

CONSTRUCTING VALUE

Partnering with Owners to Create Project Excellence and Enhance Profitability

Transforming the worldwide building and construction industry
through **revolutionary innovation.**

www.ContinuumAG.com

About Continuum Advisory Group

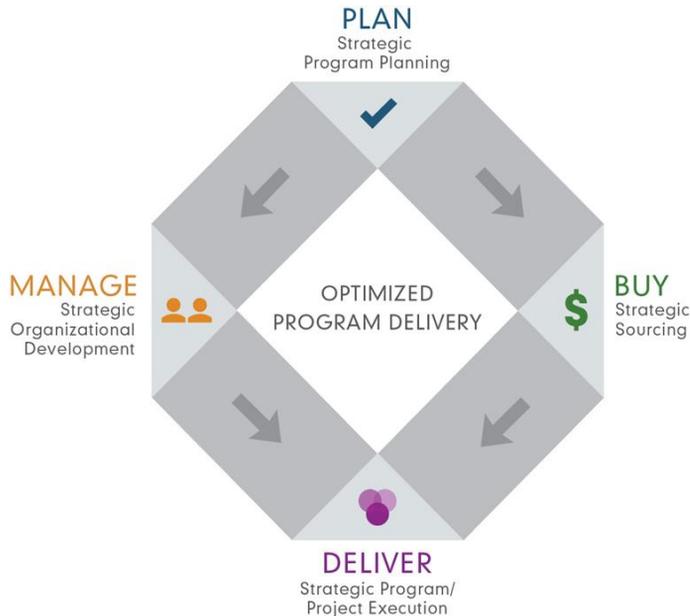
- ▶ We are a management consulting firm working exclusively with the stakeholders of the construction industry to ensure that organizational and relational strategies are in place to achieve success.
- ▶ We help owners plan, manage, buy and deliver capital construction programs to optimize program delivery and the value received for capital spending.
- ▶ We help architects, engineers and contractors understand how to position their services as high-value to owners.

Vision

- ▶ Transforming the worldwide building and construction industry through revolutionary innovation.

Optimizing Capital Program Delivery

We believe that in the delivery of capital programs, four areas of program execution are critical to success:



- ▶ The development of a **Plan** that is linked to the overall corporate strategy and creates an organization optimized to execute the plan is critical.
- ▶ **Management** of internal resources must be done to support the overall strategic objectives and provide the tools, training and systems needed for internal staff to be successful.
- ▶ The **Buying** of outside services must be strategic and focus on generating the most value from contractors.
- ▶ **Delivering** the program requires the integration of external and internal resources to deliver on the program objectives while having the measurements in place to monitor and drive performance.

Recent Owner Studies

2014	<p>The Past, Present and Future of Capital Construction A two-part qualitative study exploring economic cycles and key owner trends in capital asset construction with a focus on identifying the key issues of the next decade</p>	
2016	<p>Insights to Leading an Agile Capital Program Focused upon the trends of increasing volatility, doing more with less, the challenges of managing change and organizational agility as a solution</p>	
2016	<p>Order Takers or Value Creators: Engineering, Construction and Facilities Groups as Critical Drivers of Organizational Performance Focused upon the changing role of engineering, construction and facilities maintenance departments in meeting strategic corporate objectives and serving the business units</p>	
2017	<p>Excellence in Total Project Performance: Differentiating High Performing Owners A quantitative and qualitative study of the characteristics of excellence in capital asset construction projects, teams and owner organizations</p>	

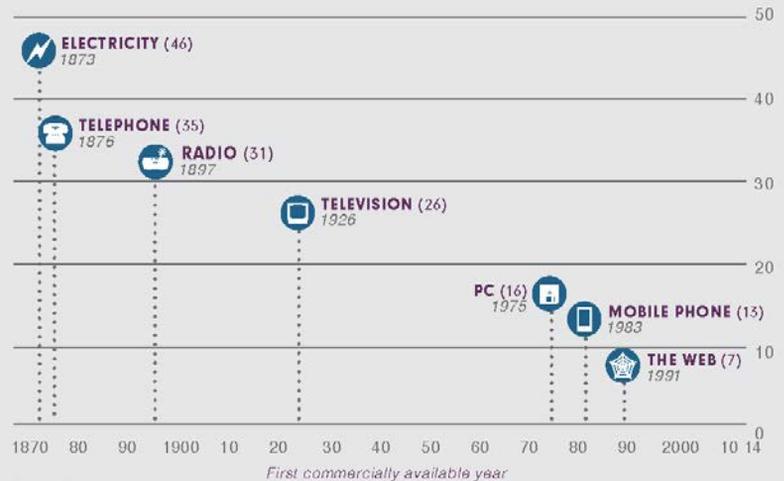
The Ever-Accelerating Speed of Change

New technology is accepted and adopted at ever-increasing rates

- ▶ **THE TELEPHONE** took 35 years to achieve 25% adoption
- ▶ **MOBILE PHONES** achieved 25% adoption in 13 years
- ▶ **THE INTERNET** achieved 25% adoption in a mere 7 years

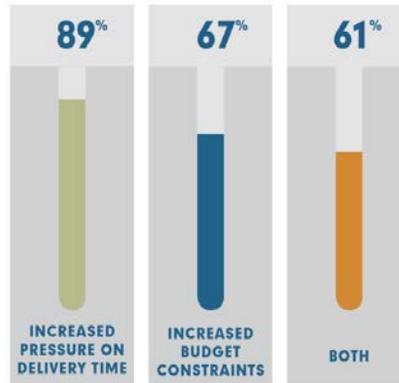
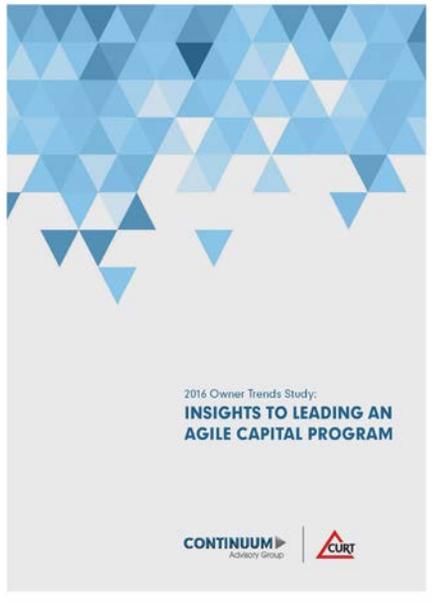
TECHNOLOGY ADOPTION

Years until used by one-quarter of American population



Source: Singularity.com

2016 CURT Owner Study Insights to Leading an Agile Capital Program



"This study brings a valuable focus to how organizational agility is helping industry firms succeed as the pace of change accelerates. To learn more about how leaders are coping and thriving – read on!"

