Bridging Interoperability with LEGO

DANS Open Day
Open data, open science

How systems connect (and fail)

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11-06-2026

DANS

National centre of expertise and repository for research data | An institute of the KNAW and NWO

Hello!

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In (open) science, we often build things that are excellent on their own

Today we’re going to see what happens when we try to connect them

Build a LEGO Bridge

Today’s workshop

- LEGO bridge building
- Interoperability explained with LEGO
- Break
- What is the LEGO / bridge in your work?

Groups - Division & Introduction

- 12 groups of 1 or 2 people
- Try and mix with people you don’t know
- Introduce yourself - *4 minutes*

Groups - Division & Introduction <<4:00->

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Build a Bridge - with LEGO

- Each group will build 1 half of a bridge
- Conceptually discuss the total bridge with your opposite group first
- Get LEGO and build
- Show bridges
- Compare

Discussion Phase

Discuss the bridge design with your opposite group

- What kind of bridge?
- Style & colour?
- Size?
- Supports & foundation?
- Anything else you need to know to build together

To mimic real-world time pressure, you get *1 minute* to discuss…

Discussion Phase

<<1:00->

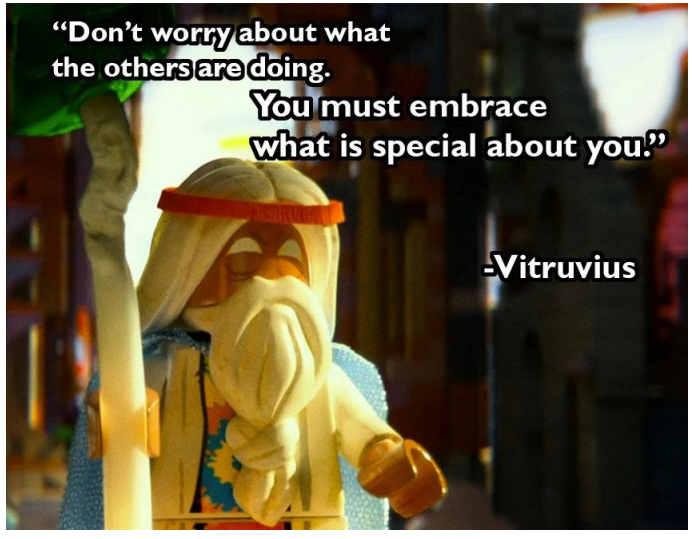
Discuss the bridge design with your opposite group

- What kind of bridge?
- Style & colour?
- Size?
- Supports & foundation?
- Anything else you need to know to build together

To mimic real-world time pressure, you get *1 minute* to discuss…

Build Time *"Your Half of the Bridge"*

- **No more communicating with your opposite team!**
- Pick up a bag of LEGO for your team
- Make a half-a-bridge plan
  - Inspect / sort your bricks
  - Brainstorm and discuss options
  - Sketch (optional)
- Should accommodate minifigures
  - Steps of 1 brick high
  - 2-way traffic
- Start building
- *15 minutes*



Build Time

<<15:00->

- **No more communicating with your opposite team!**
- Pick up a bag of LEGO for your team
- Make a half-a-bridge plan
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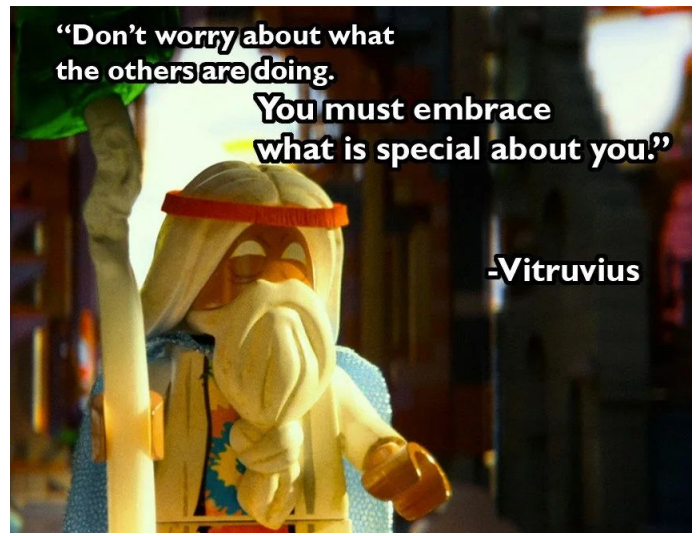


