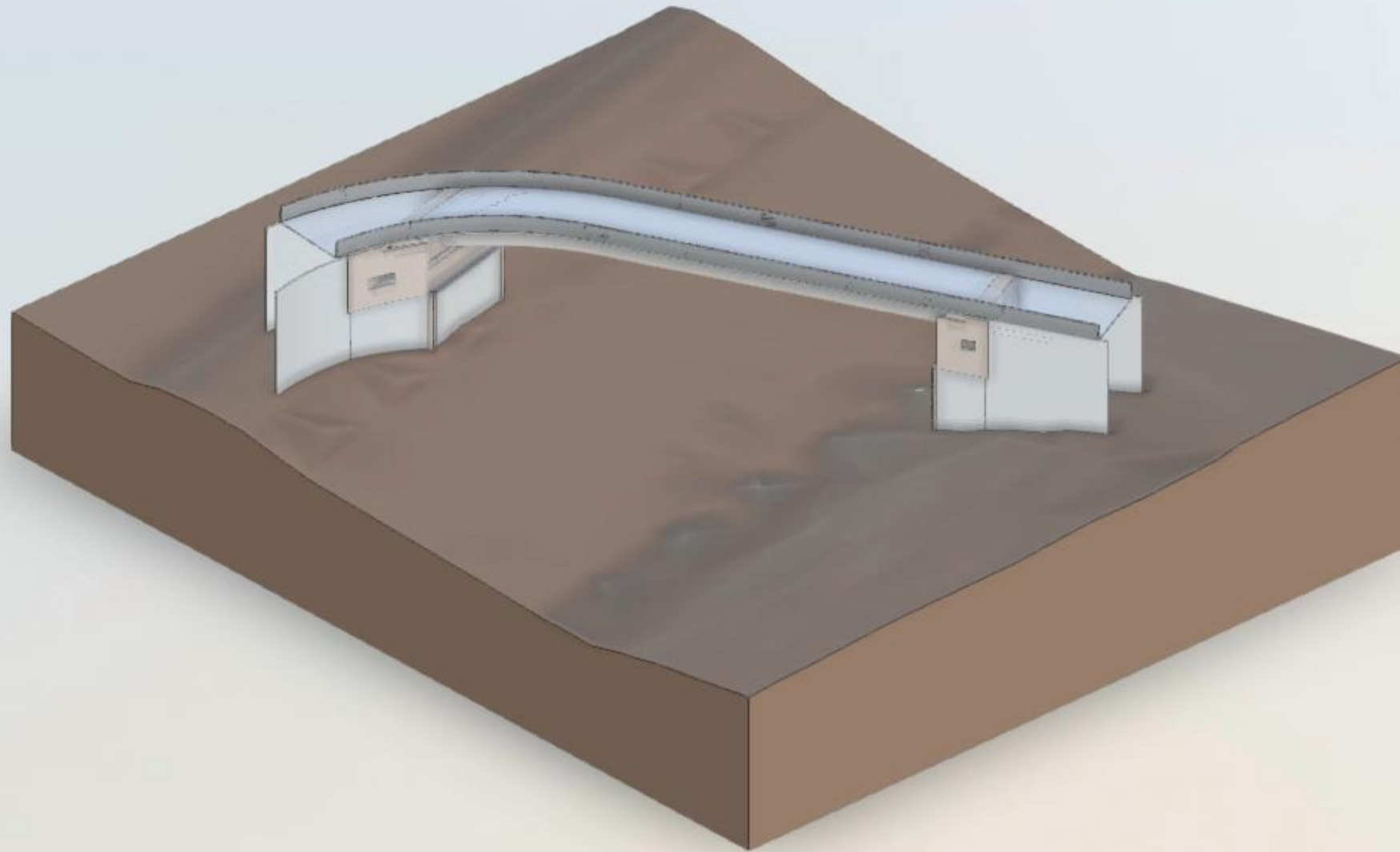
Dynamo





BIM and CoDe in Bridges

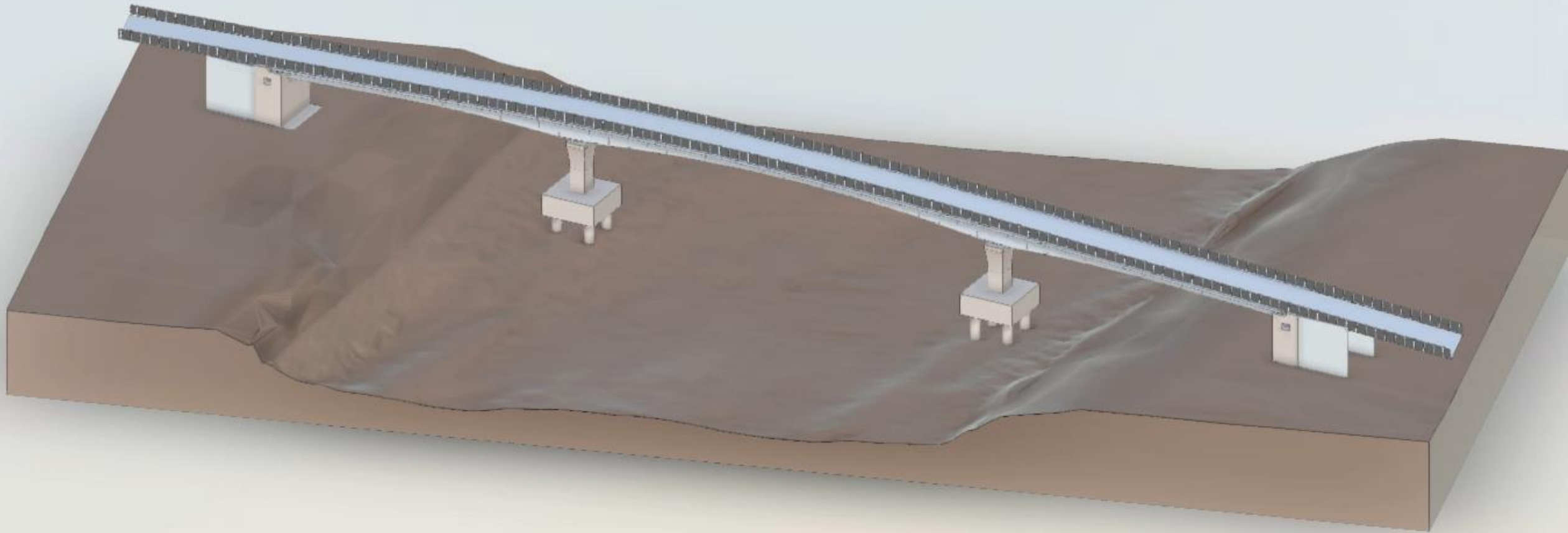




- **20 reinforced concrete footbridges**
- Water navigation channels and roads to cross
- Incorporating various bridge superstructures and span arrangements