– Janice L. Tuchman, Editor-in-Chief,
Engineering News-Record



2016 CURT Owner Study Preparing for Change

OVER THE PAST FEW
YEARS, HAS SPEED
& RATE OF CHANGE
INCREASED?

94%
YES



DO YOU THINK
YOUR COMPANY
IS PREPARED
FOR CHANGE?

83%
YES

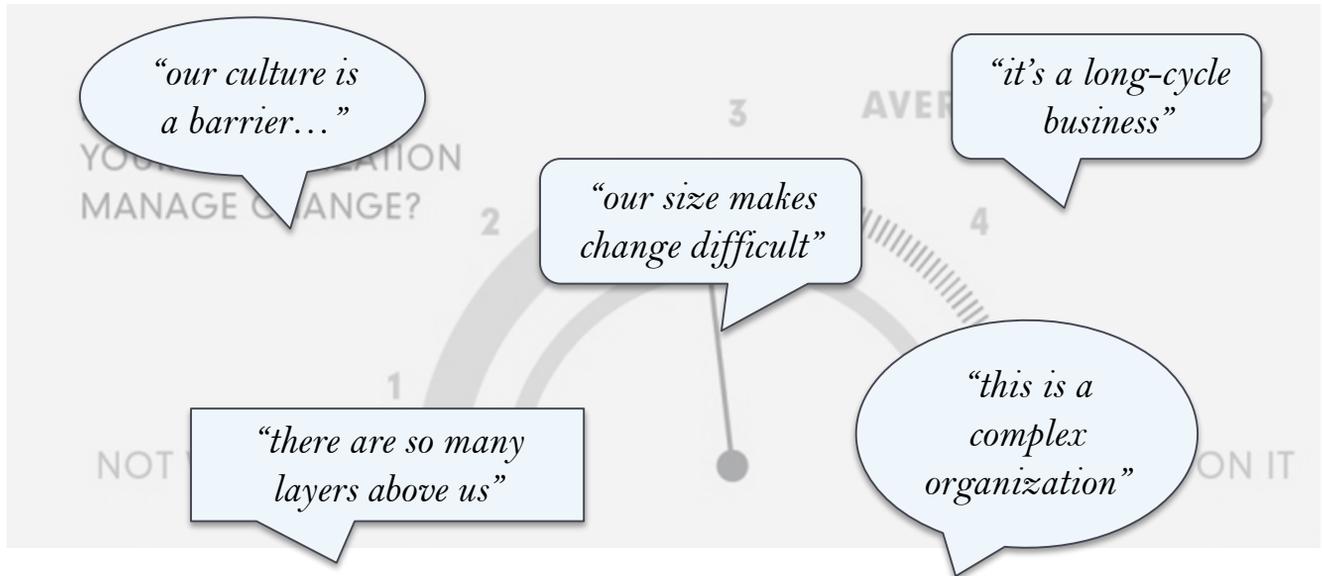




33% FEEL THEY ARE MANAGING CHANGE WELL

2016 CURT Owner Study

Managing Change



33% FEEL THEY ARE MANAGING CHANGE WELL

2016 CURT Owner Study

Organizational Agility

- ▶ Organizational agility is commonly defined as the capability of a company to rapidly change or adapt in response to changes in the market

“HOW WOULD YOU RATE YOUR COMPANY ON ORGANIZATIONAL AGILITY?”

61% OF THE OWNERS WE SURVEYED RATED THEIR ORGANIZATION AS SOMEWHAT AGILE.



What owners are saying about creating agility:

- Employee empowerment
- Scenario planning
- Streamlining processes
- Mental shifts: accepting change, being ready to move
- “It’s all about simplification”
- Cultural shifts: agile work environments breed collaboration
- Partnering with contractors that are advancing innovation and productivity

What contractors are saying about agile owners:

- Push responsibility down to the local business unit
- People onsite are empowered to solve problems
- People at all levels feel connected to the success of the project – they work harder
- Issue prevention... and quicker reaction when issues arise
- Focus on creating a culture of innovation

