

# An Overview of BuildingSMART

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Secretary

building**SMART** International  
Moscow June 2016

# buildingSMART today

## Values

Open  
Neutral  
Not-for-profit  
International

## Goals

Create open BIM standards  
Host open BIM forum  
Certify software and people  
Become a trusted resource  
Promote active use

## Core Standards Focus

Data  
Processes  
Dictionaries  
BIM Standards

## History

1995 Established  
2000 IFC2 Release  
2012 IFC4 Release  
2013 First ISO Standards  
2014 IFC Infrastructure

buildingSMART is the world wide authority driving the transformation of the built asset economy through creation and adoption of open, international digital standards

## bSI Chapters

Australia  
Benelux  
Canada  
China  
France  
Germany  
Hong Kong  
Italy  
Japan  
Korea  
Malaysia  
Nordic  
Norway  
Singapore  
Spain  
Switzerland  
United Kingdom  
USA

## bSI Partners

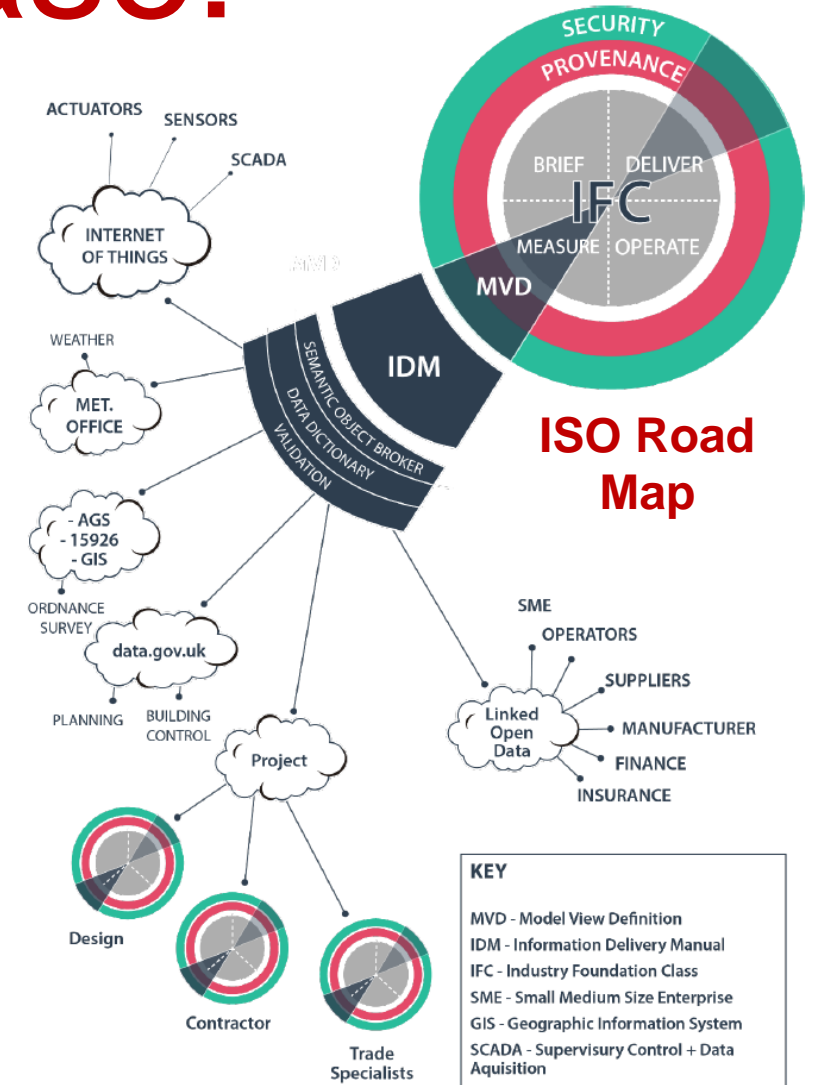


# User Benefits and Needs

# High Level Benefits Case:

The strategic need, benefits and rationale for open data standards are well understood at high levels:

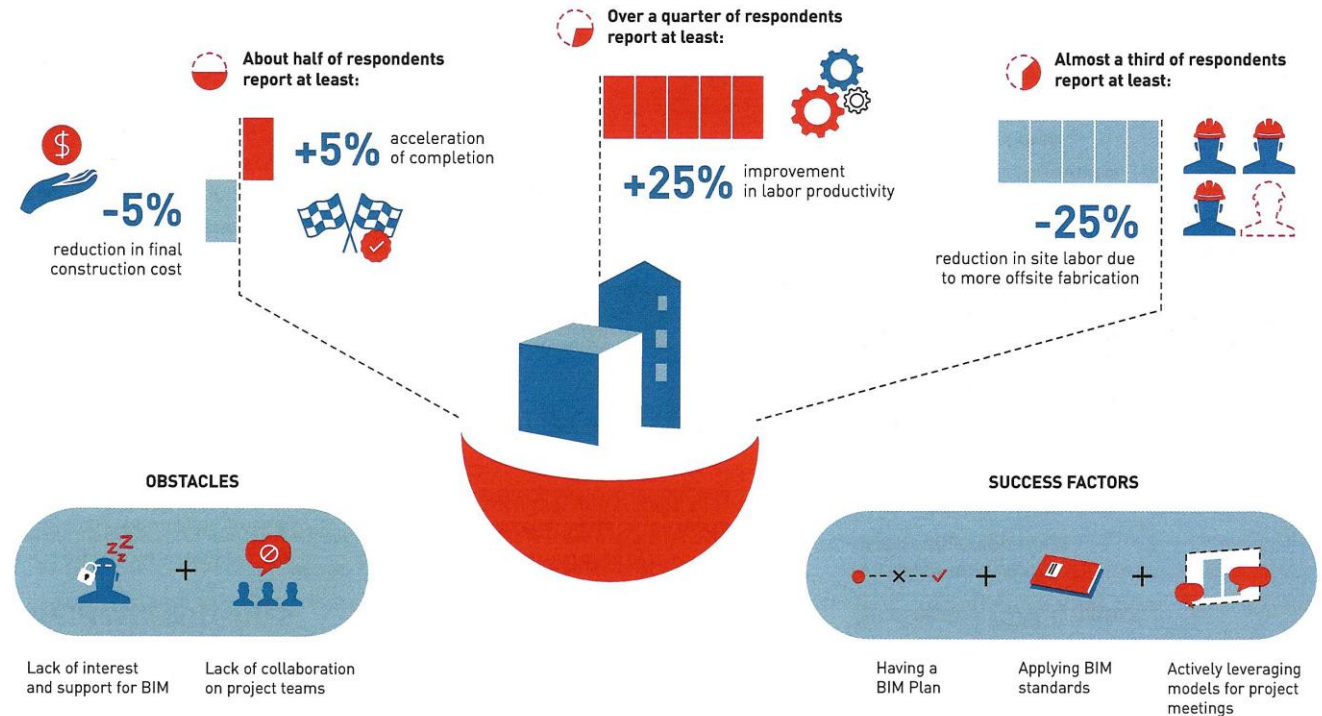
- 34 Public sector mandates
- BIM uptake Rapidly increasing
- ISO TF02 Technical Roadmap work proceeding

