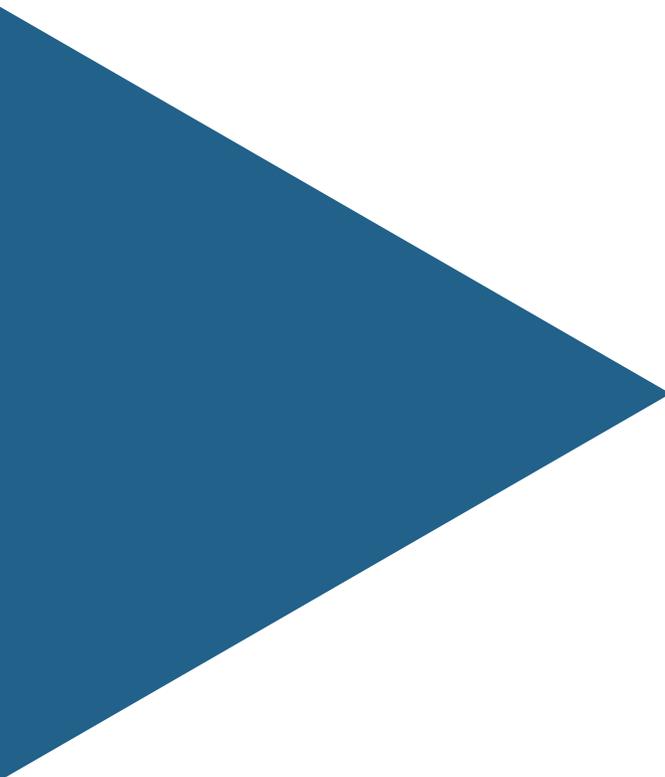




2017 CURT Owner Study:
**EXCELLENCE IN TOTAL PROJECT
PERFORMANCE: DIFFERENTIATING
HIGH PERFORMING OWNERS**

CONTINUUM ►
Advisory Group





Capital asset owners face increasing pressure to achieve project excellence while responding to the needs of their internal clients. A recent study by the Construction Industry Institute (CII), in partnership with Continuum Advisory Group, determined that owner engineering, construction, and facilities maintenance (E/C/F) departments are being asked to evolve from “order takers” to “value creators” that understand the needs of the business and balance the demands of rapidly delivering high quality projects, under budget, and safely.



“The role served by corporate engineering, construction, and facilities (E/C/F) teams is becoming increasingly critical to the success and survival of the corporation. We saw a critical need to expand the current thinking and research on capital program delivery to better serve the business needs of capital asset owners via the member E/C/F departments.”

– *Stephen Mulva, Ph.D., Director,
Construction Industry Institute*

For more information on the CII and Continuum Advisory Group study, Order Takers or Value Creators? Engineering, Construction, and Facilities Groups as Critical Drivers of Organizational Performance, please visit www.ContinuumAG.com/ValueCreators

This year's CURT Owner Trends Study dovetailed with the CURT National Conference theme of achieving Excellence in Total Project Performance, and sought to:

- » 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



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*

The study involved a survey of owners, extensive interviews with owner organizations, and roundtable discussions at the CURT National Conference. Participants included members of 28 owner organizations, representing diverse industries:



MANUFACTURING



UTILITIES



NATURAL RESOURCES
& MINING



LEISURE
& HOSPITALITY



REAL ESTATE



HEALTHCARE



INFORMATION/IT



GOVERNMENT

WHAT IS PROJECT EXCELLENCE?

While participants described project excellence in terms of the typical metrics – budget, schedule, quality, and safety – there was a more focused discussion this year with regards to meeting the strategic needs of the organization and satisfying the internal and external stakeholders of the business. Thinking about how project excellence relates to capital asset optimization to serve the needs of the business, and ultimately the shareholders, is of the

utmost importance. Our respondents also identified a set of characteristics which we describe as forming the “connective tissue” for project excellence within and among the various organizations involved. These include collaboration, transparency, empowered decision making, creative problem solving, and trust. Owners whose project teams exhibit these traits tend to report higher degrees of project excellence in every different measure of results.



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.



