



Digital Transformation enabling Offsite decisions  
27<sup>th</sup> February 2019



# Industry solutions organization



# Digitizing built assets

Flow of information



# buildingSMART

Vision



**Enable full benefits  
from  
digital ways of working  
in the  
built asset industry**

# History



1995 Established

2000 IFC2

2001 IFD ISO

2012 IFC4 + bSDD

2013 IFC ISO

2014 IFC Infrastructure

2015 BCF

2016...Enabling workflows

# Chapter Community



Full  
Chapter



Developing  
Chapter



Full  
Chapter



Full  
Chapter



Full  
Chapter



Developing  
Chapter



Full  
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Full  
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Full  
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Developing  
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Developing  
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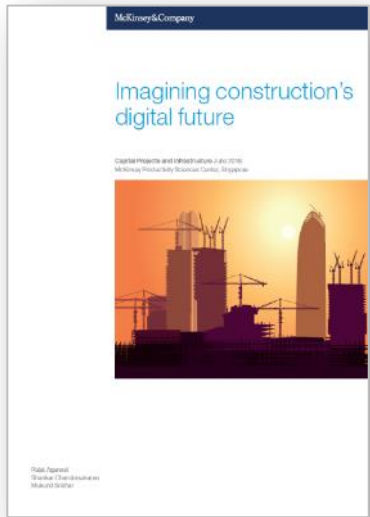
# Working with others



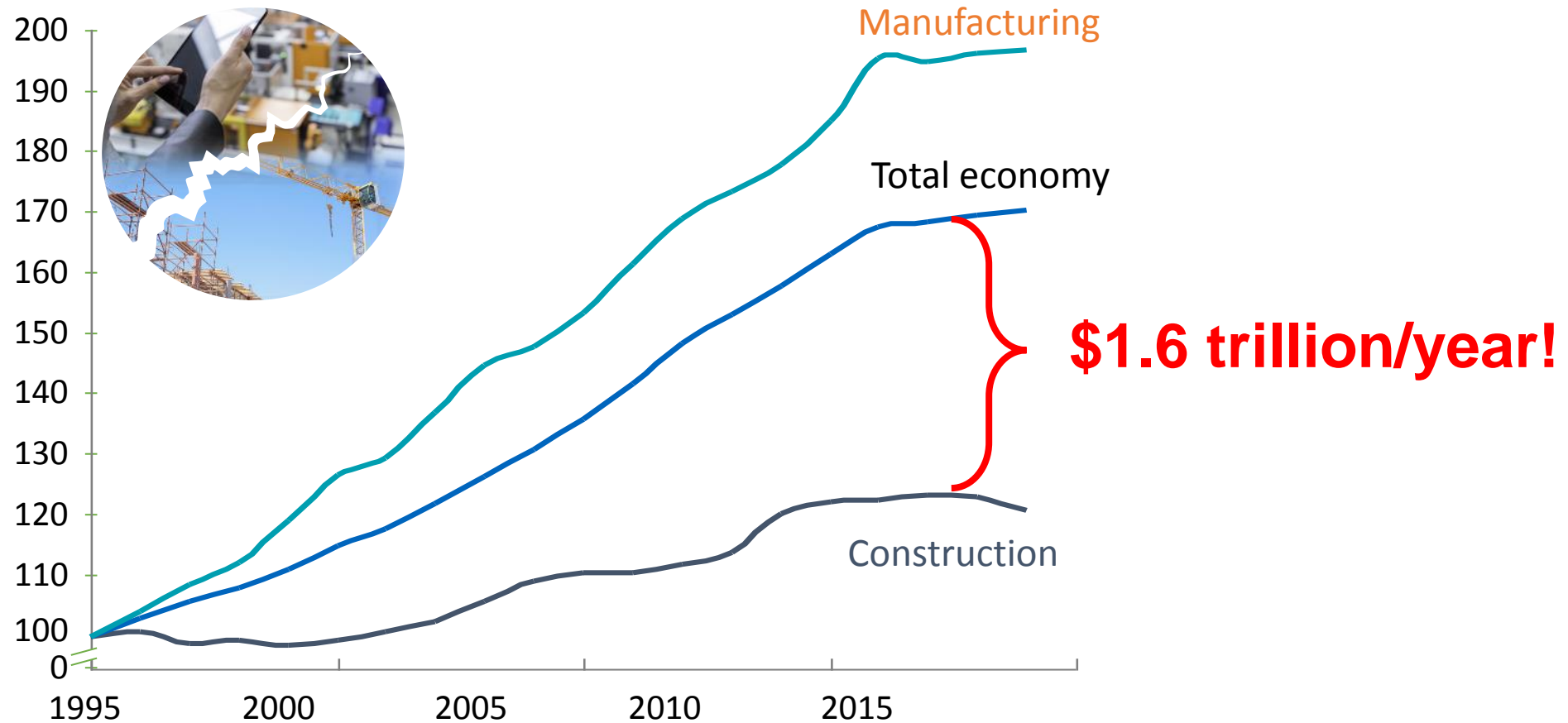
# Disruption is everywhere



# Construction productivity growth remains dramatically low



**Source:**  
**Imagining Construction's Digital Future**  
Capital Projects and Infrastructure  
June, 2016  
McKinsey Productivity Sciences Center, Singapore



