



DBIA Owners Council Webinar **How to Deliver Better Projects Using Lean Design Build**

March 8, 2017



By David Umstot, PE

WHY?

Why Lean Project Delivery?

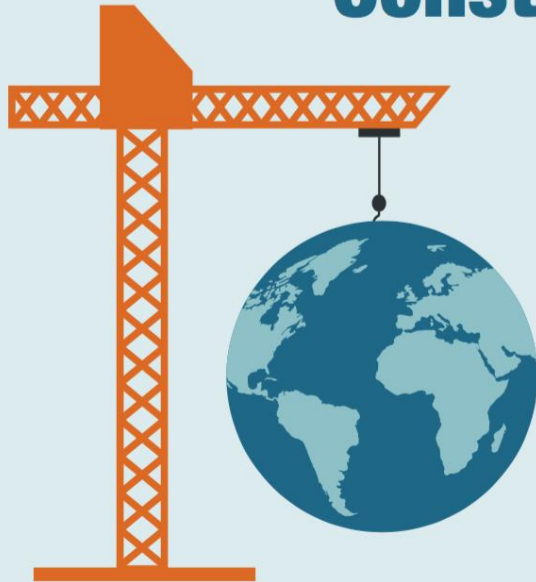
Traditional Project Design and Delivery Approaches are Failing at Alarming Rates!



The **productivity opportunity** in construction



Construction matters for the world economy ... but has a long record of poor productivity



Construction-related spending
accounts for

13% of the world's GDP

...but the sector's annual productivity
growth has only increased

1% over the past 20 years

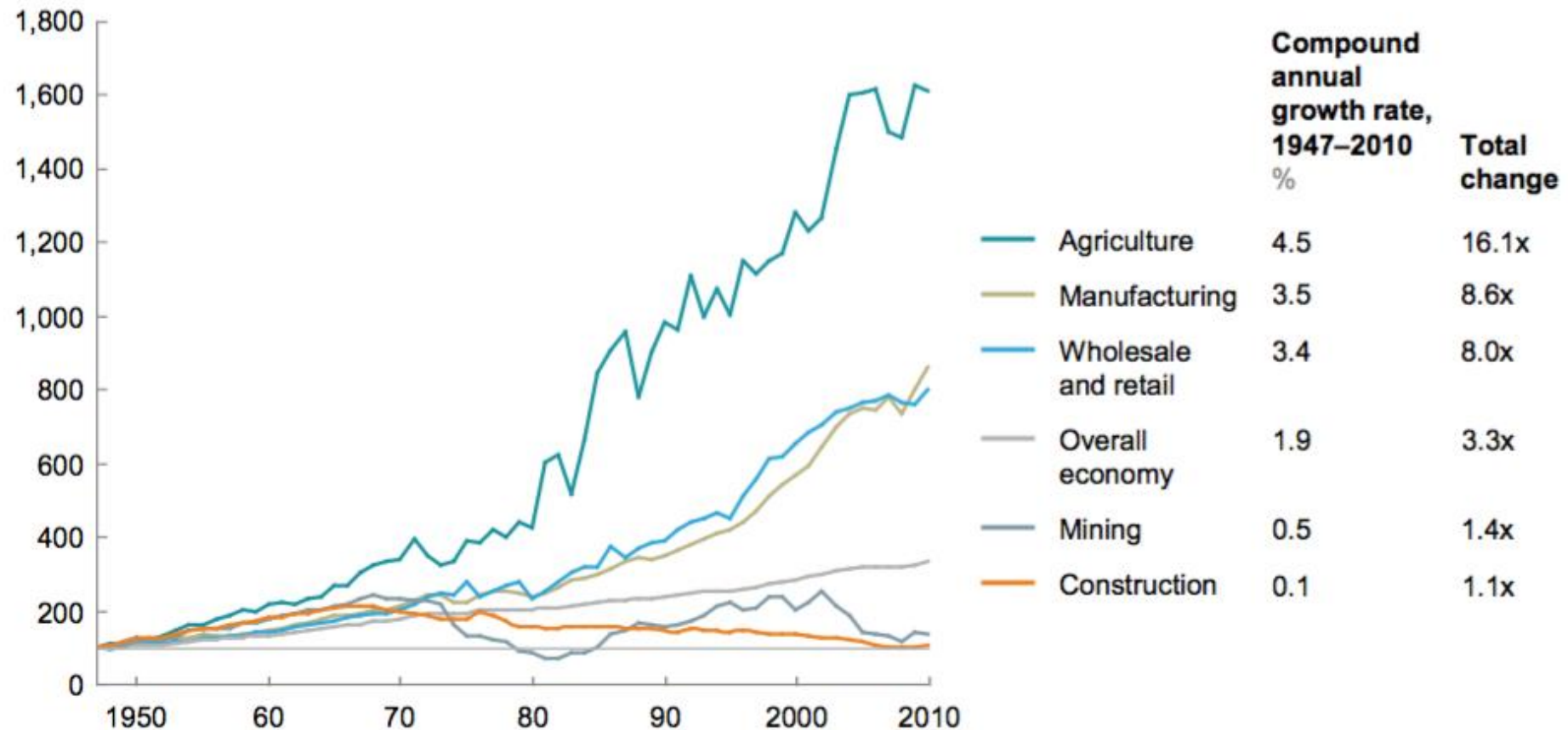
\$1.6 trillion of additional value added could be
created through higher productivity,
meeting half the world's infrastructure need

Source: McKinsey (2017)

**In the United States, labor productivity in construction has declined since 1968,
in contrast to rising productivity in other sectors**

Gross value added per hour worked, constant prices

Index: 100 = 1947



Source: McKinsey (2017)

US example

- Specialty
- Civil
- Building
- Industrial

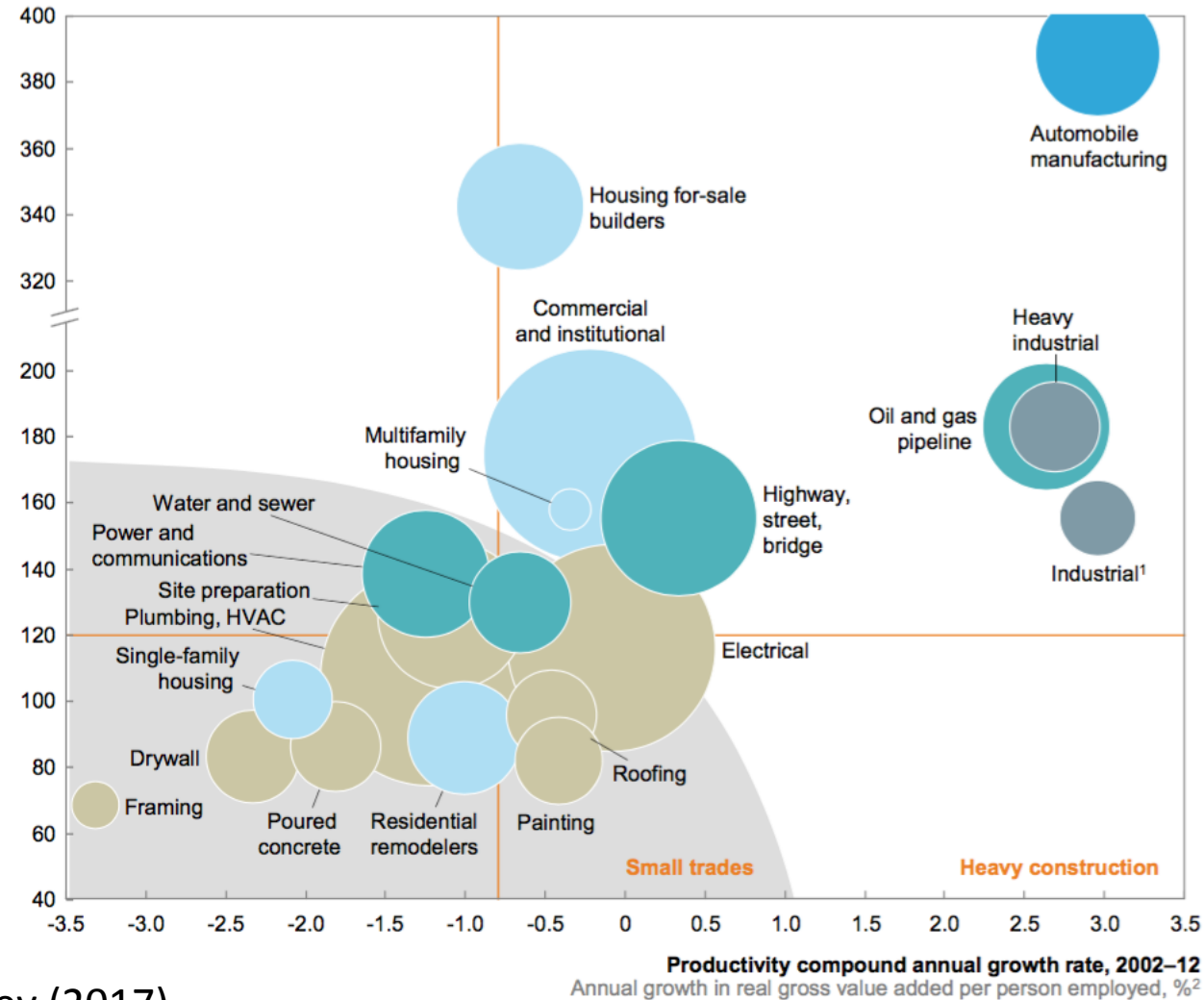
Size indicates economic value added, 2012
2015 \$ million



US construction average

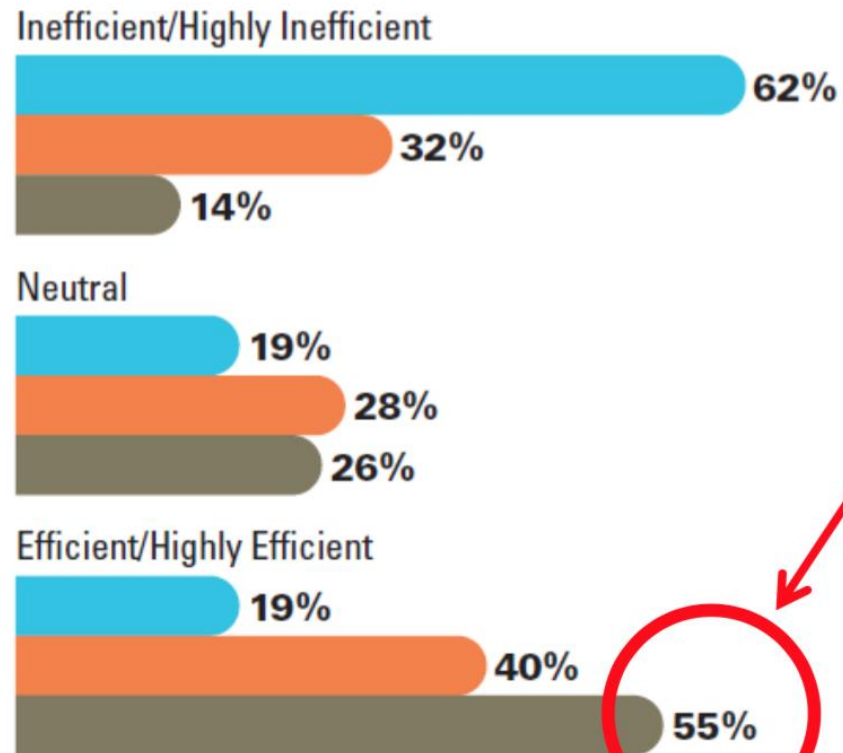
Productivity, 2012

\$ thousand per person employed, 2015 \$



Source: McKinsey (2017)

- Implemented Lean Practices
- Familiar with Lean Practices
- Not Familiar with Lean Practices



Most who never heard of Lean think the industry is **Efficient**



Source: McGraw-Hill 2013

937

1 every 2 hours

THE “FATAL FOUR”

The top 4 injuries that lead to fatalities in the construction industry (2012)