- Adaptation of existing workflows for roads and tunnels to structural bridge design and modelling for bicycle path networks



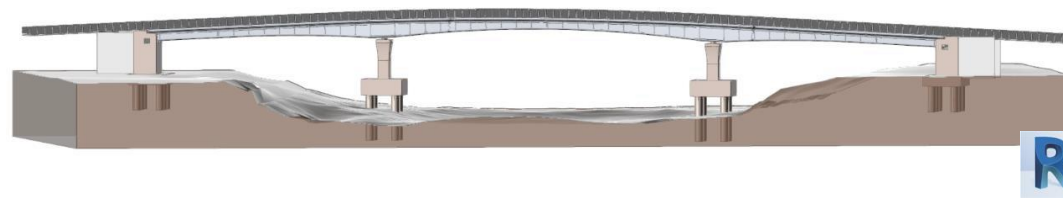
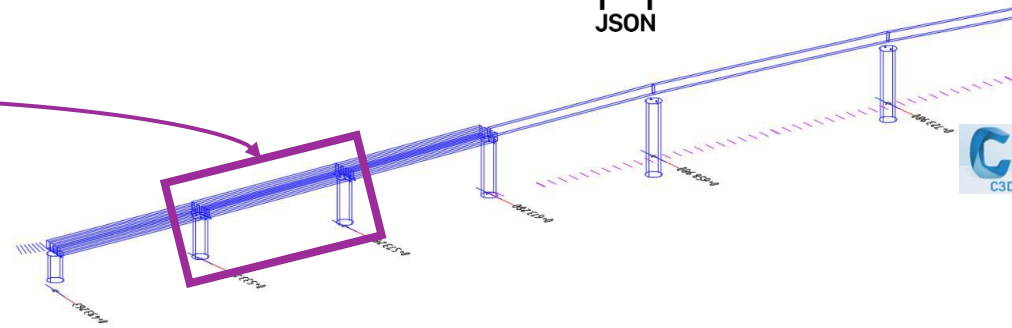


