Transformation of the Building industry – From Traditional to Digital

Patrick MacLeamy, FAIA

Chief Executive Officer, HOK
Chairman, buildingSMART International

Traditional Training

Practice at HOK

Awakening – Something has to Change!

Principles for Change

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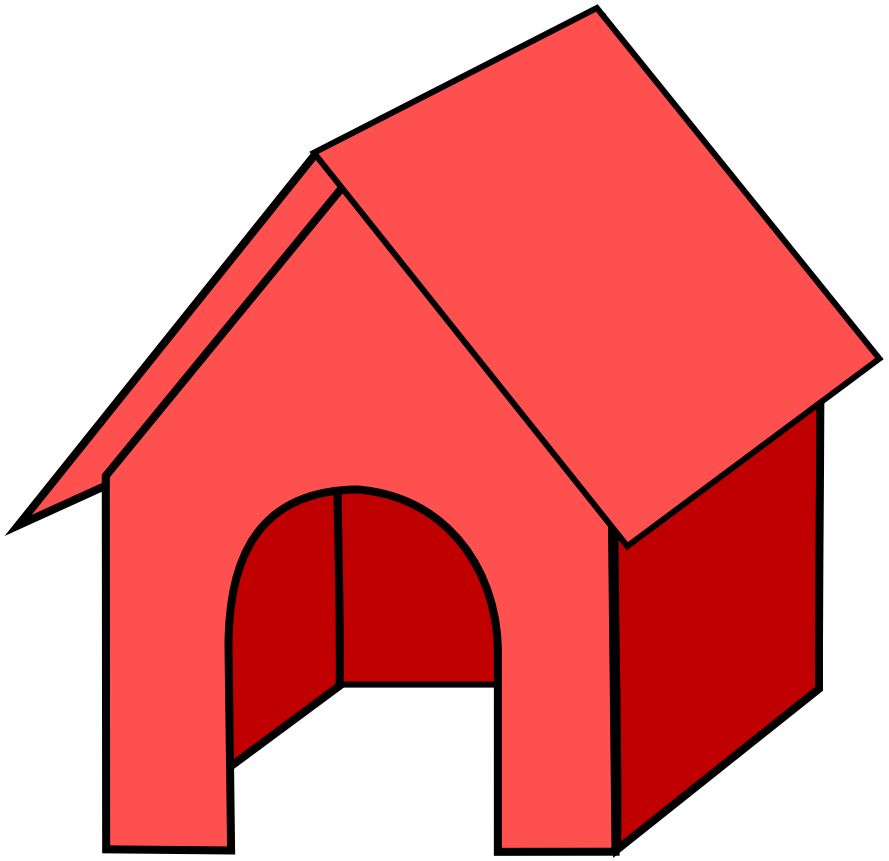
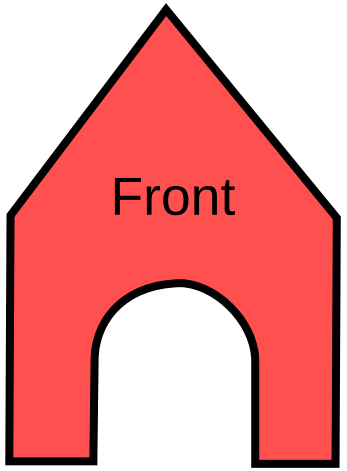
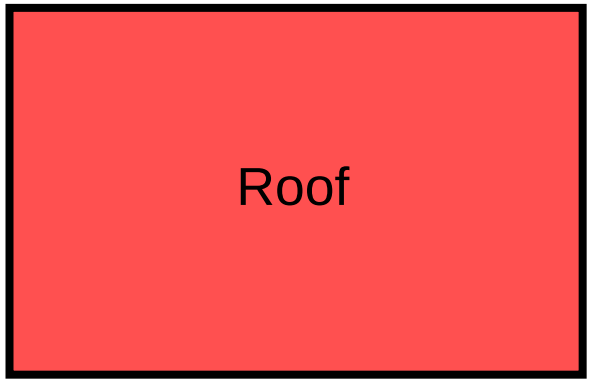
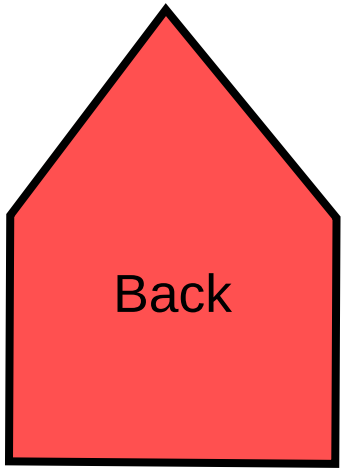
Traditional Tools

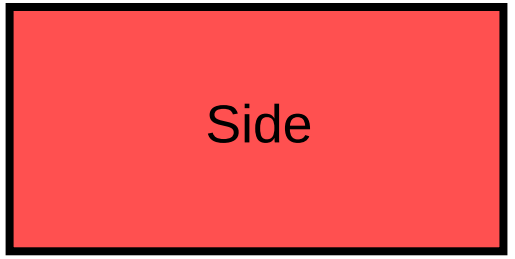
Traditional Process











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HOK Offices Worldwide

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National Air and Space Museum, WDC

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Hamad International Airport, Doha Qatar

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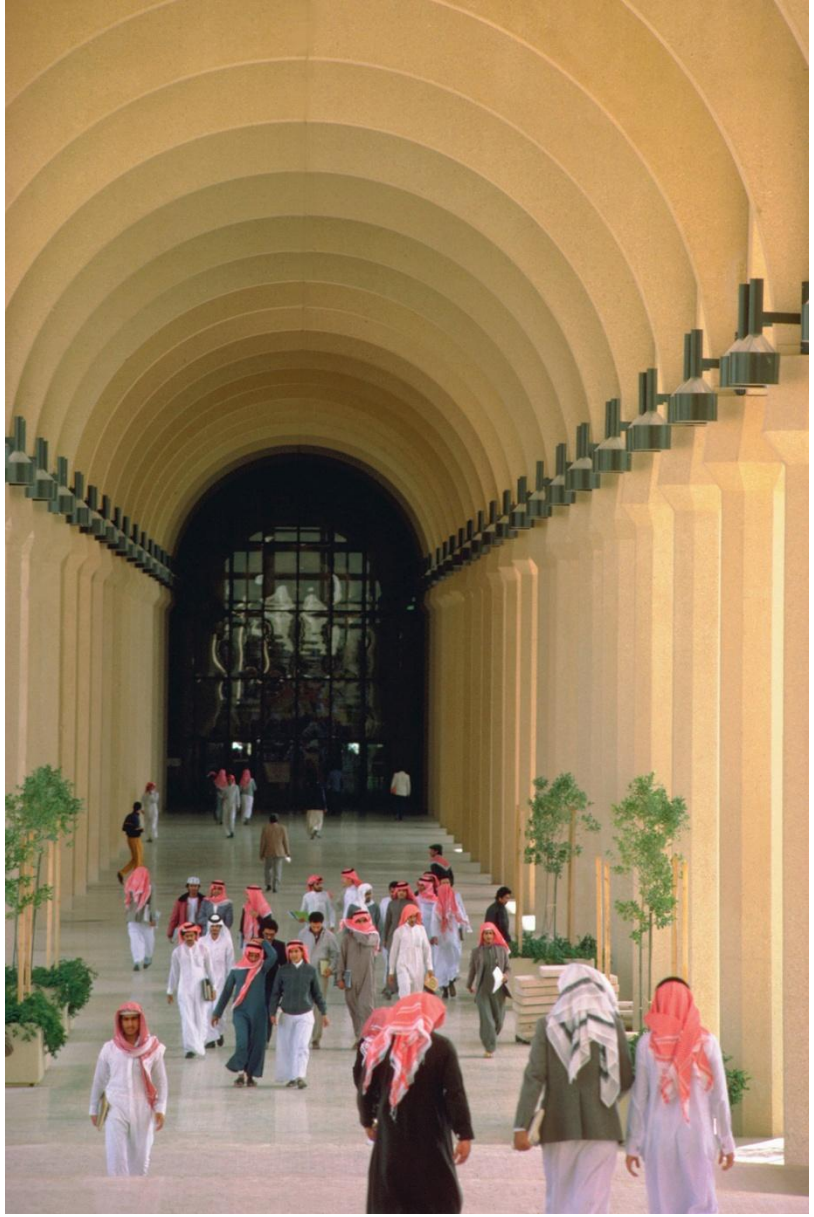

King Saud University, Riyadh, Saudi Arabia

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Apple Headquarters, Cupertino CA

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NOTICE TO CONTRACTOR
CITY OF