FALLS



CAUGHT BETWEEN
OBJECTS



ELECTROCUTIONS



STRUCK BY
OBJECT

Building Magazine February 24, 2016

42.8 years

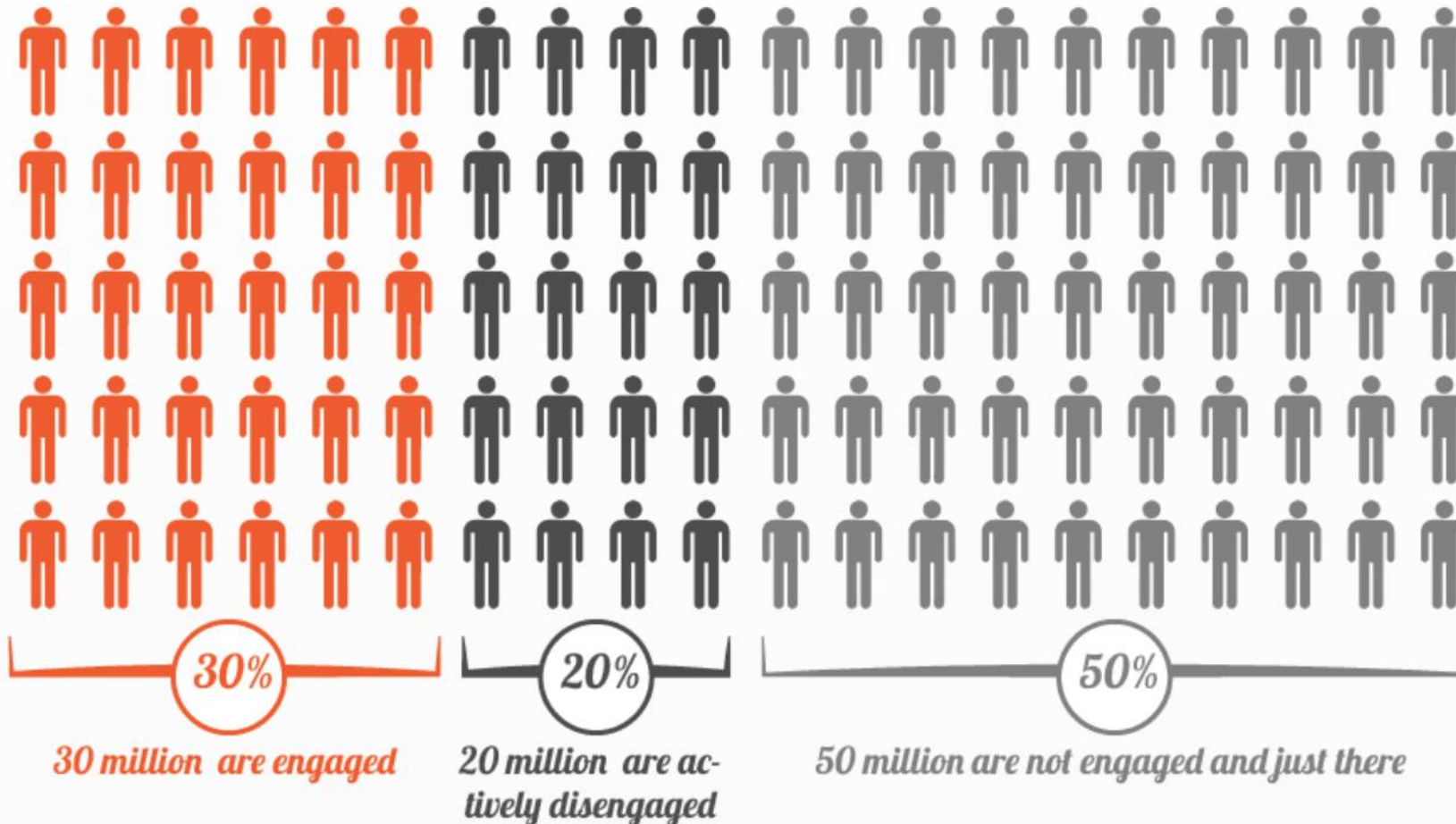
Median age of US construction industry workers

<1/3 of workforce is **under 34**

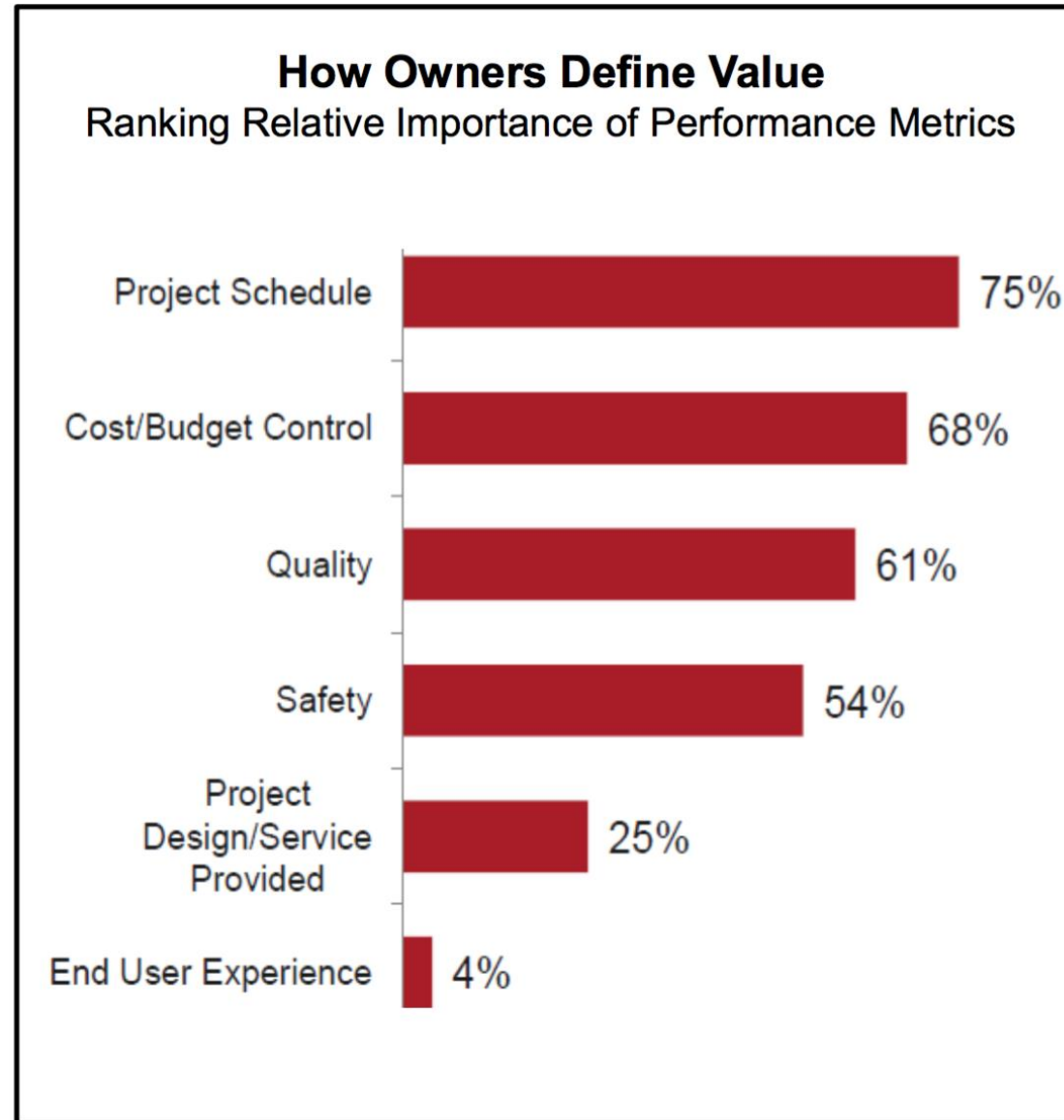
EMPLOYEE ENGAGEMENT MATTERS



Out of 100 million people in America who hold full-time jobs



Source: Vocoli (2014)

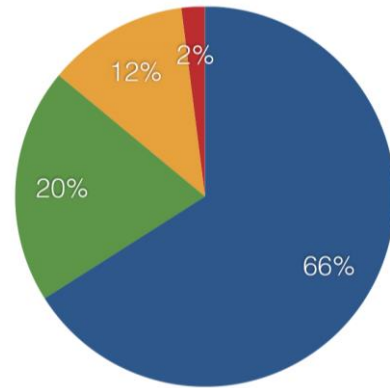


Source: McGraw-Hill
(2014)

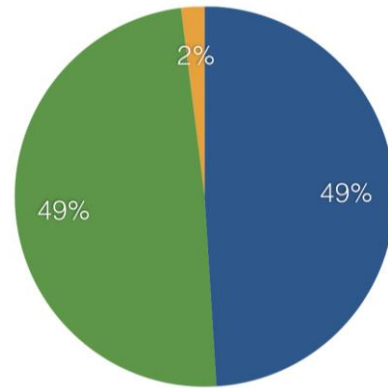
Frequency with Which Projects Meet Expectations