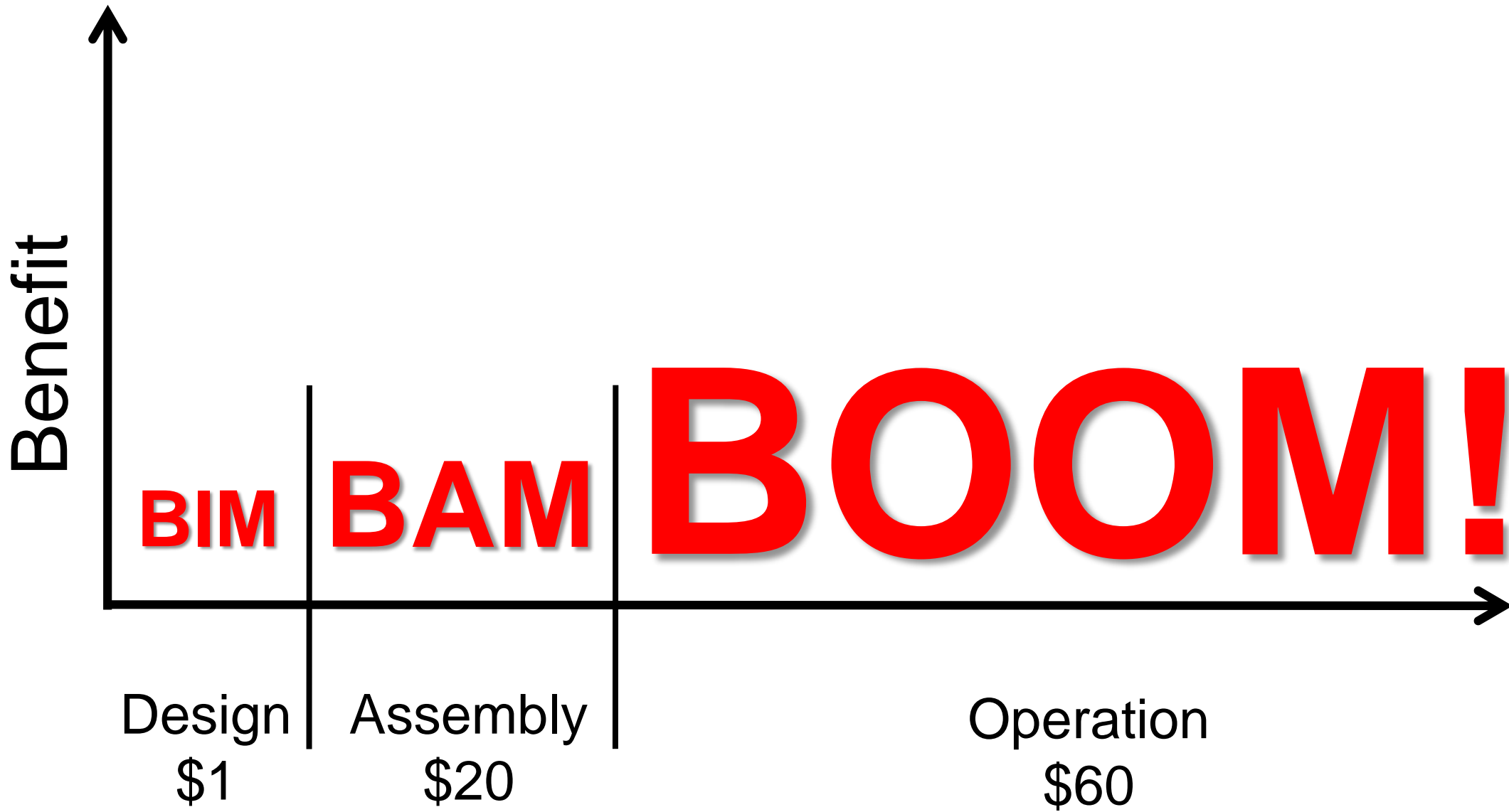


# High Level Benefits Case:

Supply chains .....  
beginning to see the benefits

However .....  
implementation is challenging





# Improvements: Current State of the Art

- Improved efficiency of drawing (60% cost reduction over 3 years by international contractor)
- Design and construction costs reduced by 20% for prisons
- Operation of prison and hospital made more cost effective by modelling staff deployment
- Dramatic fall in RFI (requests for information)
- Better clash detection and better scheduling accelerates completion and saves 20% on overall cost
- Prefabrication made easier by modelling information for fabricators

# User Challenges

## Transforming Infrastructure with Digital Technologies

- Digital relationship*** with customers: how to enable and manage?
- Real time*** rail & road operating networks: how to do this?
- Transformation*** of infrastructure delivery: how to enable this?