1 Real (2005 USD) gross value added per hour worked by persons engaged, indexed 1995 = 100, 20-year CAGR



# Digital Transformation

1. Embrace Digital Transformation



2. Break down data silos with improved interoperability by better understanding whole life asset value



3. Develop data strategies using international standards



4. Transform from within



## Digital Data

*In numbers*

### Gartner Study

data used	1%
Dark data	99%

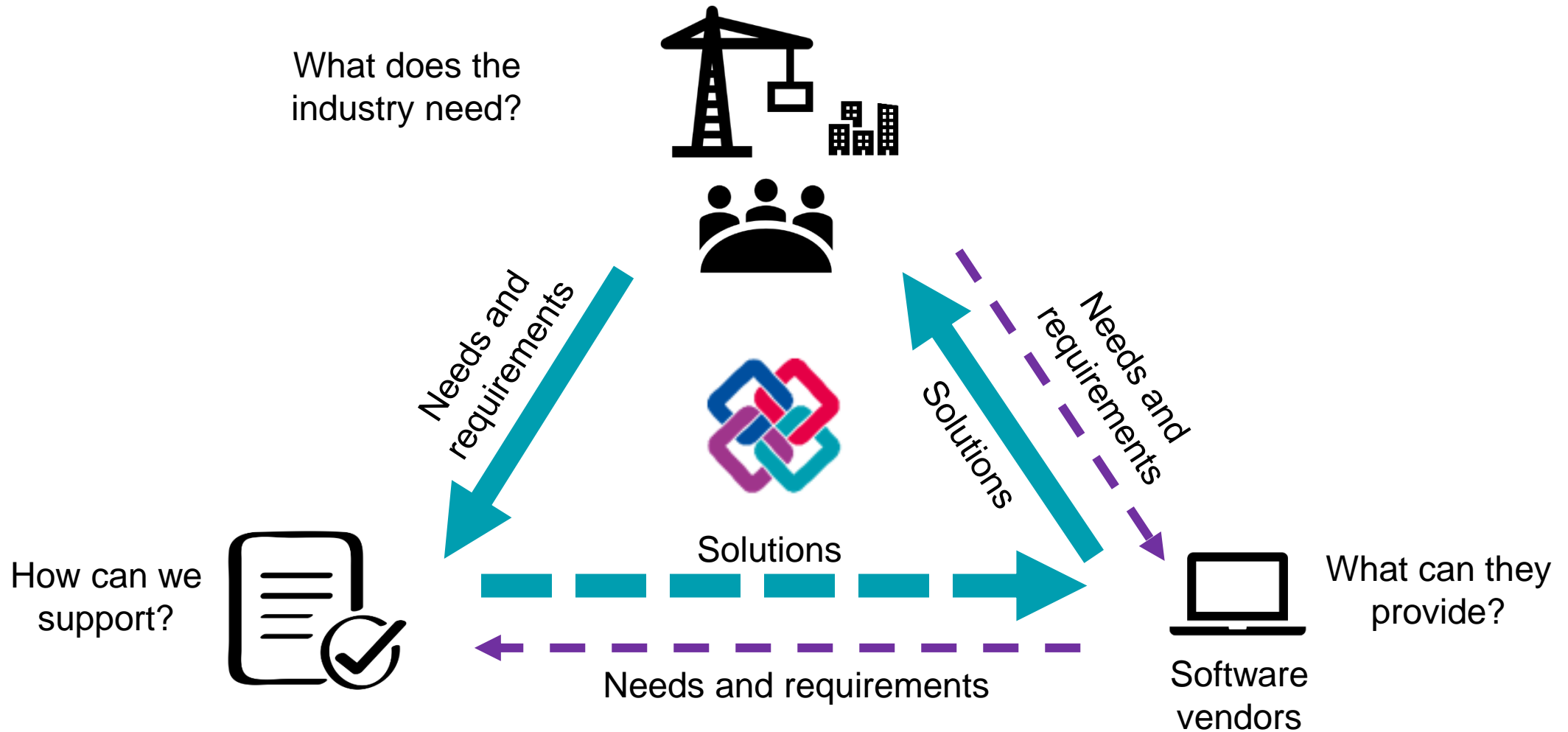
### SAP Report

Company-wide adoption of digital tools	3%
Belief that digital is key to strategic goals	96%