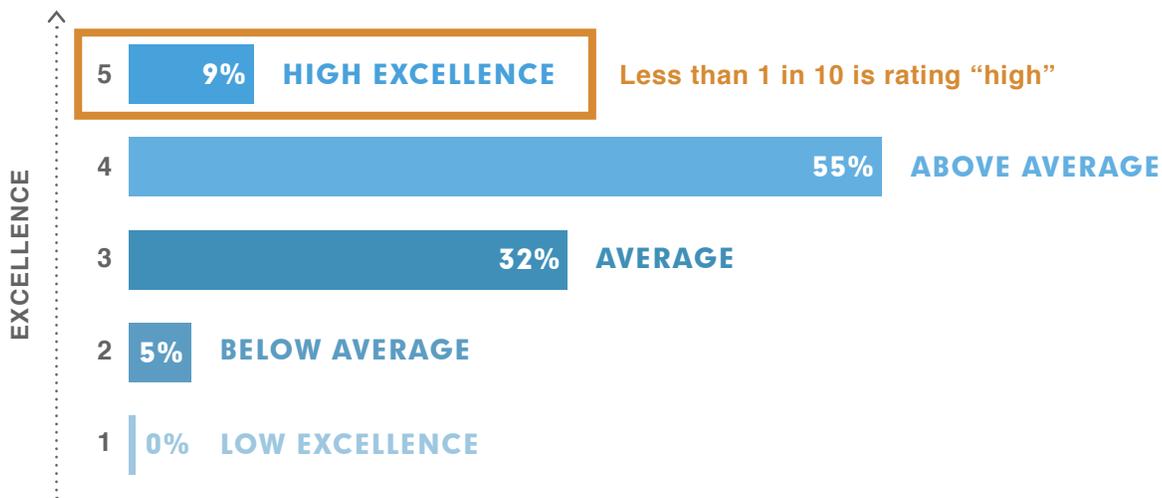
– *Michael Mayra, Construction Group Manager, General Motors*

LESS THAN ONE IN TEN IS ACHIEVING PROJECT EXCELLENCE

Of the owners surveyed and interviewed, only 9% self-rated “high” on achieving excellence in total project performance; 55% rated themselves above average. This is fertile ground for real break-through thinking in how we approach program and project delivery as an industry.

HOW WOULD YOU RATE YOUR ORGANIZATION ON EXCELLENCE IN TOTAL PROJECT PERFORMANCE?

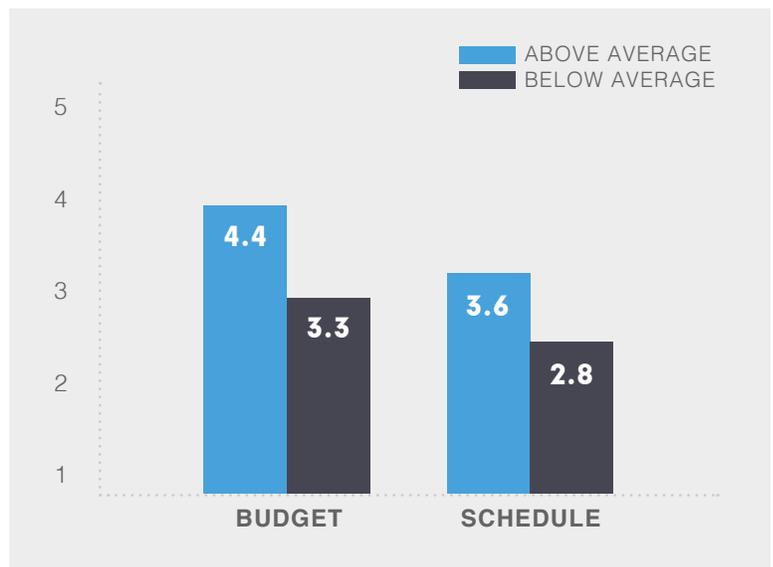
FIGURE 1



In order to explore what above average companies are doing differently to achieve excellence, our study team examined these organizations in two groups: “Above Average Companies,” representing the top 64% of study participants, and “Average and Below Average Companies,” representing the 36% of participants who self-rated at three or below on excellence in total project performance. High excellence and above average owners were much more successful with regards to achieving budget and schedule than average and below average owners. The key question is why?

HOW WOULD YOU RATE YOUR ORGANIZATION ON HITTING THESE TARGETS?