Strategies for Application



**SCANNING
and PLANNING**

1



**STREAMLINING PROCESSES
and EMPOWERING EMPLOYEES**

2



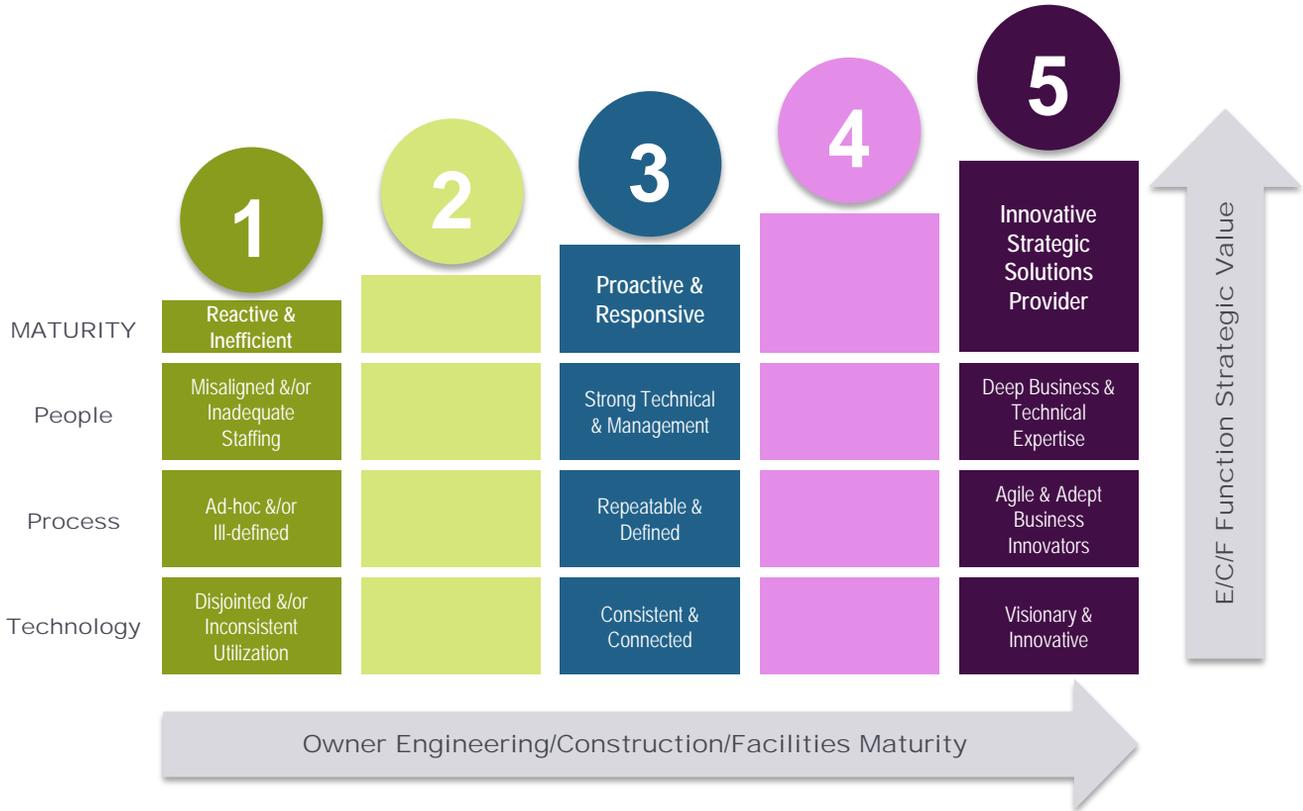
**PARTNERING
for INNOVATION**

3

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Order Takers or Value Creators?



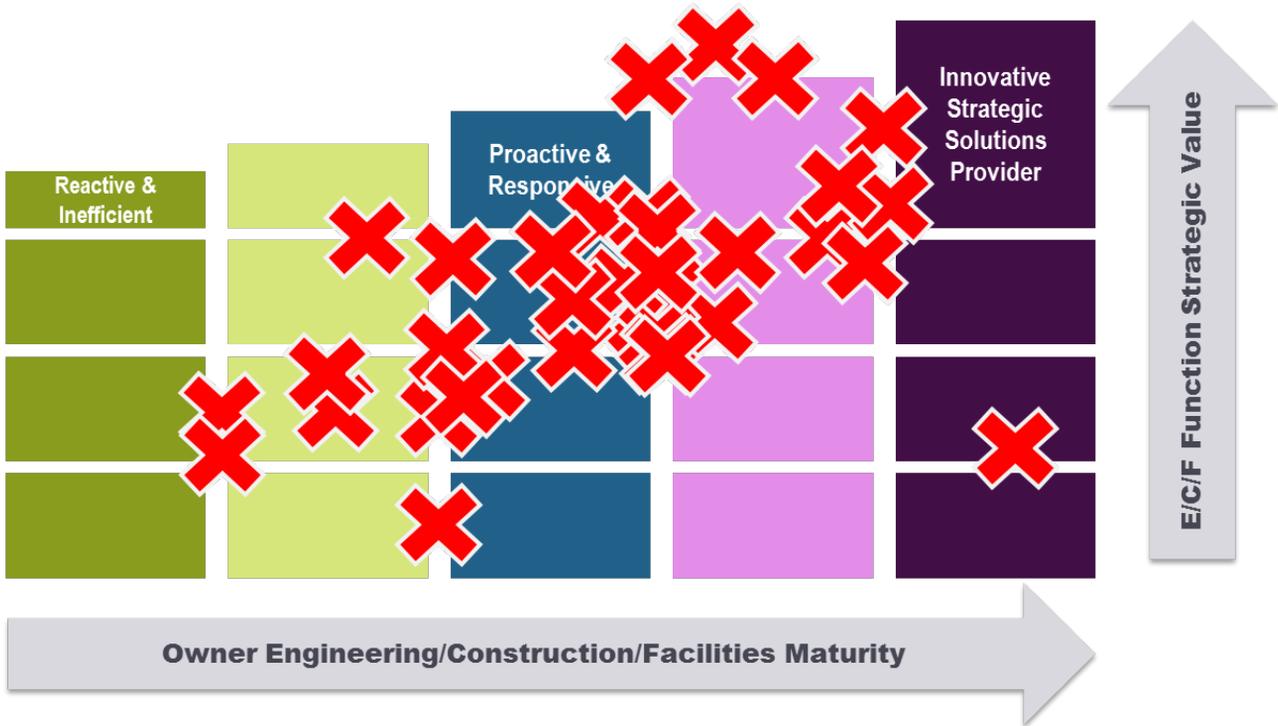
- ▶ The relationship between E/C/F departments and the organizations they serve is changing dramatically
- ▶ A technically competent E/C/F function which delivers requested projects safely, on time and on budget is not enough for organizations to remain competitive
- ▶ E/C/F must be engaged in developing strategic business solutions if an organization is to compete in today's fast-changing and highly competitive markets
- ▶ There are specific strategies and tactics that contribute to gaining a strategic seat at the table with the senior management of an organization

Order Takers of Value Creators? (2016 CII) Study Participants



Order Takers of Value Creators? (2016 CII)

E/C/F Maturity Scale



2016 CII Owner Study

Eight Key Themes

Identify your current position on the maturity scale, your desired position, and your migration strategy.