# User Challenges

What does digitisation mean for construction services?

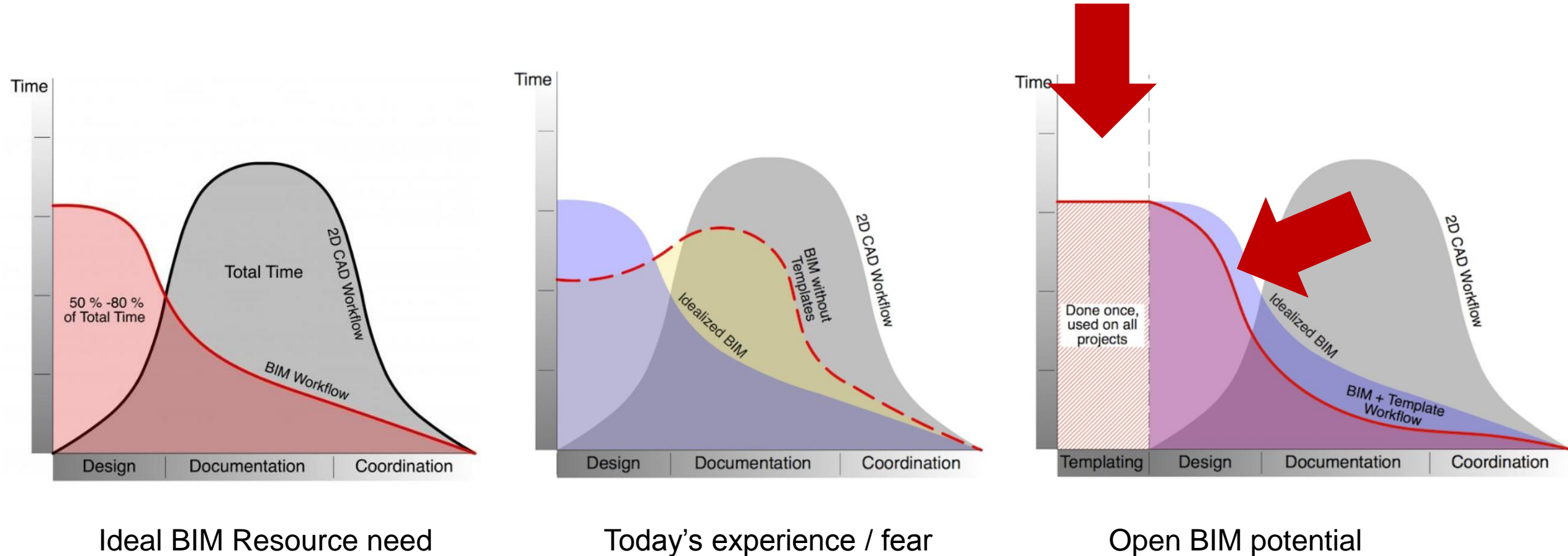
- Intelligent connection of man & machine for ***improved process quality*** in road construction
- Neural network model for ***optimal energy consumption*** of buildings
- 3D-design tool for ***noise barriers***
- Using Building Information Modelling for ***Health and Safety***
- 5D model-based for ***tender phase***
- Project-based BIM for the ***Bryghus Project***, Copenhagen
- BIM for ***Facility Management*** for the ***South Site Utility Tunnel***, Doha

