

Year:
2017

Website:
ECC-Conference.org

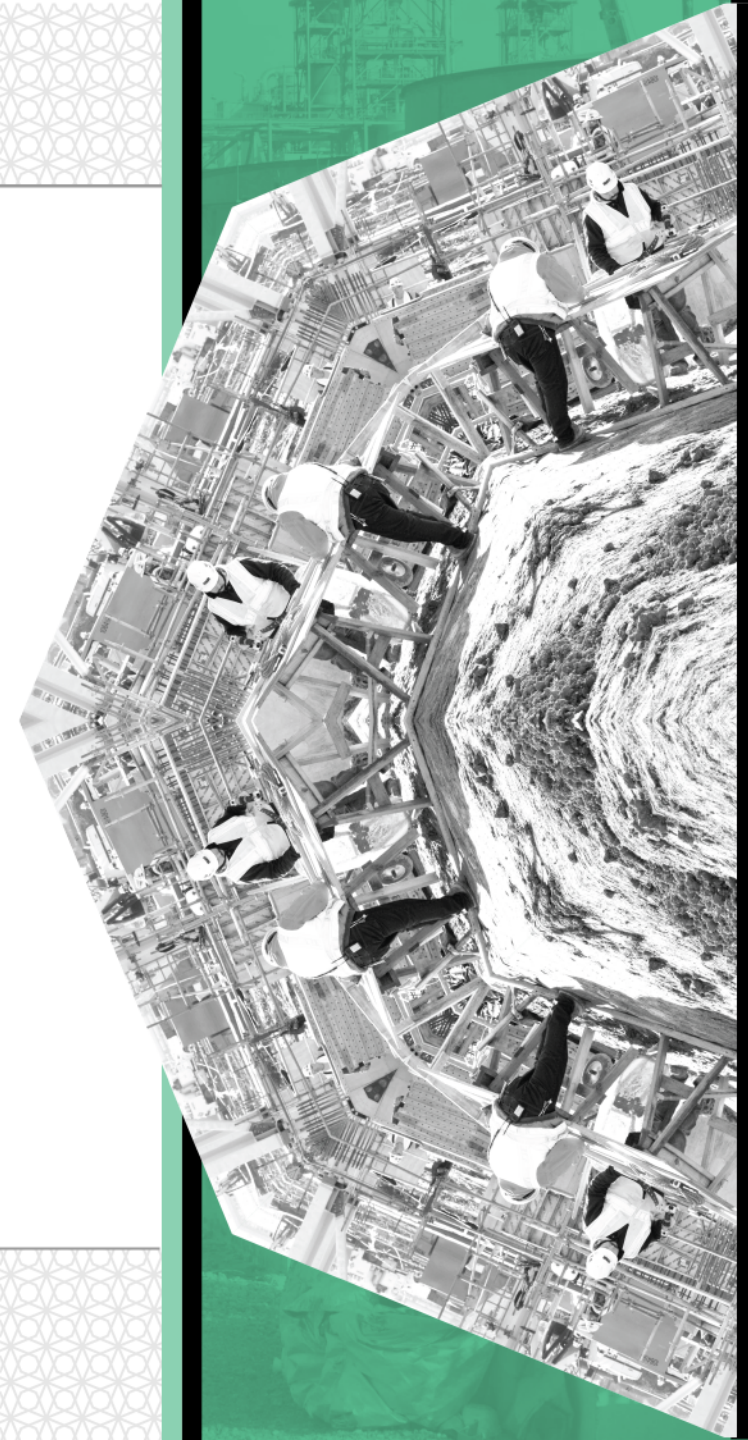
Doing More with Less

ECC Sponsor Only Working Session



Team Members:

Steve Wardle, General Project Director, Chevron Phillips
Justin Dahl, Principal, Westney Consulting Group



Your facilitators today

Steve Wardle, Chevron Phillips



*General
Project
Director*

- Responsible for the execution of the USGC Petrochemicals Project
- 35+ years in industry in major capital projects
- 10+ years with Owners, 25+ with EPCs
- Mega-project experience overseas and on the USGC