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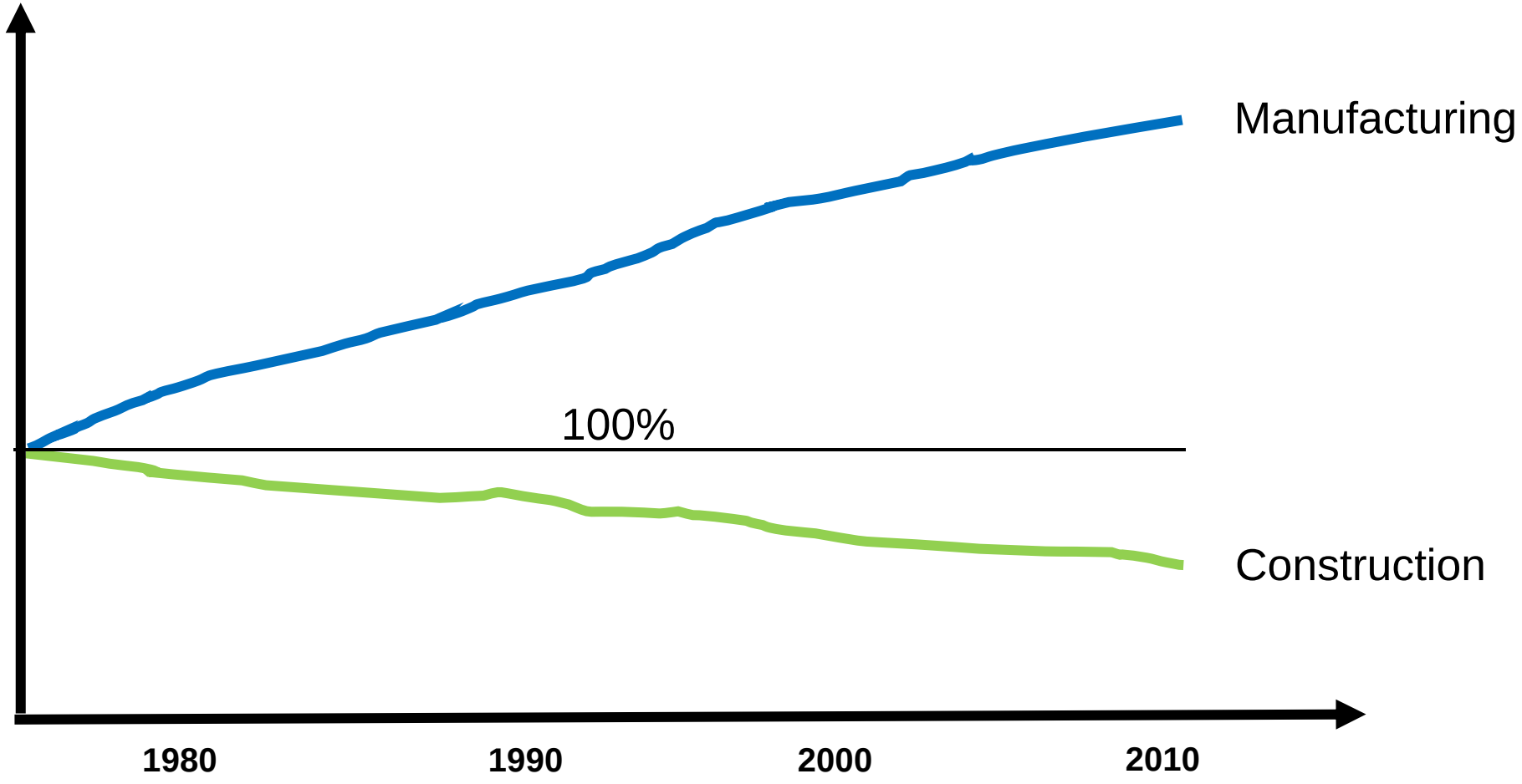
Building Industry Issues:

- Construction Industry same size as manufacturing
- Slow to adopt IT
- 40% of Energy Consumption
- 40% of Solid Waste
- Lack of Efficiency Gains

Building Industry Issues:

- Building Industry same size as manufacturing
- Slow to adopt IT
- **40% of Energy Consumption**
- **40% of Solid Waste**
- Lack of Efficiency Gains

Productivity Comparison



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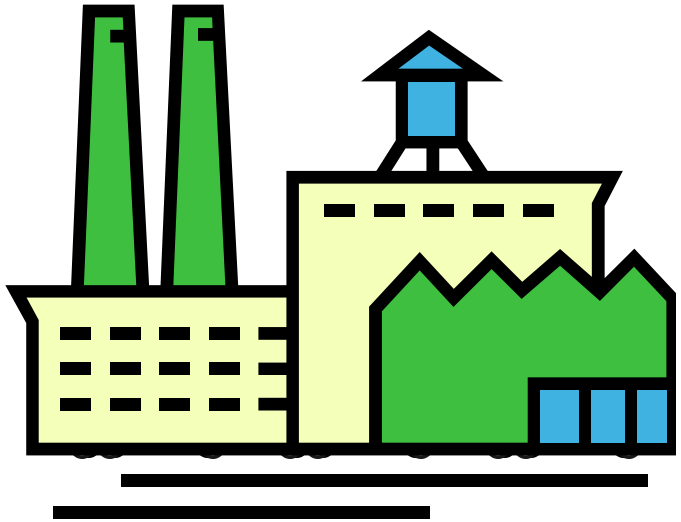
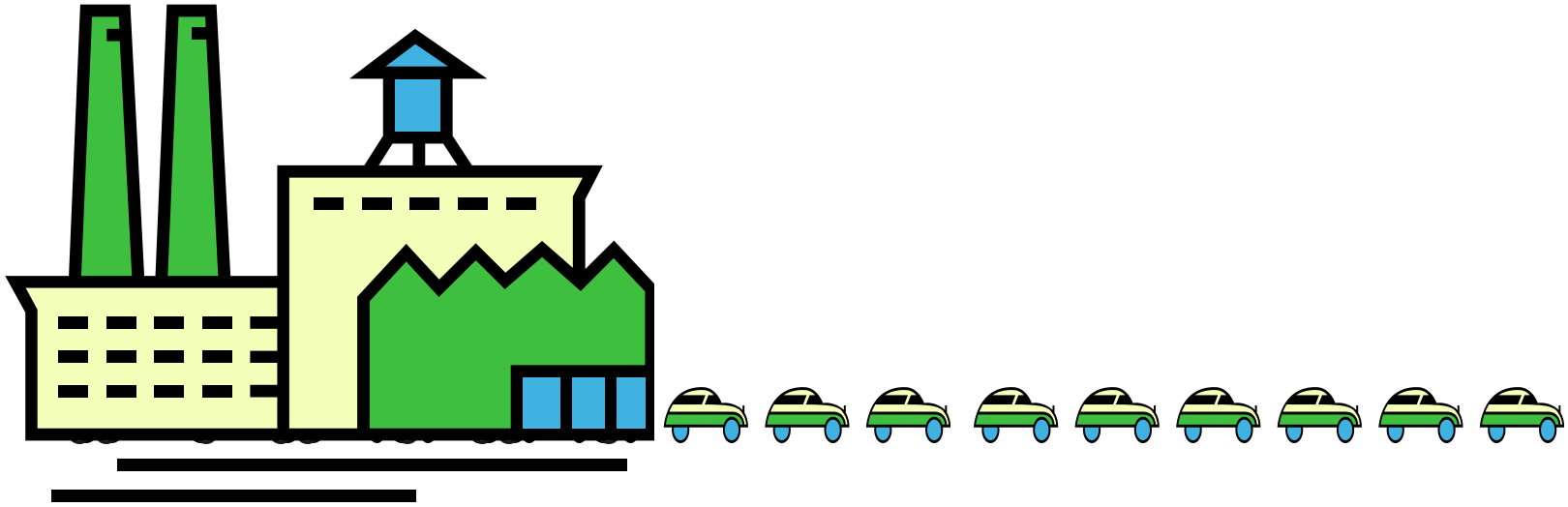
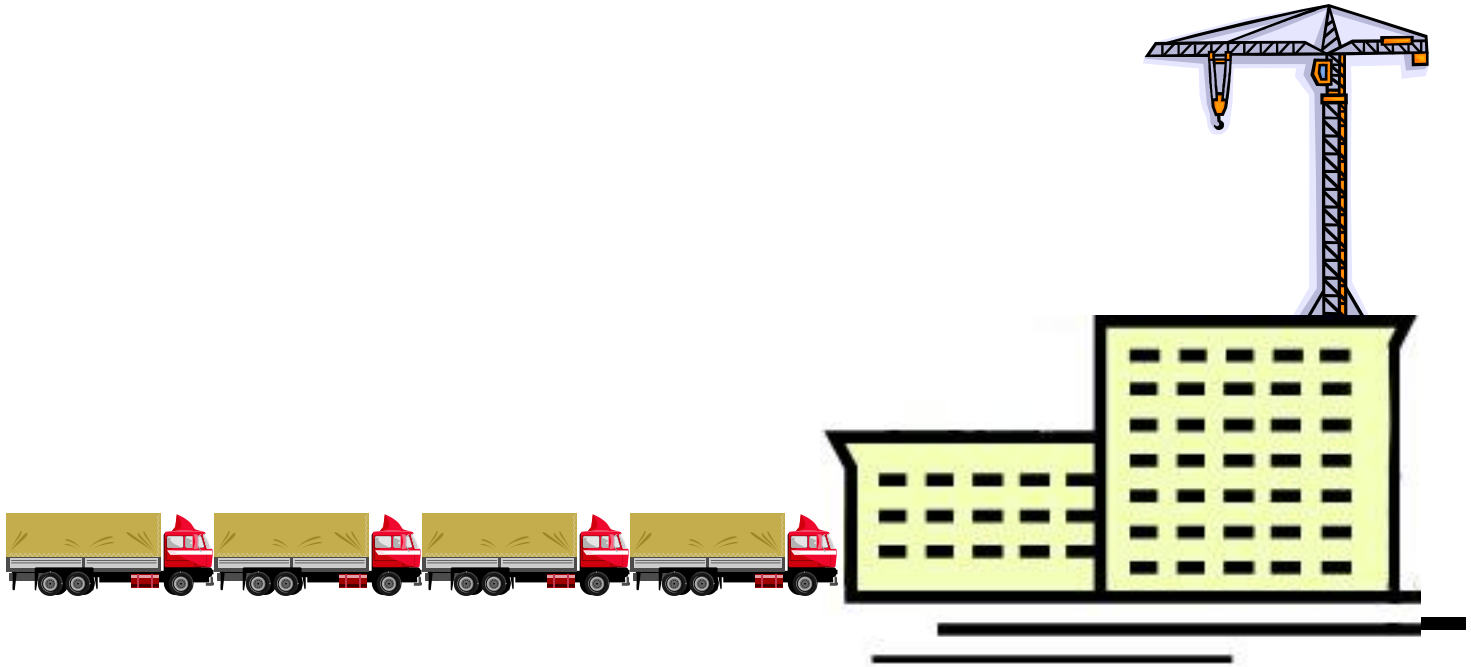
Assembly Plant