QUALITY

Owners

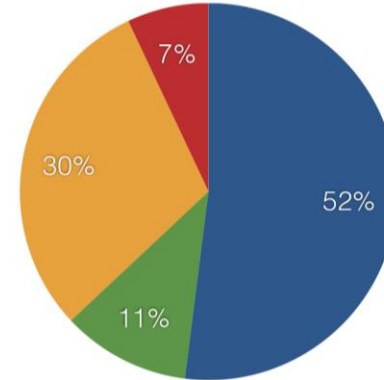


Architects and Contractors

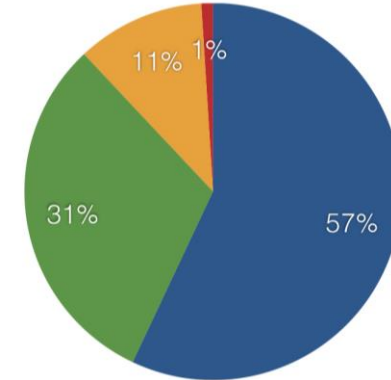


COST

Owners

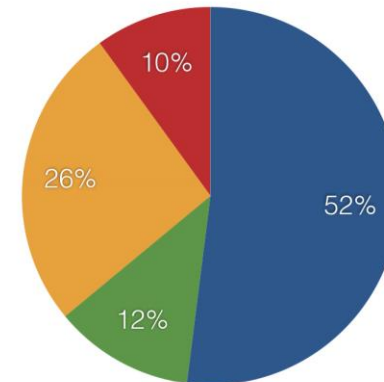


Architects and Contractors

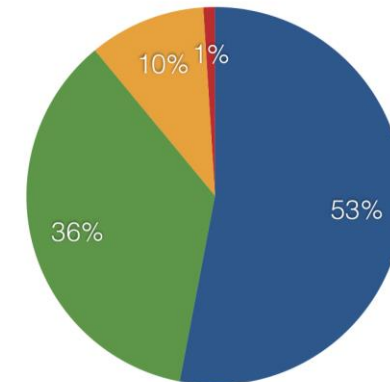


SCHEDULE

Owners



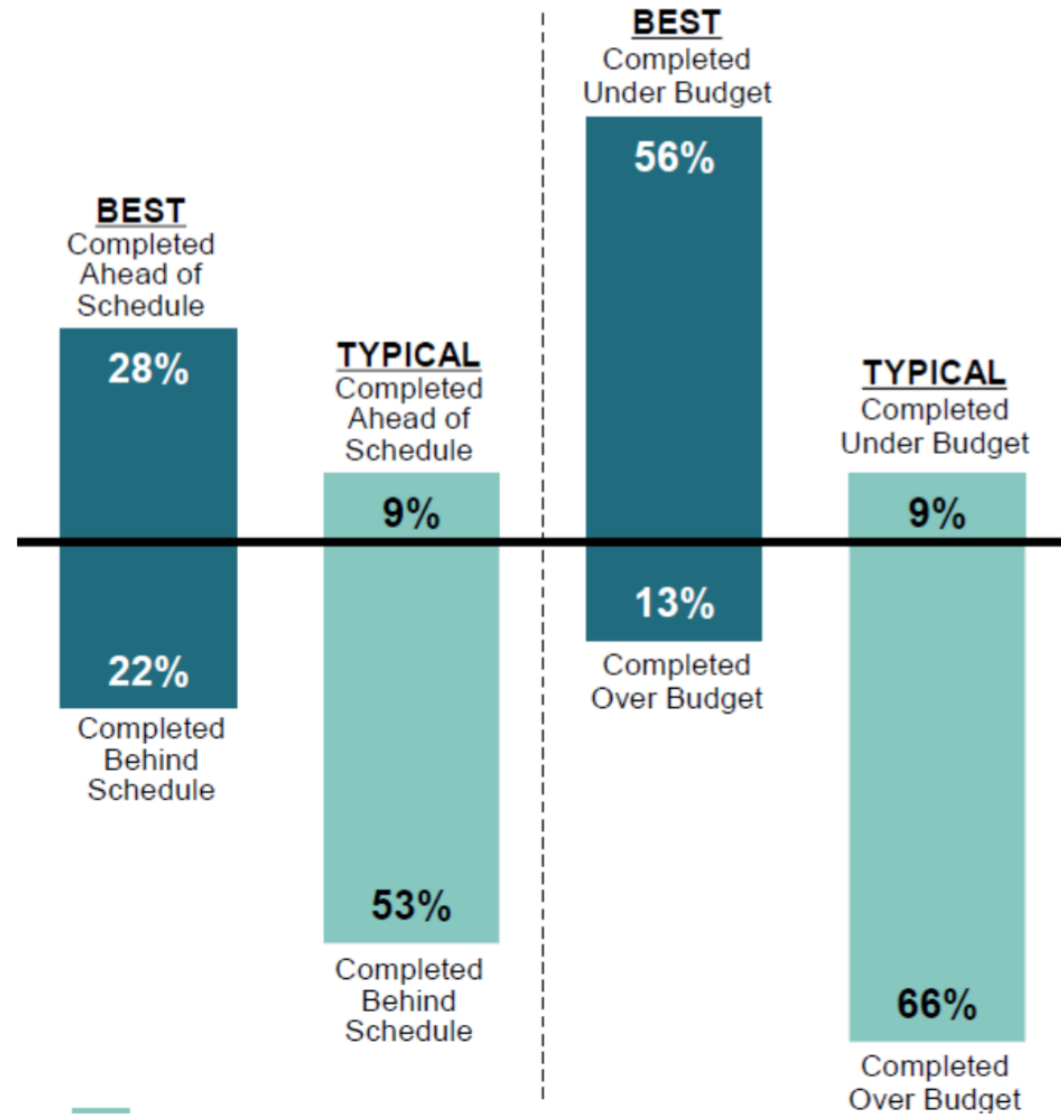
Architects and Contractors



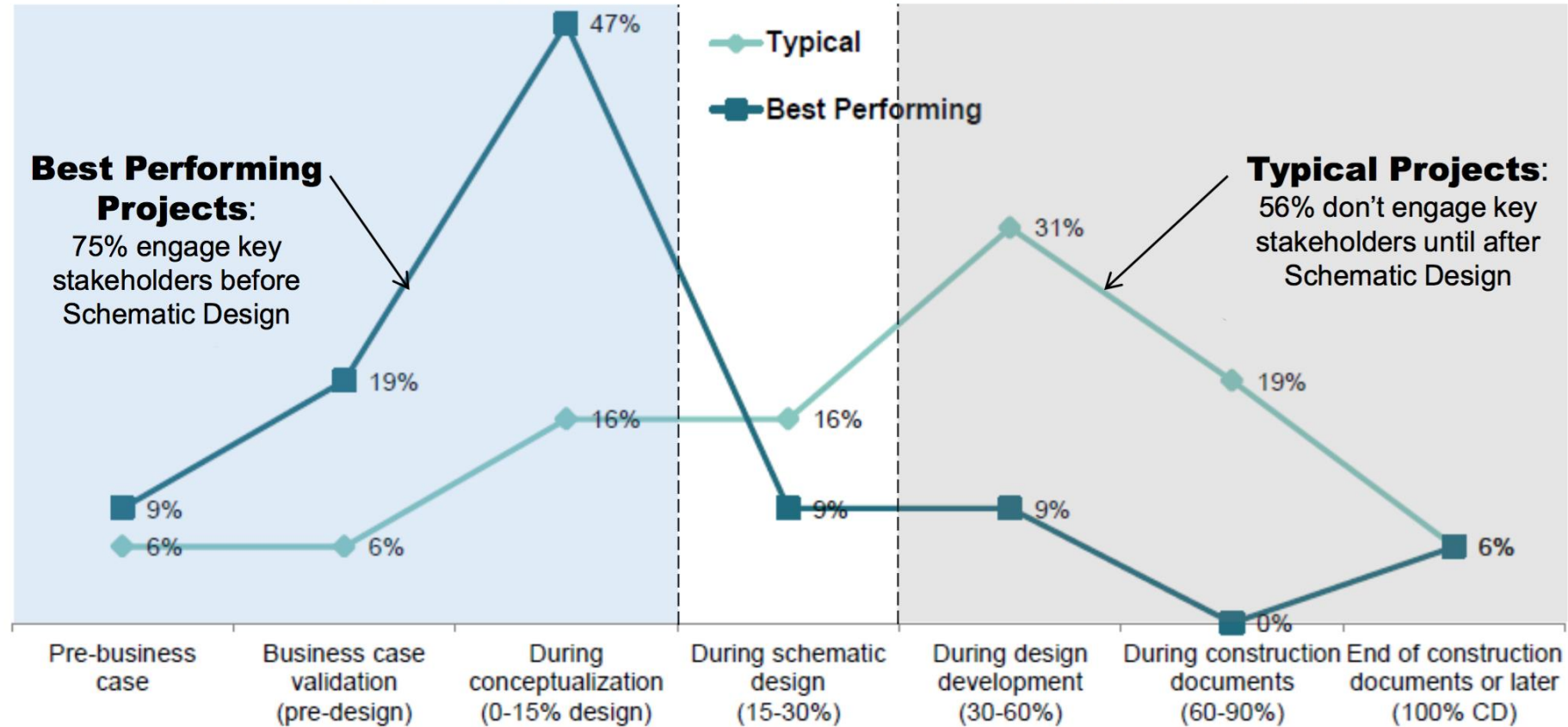
- Always Meets Expectations
- Frequently Meets Expectations
- Sometimes Meets Expectations
- Infrequently/Never Meets Expectations

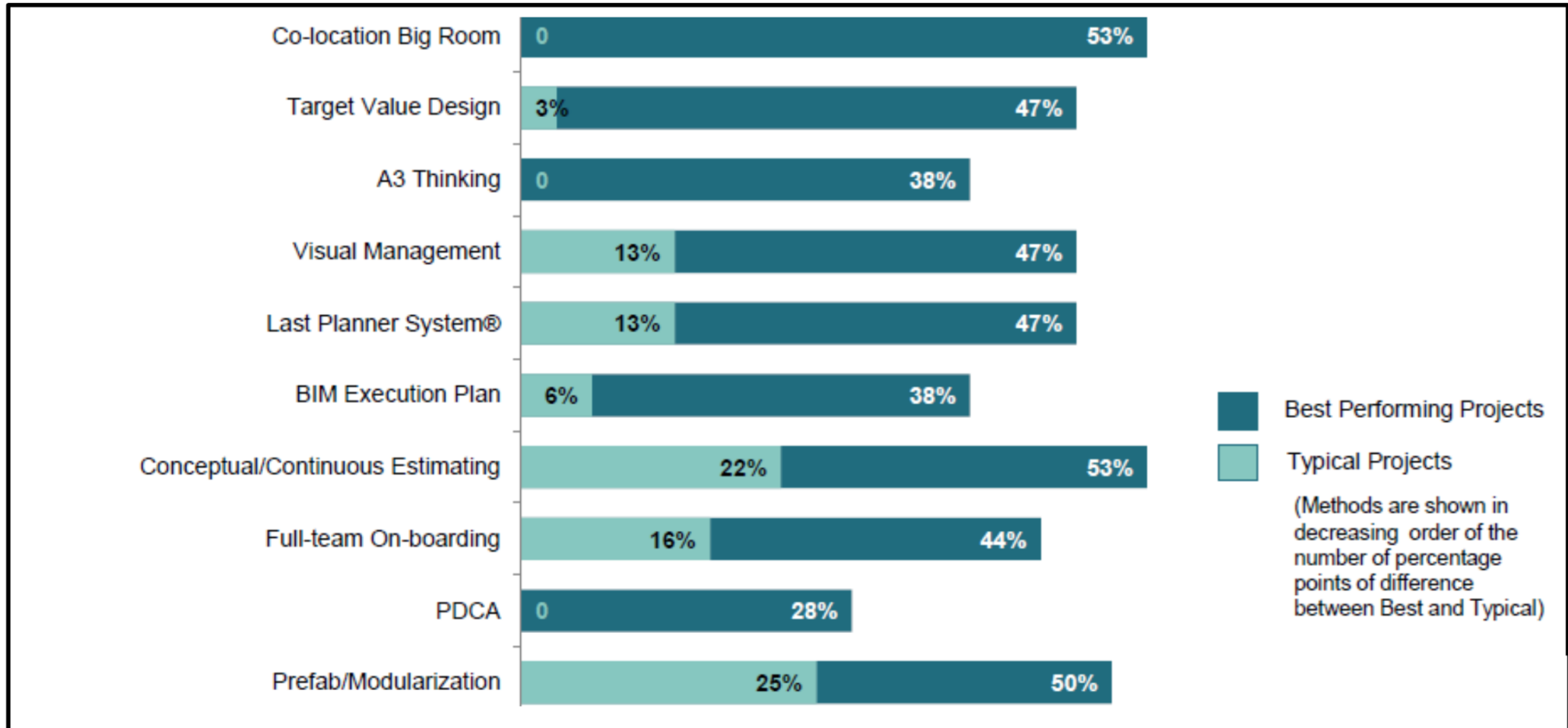
Source: McGraw-Hill (2014)

Variance of Estimated Schedule and Cost at Construction Start vs Completion



Timing of Key Stakeholder Engagement (Typical/Best)