FIGURE 2



During the 2017 CURT National Conference in Chandler, AZ on February 14, 2017, Continuum Advisory Group moderated two roundtables, one for owners and one for A/E/C partners, to discuss the study and the theme of excellence in total project performance. Both owners and contractors had strikingly similar responses regarding what differentiates high excellence from low excellence projects. There was clear agreement that early engagement and the opportunity to build a collaborative team versus an adversarial owner-supplier relationship was the highest indicator of project success in the minds of both the owners and their A/E/C partners. A summary of the two discussions follows:

OWNERS

A/E/C PARTNERS

WHAT SETS HIGH EXCELLENCE PROJECTS APART?

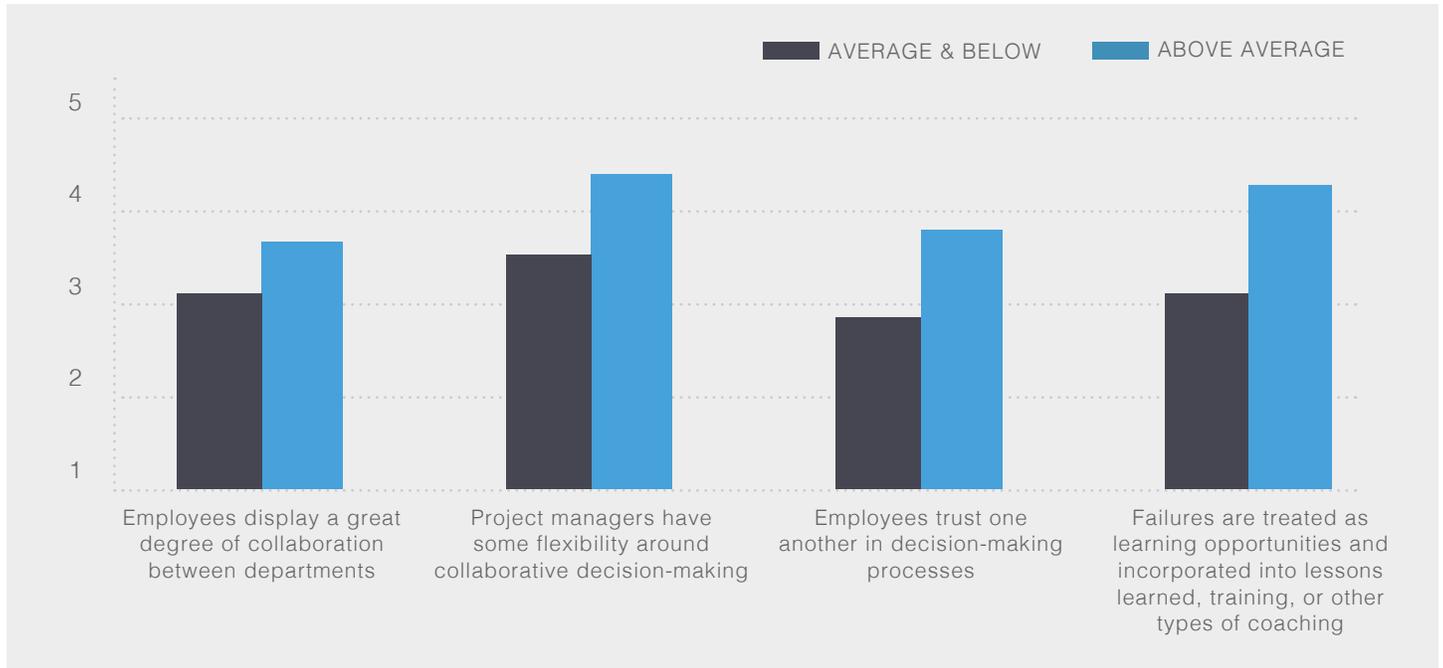
- » **Pre-Project Planning:** In our roundtable discussion, owners emphasized the importance of starting off on the right foot. They agreed on the value of early engagement with key project stakeholders, including the end-user or operator; the value of developing integrated teams; and setting clear and specific goals at the very beginning of a project – including the suggestion to state those goals in the RFP.
- » **Pre-Project Planning:** In our project partners roundtable discussion, the A/E/C participants also highlighted the importance of early involvement and upfront planning. They discussed early engineering and front end planning, early collaboration among the trades, and alignment with the owner as key indicators of project success. They also espoused the importance of developing project control systems and dashboards.
- » **Developing The Team:** Owners agreed that high excellence projects are differentiated by strong internal alignment, powerful corporate sponsorship, visionary leadership, high-trust between team members, and accountability. The group talked about the importance of developing team-based, rather than adversarial relationships, as well as the benefits of sharing a common understanding and agreeing upon clearly defined vocabulary for the project team.
- » **Developing The Team:** A/E/C partners discussed the value of developing a unified team; they placed a strong emphasis on establishing trust and transparency. This group discussed the importance of acting as a team rather than adversaries, avoiding placing blame, and having mutual respect for one another. They talked about defining a clear responsibility matrix and operating in an “open book” format throughout the project as key ways to achieve that.
- » **Being Realistic:** Finally, owners discussed the need for realistic budget and schedule expectations. They agreed that there is a need to develop more realistic schedules and to eliminate schedule risk early on. They also agreed that they must recognize that their contractors need to make a profit.
- » **Being Realistic:** A/E/C partners expressed their preference for value versus low-bid contracts, but recognize that this is a macro issue. They discussed the importance of providing realistic forecasts and establishing 100% scope clarity, as well as the benefits achieved by backing up their estimates with clear explanation and detail.