Justin Dahl, Westney Consulting Group



Principal

- Oversees Westney's consulting operations
- Consulting experience with Westney and McKinsey & Co. in oil & gas and chemicals
- Project experience with Dow Chemical

Safety moment

Goals of today's session

What we hope to provide

- **Data and insight** into project challenges, root causes, and solutions
- **A forum to engage in productive dialogue**
- **Exposure to different viewpoints** (other owners and contractors)

What we hope you takeaway

- **Broader perspective** on
 - The industry's challenges and root causes
 - Owner and contractor viewpoints
- **New contacts in the industry**
- **Potential solutions that can be implemented with your company**

Context and plan for today

Context

- Too many of today's projects are at risk of failure
- With the current pressures, it is even more critical that Owners and Contractors address the persistent issues that prevent successful capital project execution

Plan for today

- Building on the mid-year sponsor session, we will:
 - Identify root causes to prioritized challenges
 - Begin to develop potential solutions to each challenge
 - Discuss opportunities to lower TIC

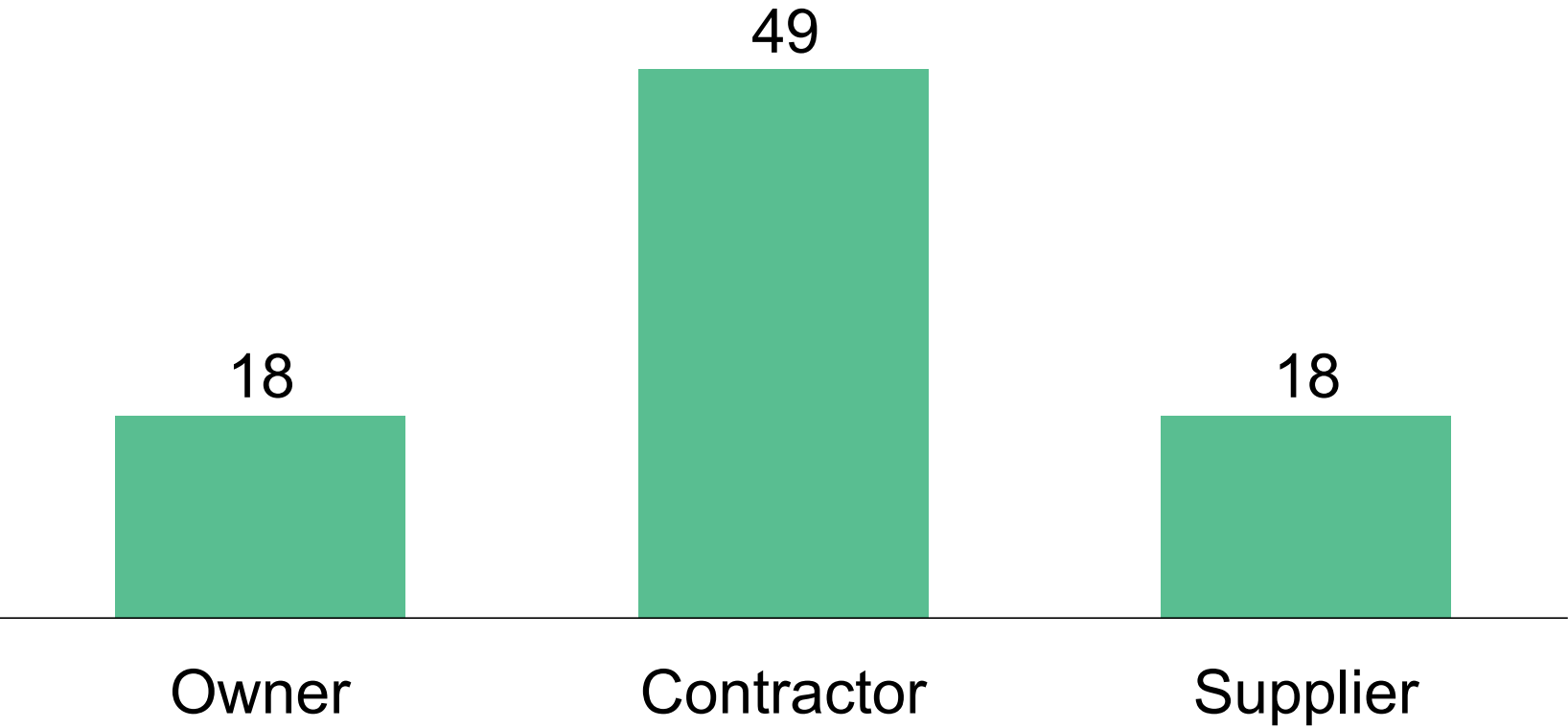
Agenda

Topic	Timing
Introduction / kickoff	1:00
Re-cap of mid-year session	1:10
Breakout - Identification of root causes	1:20
Sharing of ECC Board's identified root causes	2:00
Breakout - Development of solutions	2:15
Break	3:00
Sharing of ECC Board's solutions	3:15
Introduction of opportunities to lower TIC	3:30
Breakout - What will it take to realize lower TIC?	3:45
Executive thinking: Harvey Vigneault	4:30
Close	4:50

Who's in the room?

Sponsor-only session participants by category

Number



Ground rules



- Many different companies are participating, therefore discussion about specific projects and organizations should be avoided
- Share your view, as the value of the session will increase if everyone participates
- Limit distractions (e.g., silence cell phones and limit checking of e-mail)

We began our last session with what “others” are saying about our industry

A Changed Landscape for the Industry

Difficult Capital Project Environment

Contractor Performance Deterioration

Challenging Times for Industry Especially in the US

Avoid Costly Mistakes and Make Major Investments Pay Off

Increased Project Market Risks and Business Pressures

Shortage of Skilled Labor

Need Greater Project Predictability

At the mid-year session, we introduced 15 challenges (1/2)

1. Owner decision-making not consistent with base premise and business model
2. Lack of qualified construction leadership
3. Unrealistic estimates and schedules based on backwards-looking metrics
4. Shortage of skilled owner staff
5. Shortage of skilled contractor staff
6. Project size and complexity require skills and resources beyond what is available
7. Excessive and ineffective metrics and reporting
8. Inappropriate risk sharing between owners and contractors

At the mid-year session, we introduced 15 challenges (2/2)

- 9. Contract strategy leading to adverse owner/contractor behaviors
- 10. Transactional owner/contractor relationships
- 11. Shortage of construction crafts/trades
- 12. Owner “gold-plating” of designs (standards)
- 13. Poor construction execution
- 14. Ineffective owner/contractor planning
- 15. Unclear owner/contractor accountability

The 15 challenges were used in developing the 4 challenges we will focus on for this session

We introduced 15 challenges (2/2)

We introduced 15 challenges (1/2)

