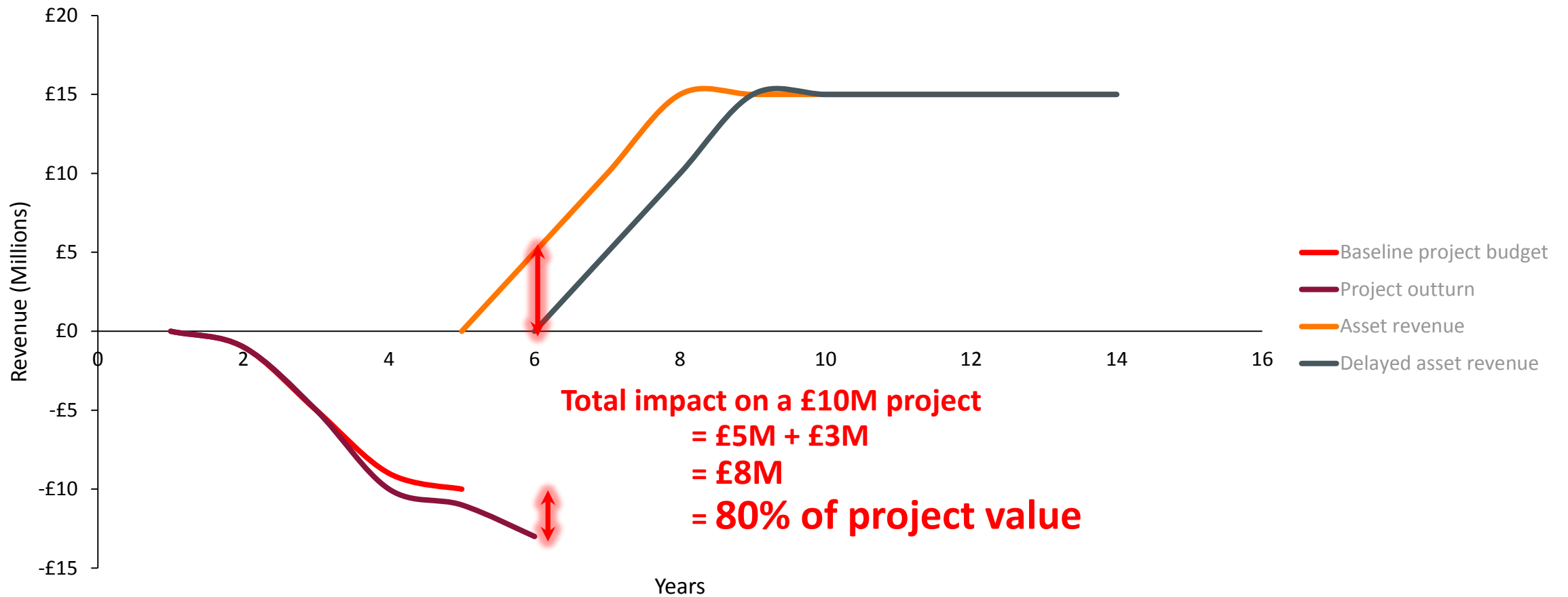


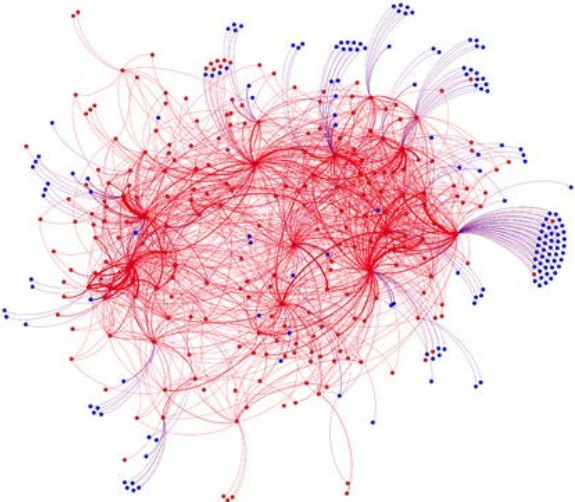
The impacts of Digital on Supply chain governance across the Asset Lifecycle ?

Geoff Roberts
Director, Global Strategy (Energy & Resources)
November 2018

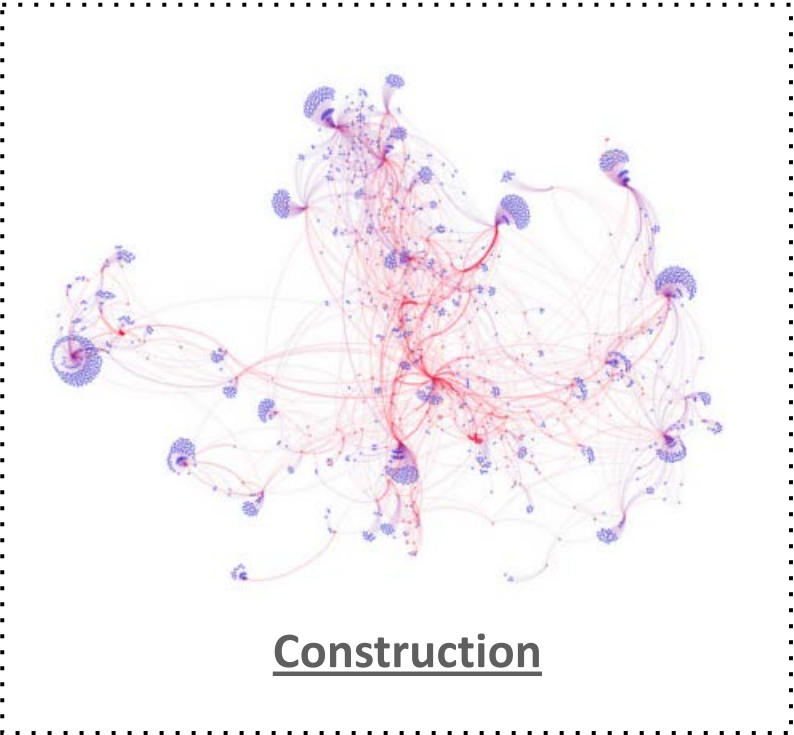
The Challenge - Impact of project on asset returns



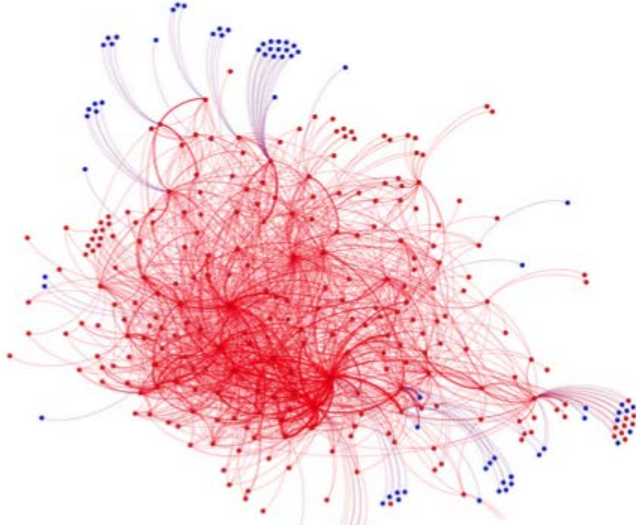
Disparate Supply Chain Requires Collaboration