DIFFERENTIATING THE HIGH PERFORMING OWNER – THE CULTURE FACTOR

Four key cultural factors emerged that set above average companies apart: increased collaboration, increased flexibility, high trust, and the perception of failure as a learning opportunity, enabling creative risk taking. These elements are some of the most critical pieces of the “connective tissue” of project excellence.

FOUR CULTURE FACTORS THAT DIFFERENTIATE ABOVE AVERAGE OWNERS

FIGURE 3



COLLABORATION Our study team identified three keys to successful collaboration. First, **get the right people involved early**. One participant explained that their number one challenge in hitting key project excellence metrics was not being involved early enough in the planning process. They are currently working on ways to get more involved in the discussions of strategic business needs so their department has a say in the solutions and an opportunity to make an impact. Many organizations we spoke with have begun exploring Integrated Project Delivery (IPD) as a way to get the key stakeholders involved earlier in the process. One critical component of IPD is that we must involve the end operator or user of the asset as well.



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

The second key to successful collaboration is to **gather constant feedback throughout the project**. One study participant described their project management philosophy as a “living model,” explaining, “we must manage it along the way and get the feedback needed to nudge it back on course. We’re always open to change based upon the market and the participants.”

And finally, **take the time afterward to review**. Hold a “lessons learned” session after every project with the end customer in the room. Conduct a plus/delta exercise and ask the end user how the building is functioning, and whether it is operating according to the intent of the original design. Include the A/E/C team members as well and strengthen your partnerships by providing a learning opportunity for them.

FLEXIBILITY Above average companies give project leaders increased flexibility around decision making. Driving decisions closest to the project level has a dramatic impact on achieving project excellence. In our consulting practice, we find that consolidated decision making authority at the upper management and executive levels is one of the biggest impediments to excellent performance. The importance of breaking down these siloes and instilling flexibility as an organizational value cannot be overstated. If decision making is reserved only at the highest levels of the organizational chart, it is almost impossible to achieve the levels of decision quality and speed required for excellence.



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*



TRUST In above average companies, employees demonstrated high levels of trust in decision making processes. During our owners-only roundtable discussion at the 2017 CURT National Conference, Laura Stagner of the US General Services Administration (GSA) shared research conducted by Renée Cheng and the University of Minnesota regarding indicators of team success in high performance building design and project delivery. Through this study of three different GSA projects, the researchers identified cultural aspects as the only consistently strong correlation and psychological safety established through trust as the singular indicator of project team success.

“The most striking thing about this research was the finding that trust was the only consistent indicator of project team success. We’re focusing our efforts on upfront investment in relationships, team development, mechanisms for alignment, and intentional engineering of team chemistry. Our projects aren’t long enough to rebuild trust after it’s lost.”

– *Laura Stagner*
Assistant Commissioner, Office of Project Delivery,
US General Services Administration

For more on the GSA research report, *Integration at Its Finest: Success in High Performance Building Design and Project Delivery in the Federal Sector*, visit: bit.do/gsaintegration

REWARDING RISK (AND LEARNING FROM FAILURE)

One of the biggest differences measured between above average and average and below average organizations was the treatment of failure. Above average companies reported that failures are treated as learning opportunities and incorporated into lessons learned, training or other types of coaching. Rarely are dramatic improvements realized without risk.