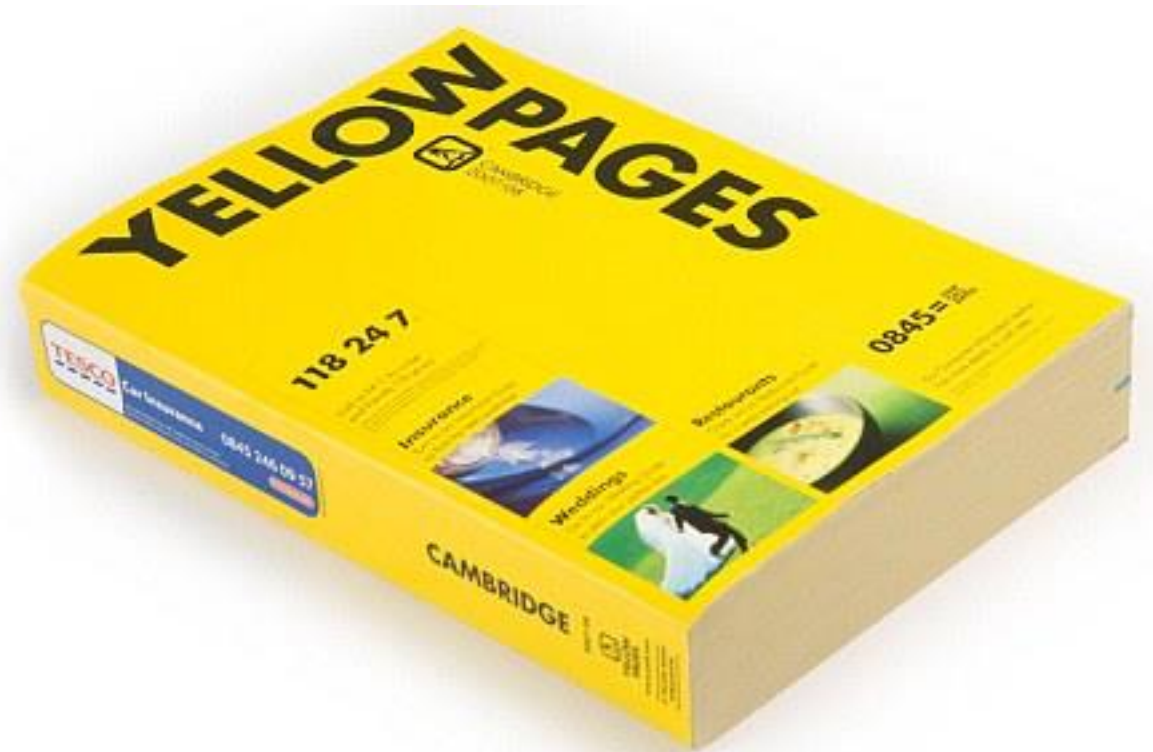


Industry Trends

Google

Google Search

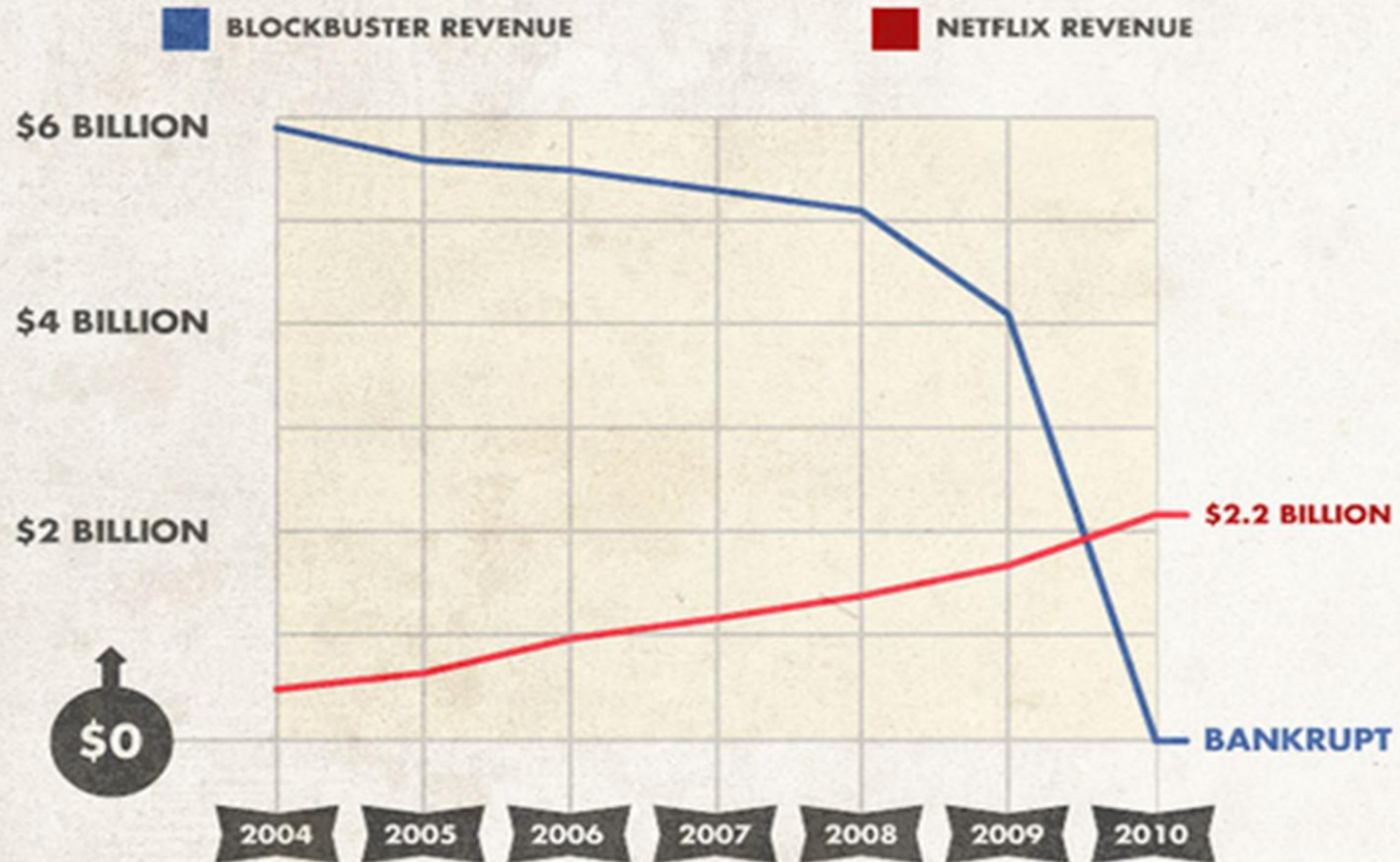
I'm Feeling Lucky







NETFLIX VS. BLOCKBUSTER (2004-2010)