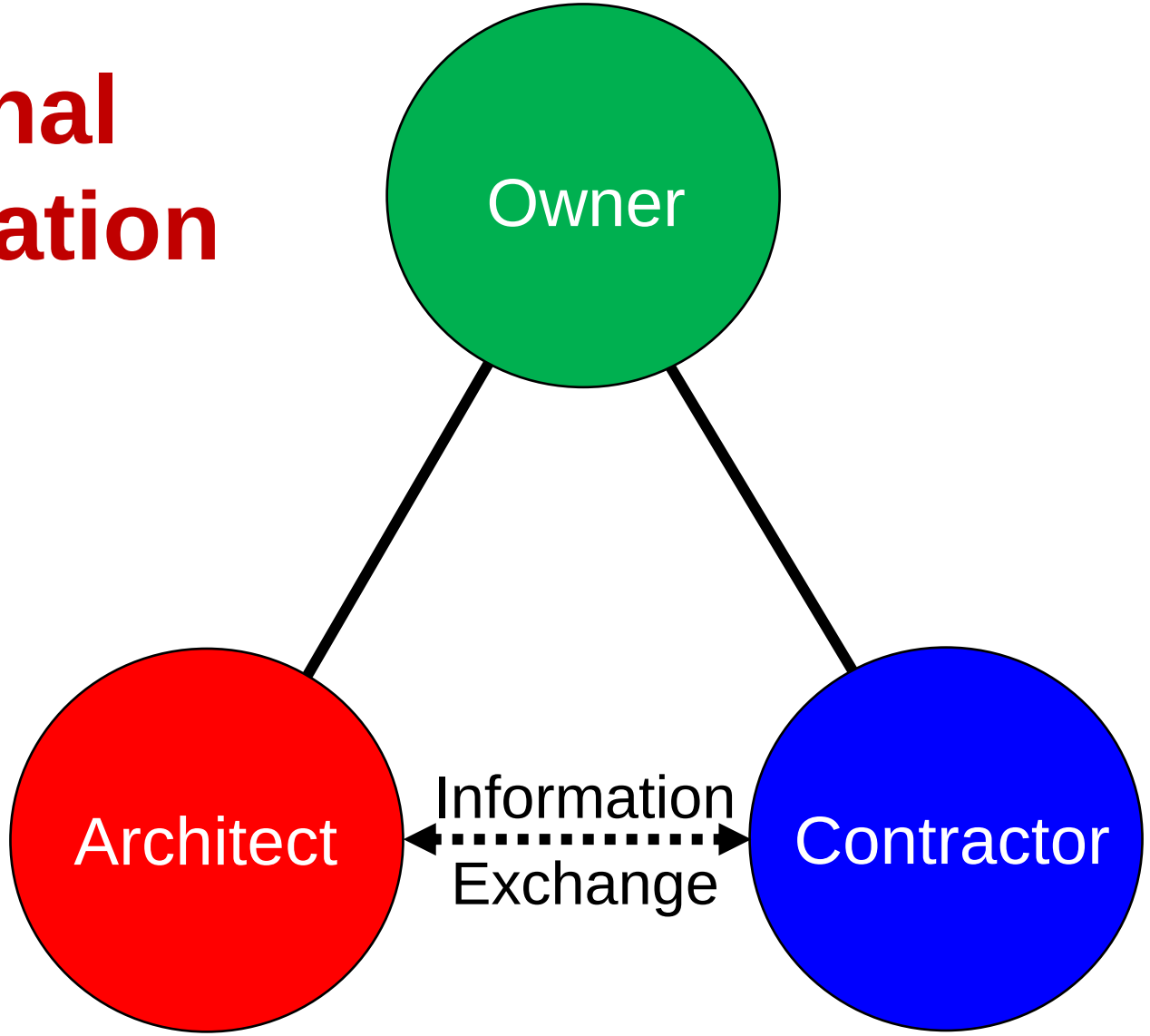
Assembly Plant



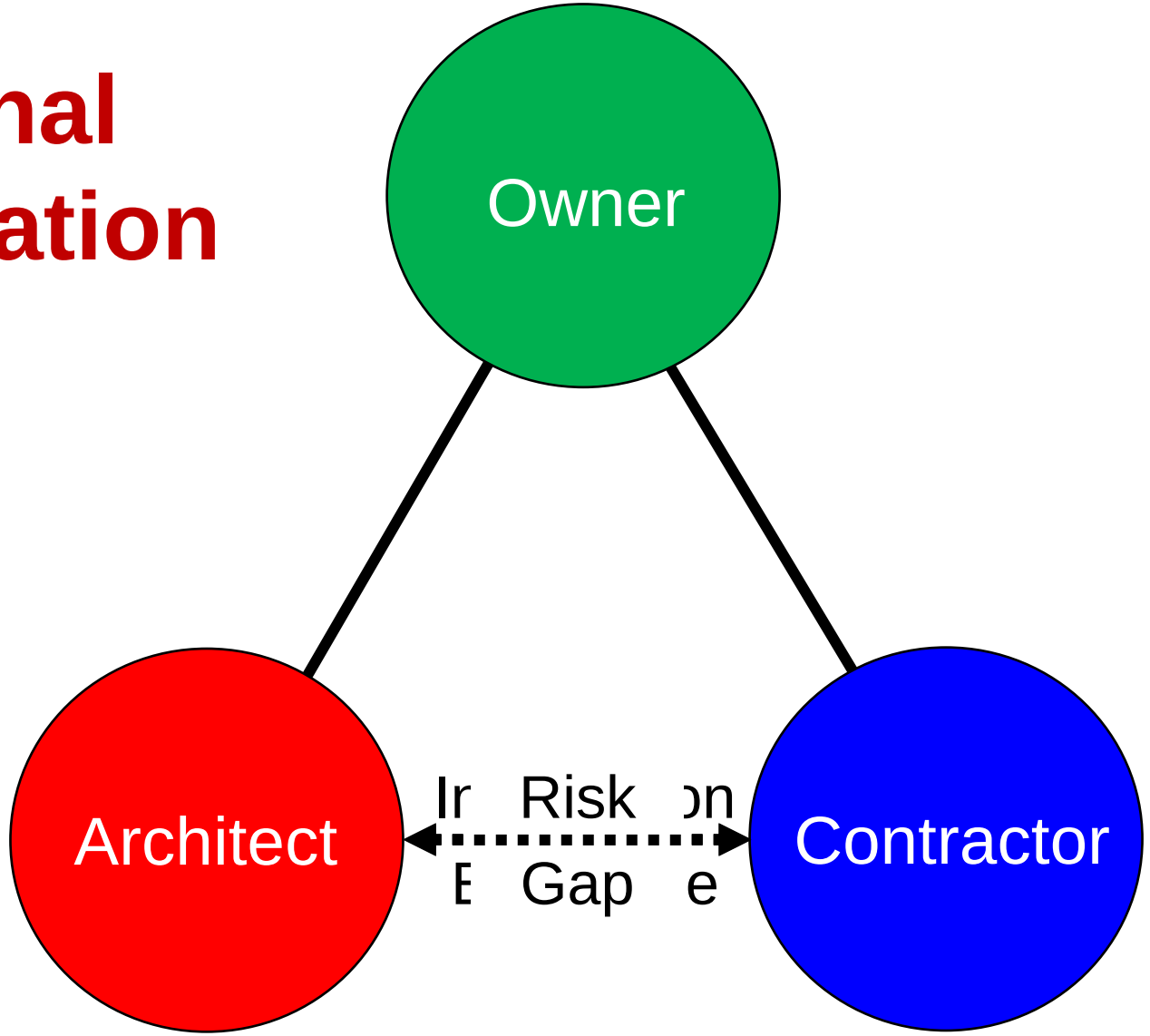
Building Assembly Plant



Traditional Organization



Traditional Organization