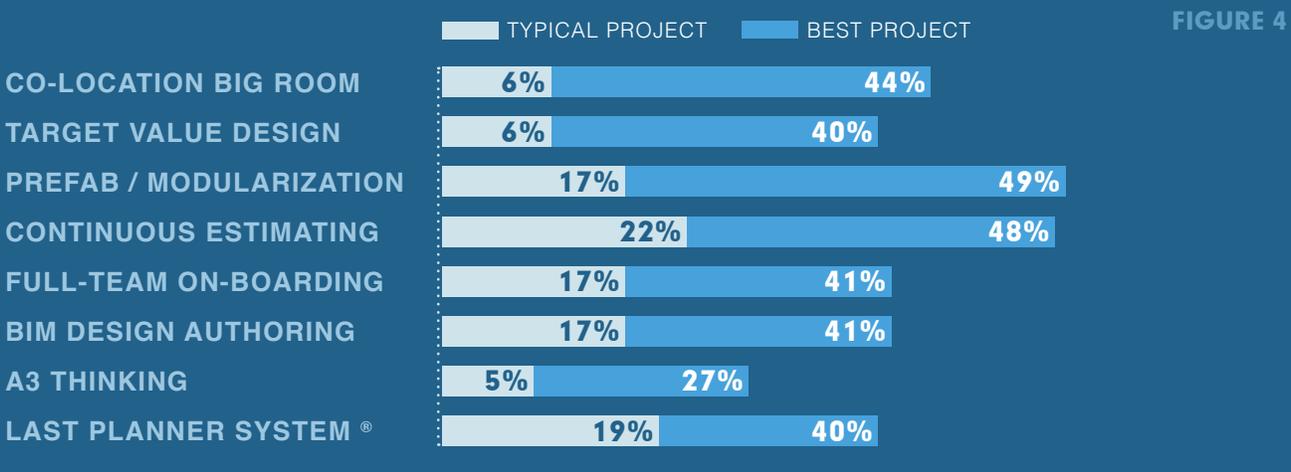
Above average companies create a culture where it's ok to take risks and ok to fail in the pursuit of excellence. We know that this type of culture also tends to reinforce trust when staff at all levels see that their best ideas are rewarded and that trying to improve processes, practices, and systems is expected, even if initial efforts don't go as planned.

IT'S NO SURPRISE: LEAN TOOLS PAVE THE WAY FOR PROJECT EXCELLENCE

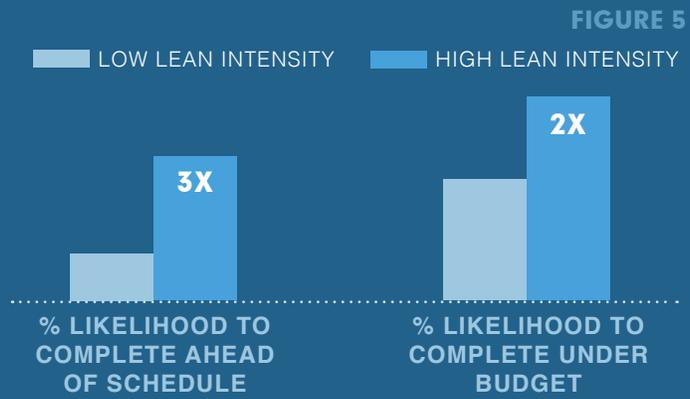
Research shows that Lean practices have a significant impact on construction productivity.

In a 2016 study, Dodge Data and Analytics completed a benchmarking exercise of 162 projects and documented incredible results with regards to beating both budget and schedule through the use of Lean tools. The sample represents projects using various delivery methods and contract types across the US for

owners completing more than five capital projects over three years. These projects were divided into two groups: "best" and "typical" with regards to schedule and budget performance. The study team identified eight project management methods that differentiated the best projects group from the typical projects group as depicted below.