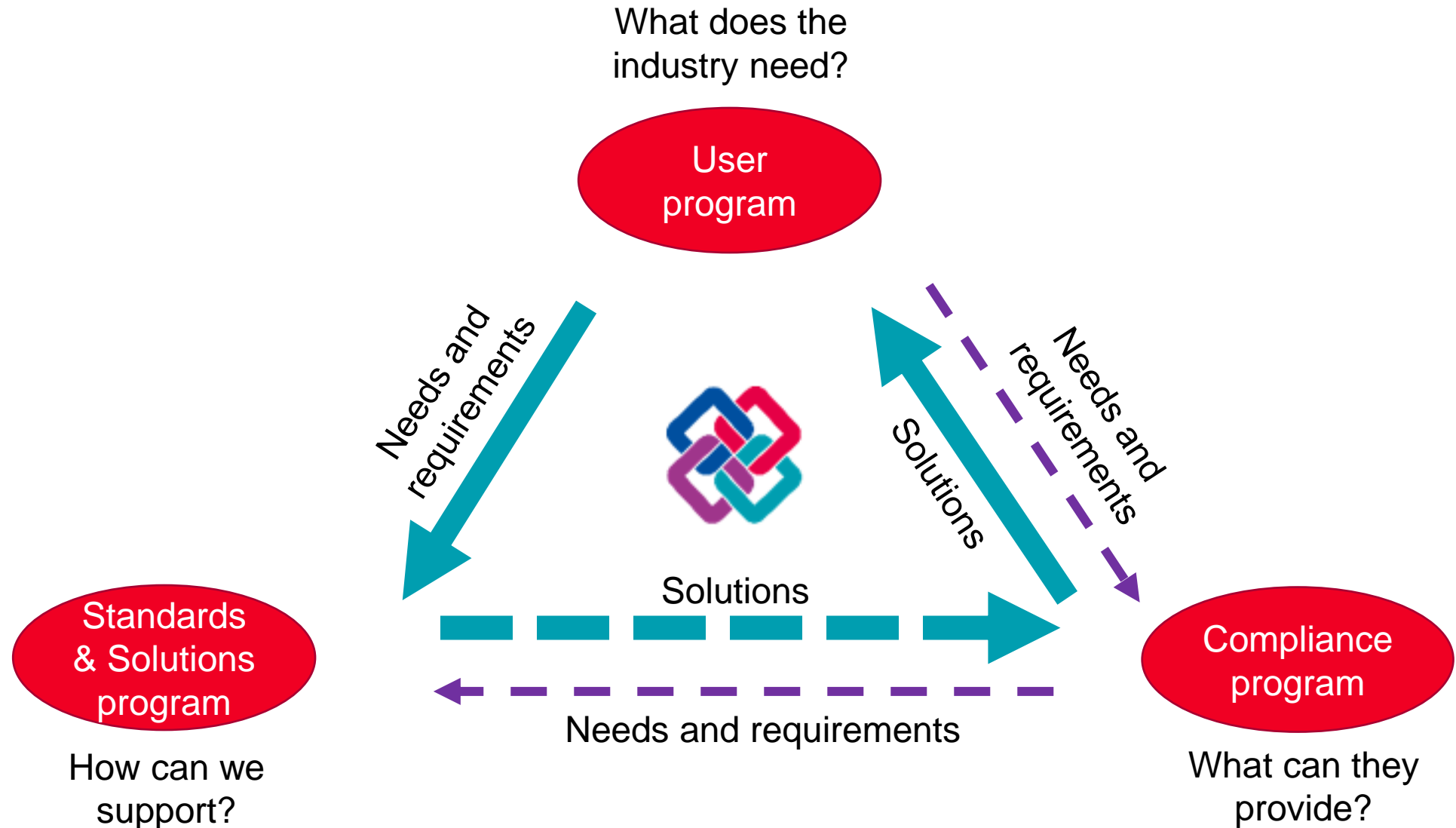
### McKinsey & Company

Potential improvement in operating margins	20-30%
Amount needed by 2030 for the worlds infrastructure	\$57 trillion