Invest in understanding the needs of your internal business clients.

Drive towards innovation and agility in support of corporate objectives.

Create a culture of innovation and accountability to corporate results.

Measure the value that innovative capital program delivery creates.

Communicate how each person serves the needs of the organization.

Benchmark, benchmark, benchmark – continuous improvement is key.

Engage your service providers in innovating for success.

2016 CII Owner Study

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“We can link the execution of the capital program and its projects directly to return on investment and earnings, which correspondingly supports our growth plans. It is the way we ensure that our capital program is supporting the financial objectives of the enterprise.”

– *Ron May, Executive Vice President,
DTE Energy*

“Our CEO has made it clear that ‘hoarding’ capital dollars or unreliable capital budgeting DOES hurt the bottom line – and in fact in recent history cost us \$.02/share during a stock repurchase. We MUST understand our impact on corporate objectives, now more than ever.”

– *Anonymous Respondent*

“We’ve taken the step of educating every employee, to the inspectors in the field, on how their work, their actions on any given day, support the financial objectives of the organization. The training has been very well received – we plan to expand it.”

– **Brad Hasty**, *General Manager, Engineering & Project Management, Questar Gas*

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Study Purpose

- ▶ Provide research related to the 2017 conference theme: *Excellence in Total Project Performance*
- ▶ Understand the challenges facing owners related to optimizing capital program delivery
- ▶ Delve into how owner A/E/C partners can understand these issues and collaborate on solutions

Excellence in Total Project Performance (2017 CURT) Study Team



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 Continuum Advisory Group

Survey of Owners

Interviews with Select Owners

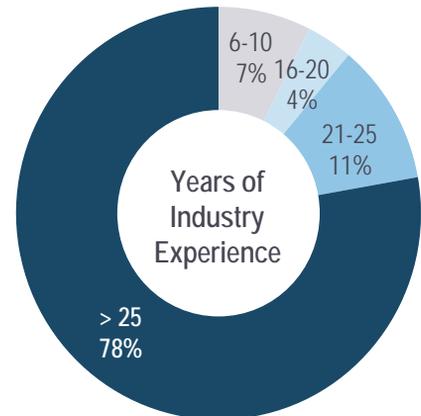
Virtual Roundtable Discussions

▶ 36 People

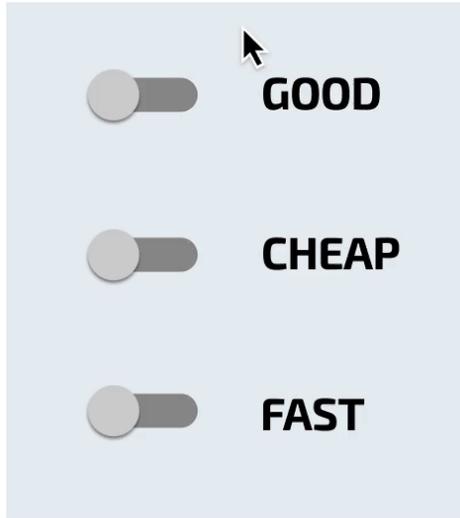
- Project Managers, Construction Managers and Engineers
- Directors, Leaders, Chiefs and Heads of Capital Construction

▶ 28 Owner Organizations

- Representing various industries: manufacturing, utilities, natural resources and mining, information (IT), real estate, healthcare, leisure and hospitality, government



- ▶ All firms define project excellence in the same terms: cost, schedule, quality and safety

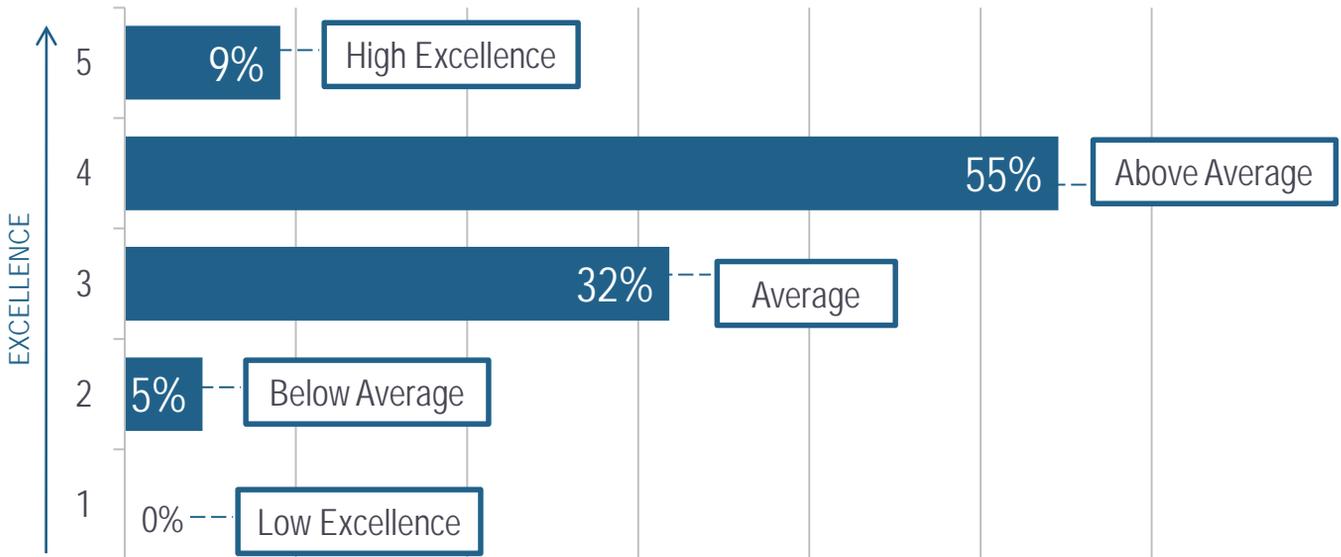


“At the end of the day, we only achieve true excellence if all stakeholders feel that it was a successful project for them. That includes our most important customers – the business units we serve.”