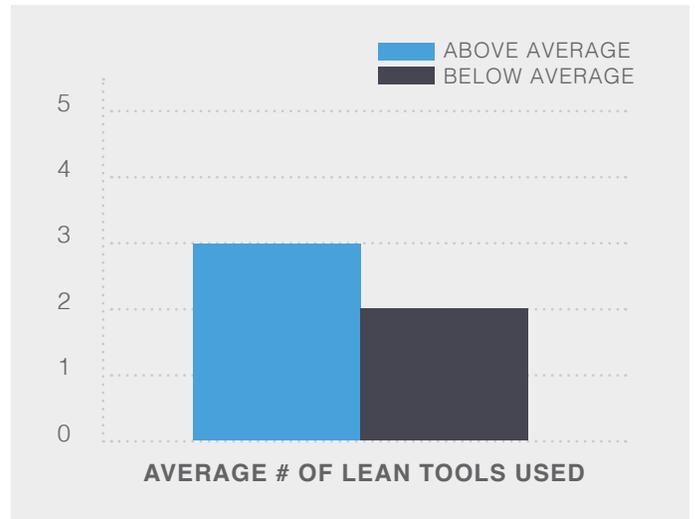


The study also measured the overall impact of Lean on schedule and budget, concluding that high Lean-intensity projects were three times as likely to complete ahead of schedule and two times as likely to complete under budget as compared to low Lean-intensity projects.



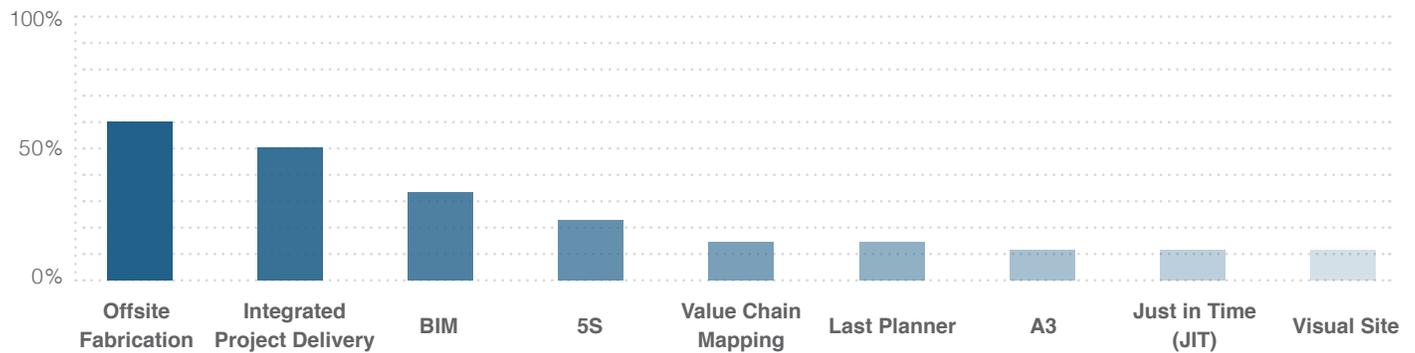
The results of our study show that above average owners were 75% more likely to use three or more lean tools than average and below average companies. Those applying Lean practices reported significant benefits. Of study participants using Lean tools, 64% reported increased project spend predictability due to the implementation of Lean practices, while 73% reported increased project scheduling predictability. The most commonly used tools included offsite fabrication, integrated project delivery (IPD), and BIM.

FIGURE 6



PERCENTAGE OF RESPONDENTS USING COMMON LEAN TOOLS

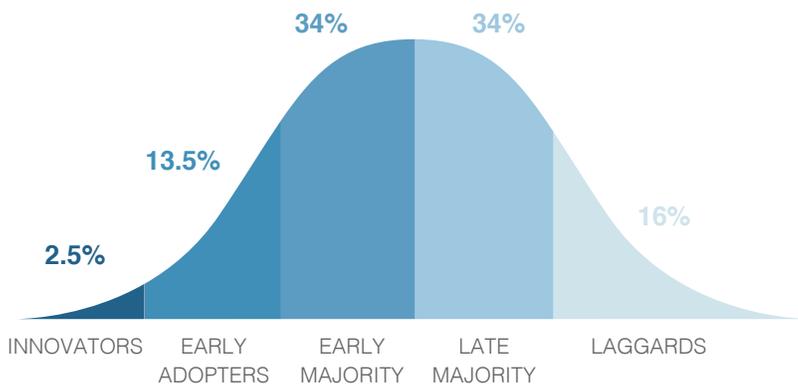
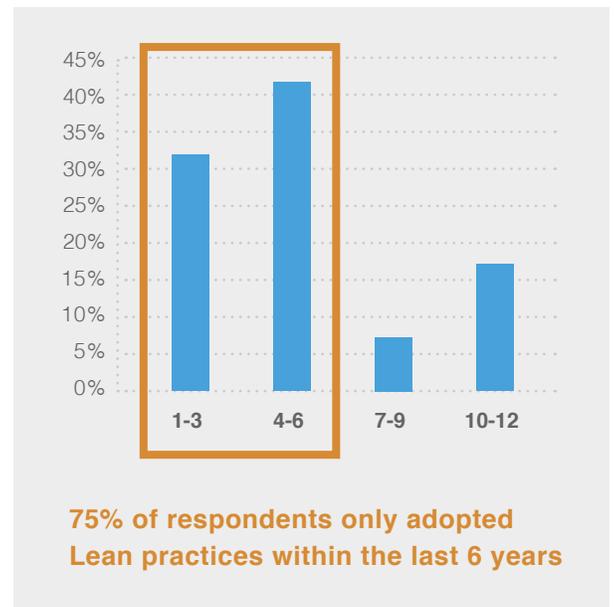
FIGURE 7