1. Owner decision-making not consistent with base premise and business model
2. Lack of qualified construction leadership
3. Unrealistic estimates and schedules based on backwards-looking metrics
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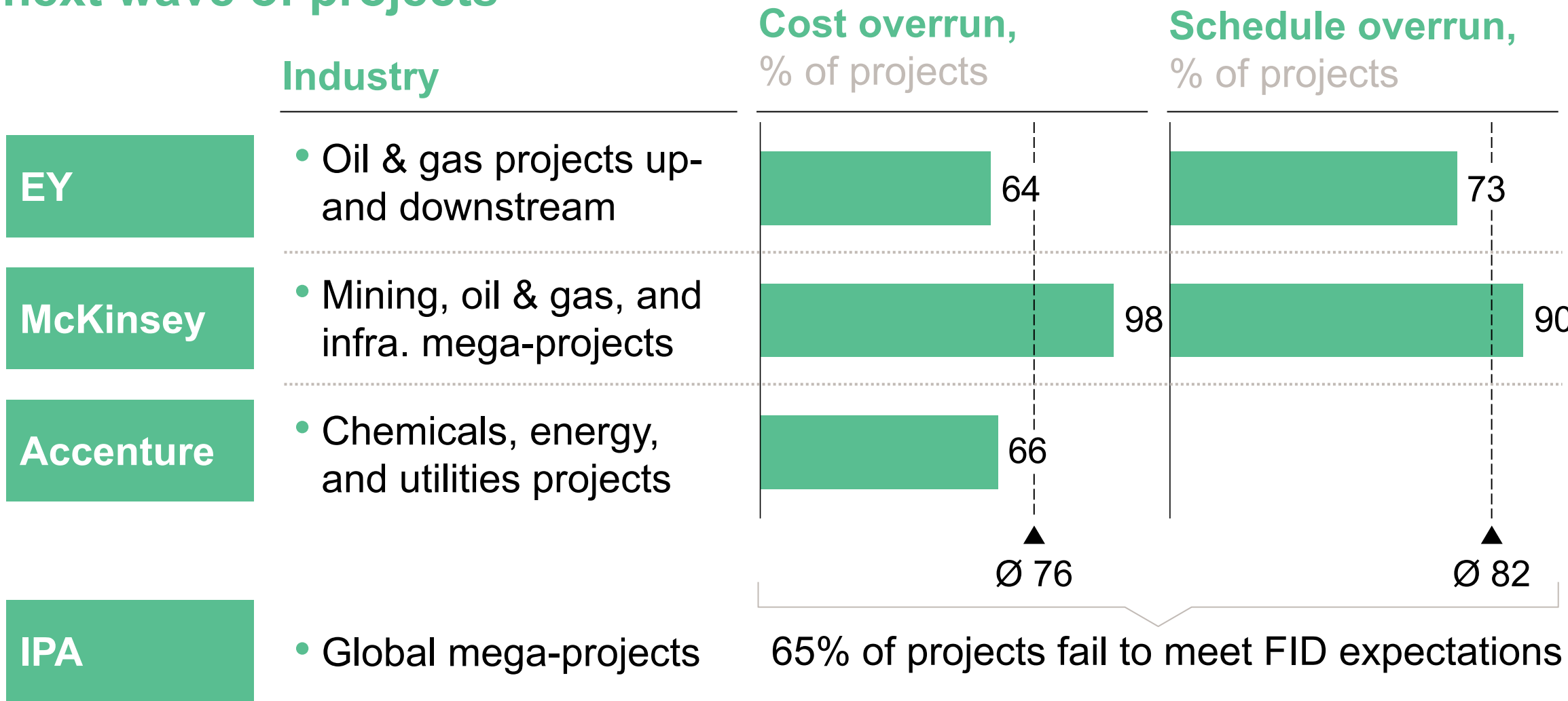