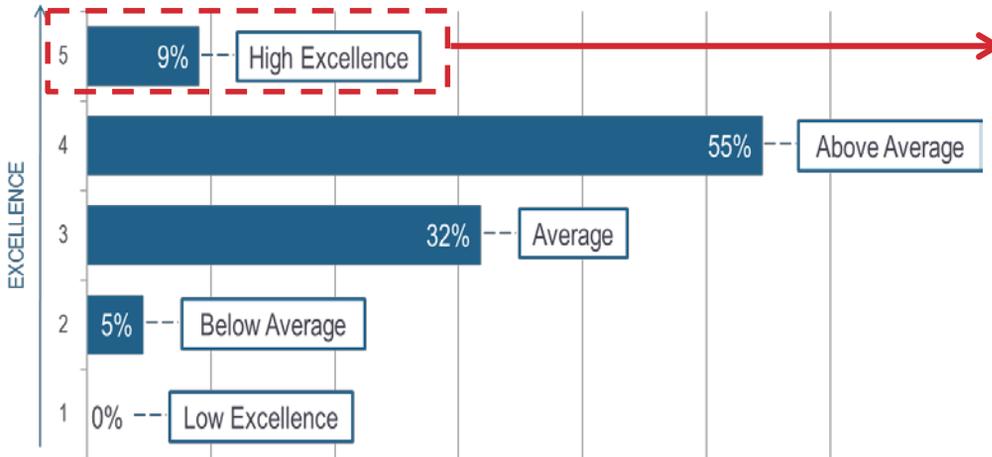
– Michael Mayra,
Construction Group Manager,
General Motors

Study Focus: Project Excellence

How would you rate your organization on excellence in total project performance?

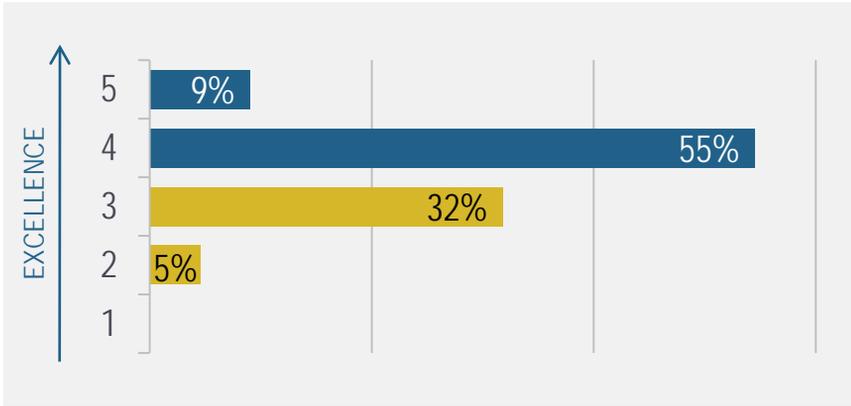


Study Focus: Project Excellence

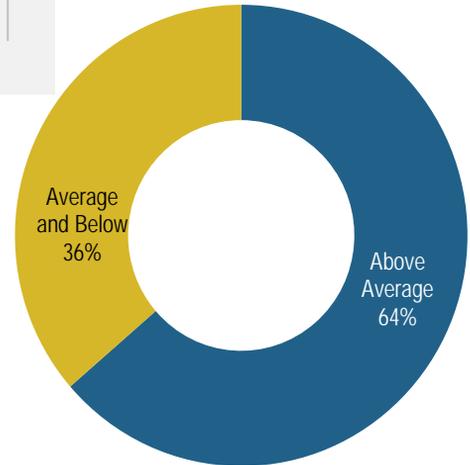


What would it take, as an industry, to get 100% of us to a "5"?