Innovators or laggards? Despite the fact that above average companies are using these tools successfully and independent analysis has documented significant benefits, overall adoption and application of Lean processes has been quite slow. The Lean Construction Institute was founded in 1997, but the majority of those using Lean practices only adopted them recently. In fact, BIM was the only tool reported in place for over 10 years.

HOW LONG HAVE THESE LEAN PRACTICES BEEN IN PLACE?

FIGURE 8



There is still a significant opportunity within our industry to adopt and perfect Lean practices and realize the positive impact of Lean on key metrics such as budget and schedule. Effective implementation and return on investment will be dependent upon the strength of the “connective tissue” of excellence we have discussed in this study (collaboration, transparency, empowered decision making, creative problem solving, and trust).

OWNER-CONTRACTOR RELATIONSHIPS

One of the key components to a successful project is a strong working relationship between the owner and A/E/C project partners. In our discussions with owners, this topic came up frequently, both in regards to what enables project excellence and what inhibits it. We asked owners what one thing their contractors could do to help them achieve excellence in total project performance. The most frequent responses by far were related to transparency and communication.

During our owner and A/E/C roundtables at the 2017 CURT National Conference, we posed the question to each group: What sets high excellence owners or A/E/C partners apart? We wanted to get a sense of what more owners wanted from their A/E/C partners and what more A/E/C partners needed from their owner clients to achieve project excellence. The responses indicate a clear emphasis on trust and transparency.

OWNERS	A/E/C PARTNERS
WHAT SETS HIGH EXCELLENCE A/E/C PARTNERS APART?	WHAT SETS HIGH EXCELLENCE OWNER CLIENTS APART?
<ul style="list-style-type: none"> » Integrity » Honesty regarding team-member experience » Long-term partnerships » Understanding the customer (end user) needs and striving to meet them » Proactive problem solving » Transparency when something goes off the rails » Knowledge of owner systems/processes/facilities <ul style="list-style-type: none"> • Not having to repeat the learning curve » Listening and reacting appropriately 	<ul style="list-style-type: none"> » Strong culture and values » Trust is instantly there » Transparency » Shared success mindset (“we/the team” not “us and them”) » Rapid decision making capability » The right attitude – trusting that your A/E/C partners are the experts in what they do » Experience

Interestingly, the similarities in what these two groups want from each other far outweigh the differences. For example, owners communicated a strong preference for long-term partnerships with suppliers who understand the customer (end user) needs. They also recognize their responsibility in achieving these enhanced working relationships: their contracting methods must ensure that their contractors are still able to make a profit. We heard from the A/E/C participants that they wanted to partner with owners with a shared success mindset – that they wanted to be part of a project team, not in an adversarial relationship. At the core of each discussion was an emphasis on building trust and transparency. In other words, project success is rooted in mutually balanced, healthy relationships.

During the Fall 2016 CURT Young Professionals Summit, attendees participated in a workshop to help identify “What Owners and Contractors Really Want from Each Other.” Four common themes were identified for further breakout discussions in small groups:

1. PROTECT EACH OTHER: Covenantal Relationship vs. Contractual: Both owners and contractors want the other to be successful. Contractors want to be an “Extension of the Owner” and a “Trusted Advisor.” Whereas owners want contractors involved early, but are afraid of hurting the relationship if the work is not secured by the contractor that is helping.