**TOWER
RECORDS**

Pull vs. Push



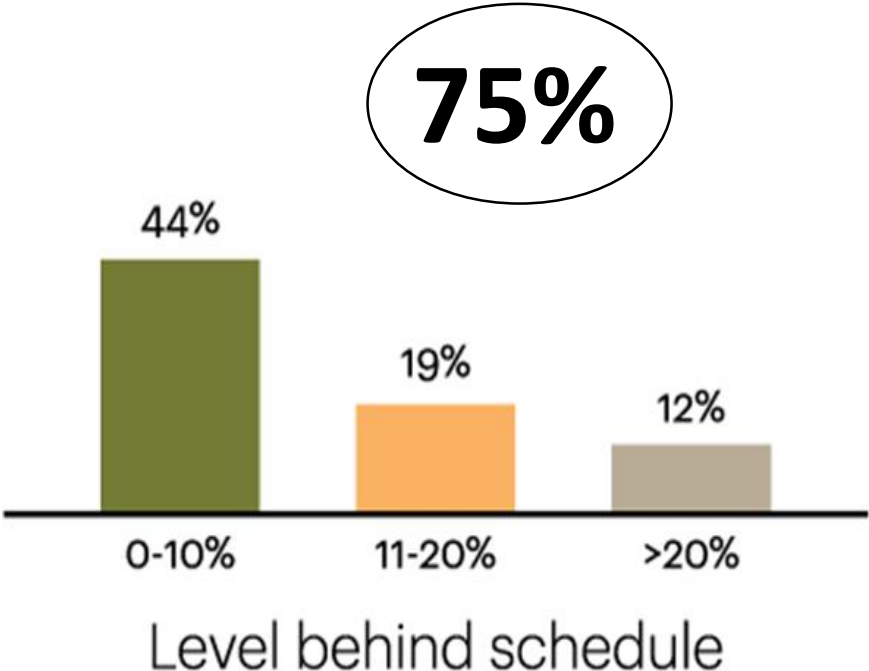
Pull vs. Push



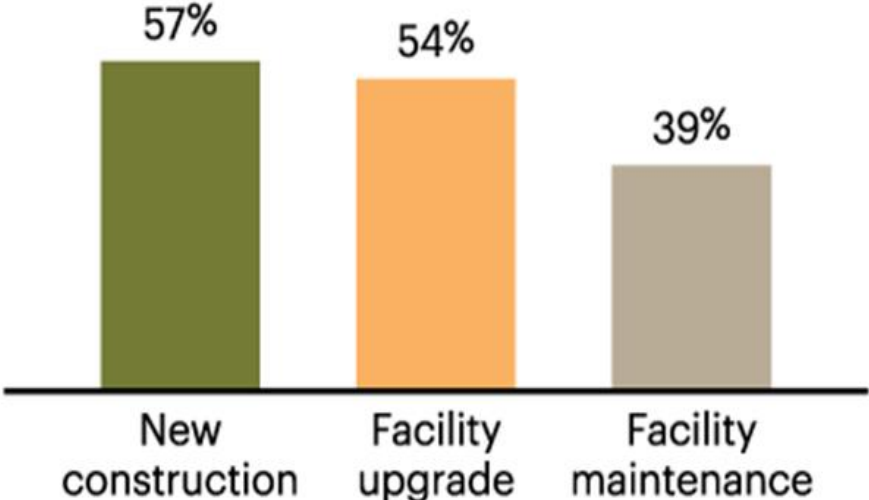
Figure 3

Capital projects' schedule performance

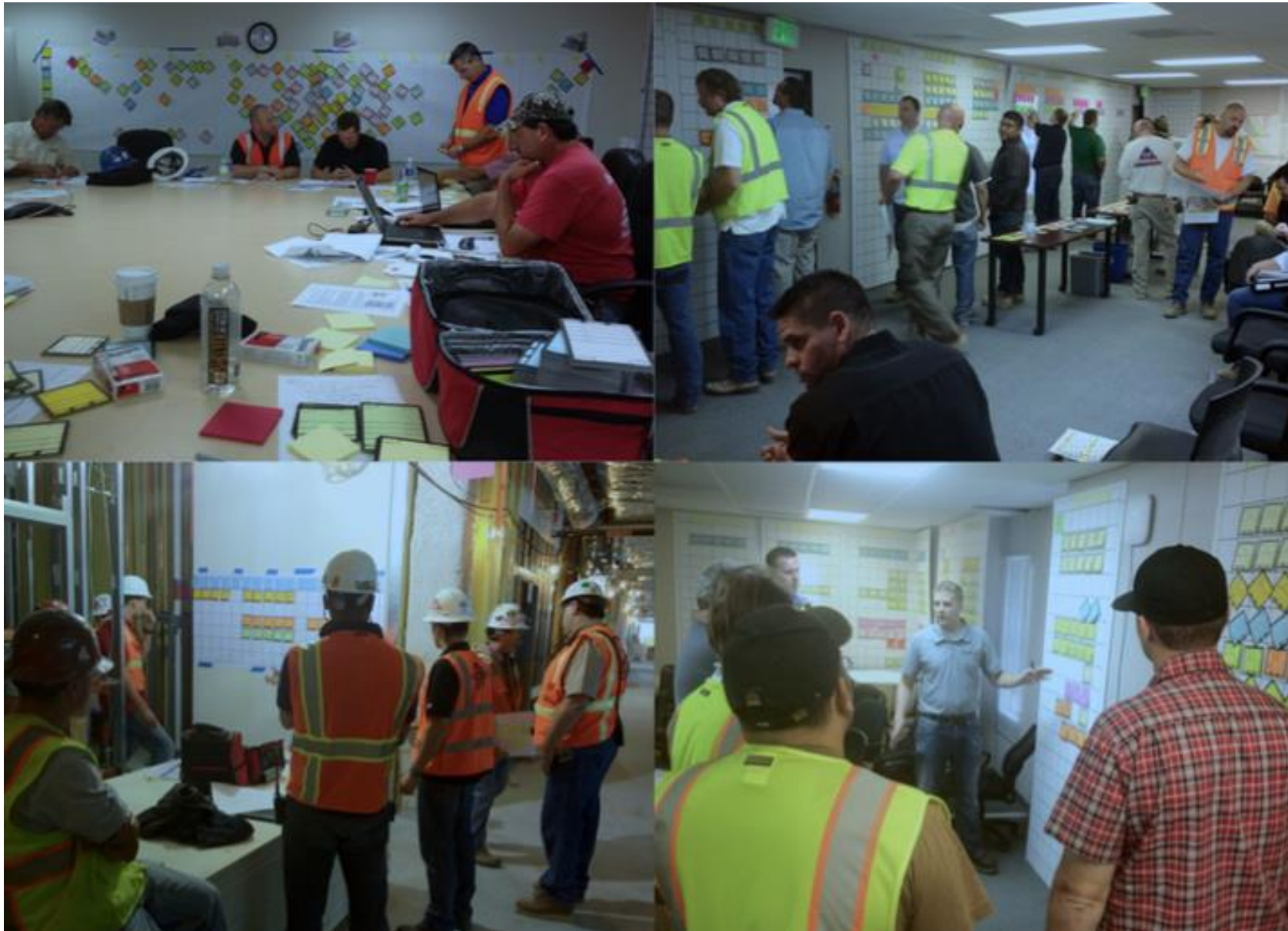
% of projects

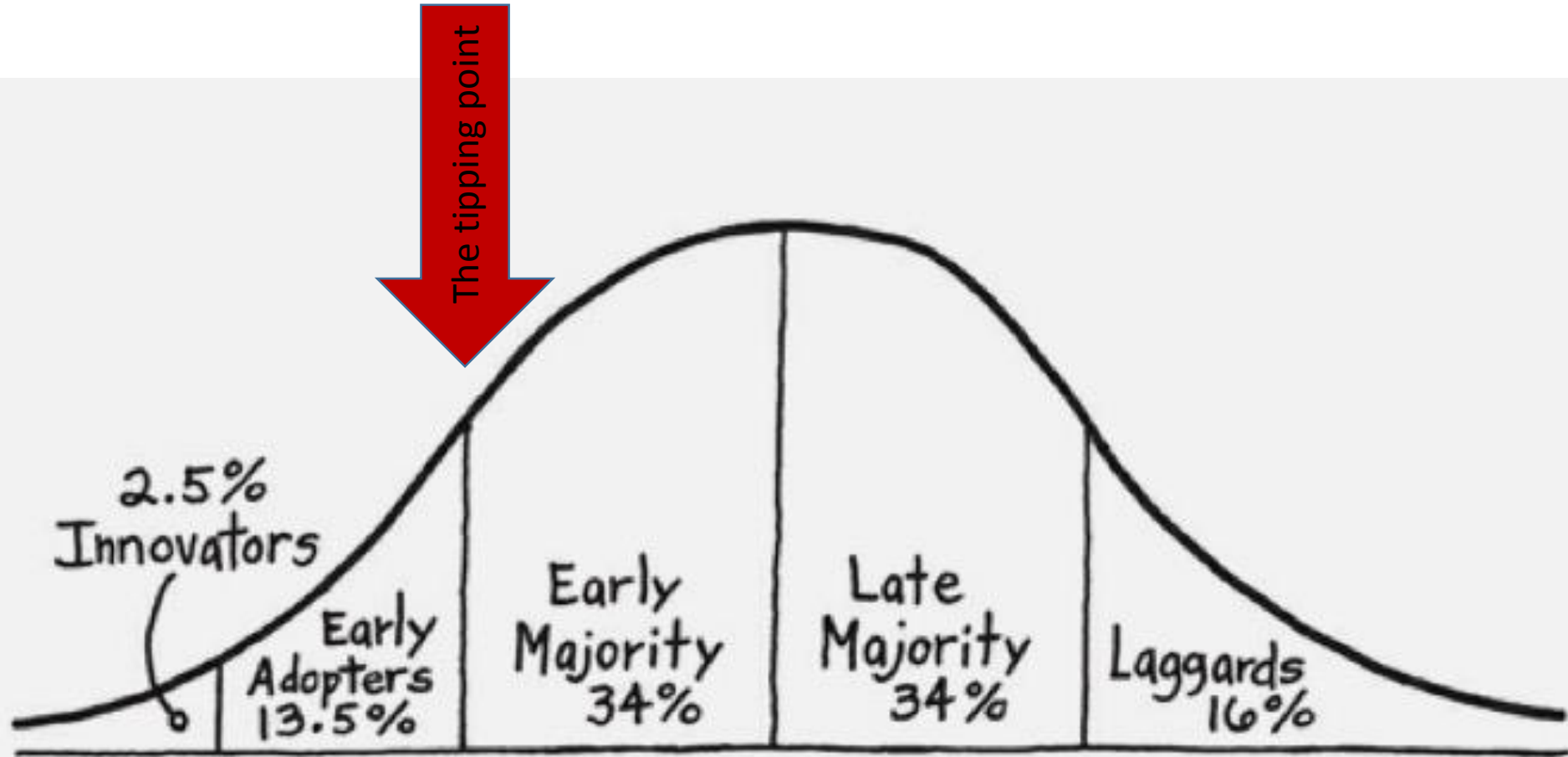


Projects behind schedule
(%, by project type)



Source: A.T. Kearney Excellence in Capital Projects II study, 2012

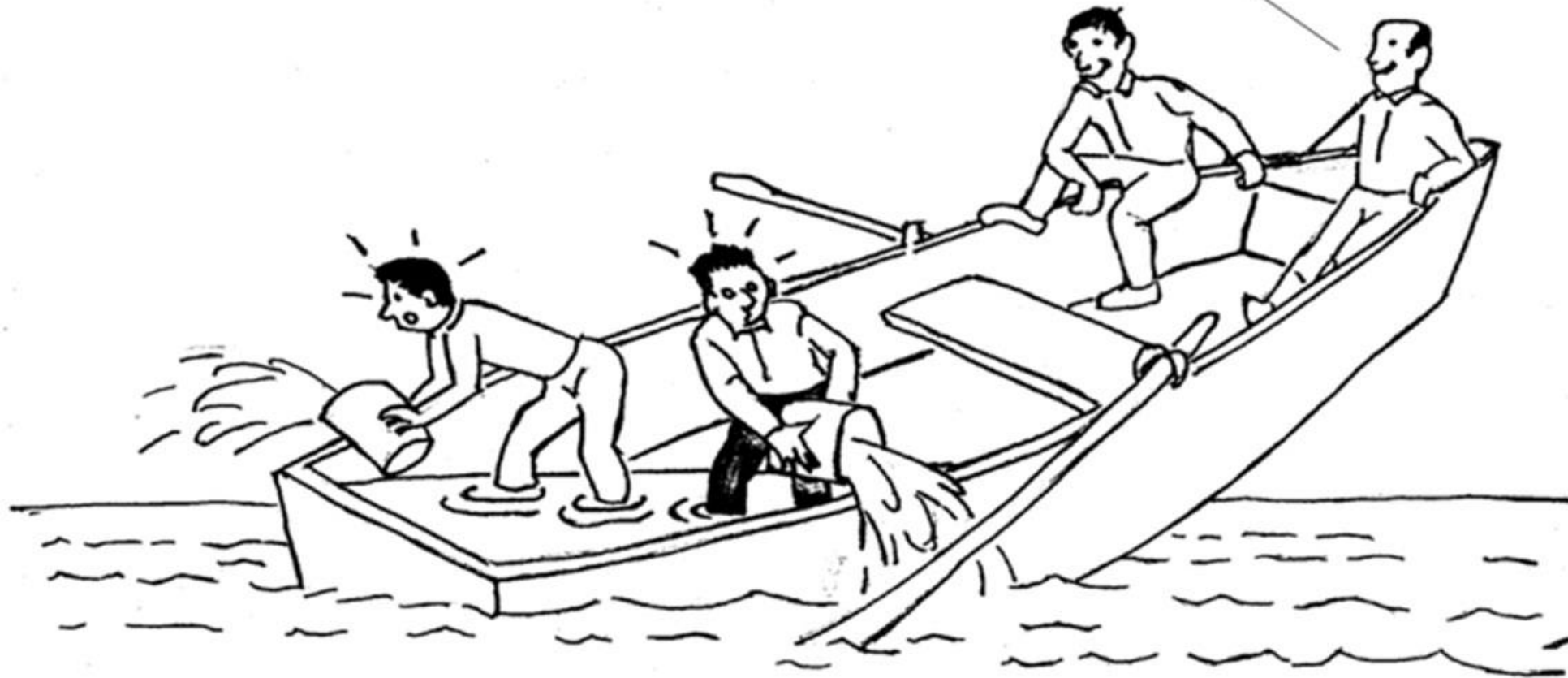




The Challenges



Sure glad the hole isn't at our end.



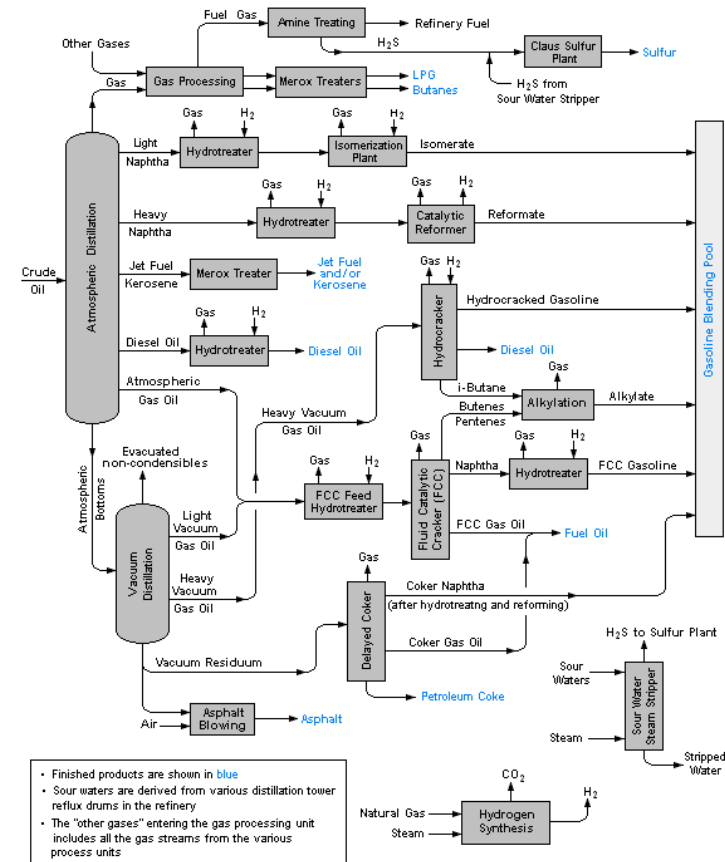


Firefighting Mentality



*If you fail to
plan, you plan
to fail!*

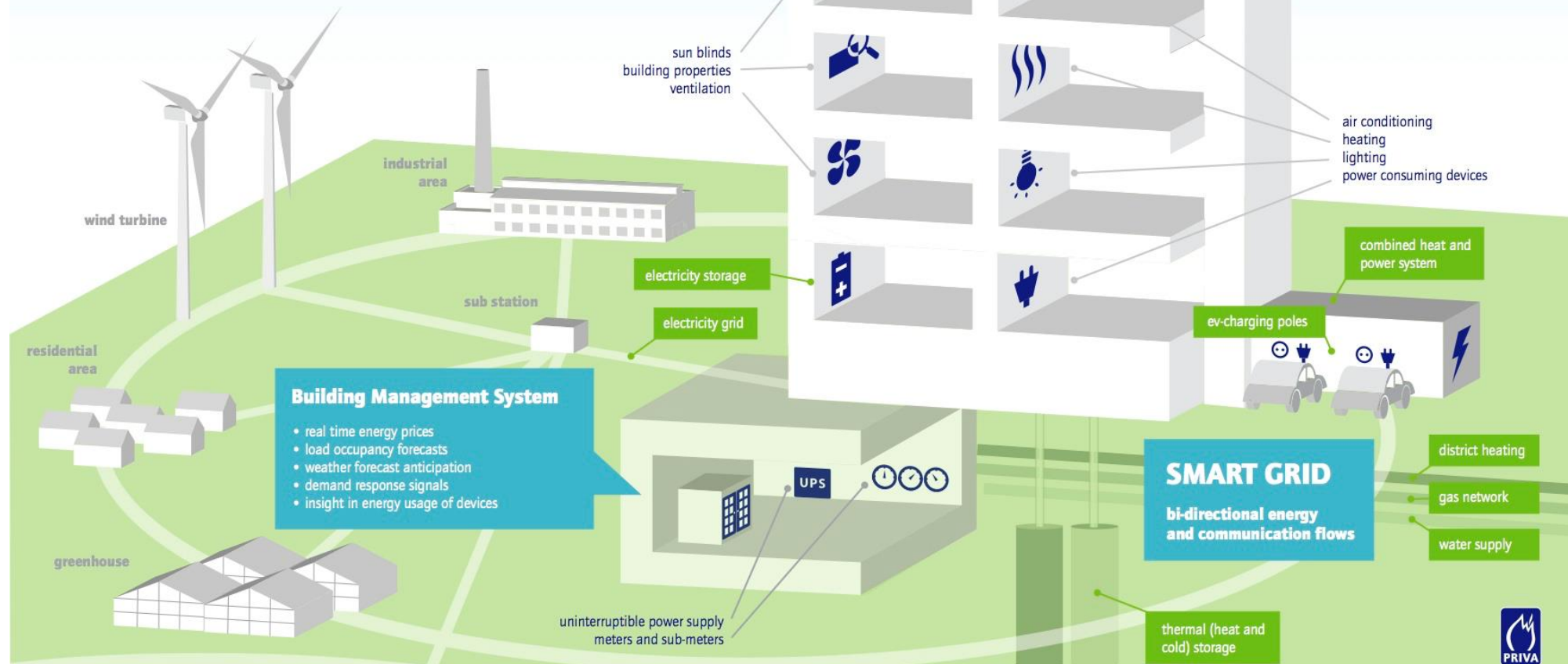
Complex vs complicated world



SMART BUILDINGS CONNECTED BY A SMART GRID

Benefits of increased building performance

- cost savings
- comfort optimization
- increased flexibility in energy demand
- CO₂ reduction



Not Setting Challenging Targets

- Small goals rather than aspirational goals. People will stop if they meet the goal.