Study Focus: Project Excellence

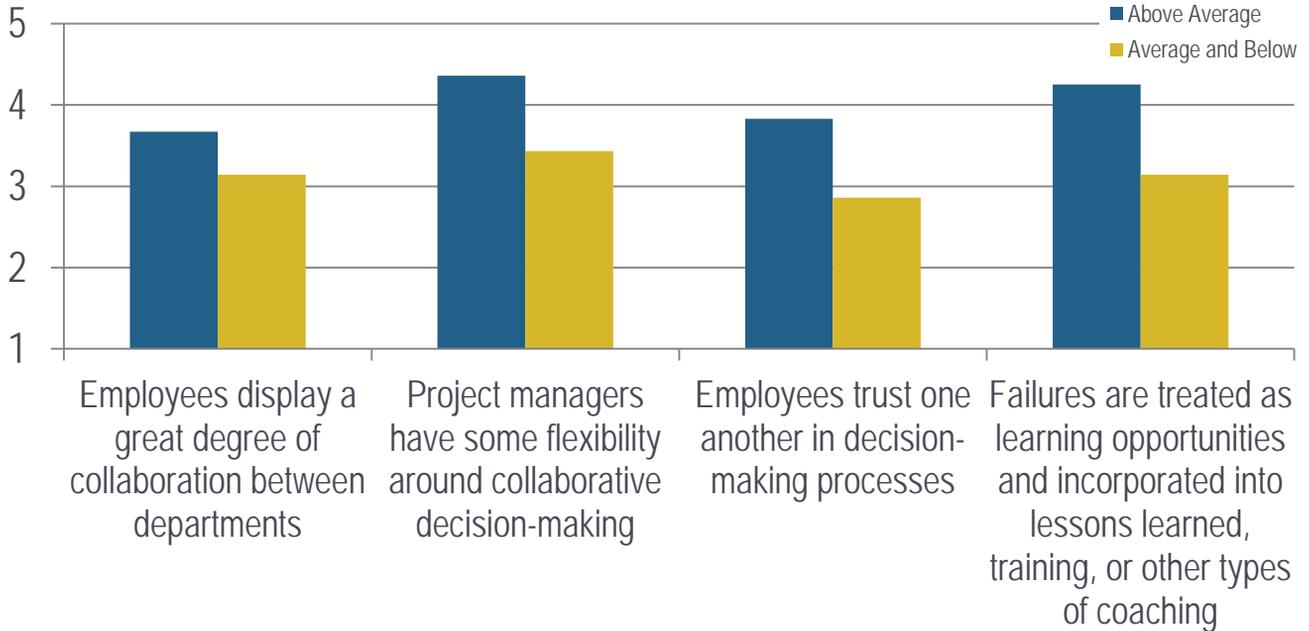


Above Average Companies – What Sets Them Apart?



Excellence in Total Project Performance (2017 CURT)

The Culture Component



▶ Three keys to successful collaboration:

1. Get the right people involved early
2. Get constant feedback throughout
3. Take time to review afterward

“P&G has begun holding Collaborative Design Sessions at the beginning of each project to quickly, efficiently and effectively engage the key project stakeholders as an integrated design team working as one toward a shared vision of project success, innovation and Lean practices. This is the only way we are going to meet aggressive timelines while achieving our safety, quality and cost objectives.”

– Jeffrey Woolf,
Global Construction Manager,
Procter & Gamble

"As a company, we drive a focus on results. The key is successful execution, and people are empowered to get creative in achieving that. When they meet the business need, they're rewarded by the business unit they serve."

– Anonymous Study Participant

▶ **#1: TALENT**

- Finding talent in a competitive market
- The economic lull is about to drain the experience pool; this one is going to be hard to rebound
- Qualified contractor personnel
- Successfully delivering projects with limited or less internal resources
- Timing of major capital projects with workforce availability
- Retaining experience
- Contractor and labor performance
- Managing attrition (departure of "gray hairs") and construction productivity improvement

"We're seeing that smaller firms haven't bounced back from the recession in the same way that the larger firms have. The good small firms are cautious, if not scared, of growing. Our intention isn't just to save money, it's to help whoever we partner with grow their organization as well."

– *Anonymous Study Participant*

▶ #2: IMPLEMENTING CHANGE

- Digital integration
- Implementing a new engineering system
- Keeping the changes we have implemented a priority for supervisors and employees
- Implementing IPD to the full extent
- Bringing stakeholders on "the journey"

Effective innovation happens before the project begins...

"You can't attempt to reinvent the wheel while in the middle of a project; there's a time and a place for innovation and the best time is early on before everything is in motion. Have a critical eye for opportunities to innovate in the early stages."

– *Anonymous Study Participant*

Top Challenges in Achieving Excellence

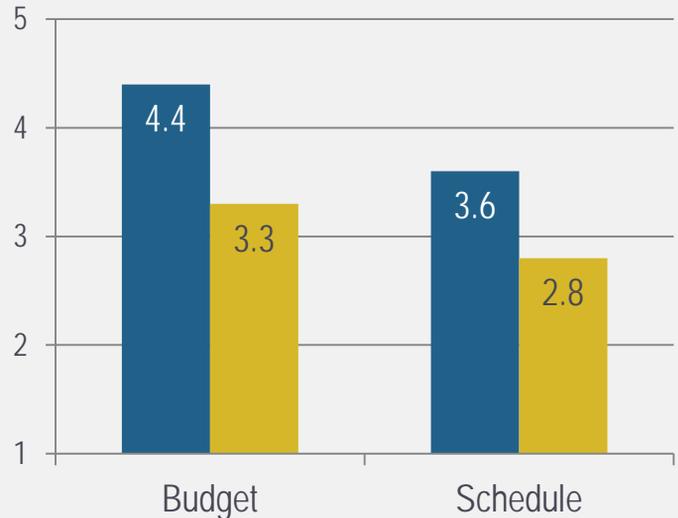
▶ #3: BUDGET

- Funding
- Material and labor cost uncertainty
- Timing of major capital projects with capital availability
- Consistent capital spending to optimize organization and approach

▶ #4: SCHEDULE

- Short schedules
- Increasing production capability quickly – already late getting more capacity to the market

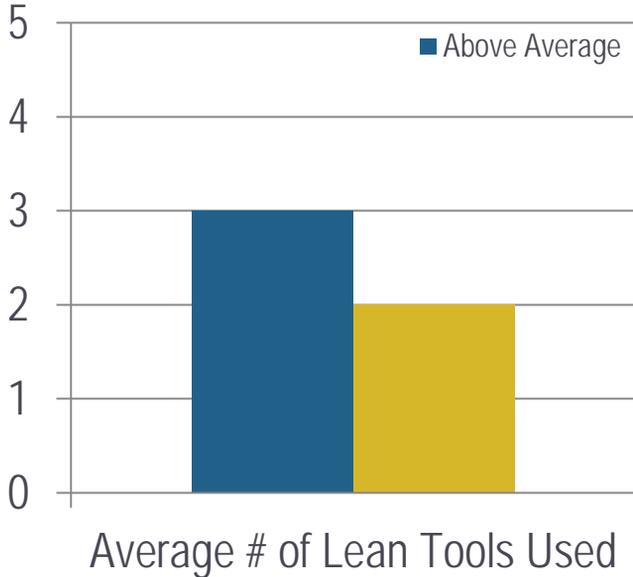
How would you rate your organization on hitting these targets?