2. IMPLEMENT CLEAR COMMUNICATIONS/CHANGE MANAGEMENT: Both owners and contractors want the other to be more open about their expectations (Scope/Schedule/Budget) and would like to agree to stop sandbagging. Contractors want better explanation when they are not awarded an RFP and they also want owners to listen to why they do things a specific way. Owners want early awareness of deviations from the plan, as well as clear and concise options from their contractors.

3. SET CLEAR EXPECTATIONS REGARDING SCOPE/SCHEDULE/BUDGET: Both owners and contractors ask for the right people to be in the room for meaningful discussions and see a need for clarified contracting structure expectations. Contractors need to be willing to take a stand on unrealistic expectations by the owner. Contractors also want the owners’ internal engineering and maintenance/operations group to be on the same page with regards to scope and function.

4. TAKE TIME TO EXECUTE PRE-PLANNING AND RELATIONSHIPS: Both owners and contractors would like more time upfront to align on expectations and build relationships on a project from top to bottom. Contractors want owners to either get them involved earlier to help drive a better plan or allow for time for the information to be assimilated once presented.

KEY ISSUES OF THE NEXT DECADE

We asked survey respondents: “What key issue must we solve in the next decade for our industry to be successful,” and the responses are not surprising. Improving quality, safety, and productivity were owners’ top concerns, closely followed by compressing project schedules, and increasing workforce development.

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



FIGURE 9

Interviews and roundtable discussions reflected an increased focus on productivity measures in the industry. Sixty-seven percent of owners reported using specific productivity or efficiency tools and techniques.



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

FIGURE 10



Productivity Tools Used included:

- » 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 also asked participants: “What do you think will be your single biggest challenge in achieving excellence in total project performance over the next ten years?” We categorized their responses into five groups:



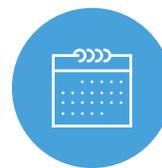
TALENT



**IMPLEMENTING
CHANGE**



BUDGET



SCHEDULE



QUALITY

Owners expressed significant challenges with regards to both internal and external talent, closely followed by organizational difficulties with implementing change, and embracing new tools, practices, and technology.

Each of these challenges is best addressed by applying the “connective tissue” of project excellence, particularly the characteristics of collaboration, creative problem solving, and empowered decision making.

TALENT



Challenges reported include:

- » Finding talent in a competitive market
- » Preparing for the economic lull that is about to drain the experience pool; this one is going to be hard to rebound from
- » Sourcing qualified contractor personnel
- » Successfully delivering projects with limited or less internal resources
- » Timing major capital projects with workforce availability
- » Retaining experience
- » Maintaining 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*

IMPLEMENTING CHANGE



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*

Challenges reported include:

- » Managing digital integration
- » Implementing a new engineering system
- » Keeping the changes we have implemented is a priority for supervisors and employees
- » Implementing IPD to the full extent
- » Bringing stakeholders on “the journey”

BUDGET, SCHEDULE, QUALITY



Of course, budget, schedule, and quality are always key concerns. Challenges reported include material and labor cost uncertainty, the timing of major capital projects with capital availability, and increasing production capability quickly. This year's study participants indicated an increased focus on benchmarking to assess performance

in these areas, with 70% of owners reporting that they benchmark on project performance and productivity. Interviews and roundtable discussions reflected an increased focus upon leading, rather than lagging, indicators to drive improvement in these areas.



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

CLOSING THOUGHTS

We know we have room for improvement when only 9% of the owners surveyed and interviewed rate themselves as high on achieving project excellence. The industry is ready for break-through innovation to solve this challenge. Achieving excellent project results in terms of budget, schedule, quality, safety, and end-use fit requires that owner and A/E/C teams apply the key elements that breed project excellence. Our research participants identified collaboration, trust, transparency, empowered decision making, great communication, flexibility, and incentivizing creative problem solving as critical

elements that drive project excellence. We know from our research and our experience advising our clients, that these same characteristics often separate the highest performing organizations from their peer group. The good news is that in addition to the opportunities for gain that are suggested by our respondents, these characteristics do not occur magically or even accidentally. Any organization or project team may choose to build this “connective tissue.” We hope this study encourages you to think about how to do so.

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