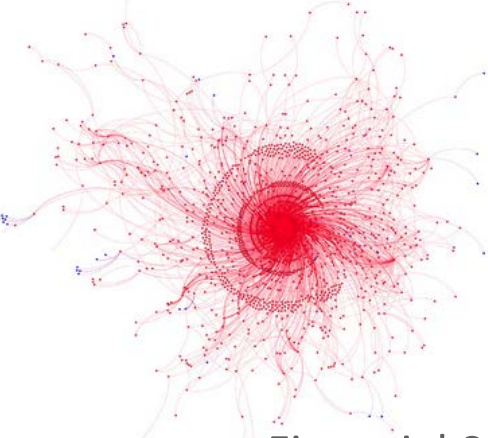
Software



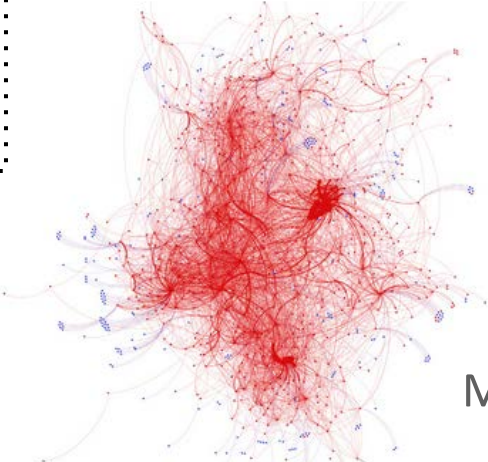
Construction



Media & Entertainment



Financial Services



Manufacturing



Why Transform?

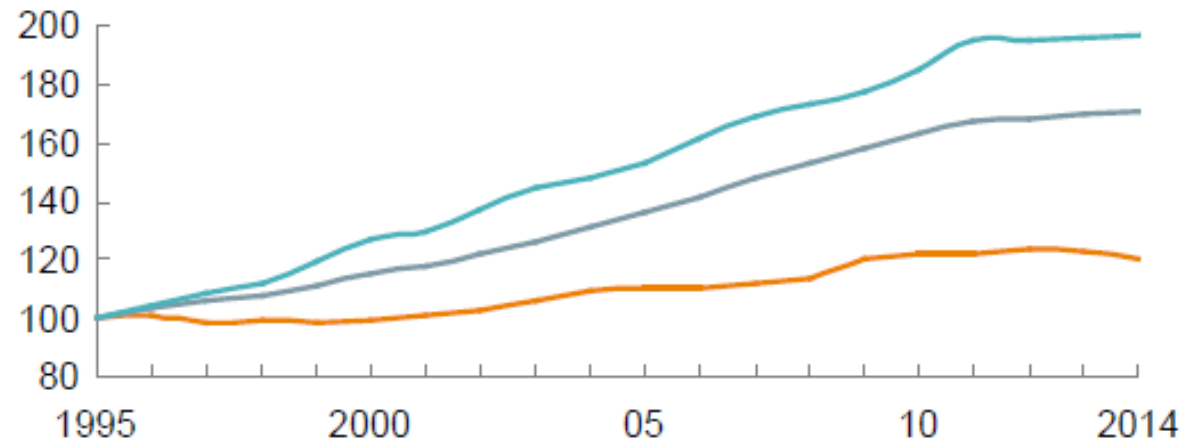
Globally, labor-productivity growth lags behind that of manufacturing and the total economy

Global productivity growth trends¹

— Construction — Total economy — Manufacturing

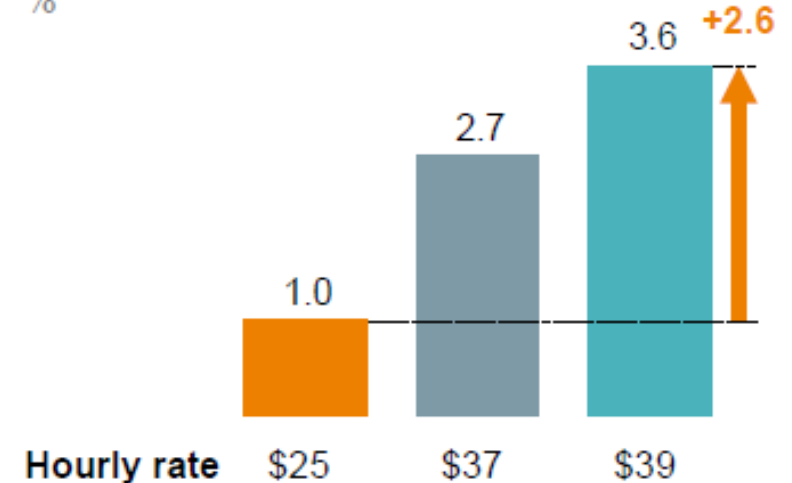
Real gross value added per hour worked
by persons engaged, 2005 \$

Index: 100 = 1995



Compound annual growth rate,
1995–2014

%



¹ Based on a sample of 41 countries that generate 96% of global GDP.

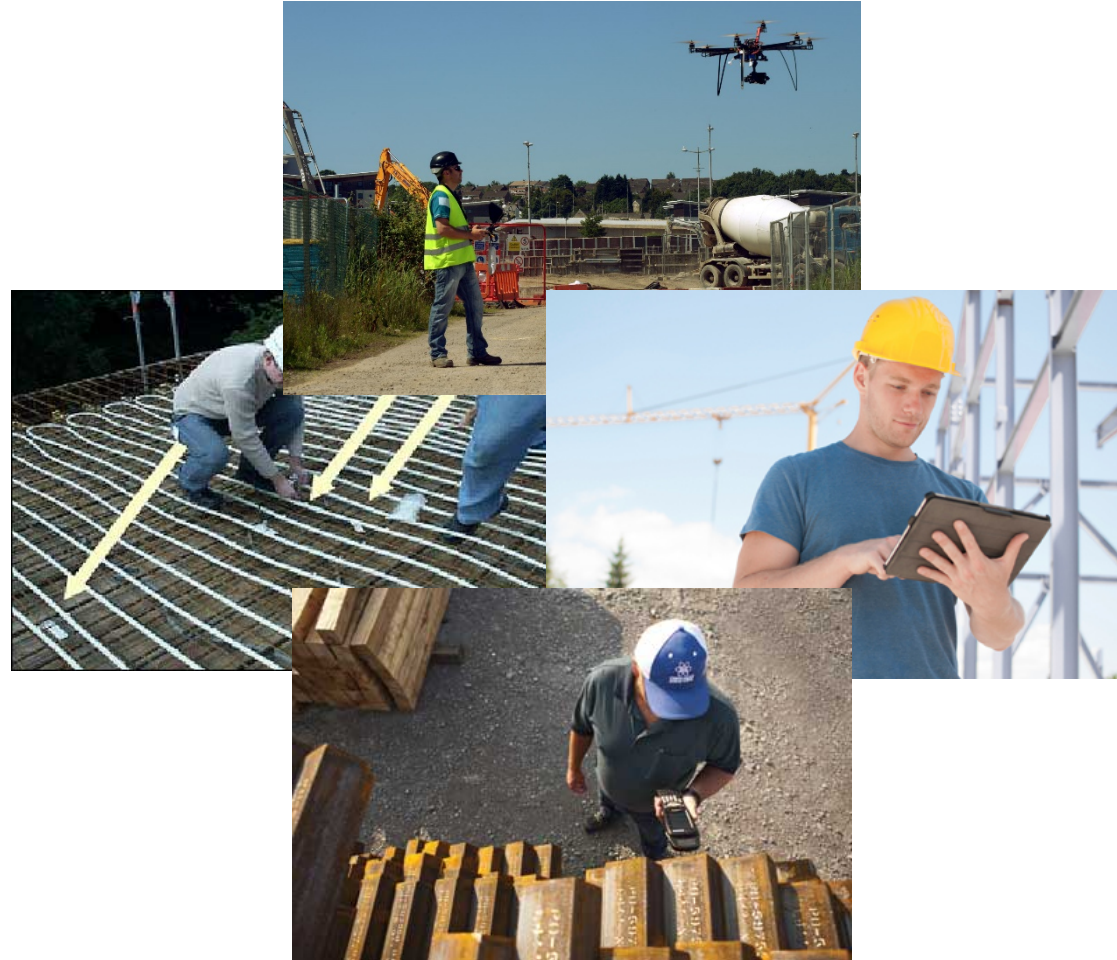
SOURCE: OECD; WIOD; GGCD-10, World Bank; BEA; BLS; national statistical agencies of Turkey, Malaysia, and Singapore; Rosstat; McKinsey Global Institute analysis