■ Above Average
■ Average and Below

Excellence in Total Project Performance (2017 CURT)

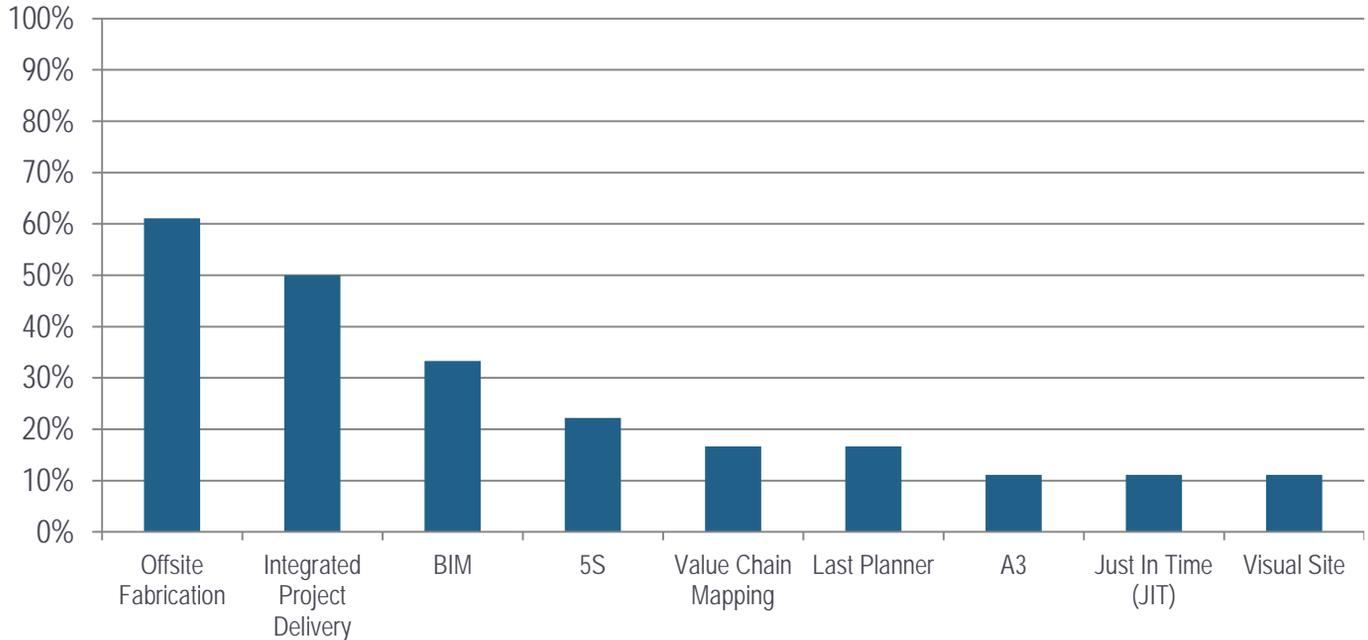
Lean Tools



► Above average companies were 75% more likely to use three or more Lean tools than average and below average companies

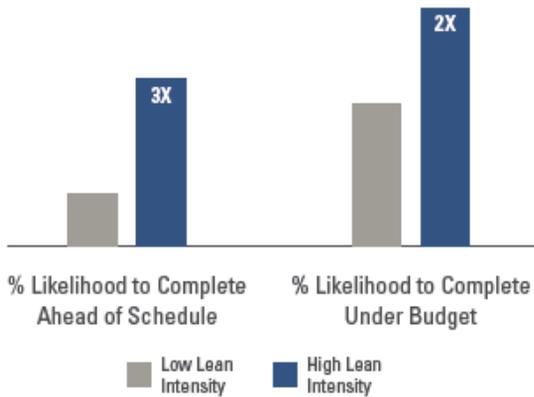
Excellence in Total Project Performance (2017 CURT)

Most Commonly Used Lean Tools

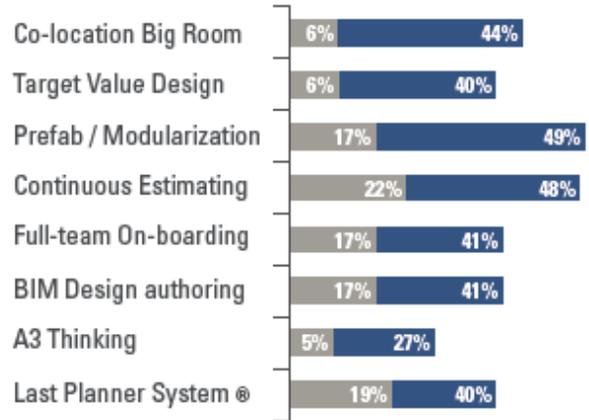


Excellence in Total Project Performance (2017 CURT)