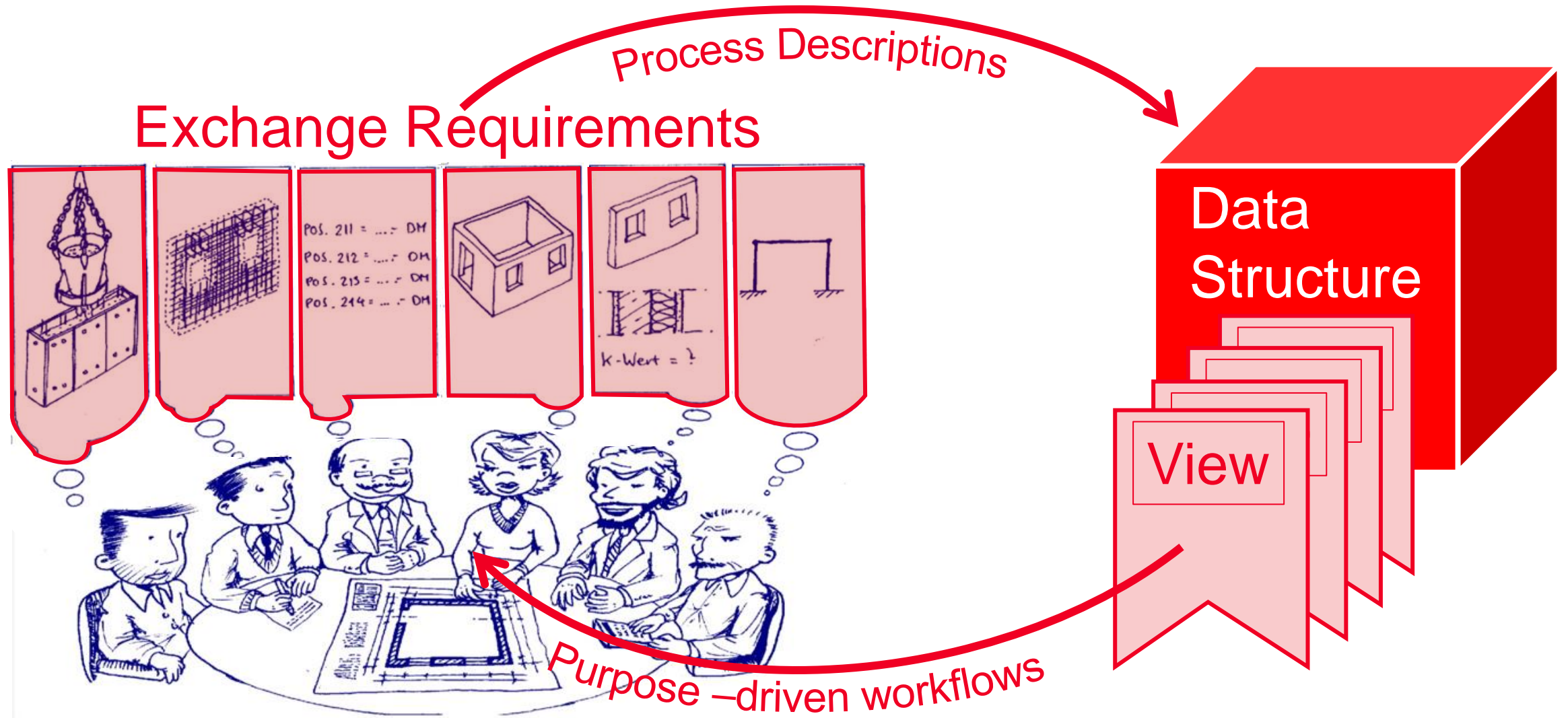
# Demand driven



# Demand driven



# Digitising workflows



# buildingSMART Rooms



Airport



Building

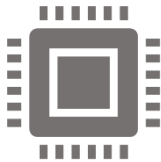


Construction



Infrastructure

## buildingSMART Rooms



Product



Railway



Regulatory



Technical

# Project Case Study

## Rail



**Mission:** To set global open and interoperable BIM standards for the rail industry by extending the IFC schema to create the “IFC Rail Candidate Standard”

**Timeline:** April 2018 – March 2019.

**International collaboration:** 4 bSI Summits and 8 expert panel meetings for project participants

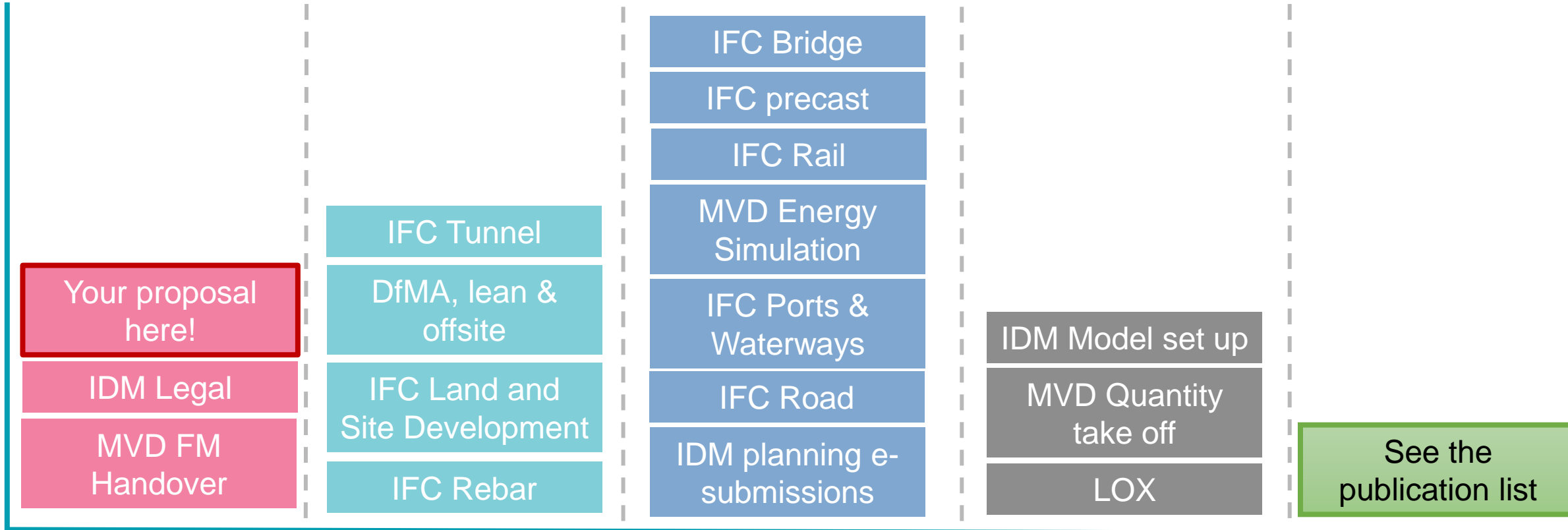
**Resources:**

- Project leaders and project team
- Expert panel
- Infra Room Administrator
- 24 team members (plus 70+ in-kind contributors)