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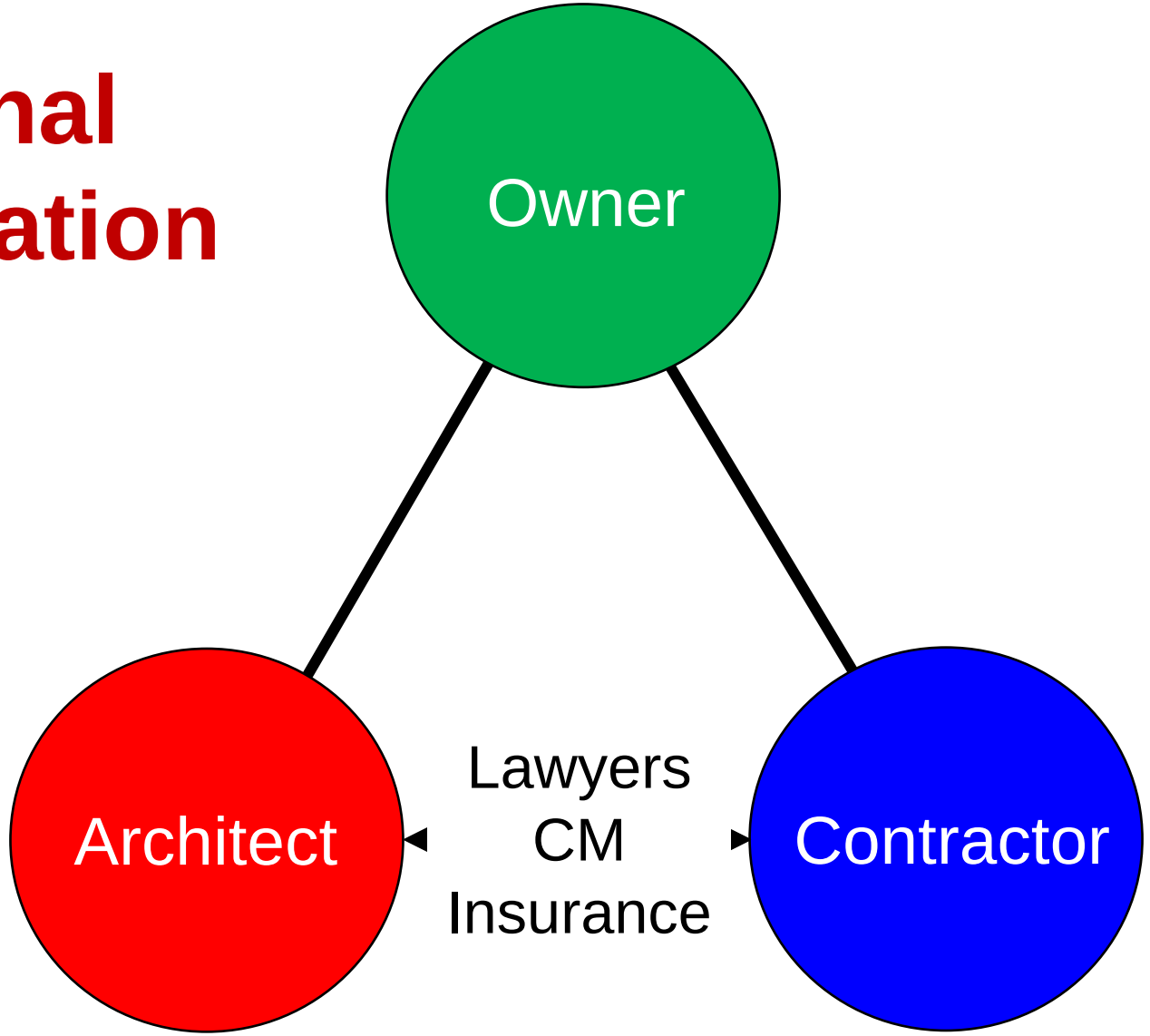

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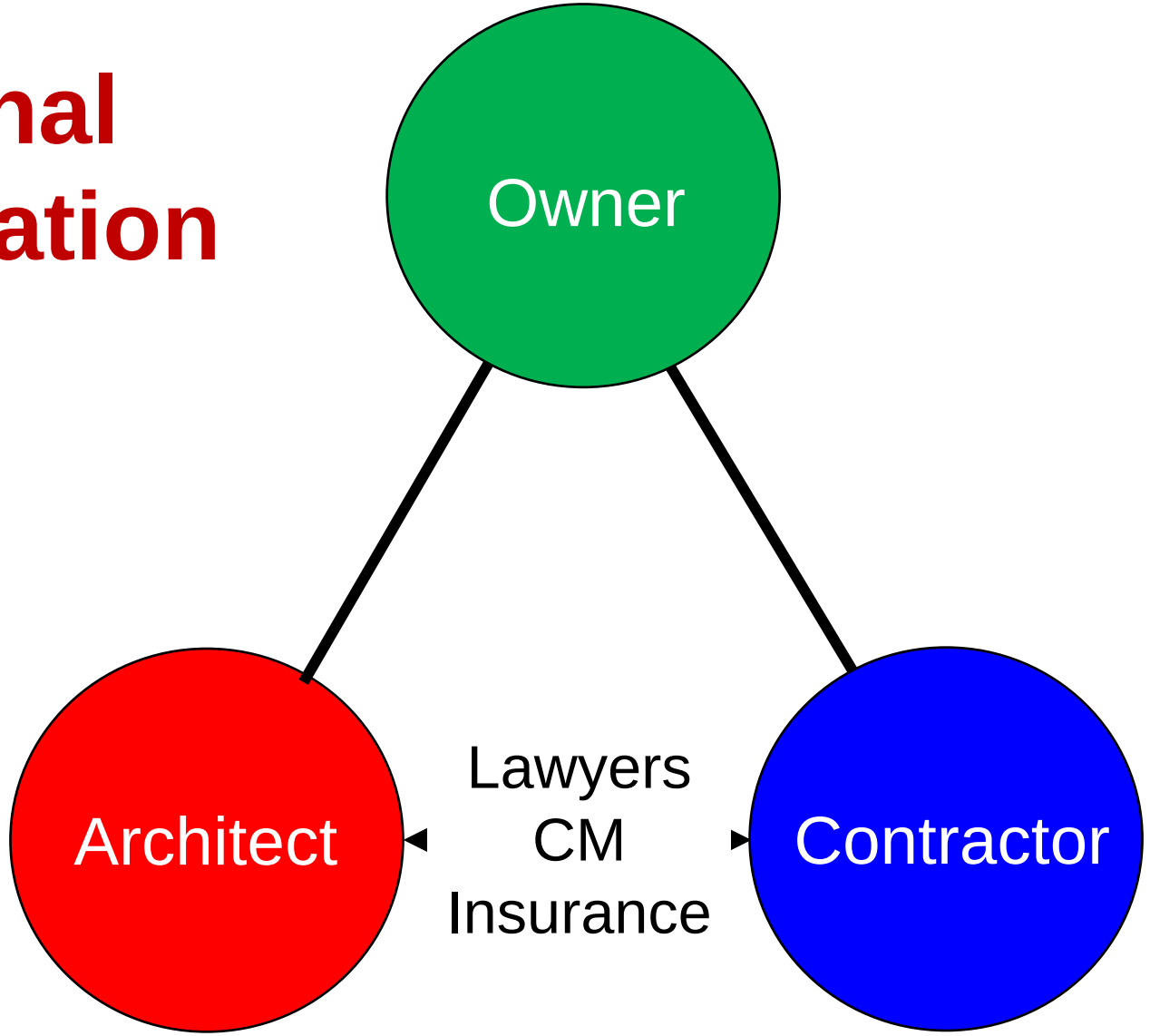
Traditional Organization