What does digital mean ?

Digital Disruption Thru – Technology/Innovation

- **Technology**

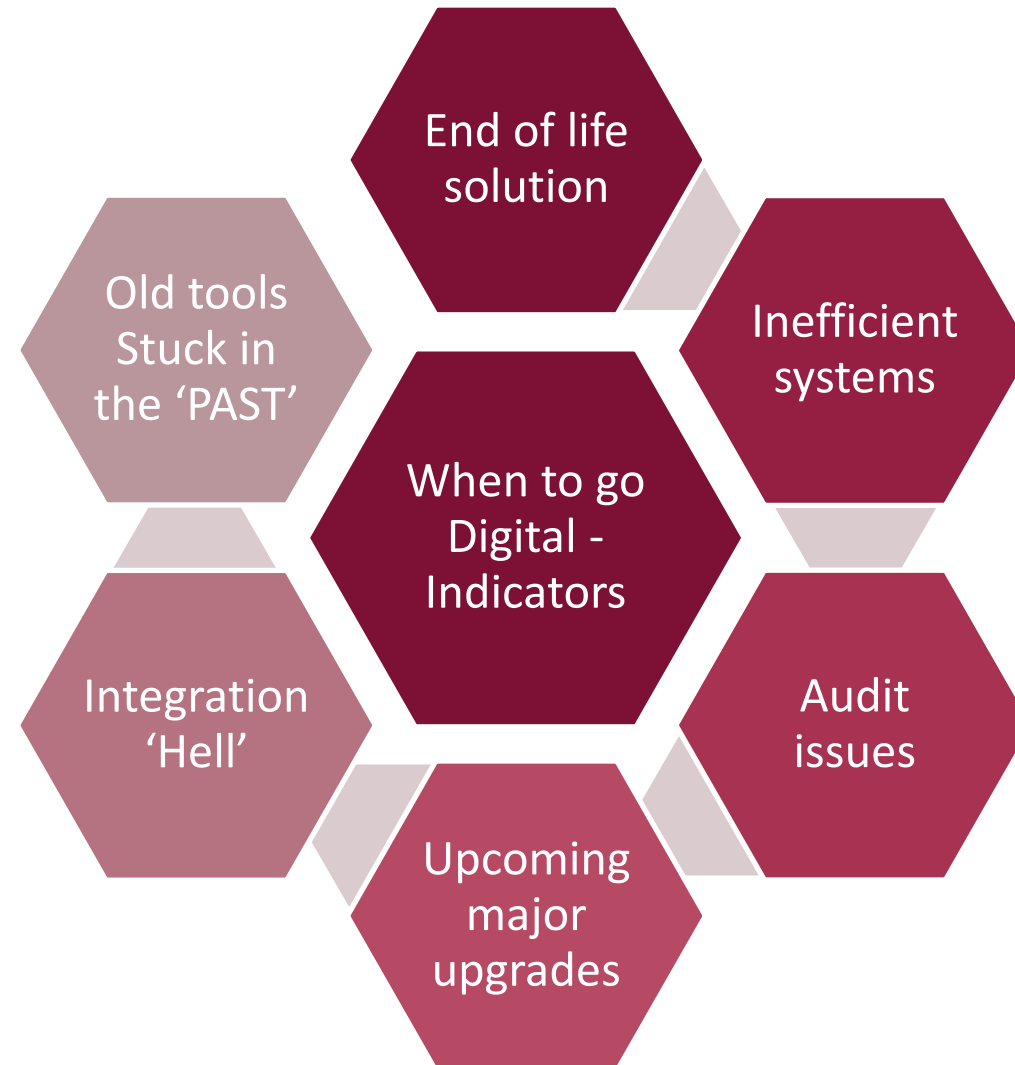
- Smart Devices
- Cloud
- Pervasive WiFi
- Location based services (GPS)
- RFID
- Sensors