# Need for common solutions

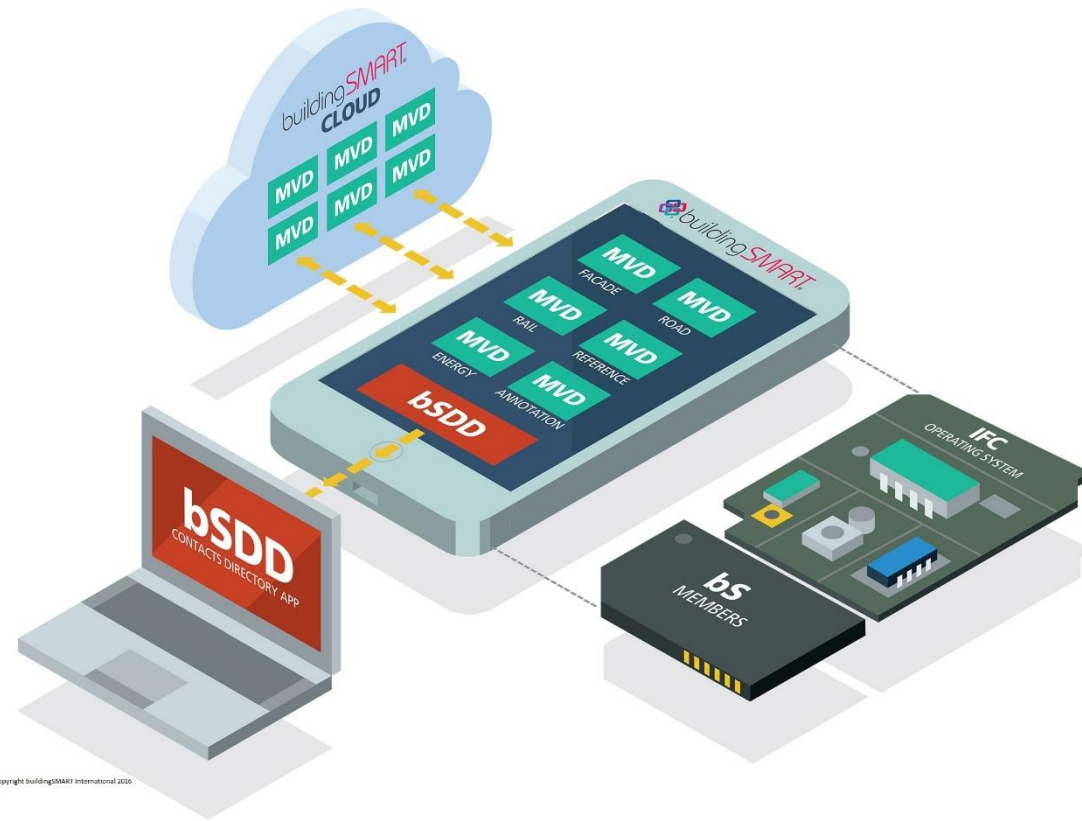
Development of the IFC

# User Challenges

Cost savings are available but require shared investment



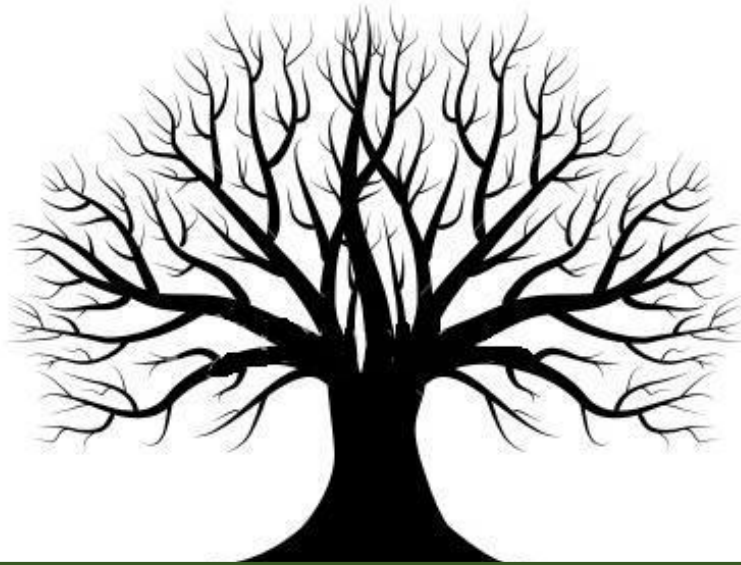
# What are bSI's standards?



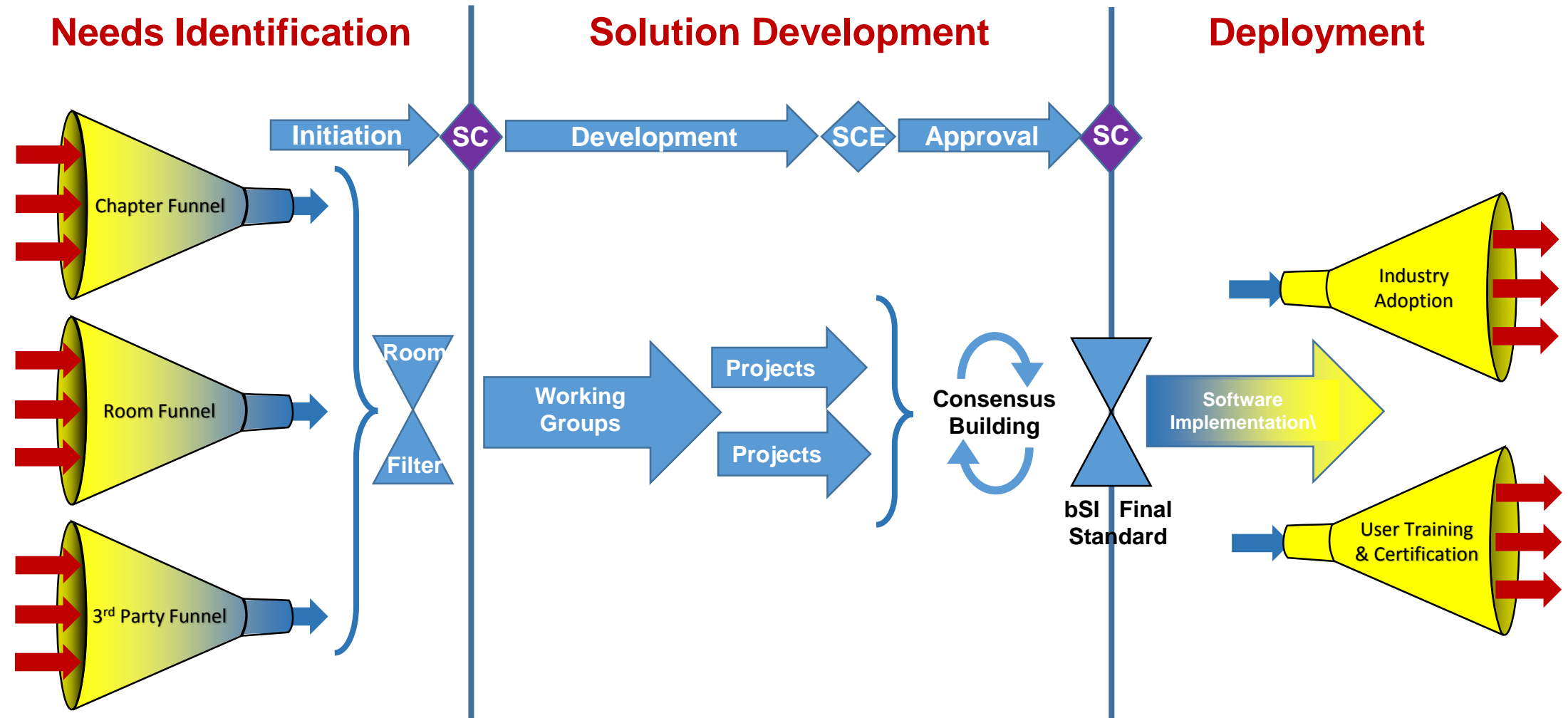
# Five basic standards

What it does	Name
Describes Processes	Information Delivery Manual (IDM)
Transports Information / Data	Industry Foundation Class (IFC)
Change Coordination	BIM Collaboration Format (BCF)
Mapping of Terms	International Framework for Dictionaries (IFD)
Digitises processes	Model View Definitions (MVD)