The Death Knell of an Organization

We have
always done
it this way.



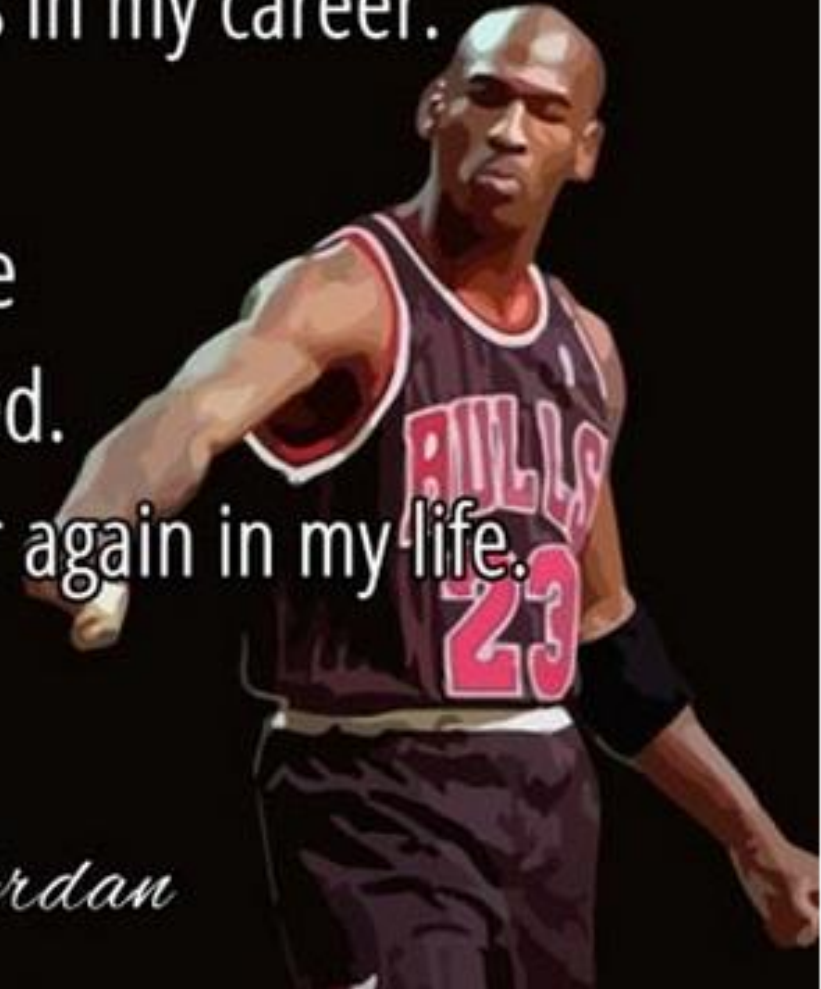
THE PATH FORWARD

Changing Organizational Culture and Leadership

“In the beginner’s mind there are many possibilities; in the expert’s mind there are few.” - Shunryu Suzuki

I've missed more than 9000 shots in my career.
I've lost almost 300 games.
26 times, I've been trusted to take
the game winning shot and missed.
I've failed over and over and over again in my life.
And that is why I succeed.

- Michael Jordan



“Perfection means things are working exactly the way we should expect them to work, desirable or not.” – S. Chris Edmonds

What is Culture?

“Organizational culture represents the organization's vision, values, norms, systems, symbols, language, assumptions, beliefs, and habits.” - Wikipedia 2016

Why Culture Matters



- The assumptions and beliefs of employees drive behavior.
- The collective behavior of employees determines results.
- The results measure performance and indicate if strategic business objectives have been achieved.

Definition/Alignment of Culture

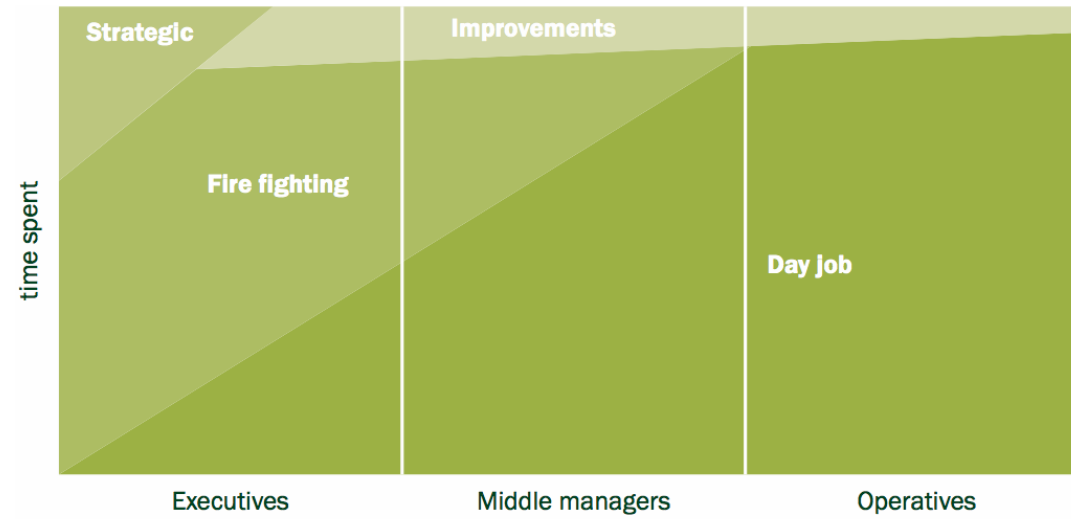


“If you want to eliminate negative behaviors, decisions and actions in your organization’s culture, you must change what gets reinforced.” – S. Chris Edmonds

Different skill sets

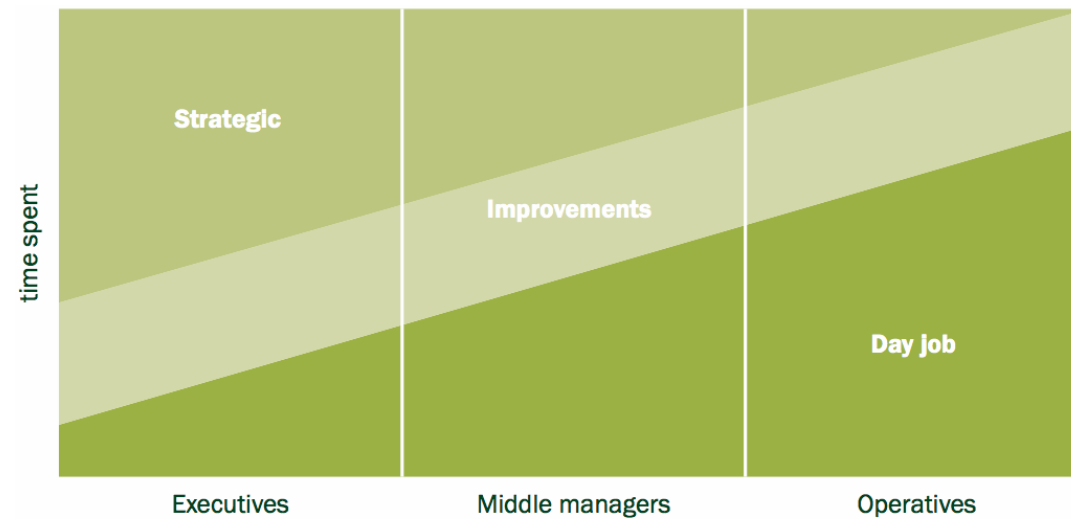


The typical organisation



Source: Claus Nesensohn

The sustainable organisation

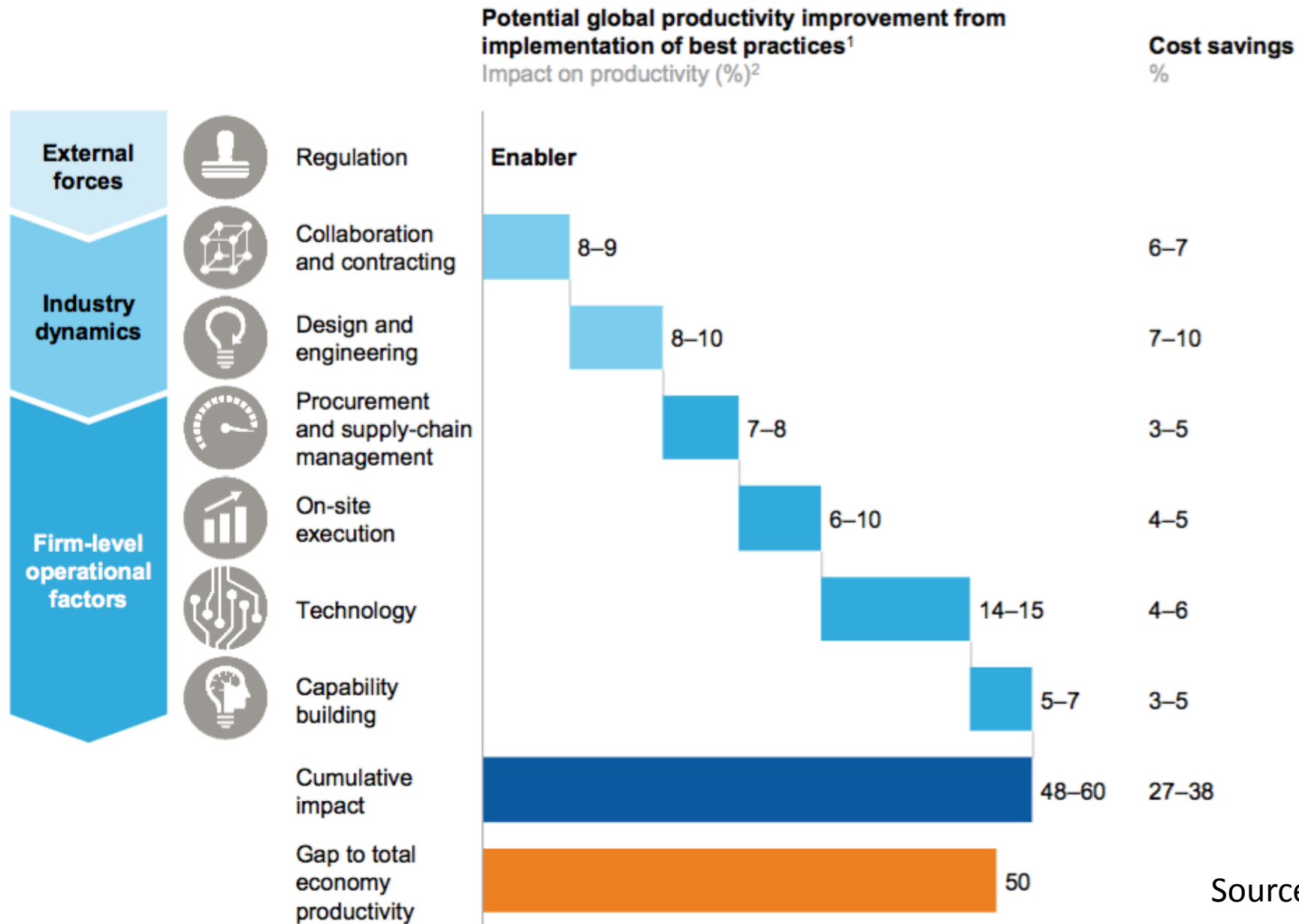




**Action in seven areas
can boost sector
productivity by
50–60%**

- Reshape regulation
- Rewire contracts
- Rethink design
- Improve procurement and supply chain
- Improve onsite execution
- Infuse technology and innovation
- Reskill workers