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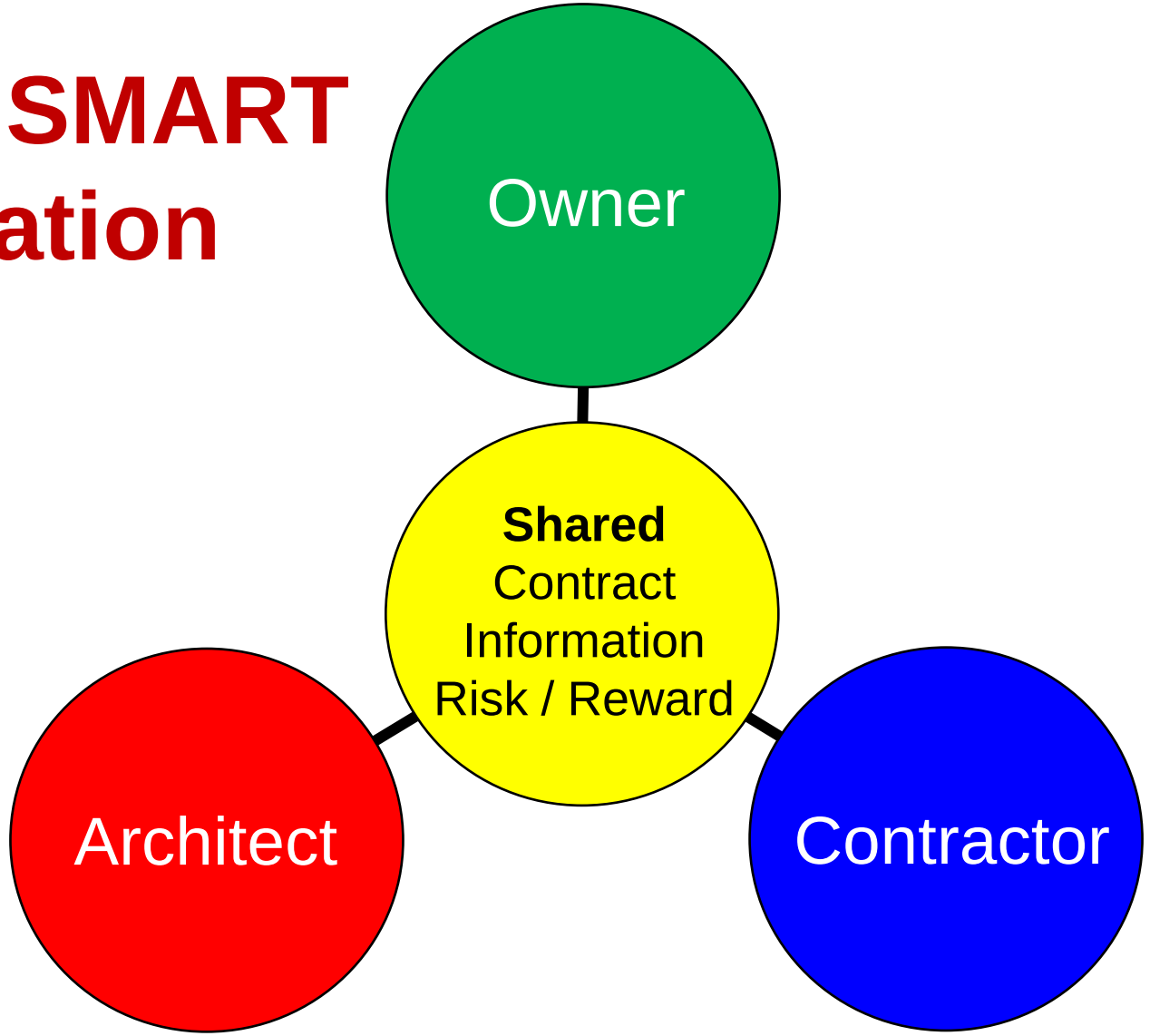
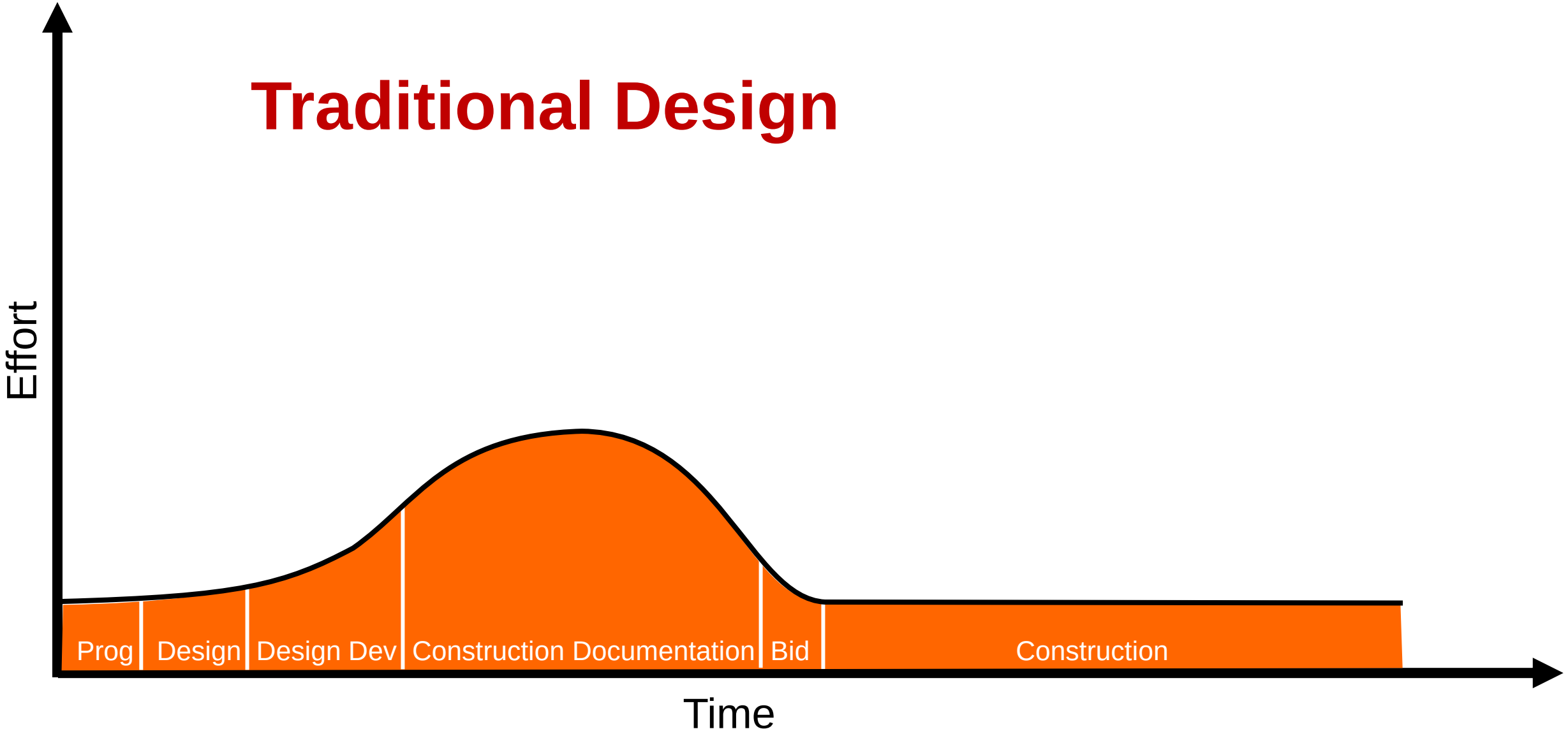
buildingSMART Organization