Doing More with Less

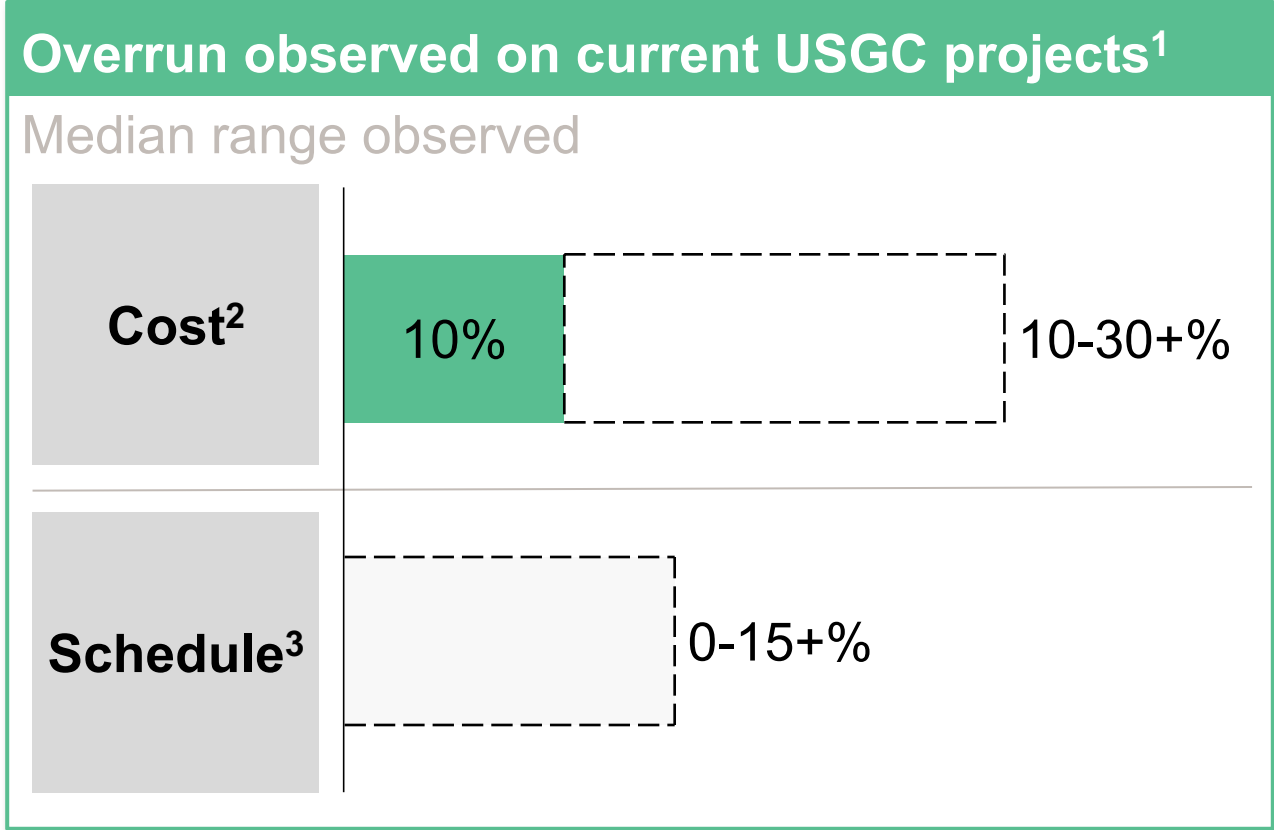
Top challenges facing our industry

- ① **An overall decline in owner and contractor capabilities**
- ② **Suboptimal contractual risk-taking and adversarial owner / contractor relationships**
- ③ **Poor planning and execution**
- ④ **Over-reliance on backwards looking data** that does not fully reflect the realities of the current project landscape

Addressing the challenges identified is critical for improving the next wave of projects



The current wave of USGC projects has experienced both cost and schedule overruns