Source: McKinsey (2017)



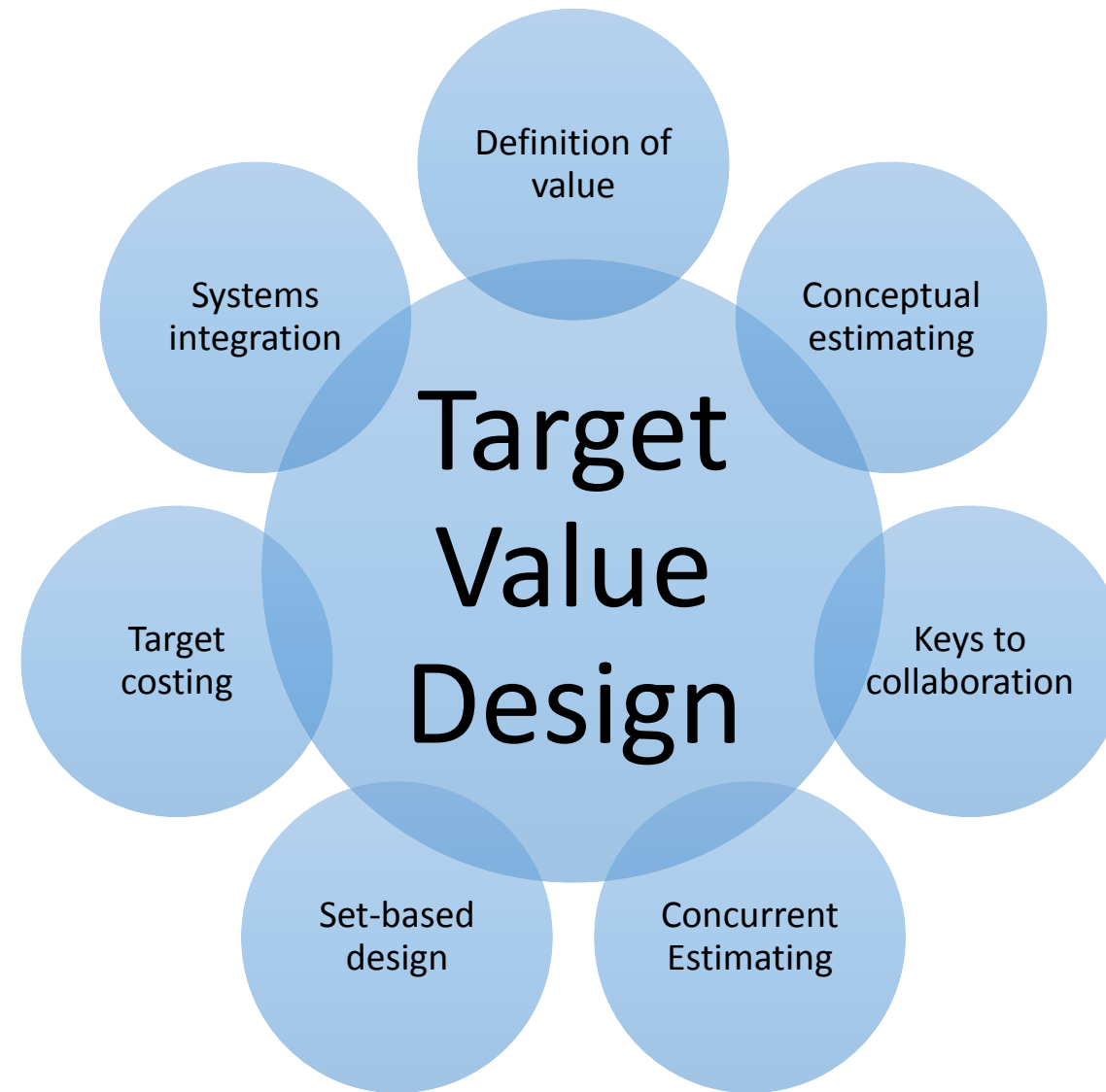
Source: McKinsey (2017)

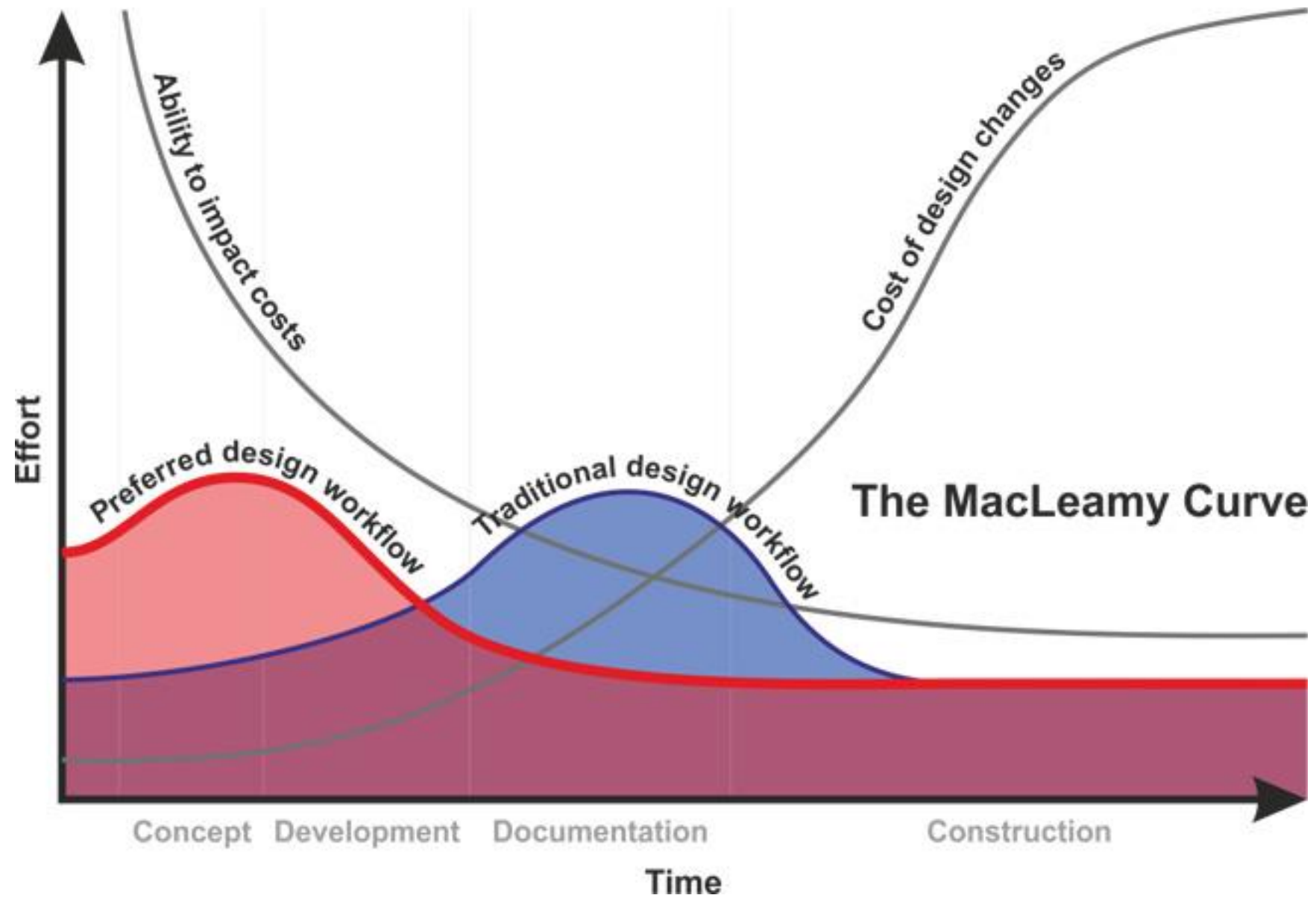
What is the Number One Builder
and Owner Complaint?

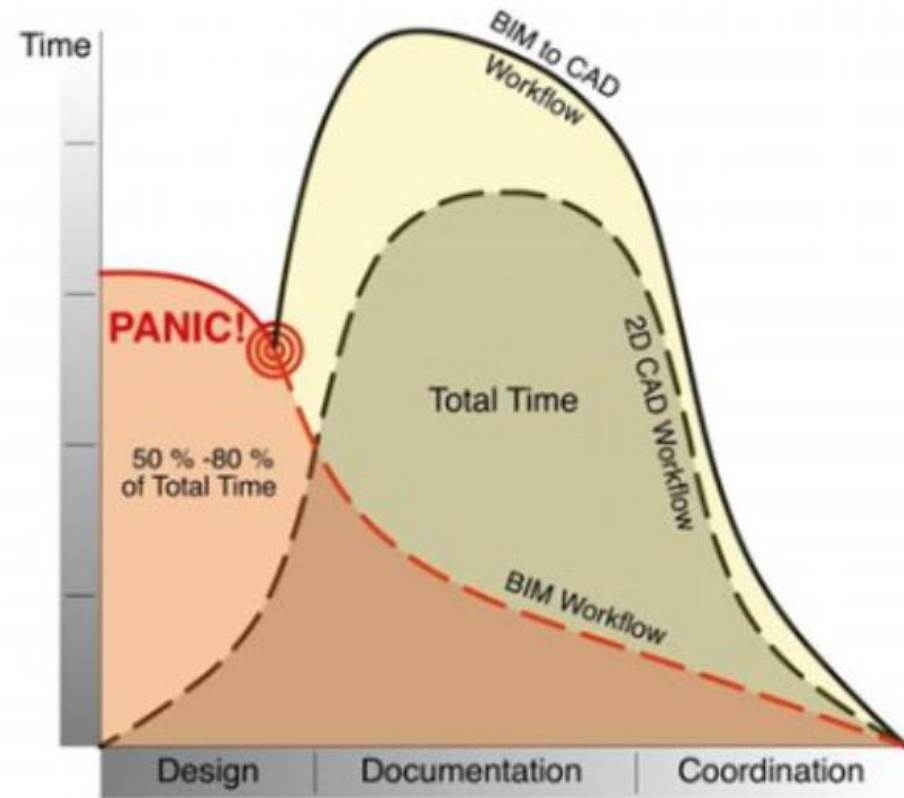
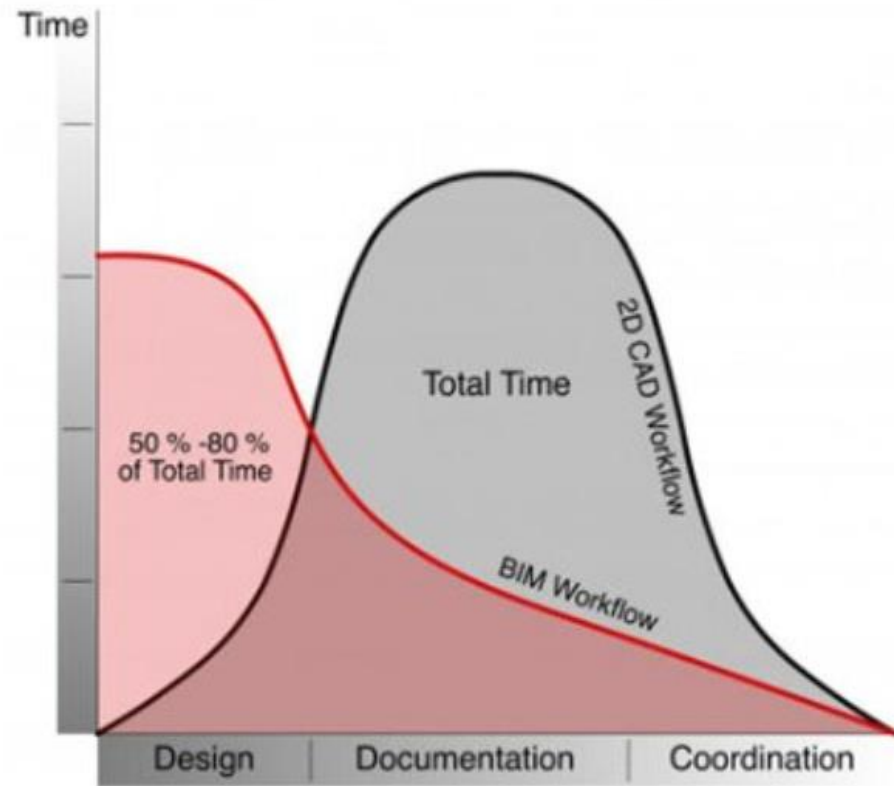
**The Design Management
Process!!!**

Countermeasure: Last Planner® in Design









Source: Nikunj Patel

Dan Pink on Motivation



WHEN A TASK GETS MORE COMPLICATED, IT REQUIRES SOME CONCEPTUAL, CREATIVE THINKING.