**Funding raised:** €2,500,000 +/-

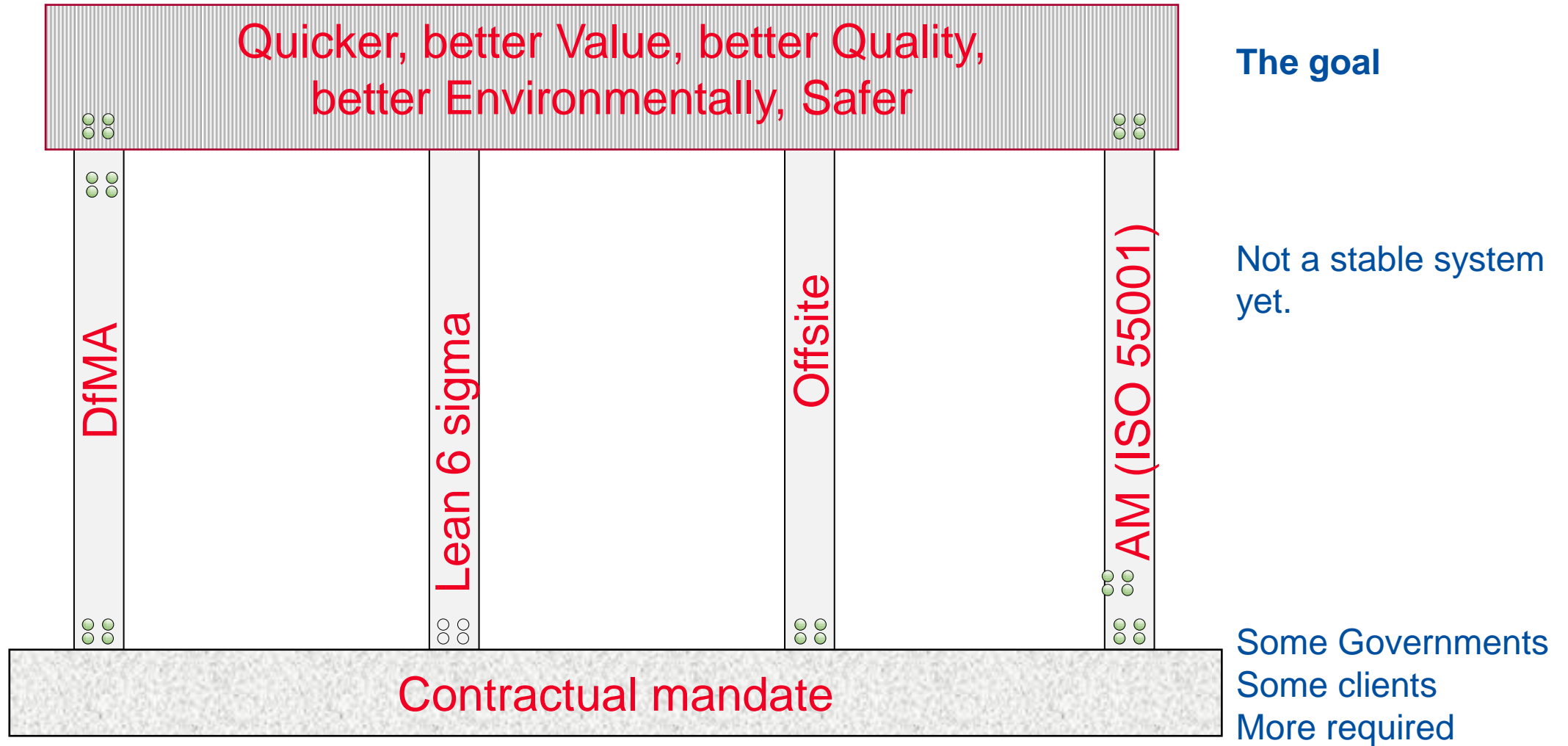
# Project Progress

IFC = Industry Foundation Classes  
MVD = Model View Definition  
IDM = Information Delivery Manual  
DfMA = Design for Manufacture and Assembly  
LOX=Level of Development/definition/...