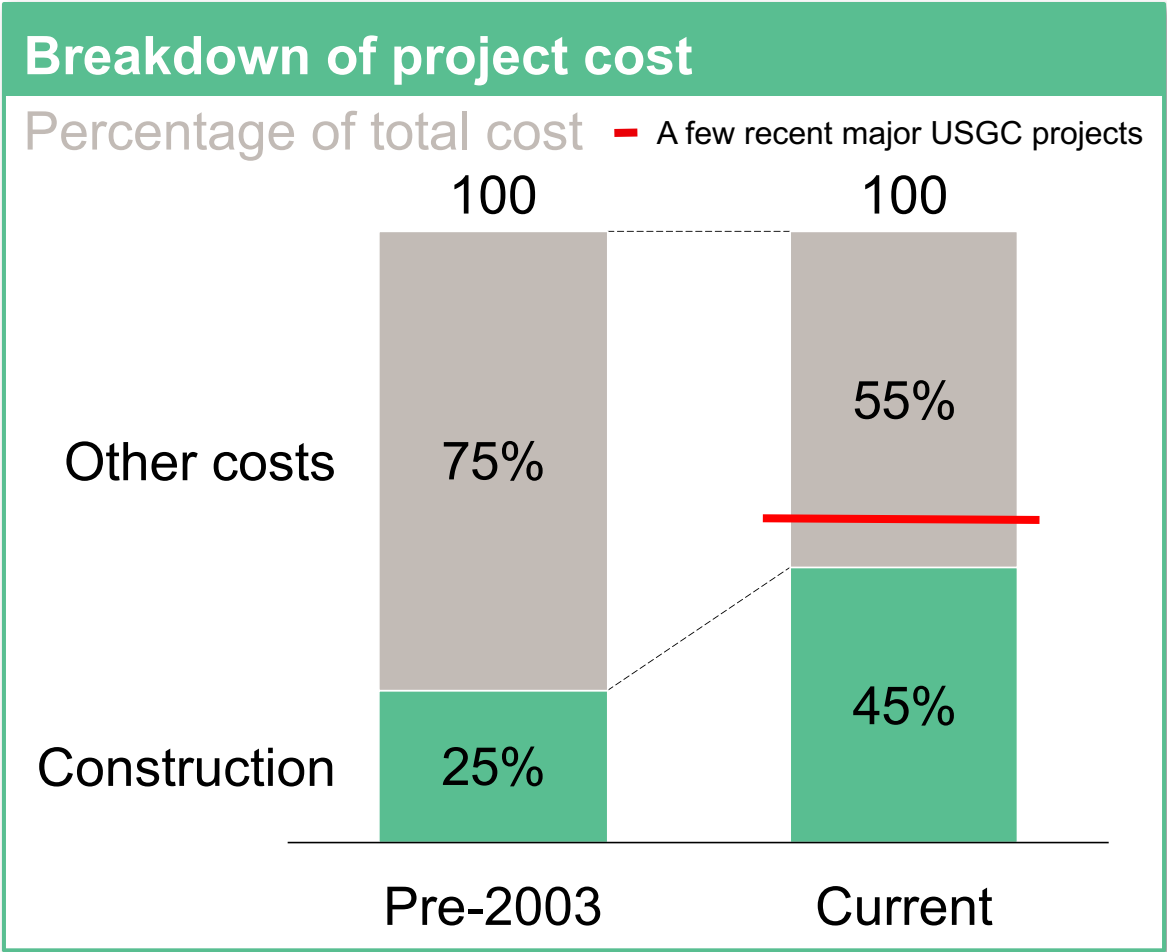


1 ~20 USGC petrochemical projects >\$250 million in capex. Results hold for