# Growing the standards



# Standards: International Harmonisation

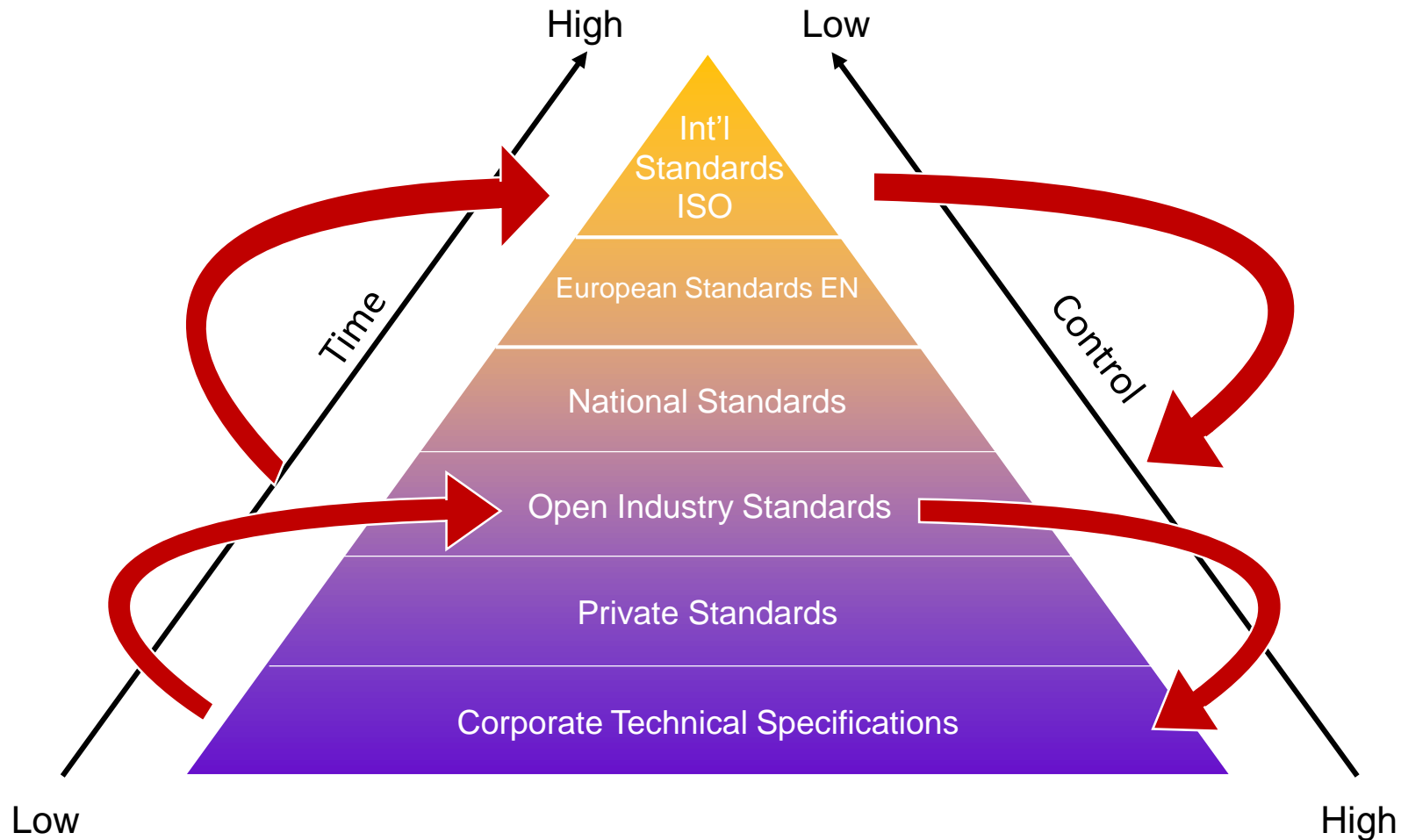


# buildingSMART

Strategy & Business Organisation



# Hierarchy of Standards



# High Ambitions

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

**Our Journey:** Success will mean

Standards Body of Reference

Vibrant Chapters

Quality Mark in demand



# Engagement

## Partners



## National Programs



Plan **Transition Numérique**  
dans le Bâtiment



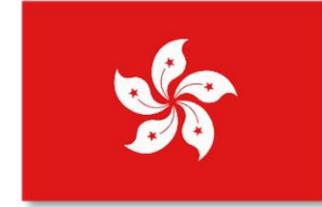
Implantación del BIM en España



**Digital Built Britain**



# bSI Chapters



# bSI Members

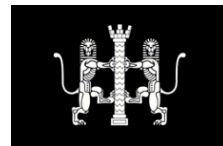
ARUP



NEMETSCHKE  
GROUP



Rijkswaterstaat  
*Ministry of Infrastructure and the  
Environment*



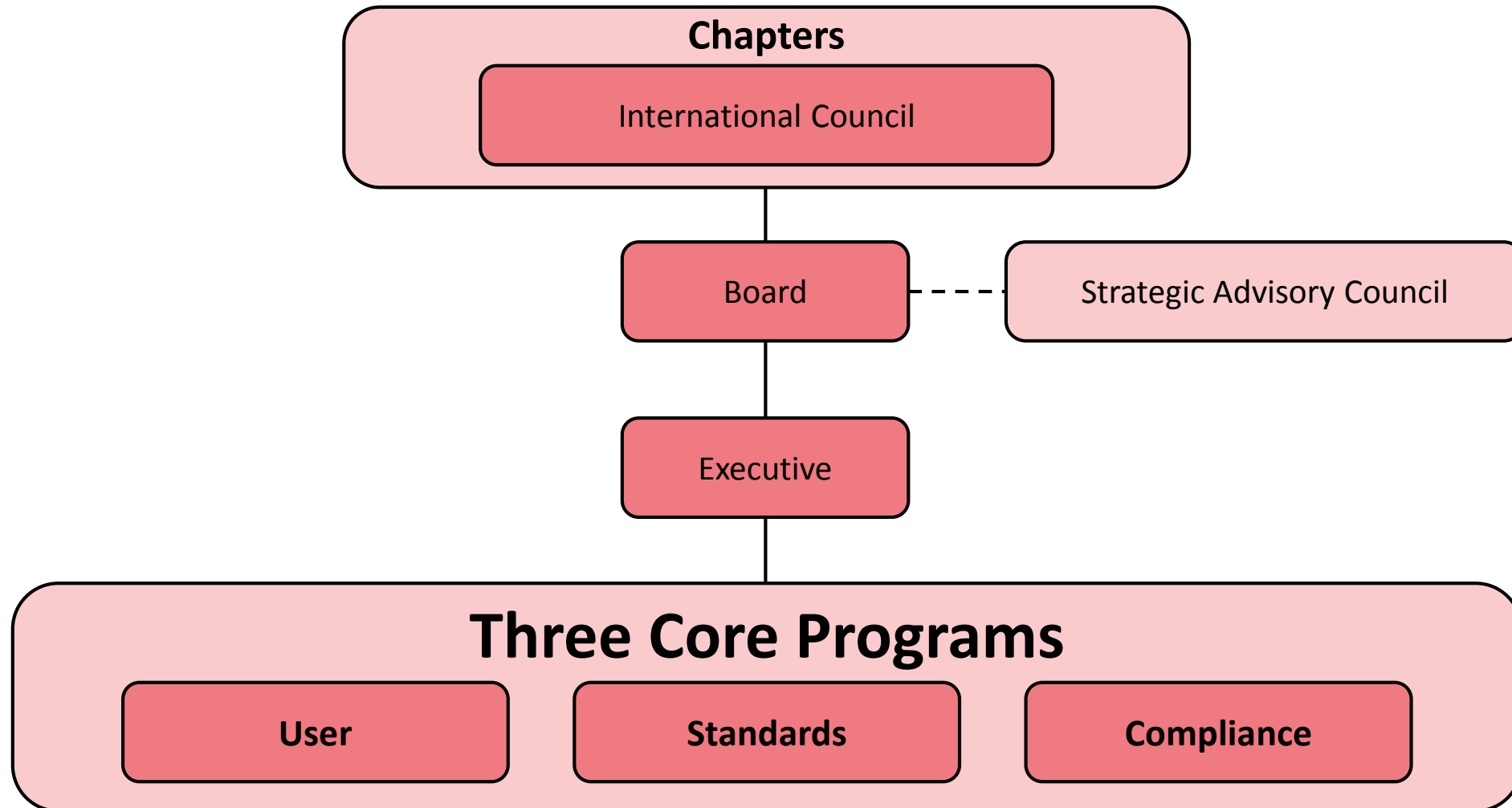
MEDI@CONSTRUCT



NATSPEC Construction Information

Latvian  
BIM  
Union

# Organisation & Programs



# IFC 4 Status

IFC Schema available as ISO Standard 16739

IFC upgraded to IFC4 add1 - a new work item in ISO

Two broad enabling MVDs have been developed and published as bSI Final Standards;

- IFC4 Design Transfer View
- IFC4 Reference View

Certification based on these MVDs due to start summer 2016

# IFC 4 Status

## IFC for Infrastructure

- IFC4 Alignment for Infrastructure is a bSI Final Standard