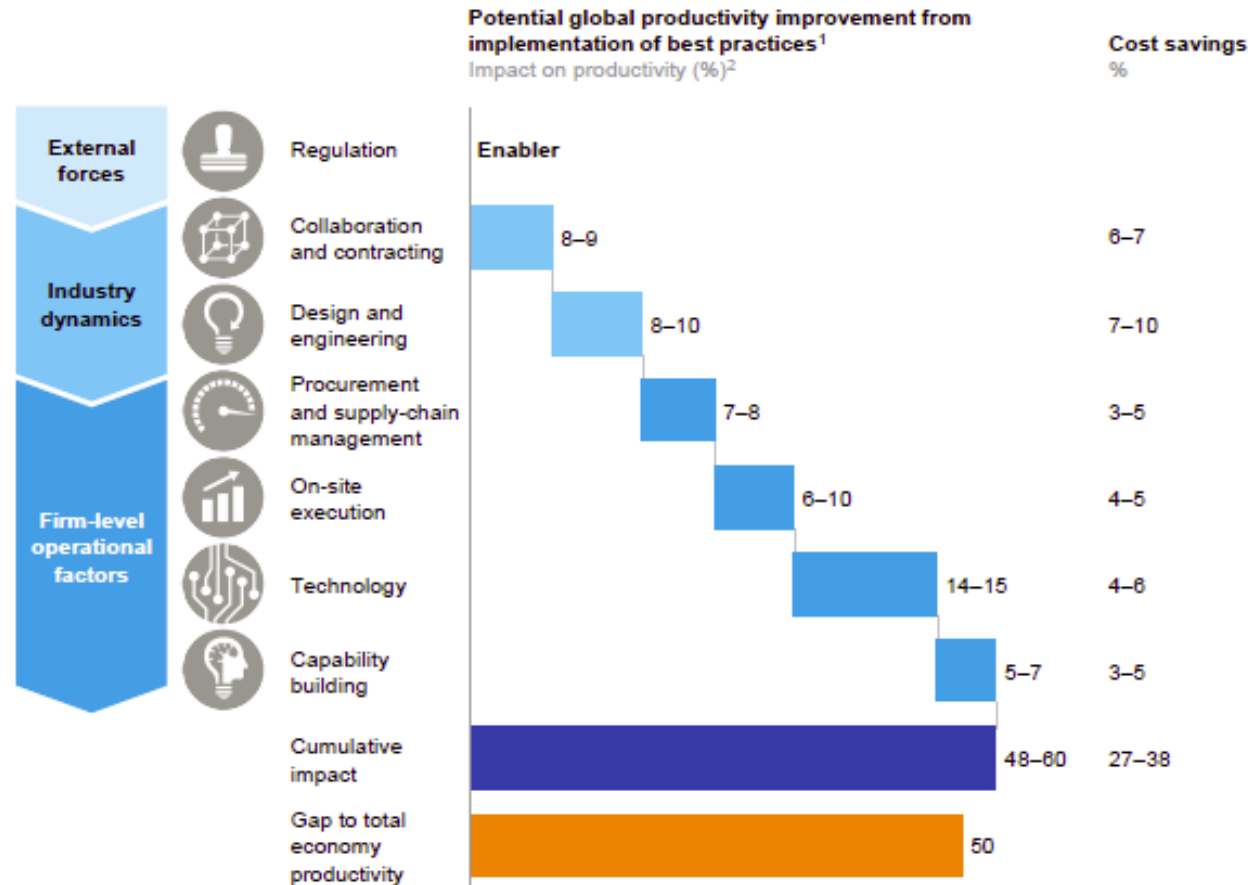
- **Innovation**

- BIM
- 4D
- 5D
- IoT
- Machine Learning
- AI
- Video Analytics
- Blockchain

When to go Digital - Drivers?



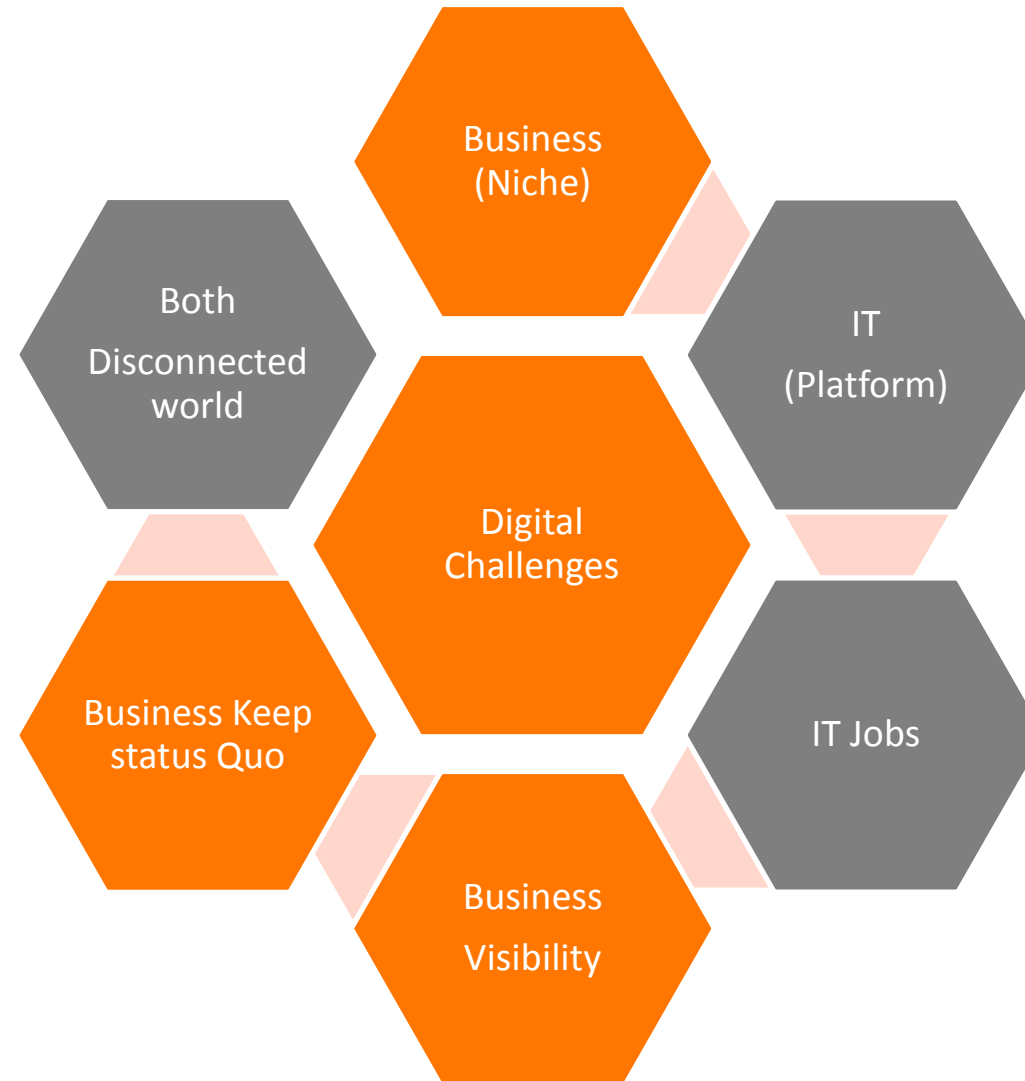
Analysts thoughts - Best Practice Supply Chain Processes & Disruptive Technology