projects >\$1 billion in the dataset

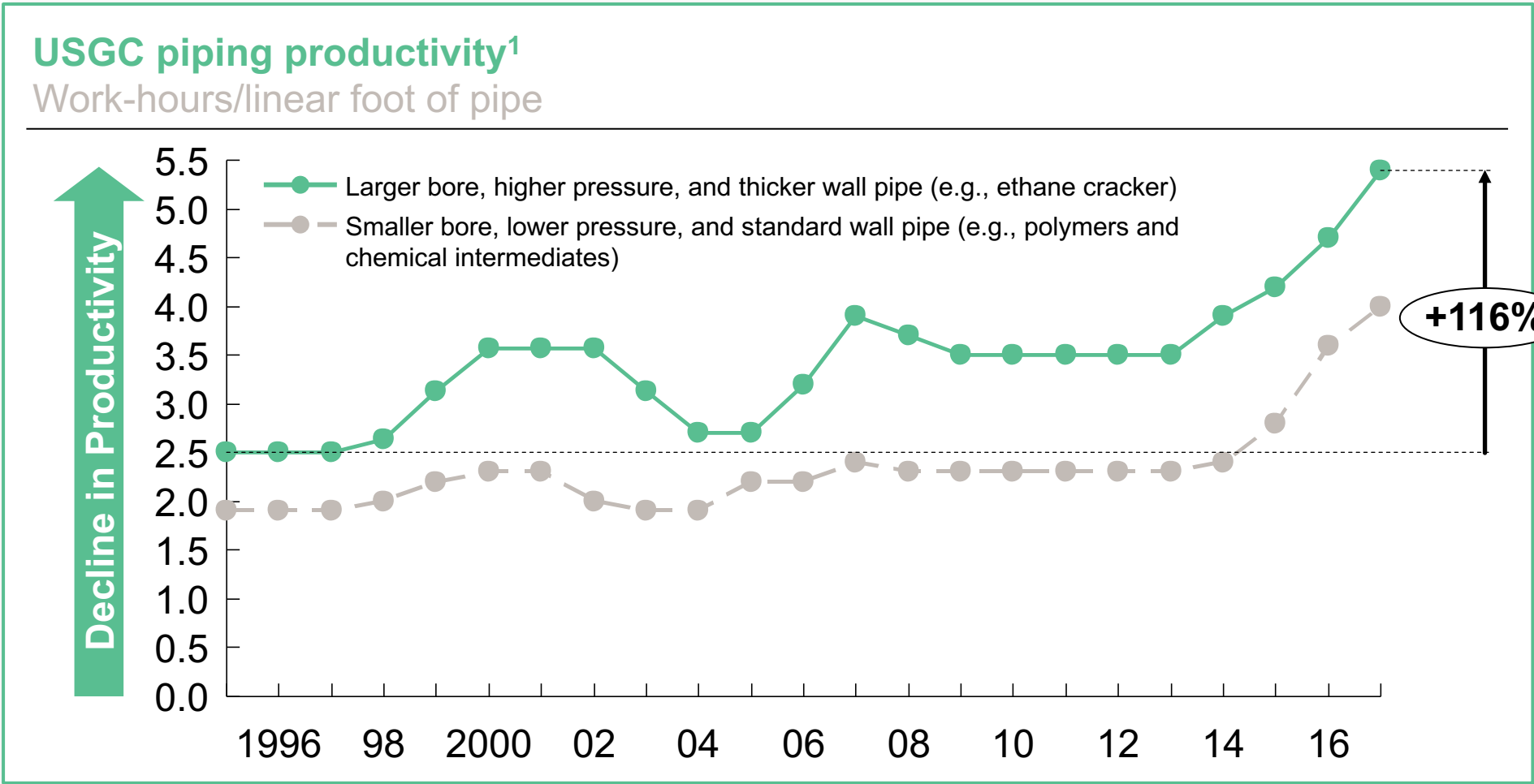
2 Percent increase over sanction estimate