- Funded projects setting work programs for IFC for Road, for Rail and for Infrastructure Asset management in hand.
- Infrastructure work plan available [here](#)

## Working with IFC: Change Coordination

- BIM Collaboration Format (BCF) is a bSI Final Standard

See [bSI Standards Library](#) for details of current standards



# Developing Standards

## Current Activities by Room

Building	Infrastructure	Product	Technical	Regulatory	Special Purpose
ISO IDM Standard	IFC4 Infra alignment 1.0 (Deployment)	IFC mapping into bSDD	Linked building data ifcOWL	E-submission common guidelines	Marketing IFC today
IDM for building programming	IFC Alignment next phase 1.1	Data dictionary enabler	mvdXML Trust in BIM deliverables	Automated code checking	Develop IFC for design & construction
Global BIM guide wiki	IFC Road & Rail	Product templates and BIM objects	[Augmented reality]		People & process certification
MVD FM Handover	IFC Asset Management	IFC Primer. Real life object mapping			bSI PAS Korean & Chinese Road Rail Specification
MVD Energy simulation	IFC Bridge				DfMA & Offsite
MVD Scheduling	Integrated Digital Built Environment				IDM Model Setup
MVD Quantity take off	IFC for Infra Road map				
MVD Annotation	Infra overall architecture				
IDM Curtain walling					
IDM Configurator					