Systemisation – a “Data First” Approach

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5911         ]
5912       }
5913     },
5914     ...
5915   ]
5916 }
```

Alignment ID Route-2 SG-03

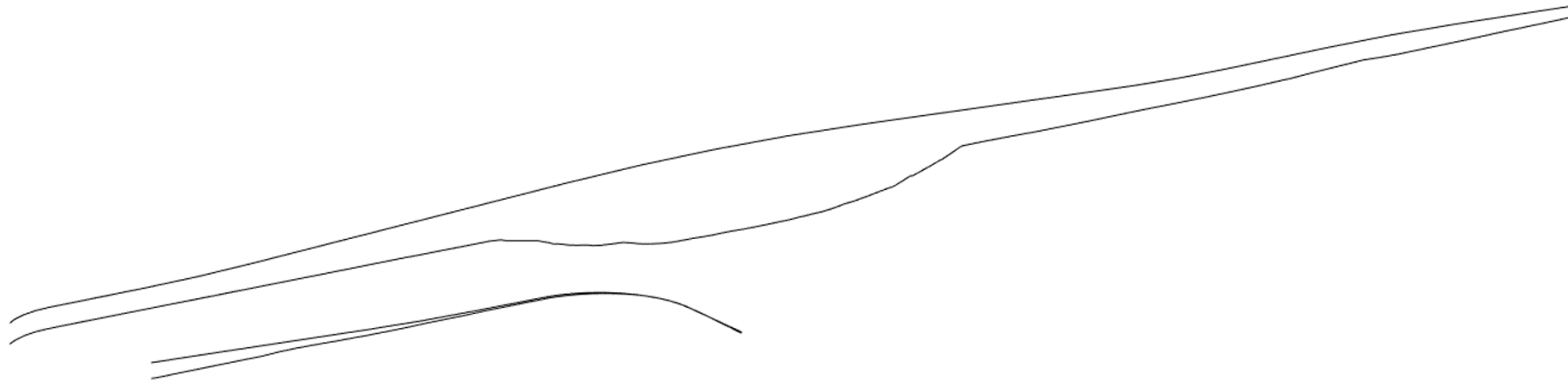
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- Time stamp 2023-04-20T13:31:24.7640473+02:00
- Orientation null
- Gridline Points null
- Total length 476.434
- Right width 3.5
- > [] Right edge points
 - Start chainage 493.263
- > [] Abutments
 - End chainage 969.697
- > [] Soffit centreline points





Automated Systemisation

Automated and scaled for multiple implementations





Tangible Data





CoDe Culture & Certification

Self-guided introductory training using Python



Internal training and bootcamps > critical mass



Industry certification (OpenEDG/GitHub)

OPENEDG

Verify Credential

This certificate is valid for:

Holder's Name: **Rick Vandoorne**
Credential: **PCEP – Certified Entry-Level Python Programmer**
Exam Version: **PCEP-30-02**
Date of Issue: **June 30, 2024**
Status: **Active**

[Download](#)

PCEP – Certified Entry-Level Python Programmer certification is a professional credential that measures the ability to accomplish coding tasks related to the essentials of programming in the Python language.

A test candidate should demonstrate sufficient knowledge of the universal concepts of computer programming, the syntax and semantics of the Python language as well as the skills in resolving typical implementation challenges with the help of the Python Standard Library.

PCEP – Certified Entry-Level Python Programmer certification shows that the individual is familiar with universal computer programming concepts like data types, containers, functions, conditions, loops, exceptions, as well as Python programming language syntax, semantics, and the runtime environment.

Go to [Certification Page](#) for more information.





But What is the Purpose?

*Productivity can be defined as the ratio of inputs to outputs, with a focus on increasing outputs
Efficiency differs from productivity as it pertains to reducing input while output remains constant*

Efficiency -vs- Productivity





*“In 20 years every engineer will know Python [coding], and every engineering team will be developing their own tools. That is what is needed to **keep up with high demands**, whilst also making repetitive work less boring.”*

Alexandre Cousin

Head of Generative Design at VINCI Construction





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Thank You



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