3 FACTORS LEAD TO BETTER
PERFORMANCE & PERSONAL
SATISFACTION...

AUTONOMY
MASTERY
PURPOSE



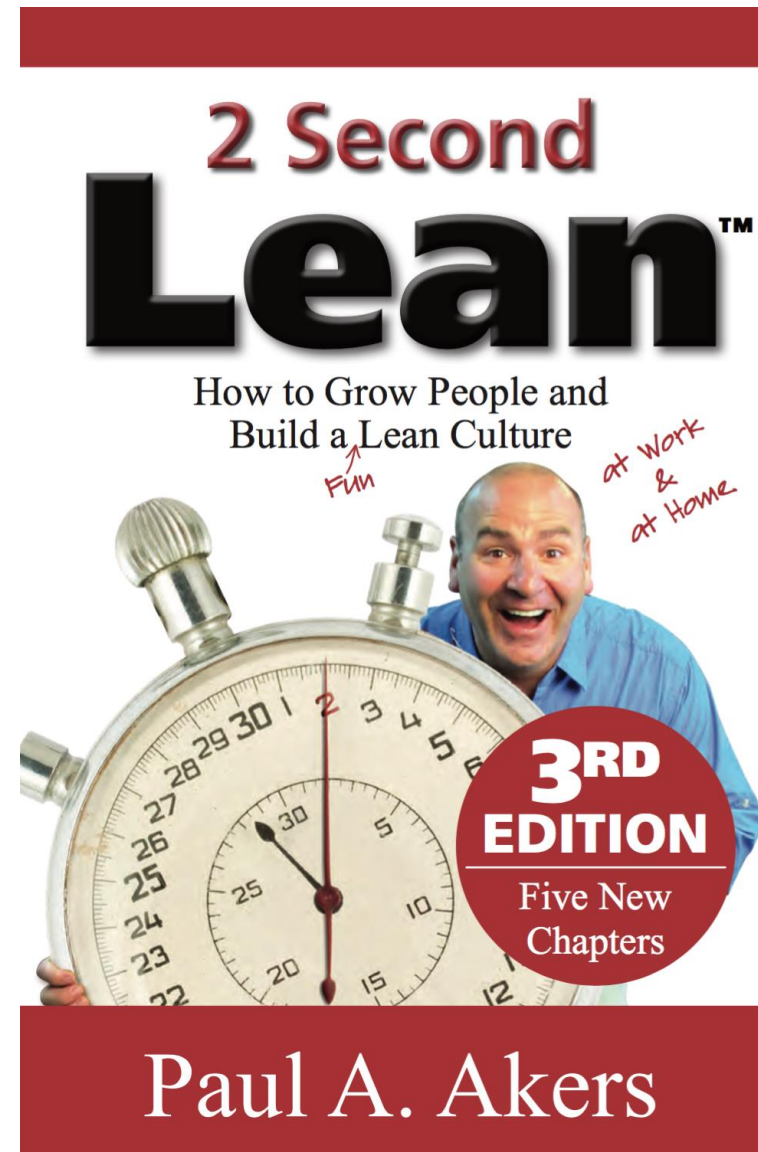
“People don’t buy what you do. They buy **Why** you do it.” – Simon Sinek

Servant Leadership

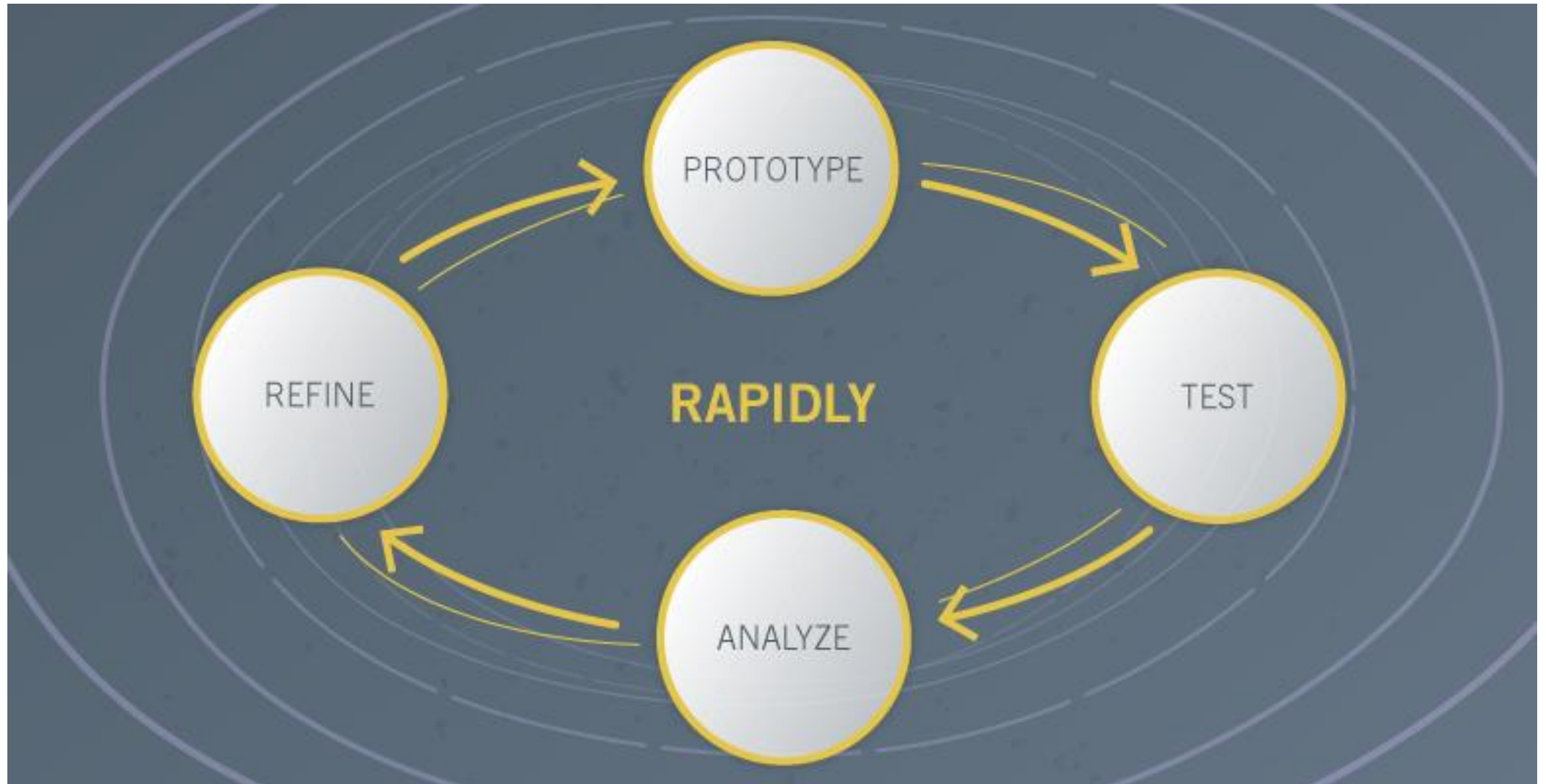
“What do you need from me to to do your job?”



Getting Better
Every Day



Lessons from the Other Industries



HOW RAPID PROTOTYPING WORKS...

1. discussion of operating context



inputs from our proprietary intelligence process informs initial interactions on the business, product considerations

2. framing the product challenges



we take our advanced research, match that up with live discussions to then understand product roadblocks and opportunities

3. human roles, responsibilities & visions



all of that defines the archetypes needed for product success, meaning the who, the what and the why of a rollout and go-to-market strategy

4. creative ideation sessions



now things get really fun: we use various types of storytelling and open design approaches to actually create the desired product(s)

5. testing ideas through scenarios



putting those creative executions through a rigorous set of logically-assembled outcomes is where the rubber meets the road...

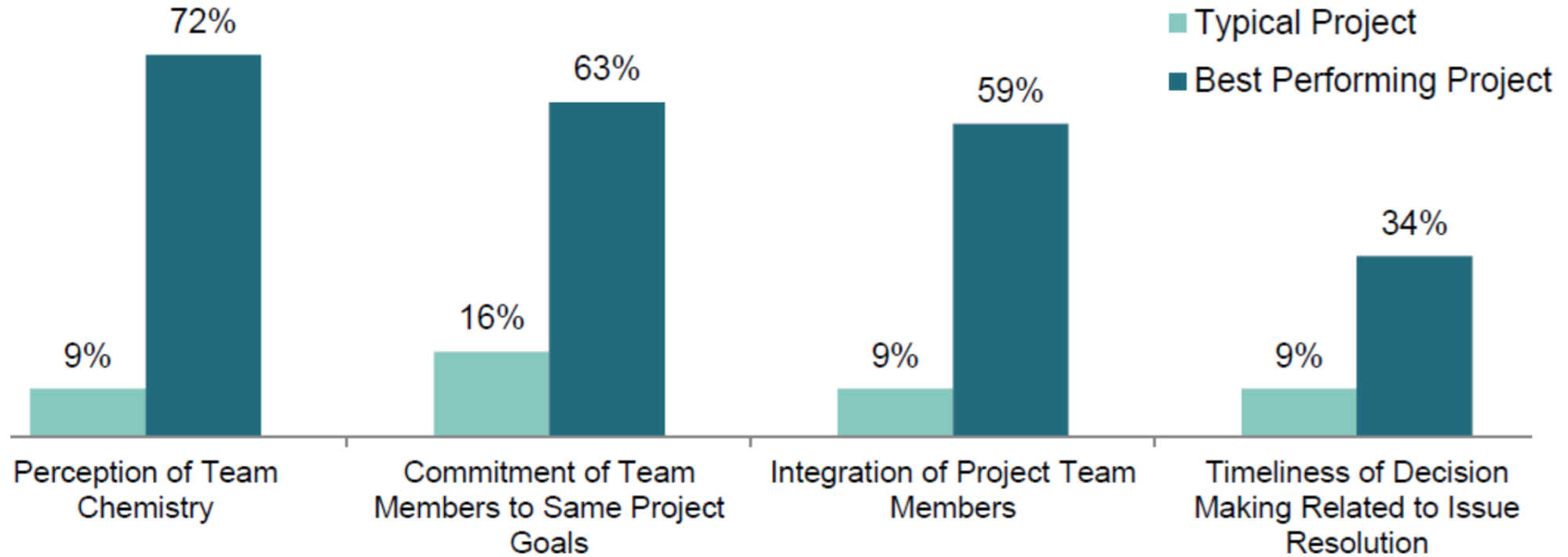
Reinventing the Supply Chain







Percentage Reporting the Highest (4/4) Team Dynamics Ratings (Typical/Best)



Team of Teams





David Umstot, PE, CEM
Umstot Project and Facilities Solutions, LLC

david.umstot@umstotsolutions.com

www.umstotsolutions.com

619- 201-8483 (O)