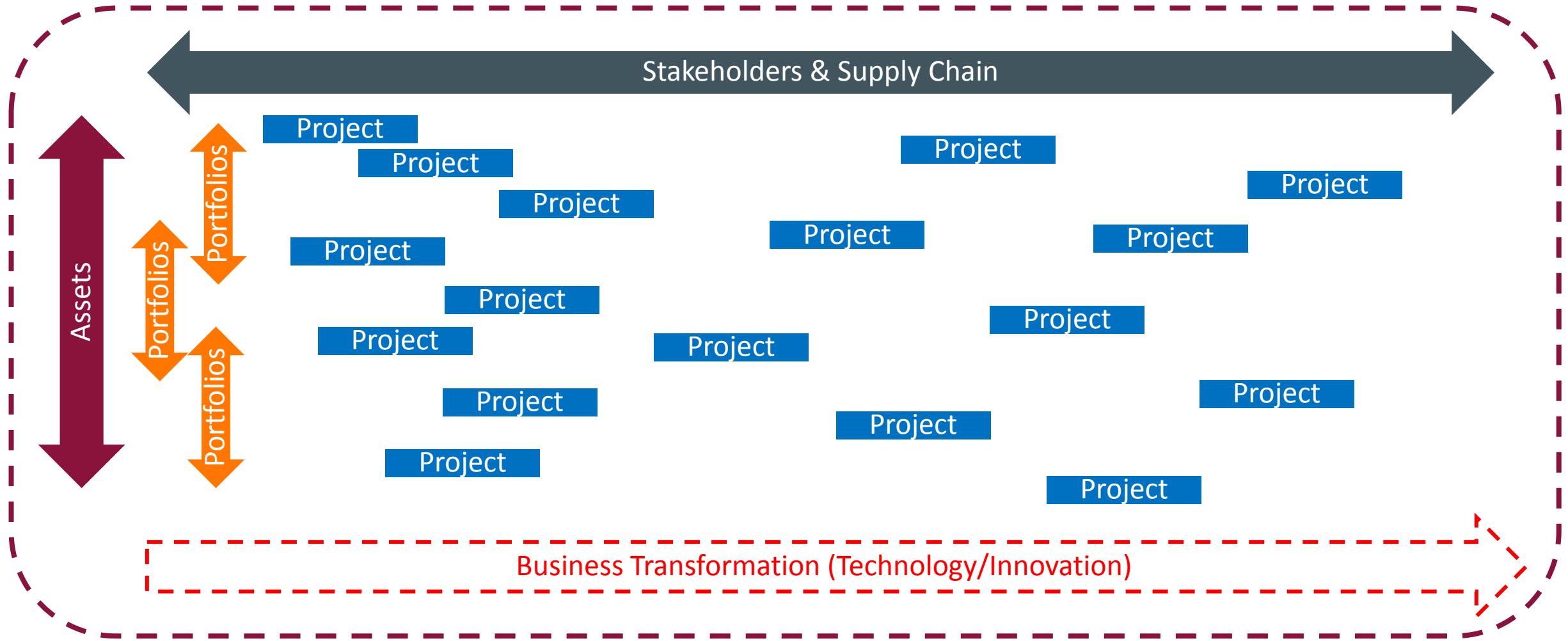
¹ The Impact numbers have been scaled down from a best case project number to reflect current levels of adoption and applicability across projects, based on respondents to the MGI Construction Productivity Survey who responded "agree" or "strongly agree" to the questions around Implementation of the solutions.
² Range reflects expected difference in impact between emerging and developed markets.

SOURCE: McKinsey Global Institute analysis

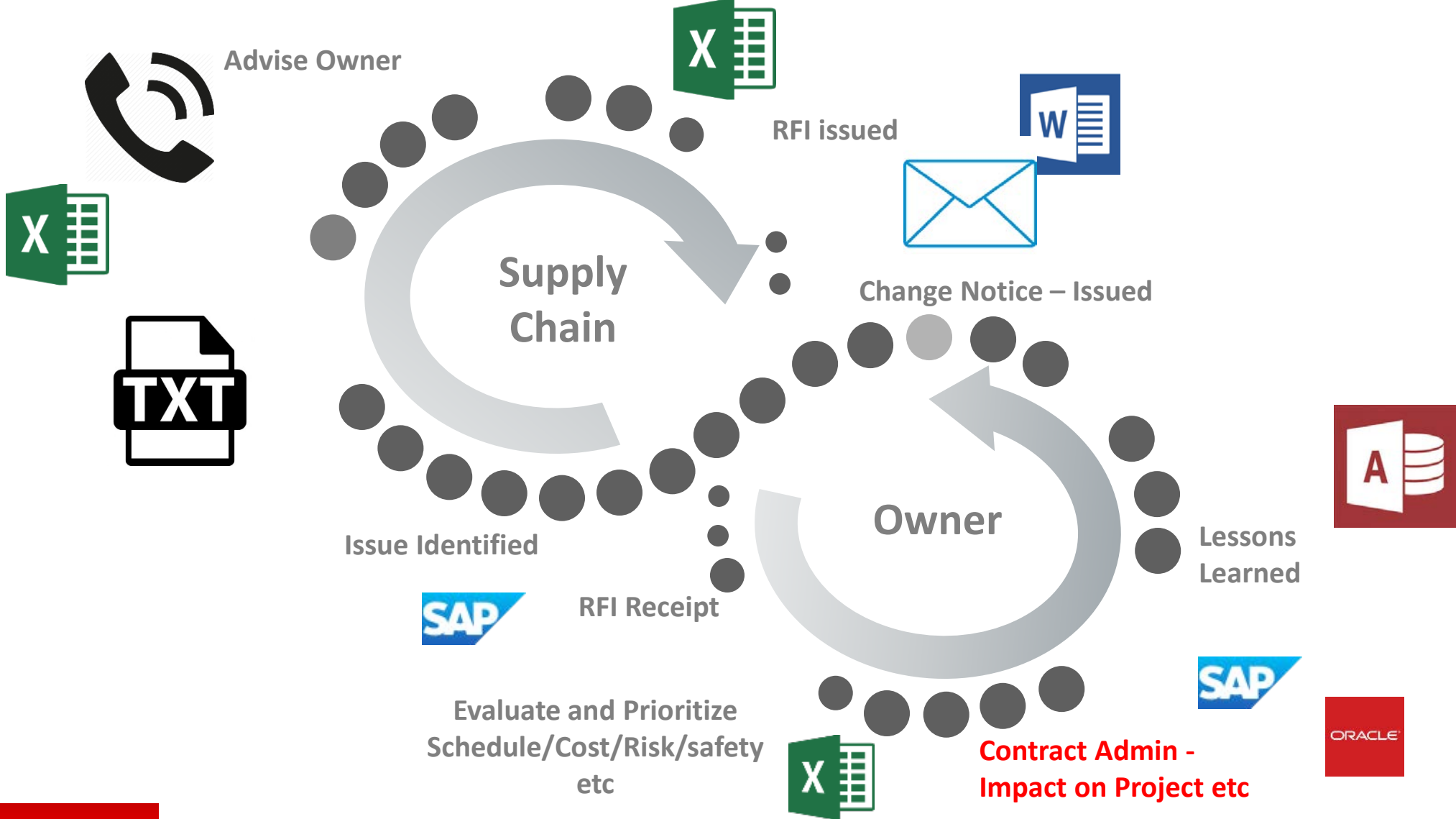
Challenges ?



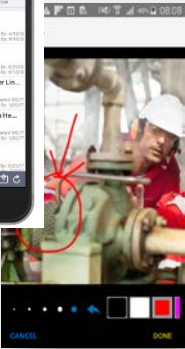
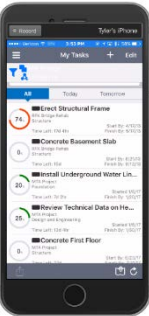
Asset Portfolio Delivery Solution – Data Rich



Change - Current state (Disconnected and Manual)