Traditional Design



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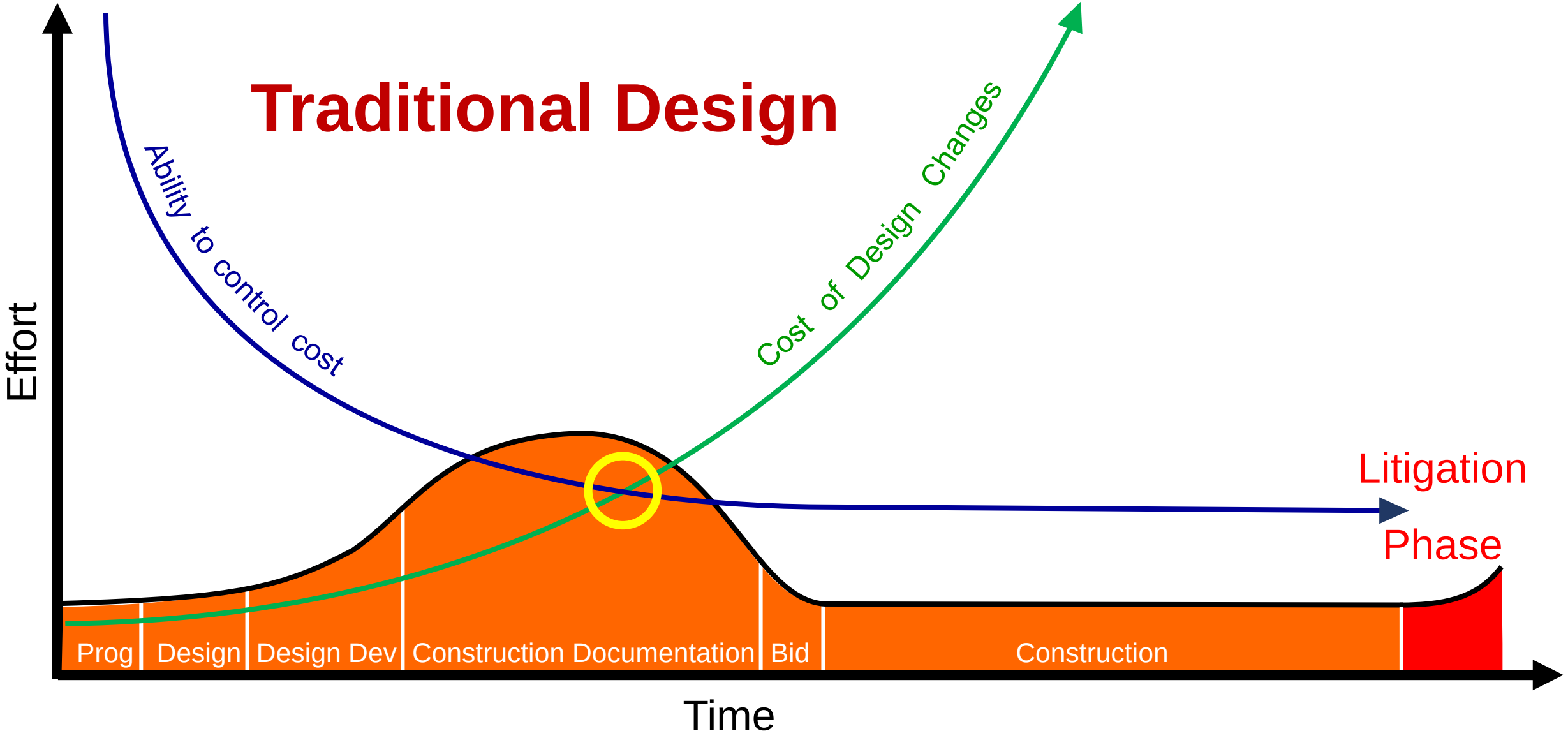

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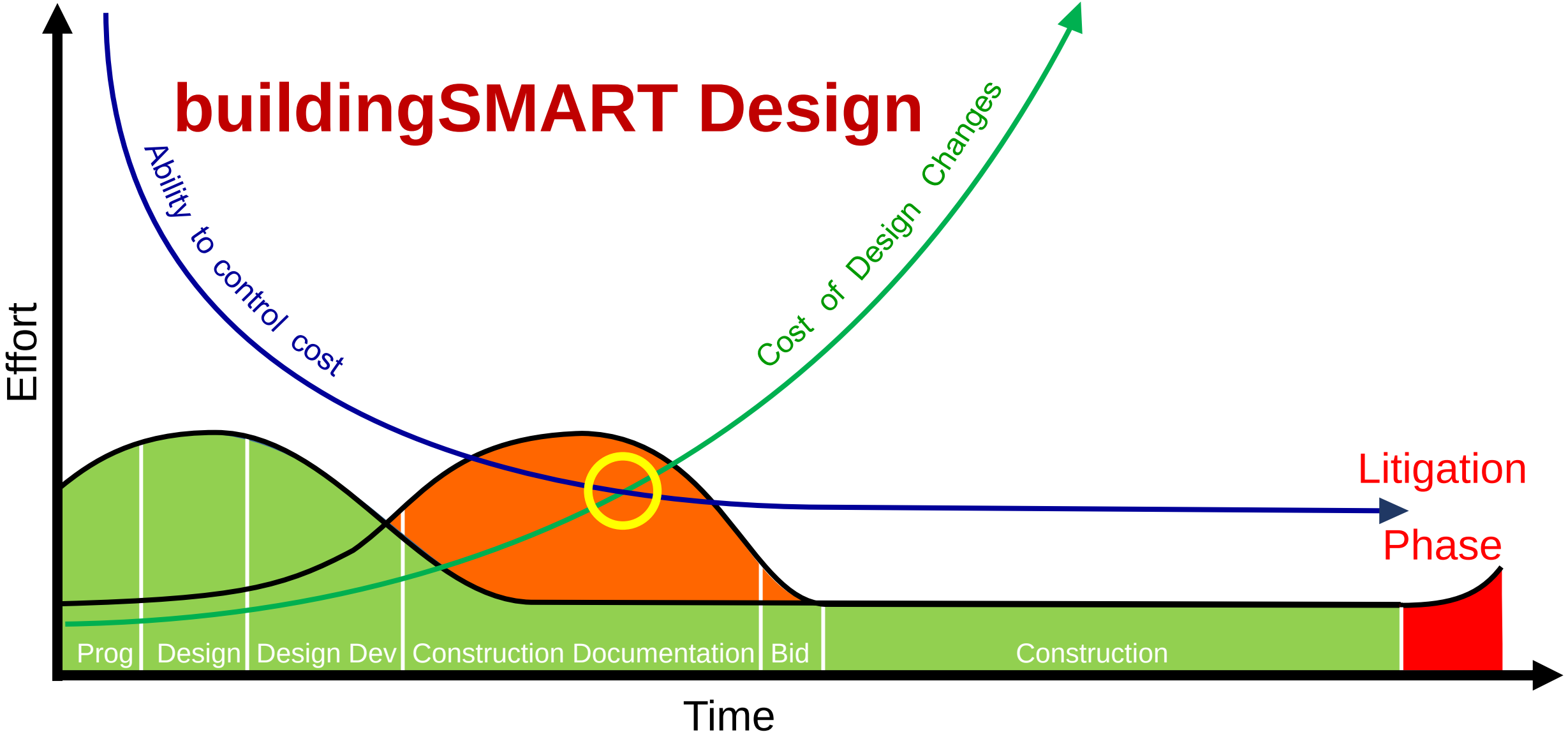
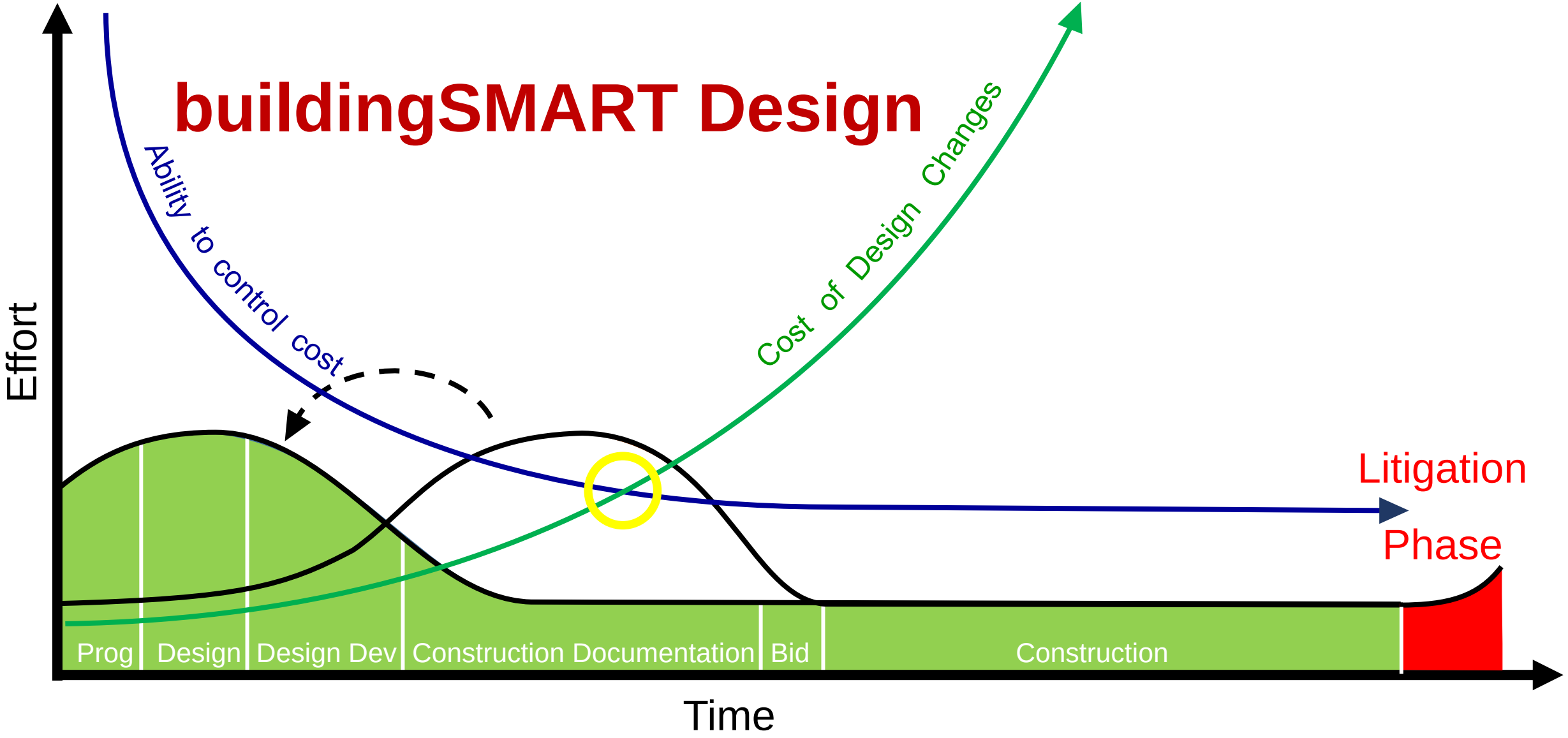