Lean Construction Benchmarking



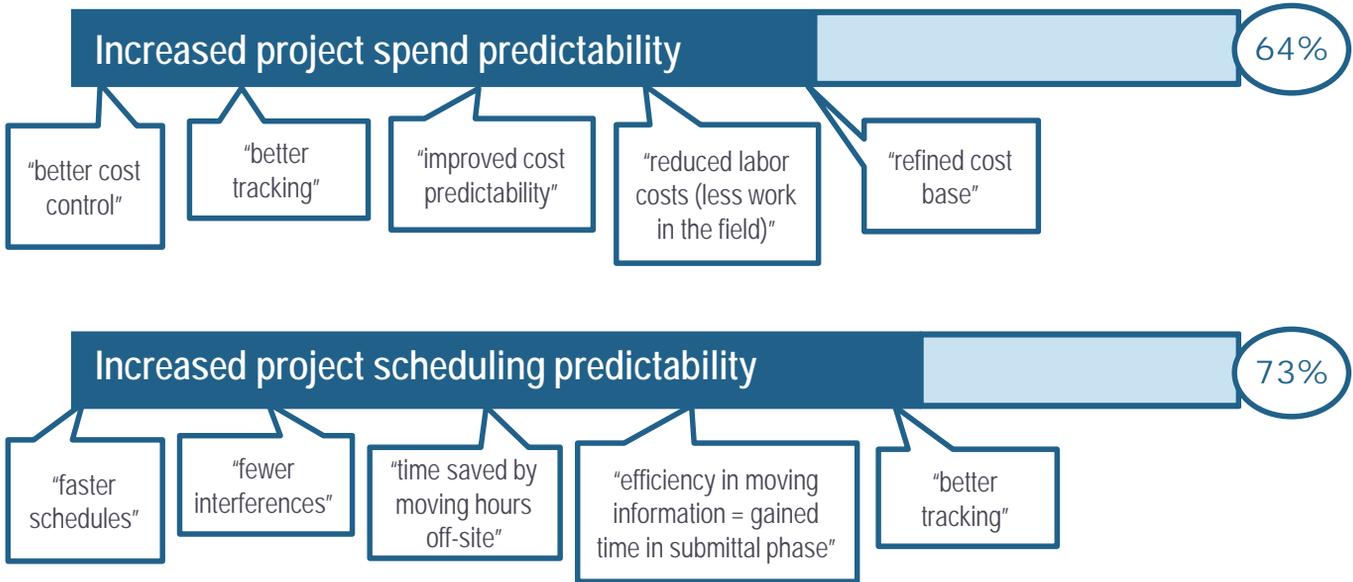
Sample Size: 162 Projects



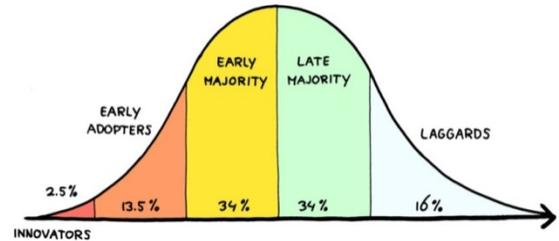
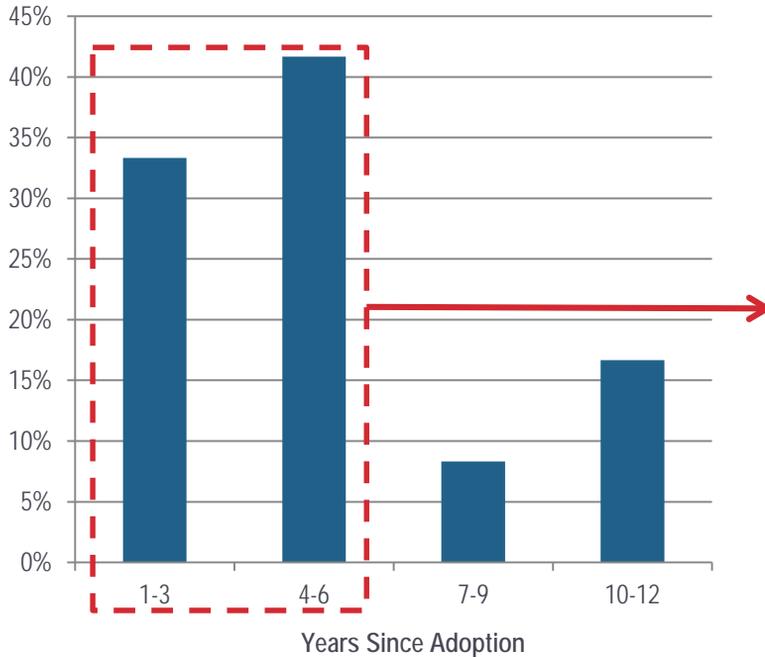
 Best Project  Typical Project

Source: LCI – Dodge Data and Analytics Benchmarking 11.17.16

Lean Benefits Realized



Excellence in Total Project Performance (2017 CURT) Innovators or Laggards?



- The Lean Construction Institute was founded in 1997
- The majority of those using Lean tools have only adopted them recently
- BIM is the only tool reported in place for over 10 years

Other Tools and Techniques

Productivity Tools

67%

Productivity Tools Used:

- ▶ Workforce planning
- ▶ Constructability studies
- ▶ Digital drawings (tablets in the field, rather than paper)
- ▶ App-based material tracking
- ▶ Change management boards (monthly)
- ▶ Client feedback tools
- ▶ Lessons learned programs
- ▶ Pre-project planning office
- ▶ Facilities requirements database
- ▶ Prolog converge/mobile
- ▶ Advanced work packaging

"We use a variety of productivity tools, drawing on widely available resources, as well as several unique tools of our own design. Custom tools, such as our client feedback system, our lessons learned program and our facilities requirements database drive a focus on productivity and innovative business solutions."

– *Walter Ennaco, Deputy Director,
Smithsonian Facilities, Smithsonian Institution*

Excellence in Total Project Performance (2017 CURT)

Benchmarking and Measurement

- ▶ The majority of owner organizations are benchmarking on cost, productivity, schedule and safety
- ▶ A few also reported benchmarking earned value and changes or rework
- ▶ Above average organizations reported utilizing resources such as:
 - IPA (Independent Project Analysis)
 - CPARS (Contractor Performance Assessment Reporting System)
- ▶ Some have developed their own unique, internal measurement tools to benchmark project to project



"We all measure safety, performance, cost and schedule as key outcomes at the end of a project. At my company, we focus on the leading behaviors that drive excellence in these project outcomes and define leading indicators to ensure we are doing those things."

– Gary Tomczak, Director, Global Capital COE, International Paper

Excellence in Total Project Performance (2017 CURT) Roundtable Discussions



Excellence in Total Project Performance (2017 CURT) Elements of Excellence



Excellence in Total Project Performance (2017 CURT)

Key Issues of the Next Decade

WHAT KEY ISSUE MUST WE SOLVE IN THE NEXT DECADE FOR OUR INDUSTRY TO BE SUCCESSFUL?



“One of our biggest challenges is increasing production capability for specific products quickly. Often, we’re already late getting more capacity to the market and we’re working to execute quickly while the design is still being clarified.”

– *Anonymous Study Participant*

Thank You

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