3 Percent increase over original duration for EPC phase

Construction costs are now at least 45% of TIC

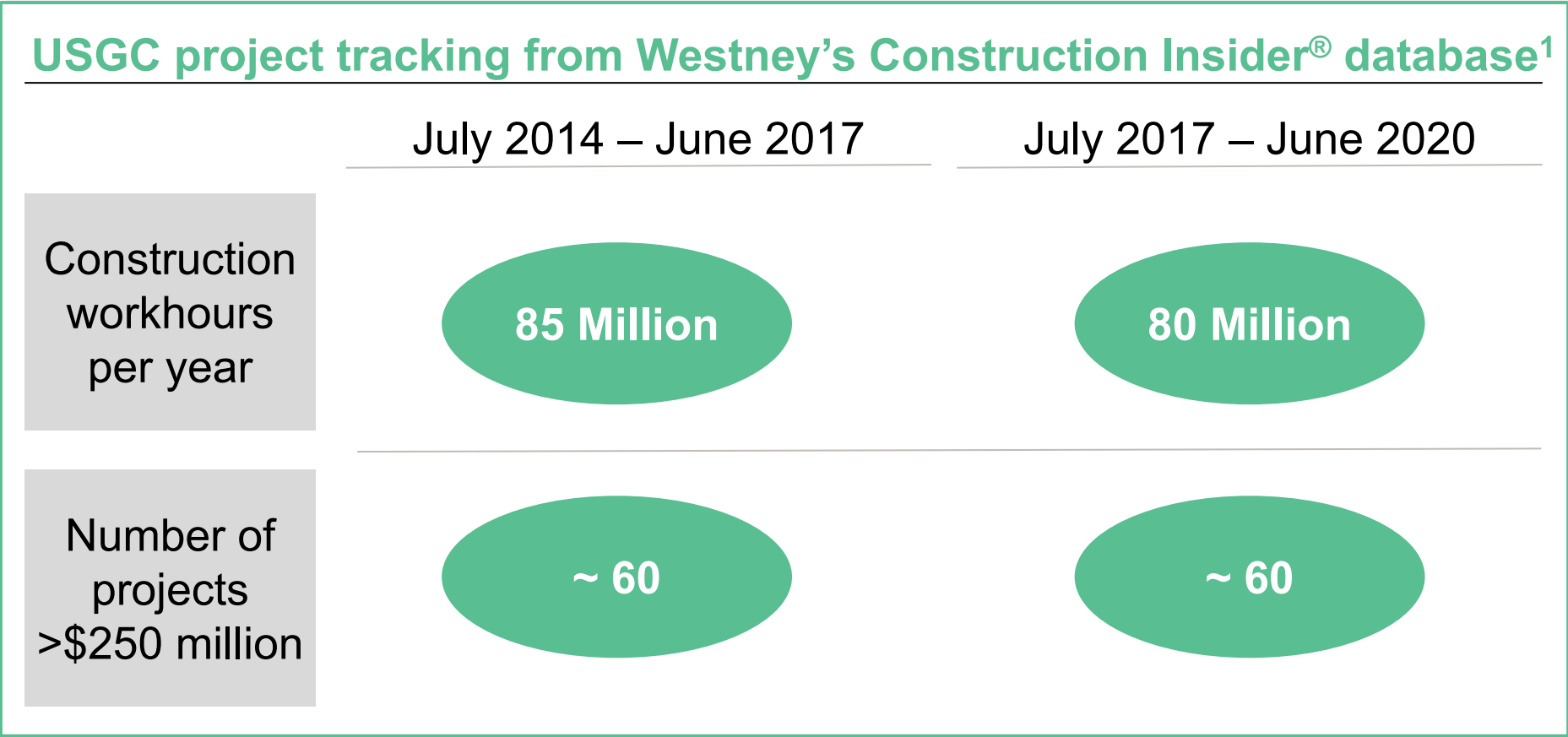


A decline in piping productivity is a key driver



¹ Includes pipe logistics on site, rig and erect, fit up, weld or connect, hangers or anchors, hydrotest, and reassemble

USGC capital project investment remains strong; implementing improvements is critical



¹ Major projects in the midstream, LNG, refining, petrochemical and related industries on the USGC

Breakout: Ranking the top 4 challenges

Instructions

- Each table will identify root causes (and then potential solutions) for 1 of the 4 challenges identified in the mid-year session
- Before we begin identifying root causes, we'd like each table to choose which challenge they will focus on