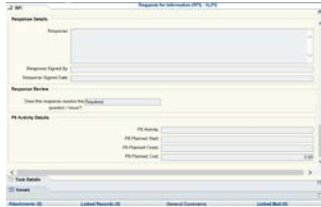
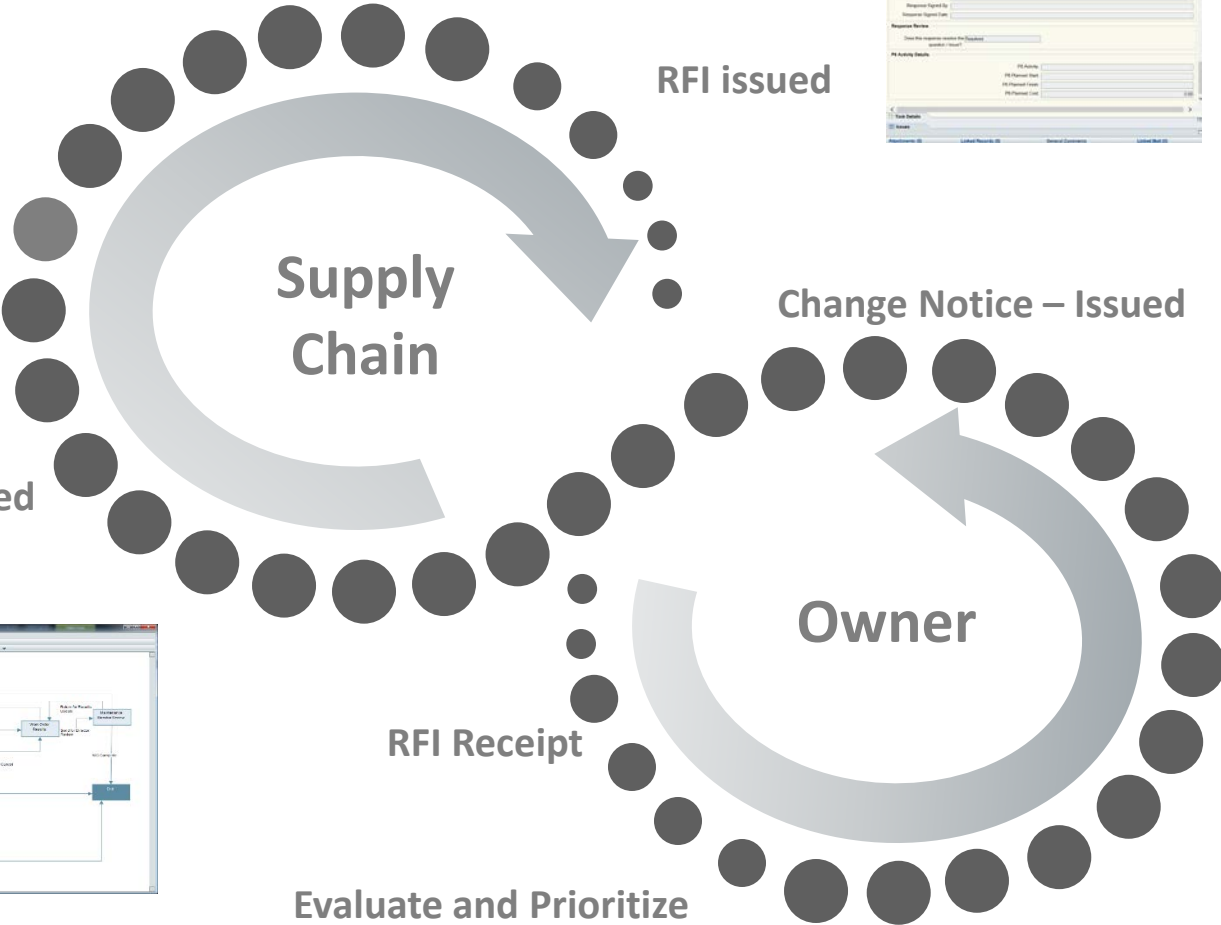
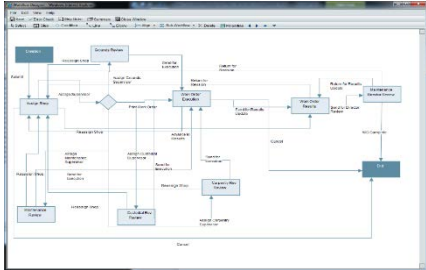


Change - Transformed Business (Integrated and Automated)



Advise Owner

Issue Identified



RFI issued

Change Notice - Issued

Owner

RFI Receipt

Evaluate and Prioritize
Schedule/Cost/Risk/safety
etc

Contract Admin
Impact on Project etc

Change Order	
Record No.: CO-005	Creator: OOTB Admin
Title: Additional Cooling Units	Creation Date: 10/15/2013 10:33 AM (UTC-8)
Project Number: COA-2016	Due Date: 10/22/2013 10:23 AM (UTC-8)
Project Name: Alaska University - Anchorage	Status: Approved
Record Currency: United States Dollar (USD)	Amount: 35,000.00
CO Information:	
ContractPO: COA-003	Contract No: UOA-2013-0555
Spec Section: 05 - General Requirements	Priority: High
Current Contract: 11/05/2013	Description:
Schedule Impact (Days): 5	Revised Contract: 12/06/2013
Scope of Change:	
Change Reason: Other - Please explain below	
Scope of Work: Install additional cooling capacity - no labor surcharge	
Contract Summary:	
Original Contract: 1,872,000.00	Amount of this Change: 35,000.00