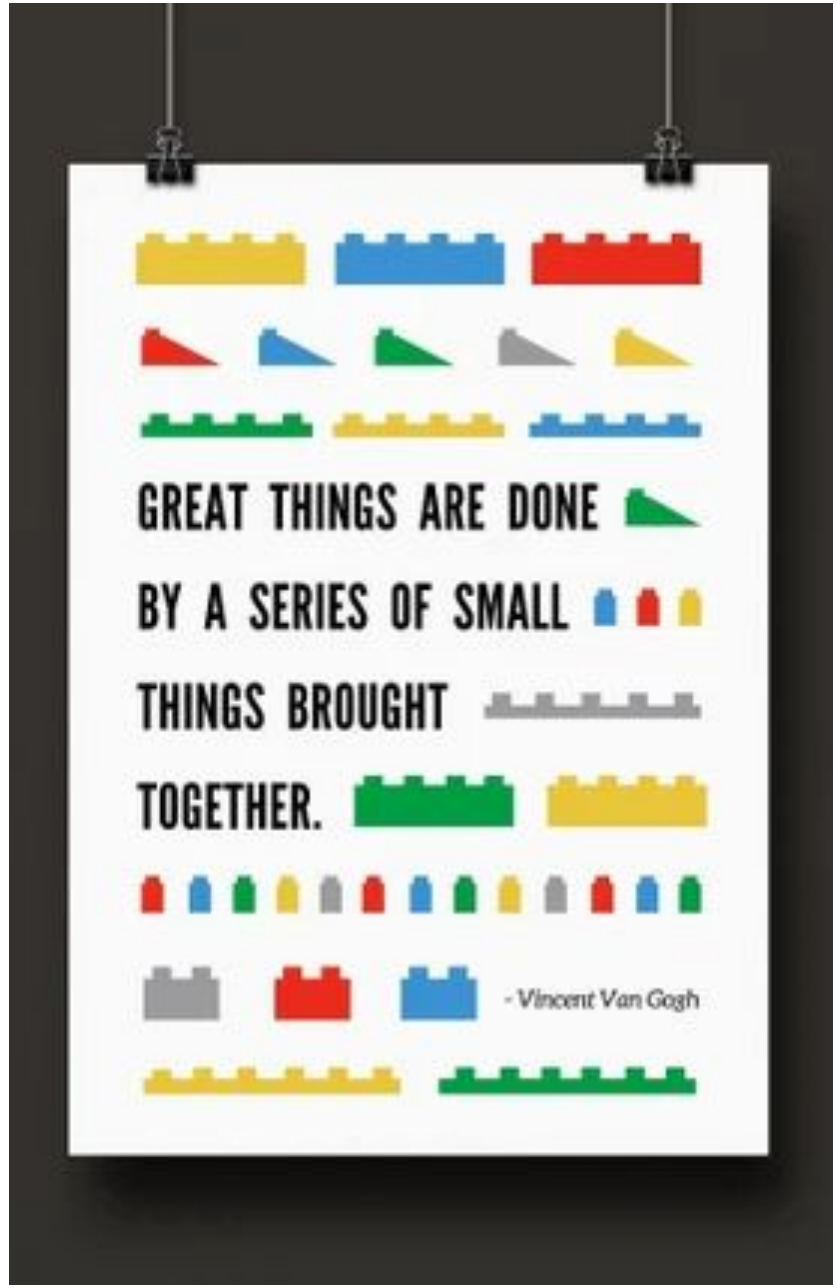
Show your bridge!

Each group: show-and-tell

- What kind of bridge
- How do you connect?

Now let’s see if we can make some complete bridges!

- Put your halves next to each other
- Do they connect? Are they interoperable?



Time to Connect

Both halves were *open*. Neither was *interoperable*.

- Try to connect using minimal bricks - *10 minutes*
- **Team with least bricks wins eternal glory!**

While fixing, discuss:

- What went wrong?
- Is there room for negotiation on how to fix?
- Did you notice one side compromising more?
- Did anyone discuss what the bridge would bridge?

Time to Connect

<<10:00->

Both halves were *open*. Neither was *interoperable*.

- Try to connect using minimal bricks - *10 minutes*
- **Team with least bricks wins eternal glory!**

While fixing, discuss:

- What went wrong?
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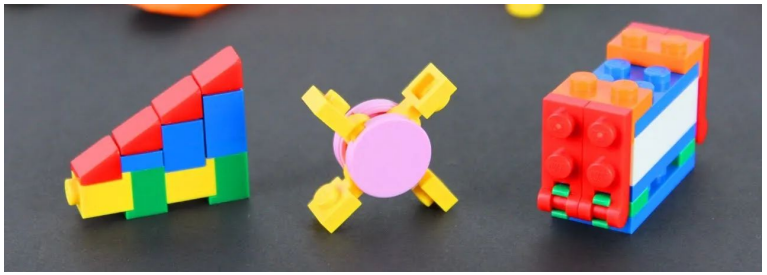
Semantic Join

What information would you have needed *before* building?

- Size of the river to cross (the goal of your bridge!)
- Height at join (how many bricks, from table or from baseplate?)
- Width of bridge (how many studs?)
- Support under join, yes/no?
- Which brick(s) will you add at join time to connect?

Connecting LEGO to Interoperability

LEGO bricks are (extremely!) interoperable with each other, can fit together in many ways



Technical Interoperability

- Standardised, open file format *(non-proprietary?)*
- Makes sure we can put 2 datasets together in the same software / analysis

Technical interoperability is not enough

Just having LEGO (or data) fit together technically, doesn't mean we can make a cohesive whole out of the parts

We need *semantic* interoperability

Debrief

Interoperability is about agreeing on joins,
not controlling designs

Your bridge (or data, or system) can be designed in any way that works for you, as long as you connect in a standardised way

Demolish Time

Take apart your bridge

Put LEGO back in bag

Feedback & Evaluation

To improve the workshop, please fill in this short feedback form: alexbrandsen.nl/legoform