# Developing Standards

## Snap Shot

- 46 Standards Committee members / voters
- 34 Activities in progress
- 9+1 Final Standards & Final Technical Report endorsed
- 14 Initiatives being created
- 10 Activities at Standards Proposal stage
- 6 Activities in Development phase
- 4 Special purpose projects
- 1 PAS application

# Published Standards

## 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

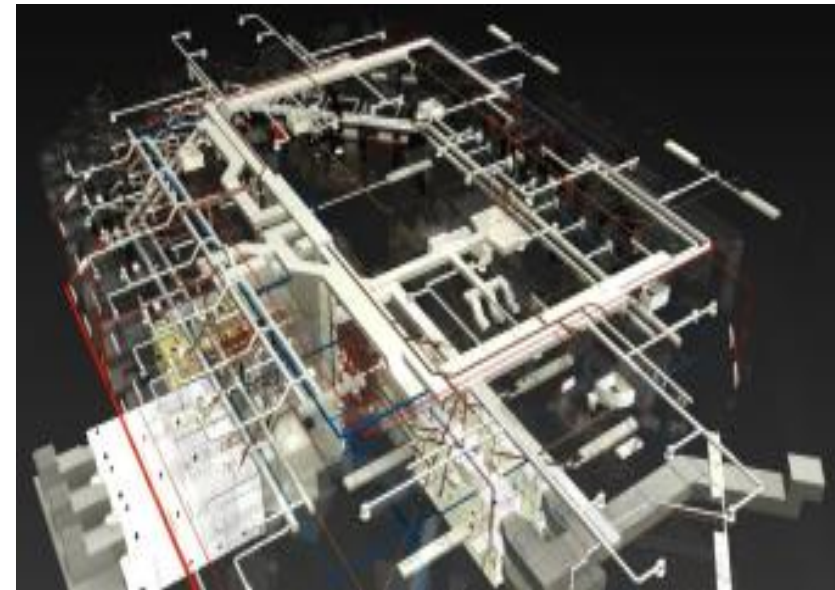
IFC4 Infrastructure Alignment

BIM Collaboration Format XML

BIM Collaboration Format API

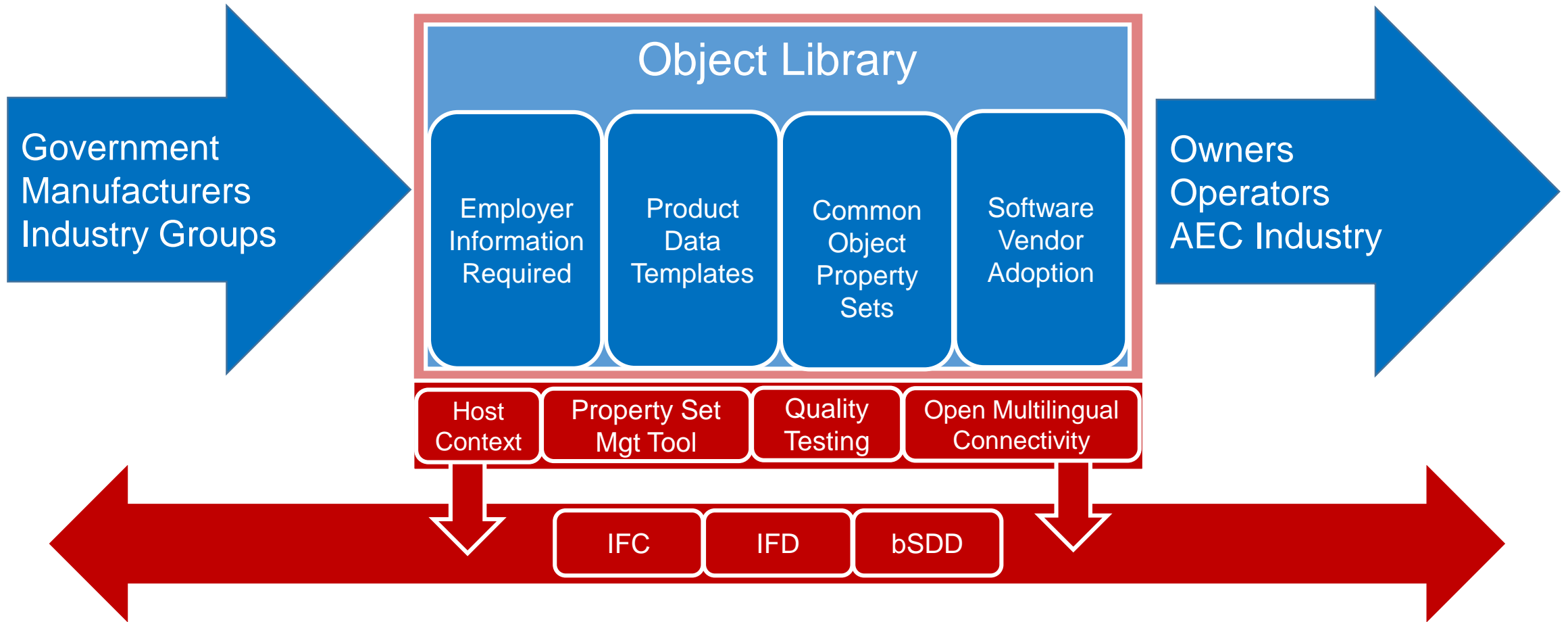
## bSI Final Technical Report

Model View Definition for LANDXML v1.2



# buildingSMART Data Dictionary

A Common Object Platform



# IFC and bSDD

The buildingSMART Data Dictionary (bSDD) is a tool to help digitally define everything, objects and their attributes in the whole world!

bSDD is being developed to allow a dynamic extension of IFC approved entities, types, property and quantity sets, to comply with local, regional and national needs

bSDD may be accessed for test and development purposes at this time

# Compliance: Making sure it works

Franchised compliance schemes covering:

- Software Certification
- BIM Competence for Individuals

Pending Compliance:









- BIM Competence for Organisations
- BIM Process and Data Quality
- BIM Product Data Quality



# Compliance: Certified Software

Currently  
IFC2x3 exchange certification

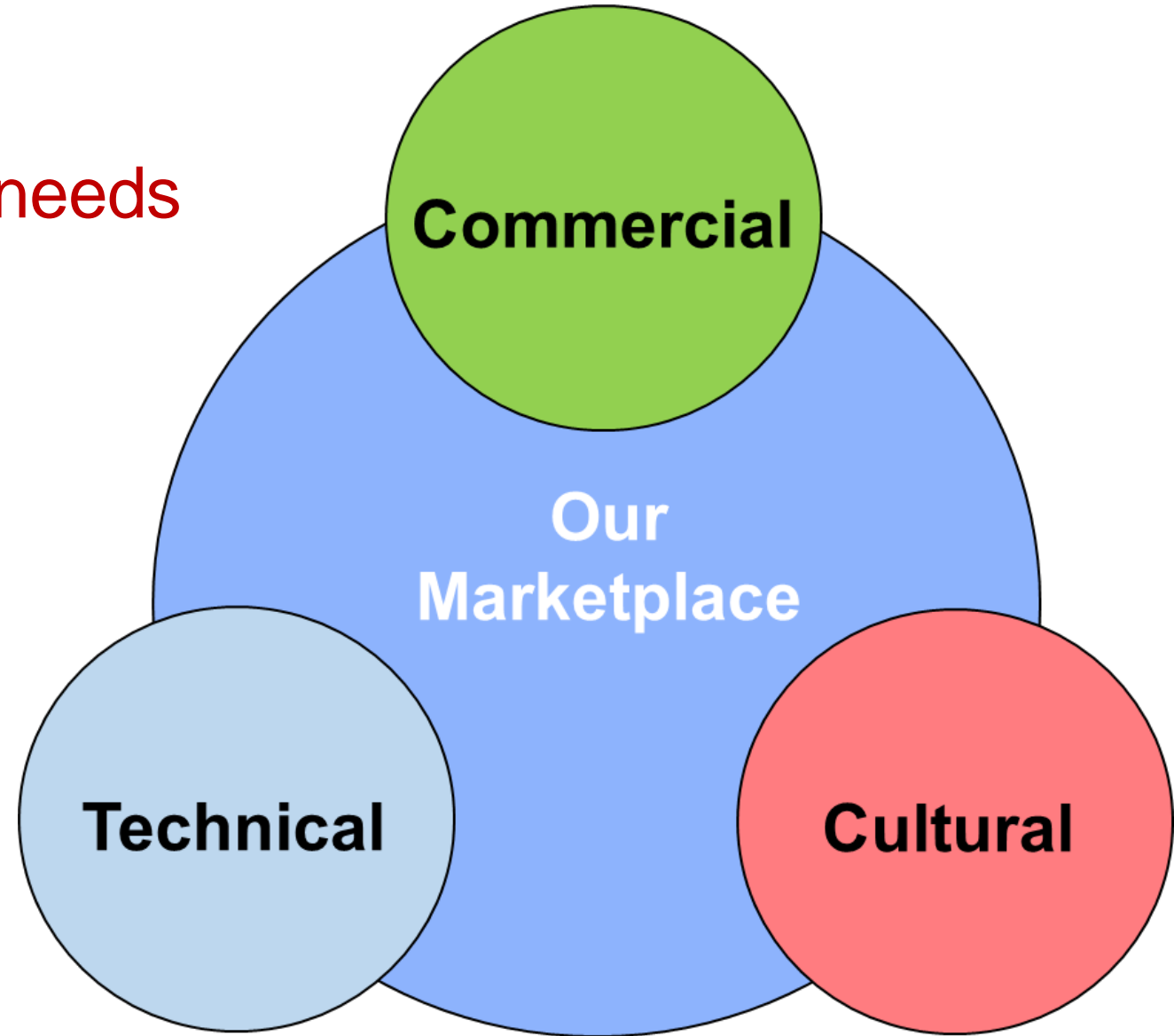
Summer 2016  
IFC4 RV & DTV certification

Vendor	Application	Certification	Type	Date	Download
NEMETSCHEK Scia	Scia Engineer	CV2.0	import	2013/09/17	
GRAPHISOFT	ArchiCAD	CV2.0	import	2013/09/20	
Solideo Systems	ArchiBIM Server	CV2.0	import	2014/04/22	
NEMETSCHEK Allplan GmbH	Allplan	CV2.0	import	2014/05/07	
Autodesk-A	AutoCAD Architecture	CV2.0-Arch	export	2015/02/24	
Autodesk-R	Autodesk Revit MEP	CV2.0-MEP	export	2013/07/11	
Data Design System	DDS-CAD MEP	CV2.0-MEP	export	2014/09/10	
RIB	RIB iTWO	CV2.0	import	2013/09/07	
Trimble Germany GmbH	Plancal nova	CV2.0-MEP	export	2014/10/31	
Tekla	Tekla Structures	CV2.0	import	2013/10/09	

Market demanding more rigorous certification!

# Users

Chapters deliver *today's* needs





# An Industry Community

This is your industry

Governments are providing the lead

Only Users can define the detail

Clients are part of the industry!

**Get involved personally - Involve your company/organization**



Open

Neutral

Not for Profit

International

Process led

World wide community of professionals

Hub for technical experts

**We want to be like these!**



**In the end this is not about buildingSMART, its about our industry!**

# How to get involved

buildingSMART is a membership organisation

Our work is **only** done with the support of our members

Details of our membership options are on our website

- Chapters
- Strategic
- International
- Standard



Thank you for listening