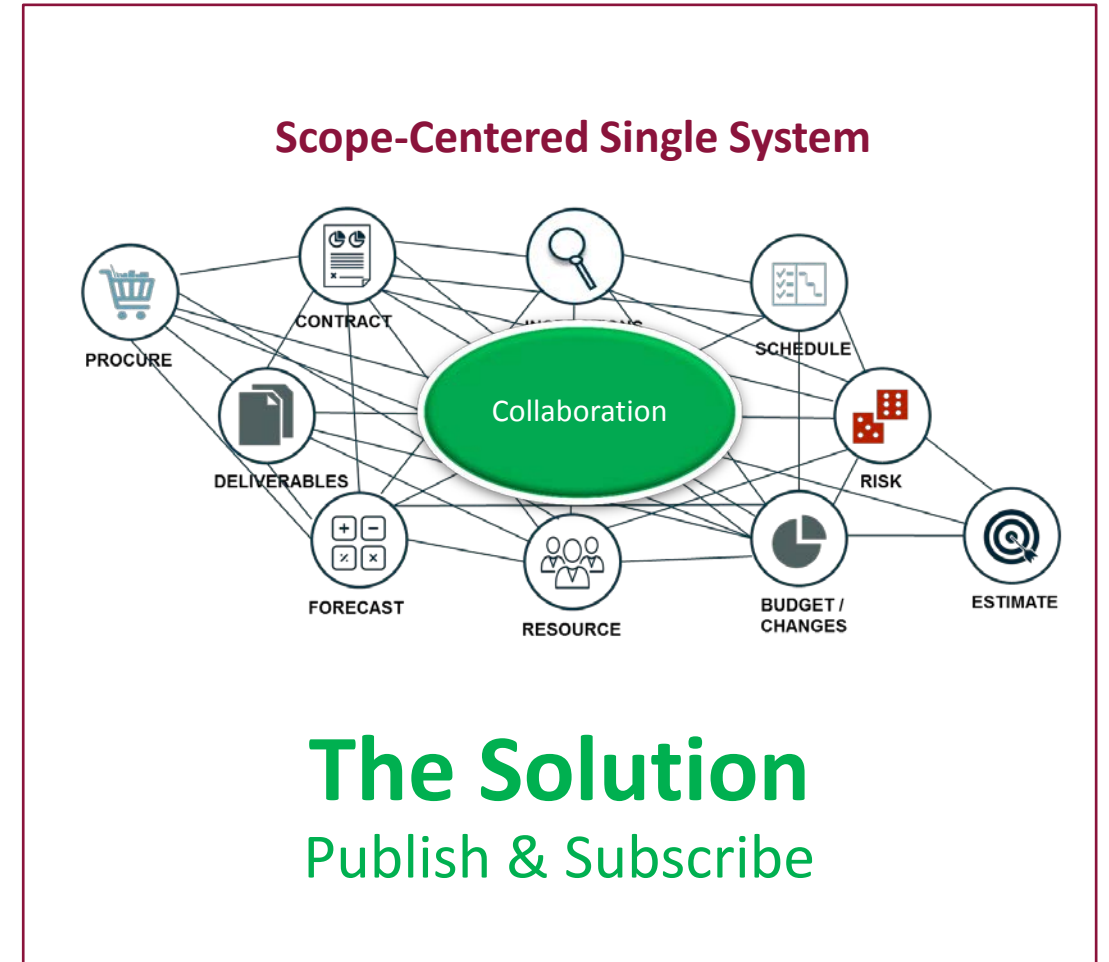


Lessons Learned

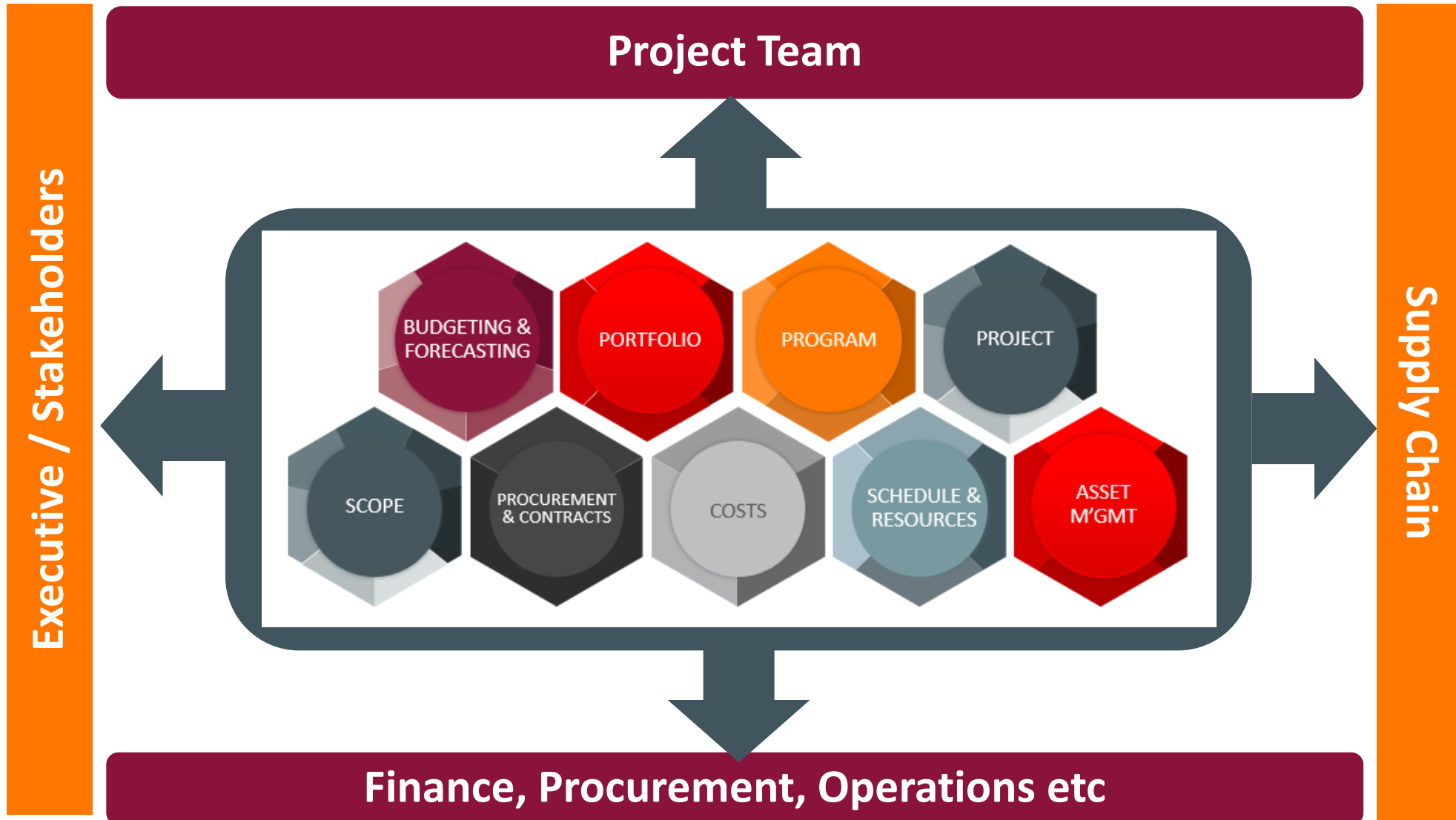


The Client Problem

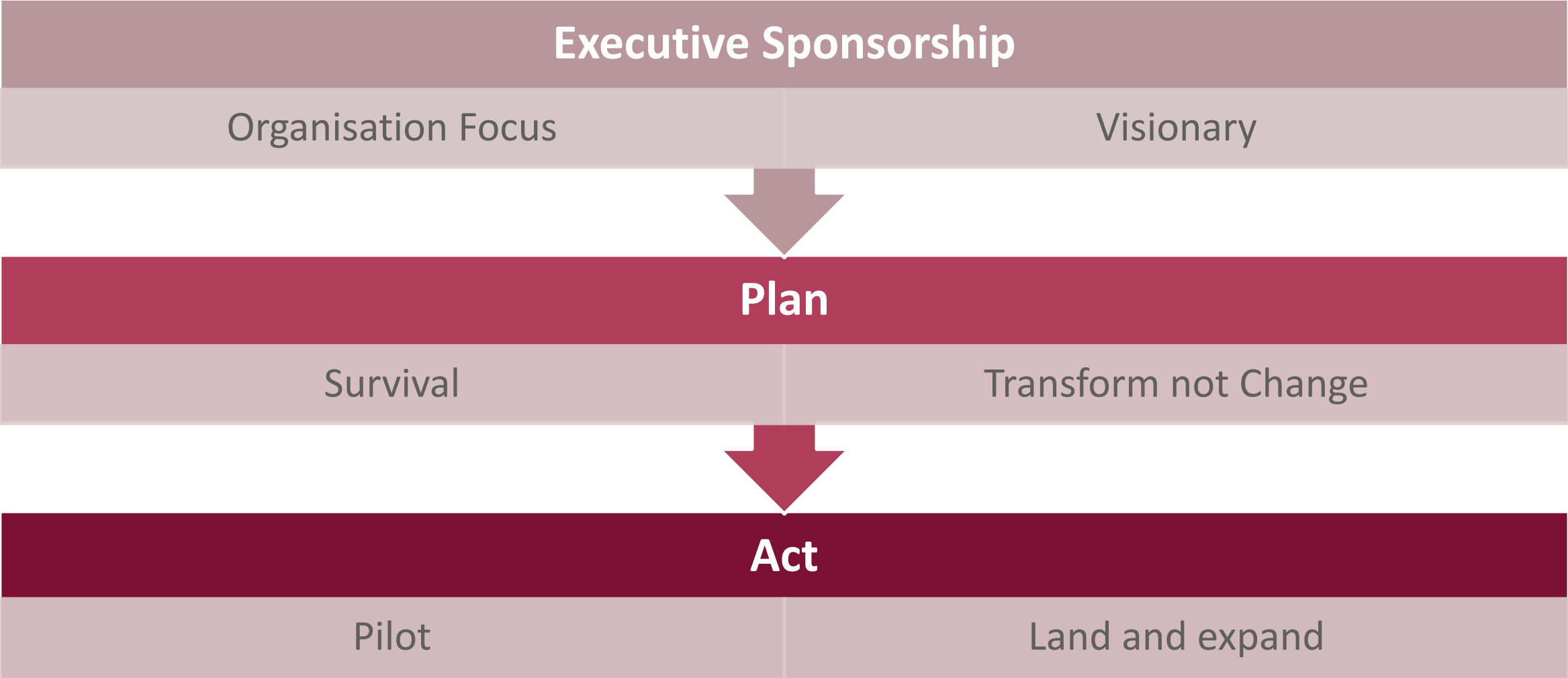
Today, multiple siloed groups work in disparate systems that may or may not even communicate and definitely do not relate records and activities back to project scope. This often results in inefficient work practices that negatively impact the project and the business.