buildingSMART Design
Ability to control cost
Cost of Design Changes
Effort
Litigation
Phase
Prog
Design
Design Dev
Construction Documentation
Bid
Construction
Time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Construction Documentation
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buildingSMART Processes

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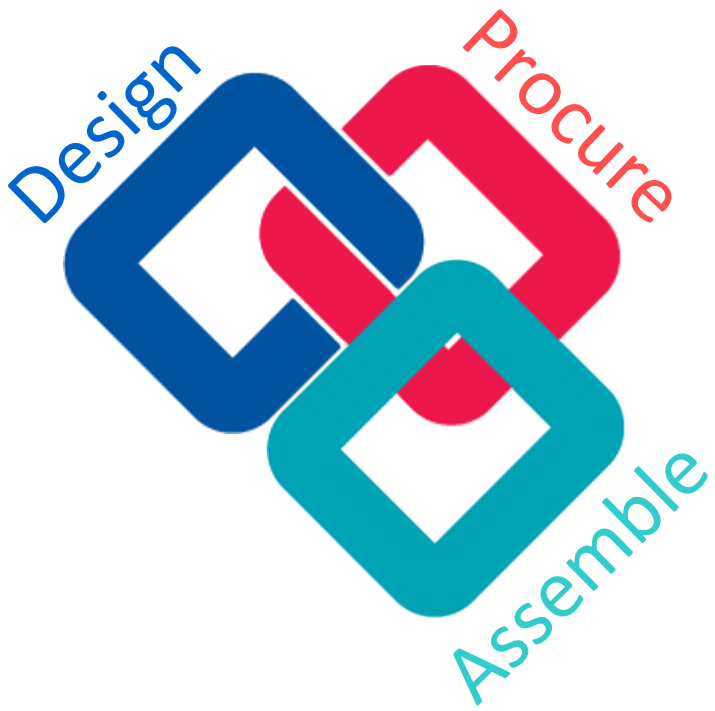
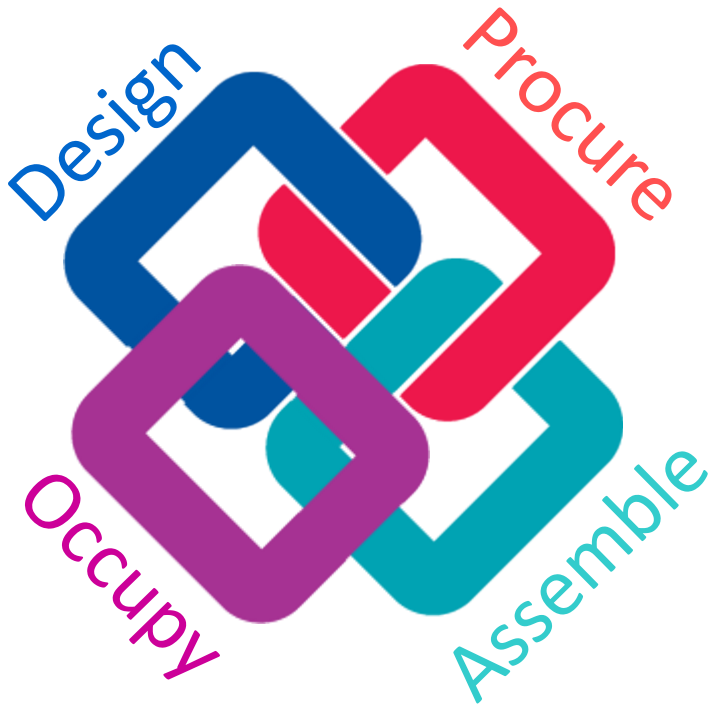


buildingSMART Processes



buildingSMART Logo

buildingSMART Vision

Attain societal, environmental and economic benefits

by creating openBIM standards for

Design, Procurement, Assembly and Operation

for the Building and Infrastructure Industry.

buildingSMART Values

Open	Neutral and International
Relevant	Agile and Responsive
Non-Profit	

buildingSMART Goals

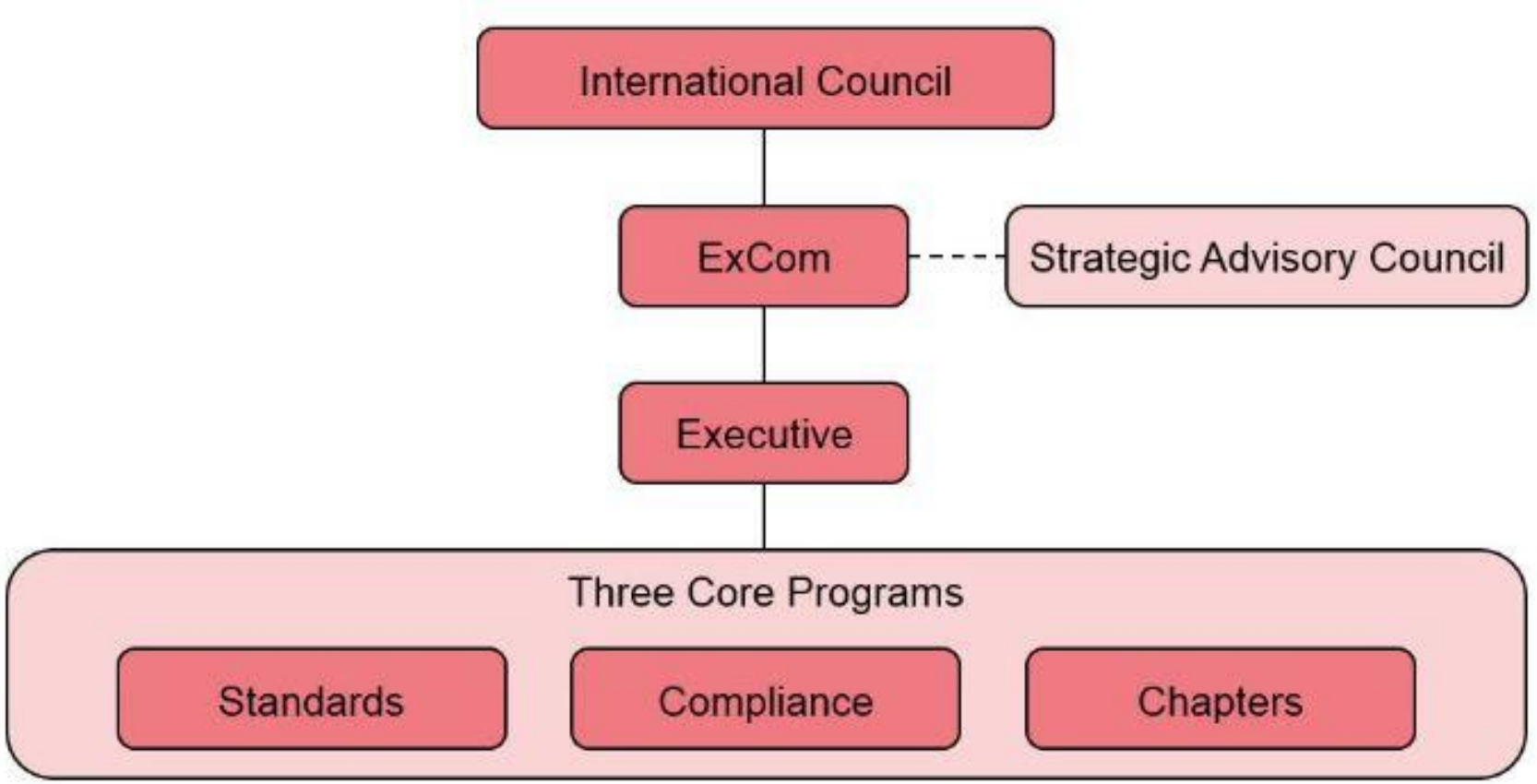
Develop openBIM Standards for buildings & infrastructure