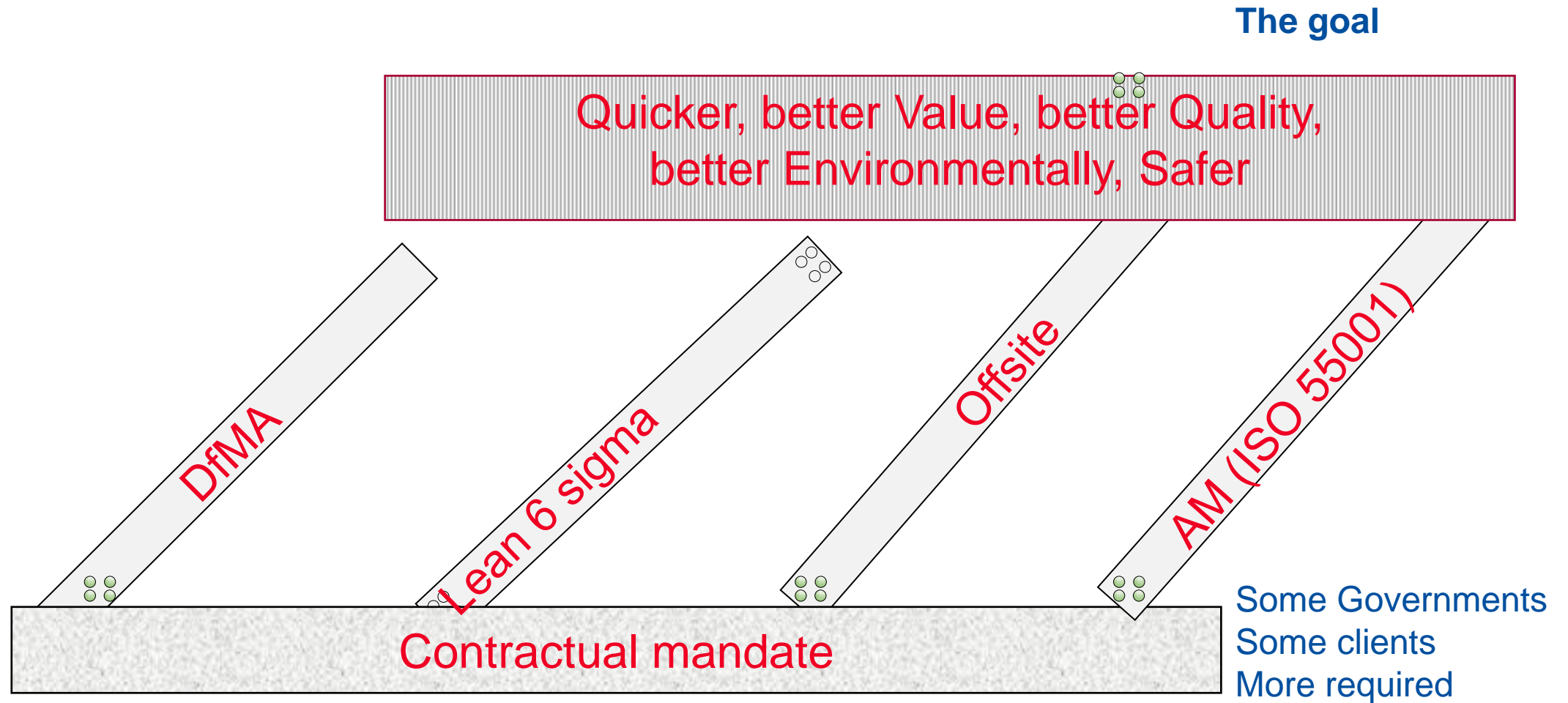


Proposal ➤ Initiation ➤ Development ➤ Approval ➤ Deployed

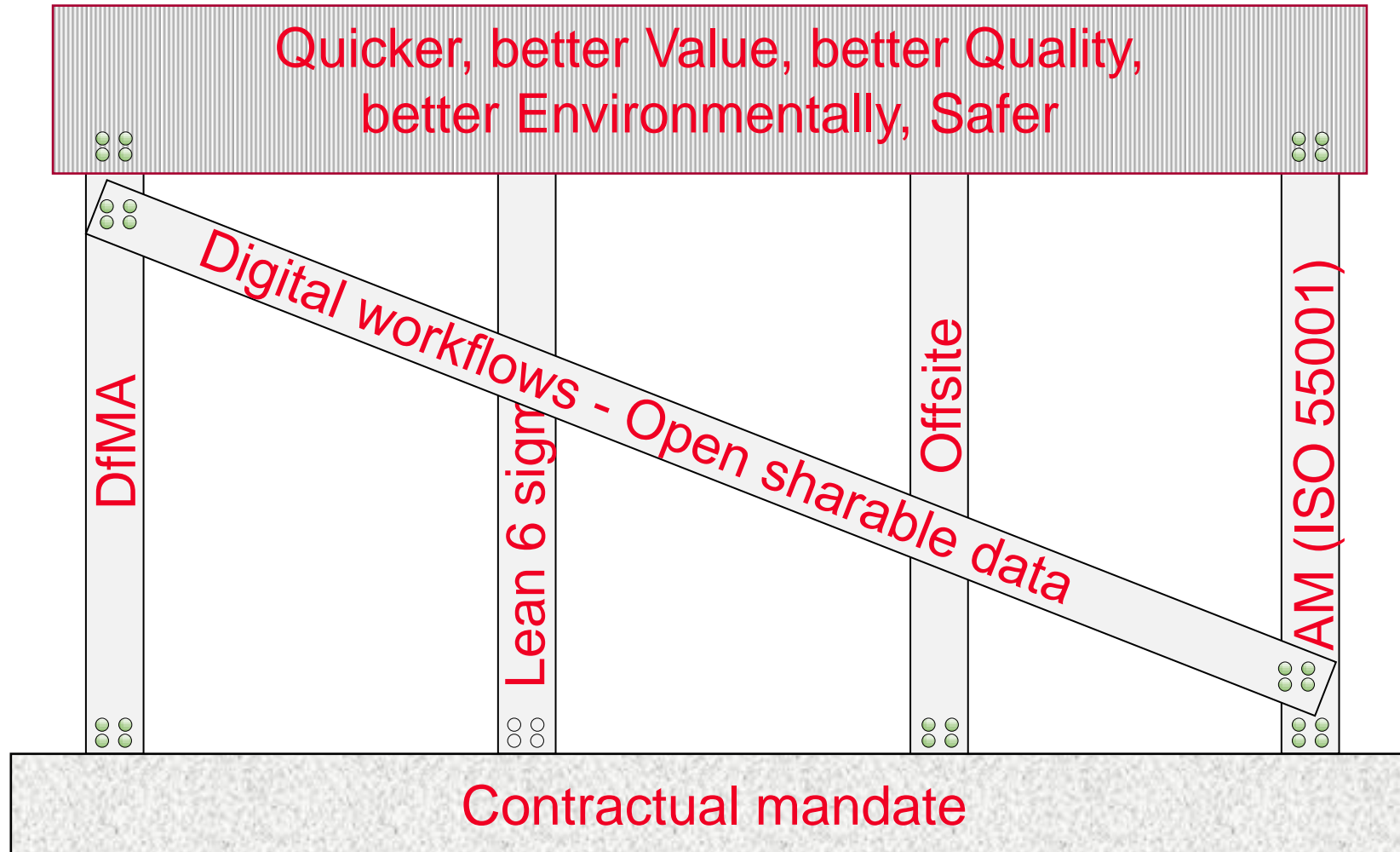
# Linking the initiatives



# Linking the initiatives



# Linking the initiatives



## The goal

Open data has come of age.

- Open standards
- Technology
- Cohesive community

Some Governments  
Some clients  
More required

# Published Since 2014

## bSI Final Standards

IFC Base Standards ISO  
IFC Specifications & Tools  
IFC 4 Specialist site  
IFD Framework for object orientated info ISO  
IFC4 Design Transfer view MVD  
IFC4 Reference view MVD  
IFC4 Infrastructure Alignment  
BIM Collaboration Format XML  
BIM Collaboration Format API  
BIM Collaboration Format v 2.1  
IFC 4.1 Alignment positioning

## bSI Final Technical Report

Model View Definition for LANDXML v1.2  
Infrastructure Overall Architecture  
Open Standards for Regulation  
Infrastructure Asset Management