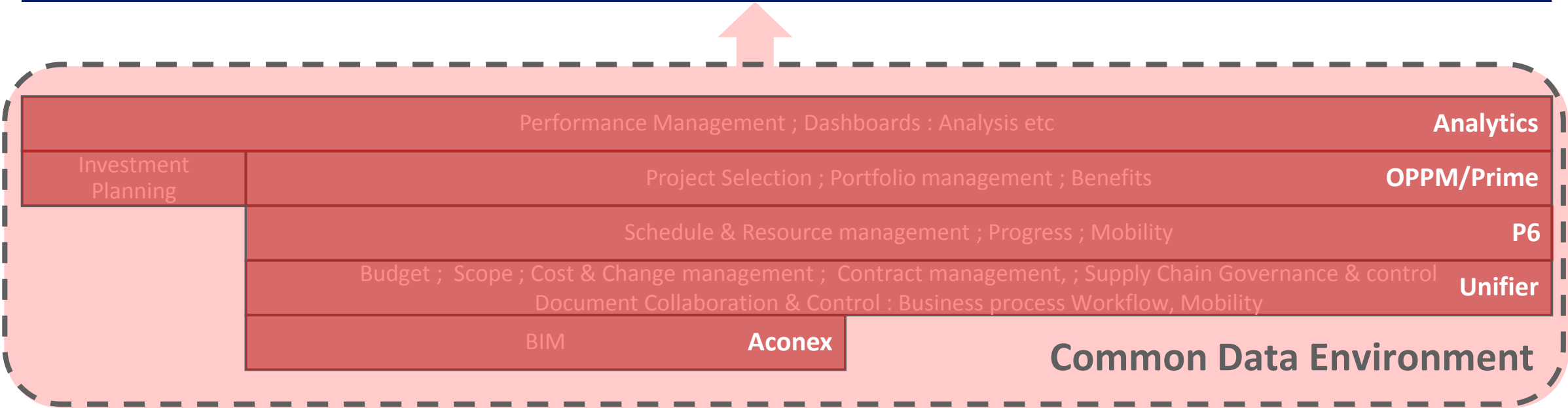
Asset/Project - Common Data Environment



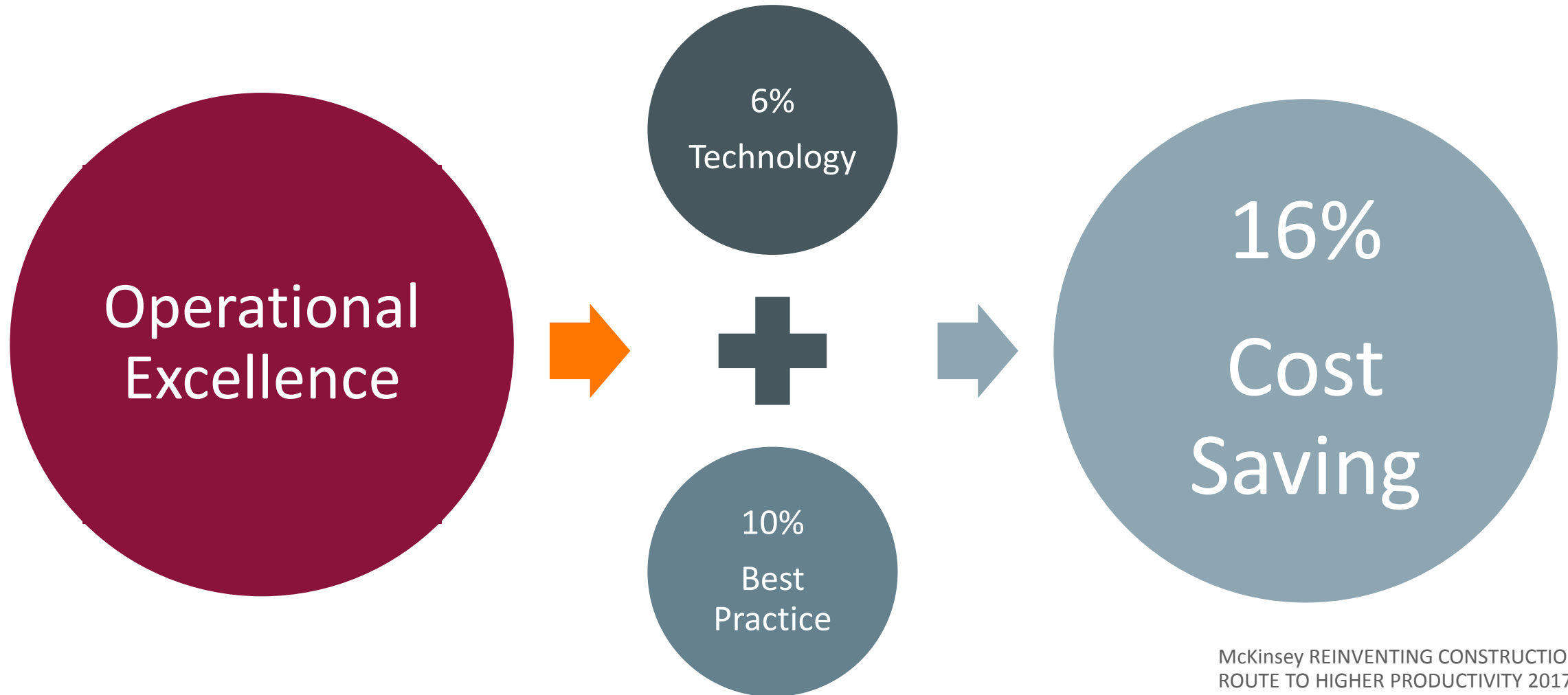
Leadership & Why ?



Asset Delivery Solution – Typical Architecture



Asset Delivery Platform - Potential Cost Savings



McKinsey REINVENTING CONSTRUCTION: A ROUTE TO HIGHER PRODUCTIVITY 2017

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