Develop openBIM Compliance Standards

Adopt openBIM Standards as ISO Standards

Support openBIM Adoption for buildings & infrastructure

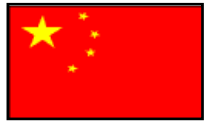
buildingSMART Organization

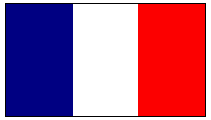


buildingSMART Chapters

Australia

Canada

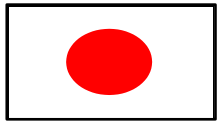
China 

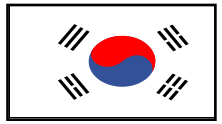
France 

Germany

Hong Kong

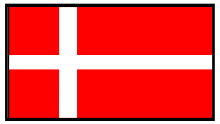
Italy

Japan 

Korea 

Malaysia

Netherlands

Nordic 
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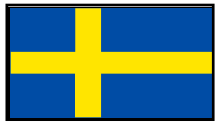
Finland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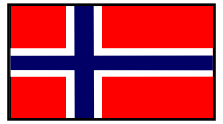
Norway 

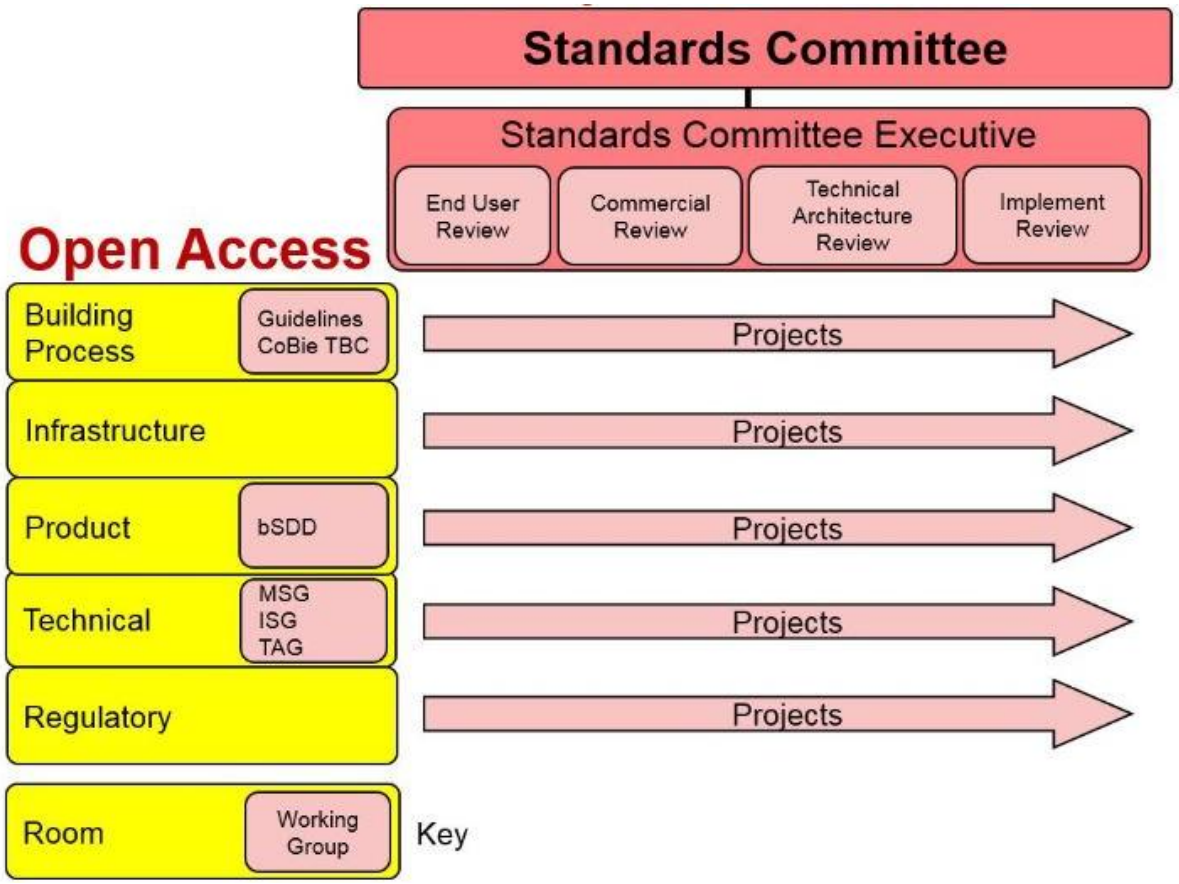
Singapore

Spain

UK

USA

buildingSMART Standards Organization



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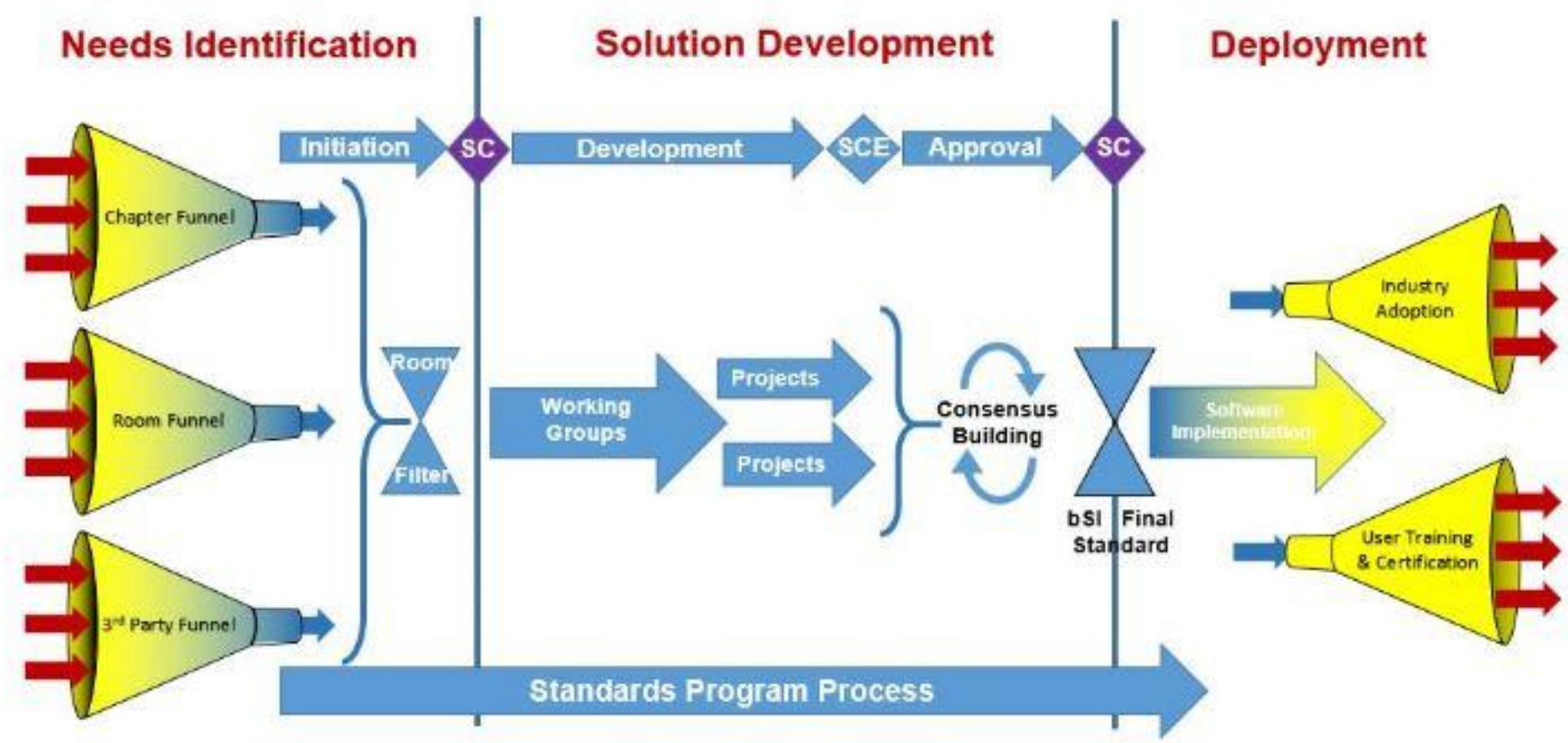
buildingSMART Standards Process



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ISO Standards Originated by bSI

BIM	IFC	PAS 16739-2005
Terminology	IFD	12006-3:2007
Process	IDM	FDIS 29491-1:2009

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Questions?