## buildingSMART SPEC

IFC Rail bSI SPEC  
IFC Road bSI SPEC

## buildingSMART Candidate Standard

ifcOWL

# International Awards – 2018

A record year

**85** Total submissions

**40** Final for review

**37** Independent jurors

**4** Category winners

**6** Special Distinction awards



# 2018 buildingSMART Award Nomination

Construction



 **buildingSMART**  
International home of openBIM



## Project facts:

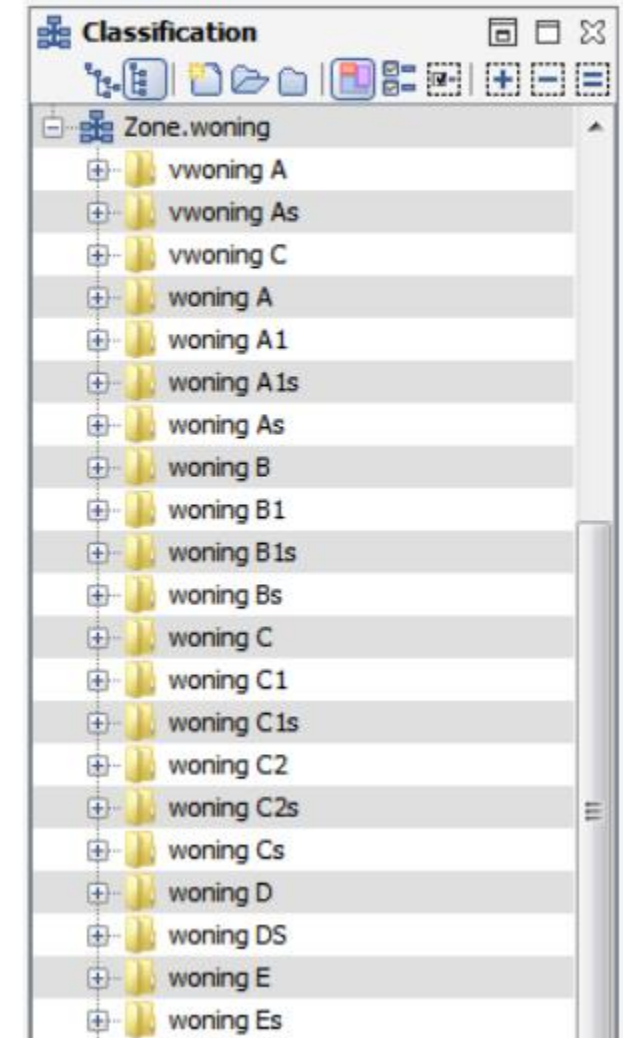
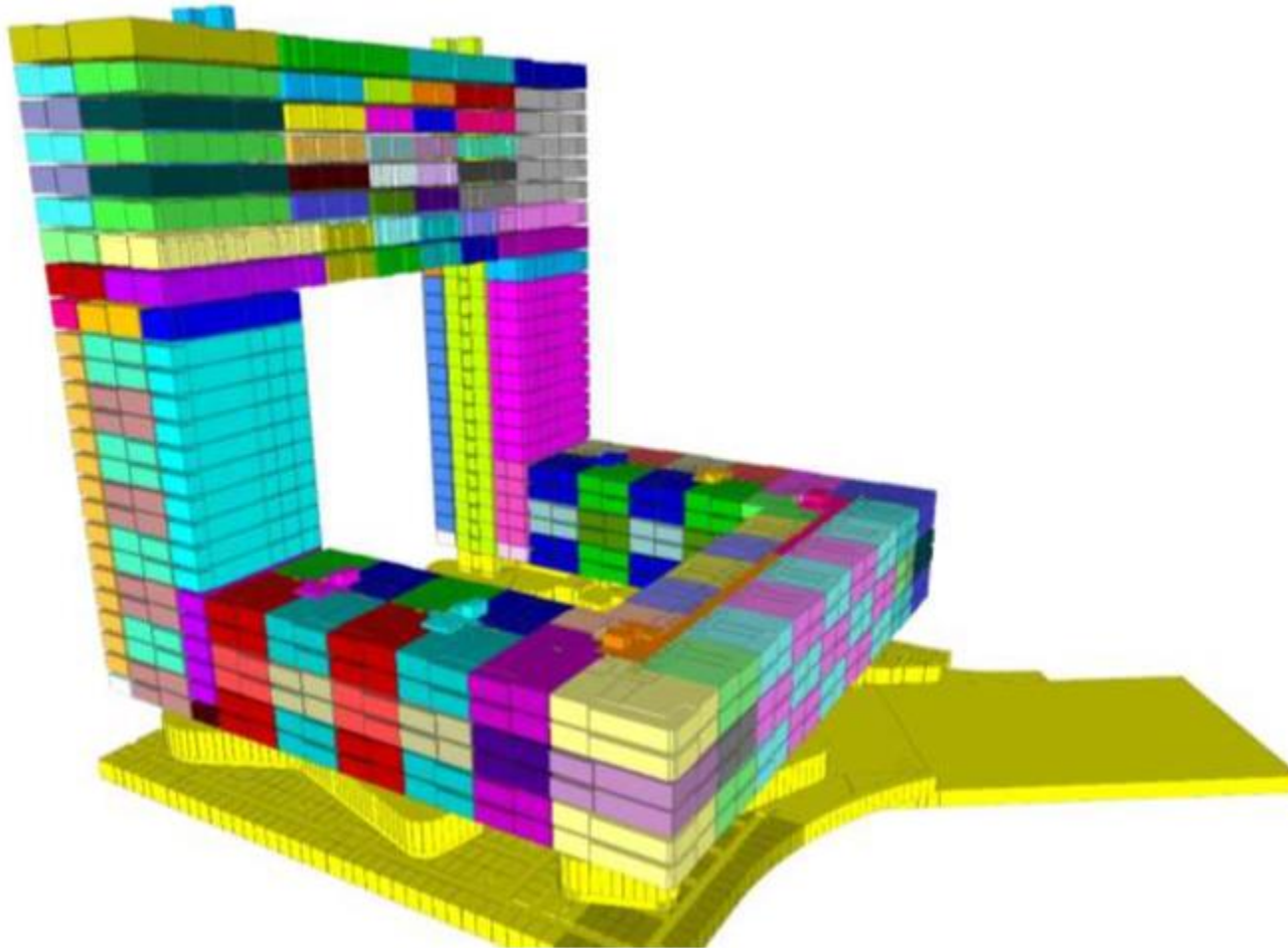
- ✓ 90 Meter Housing
- ✓ 366 Apartments
- ✓ EURO 100 million
- ✓ IFC 2x3
- ✓ 50 different disciplines
- ✓ 350 different IFCs
- ✓ BCF used
- ✓ Extensive offsite

**Bouwcombinatie Pontsteiger**  
The Pontsteiger Project  
Amsterdam, Netherlands





# Space usage/ grouping







# Professional Certification

Join in Today:

**[www.education.buildingSMART.org](http://www.education.buildingSMART.org)**

buildingSMART Professional Certification Program

## The global benchmark for openBIM training

buildingSMART stands for quality assurance and standardisation in the digitalisation of the built asset industry.

**Find out more**

Dusseldorf

25 – 28 March 2019

**buildingSMART International**

**Standards Summit**

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Dusseldorf

29 March 2019

**17th buildingSMART-**

**User Day**

**Register now!** [www.buildingsmart2019.de](http://www.buildingsmart2019.de)

# Thank you

[richard.kelly@buildingsmart.org](mailto:richard.kelly@buildingsmart.org)

[www.buildingsmart.org](http://www.buildingsmart.org)