- Take ~2 minutes to determine which challenge you will focus on with your table



**Be prepared to
share your
responses**

Breakout: Identifying root causes

Instructions

- Take 10 minutes with your table to identify root causes for your selected challenges
- Group root causes into industry, owner, and contractor categories
- Prioritize the top 3 root causes that should be addressed



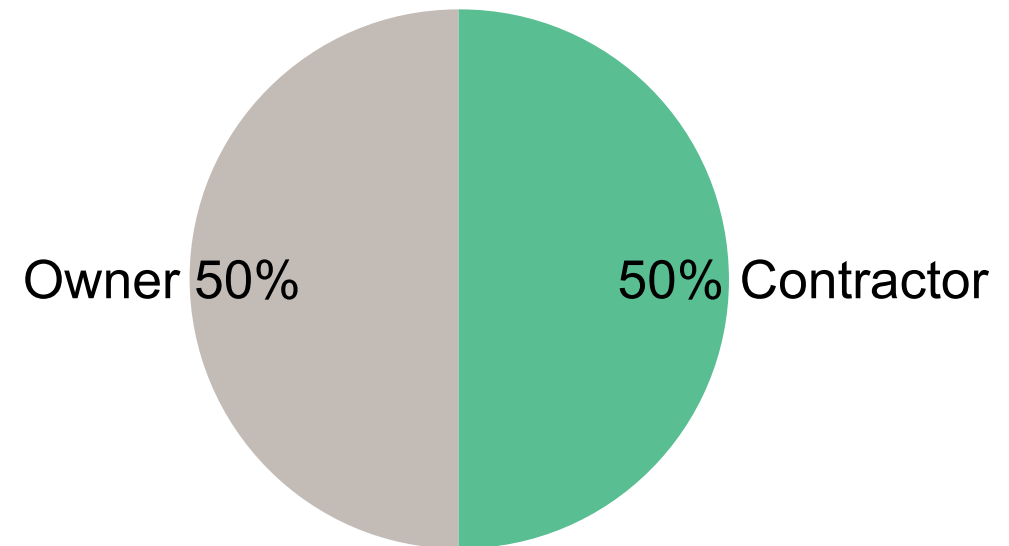
**Be prepared to
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The ECC board was also asked to provide their perspective on root causes and solutions before this session

An online survey was sent to the ECC board

- Board members were asked to:
 - Rate the impact of root causes on a pre-developed list (1=no impact, 5=extreme impact)
 - Provide additional root causes
 - Provide solutions their companies are working on

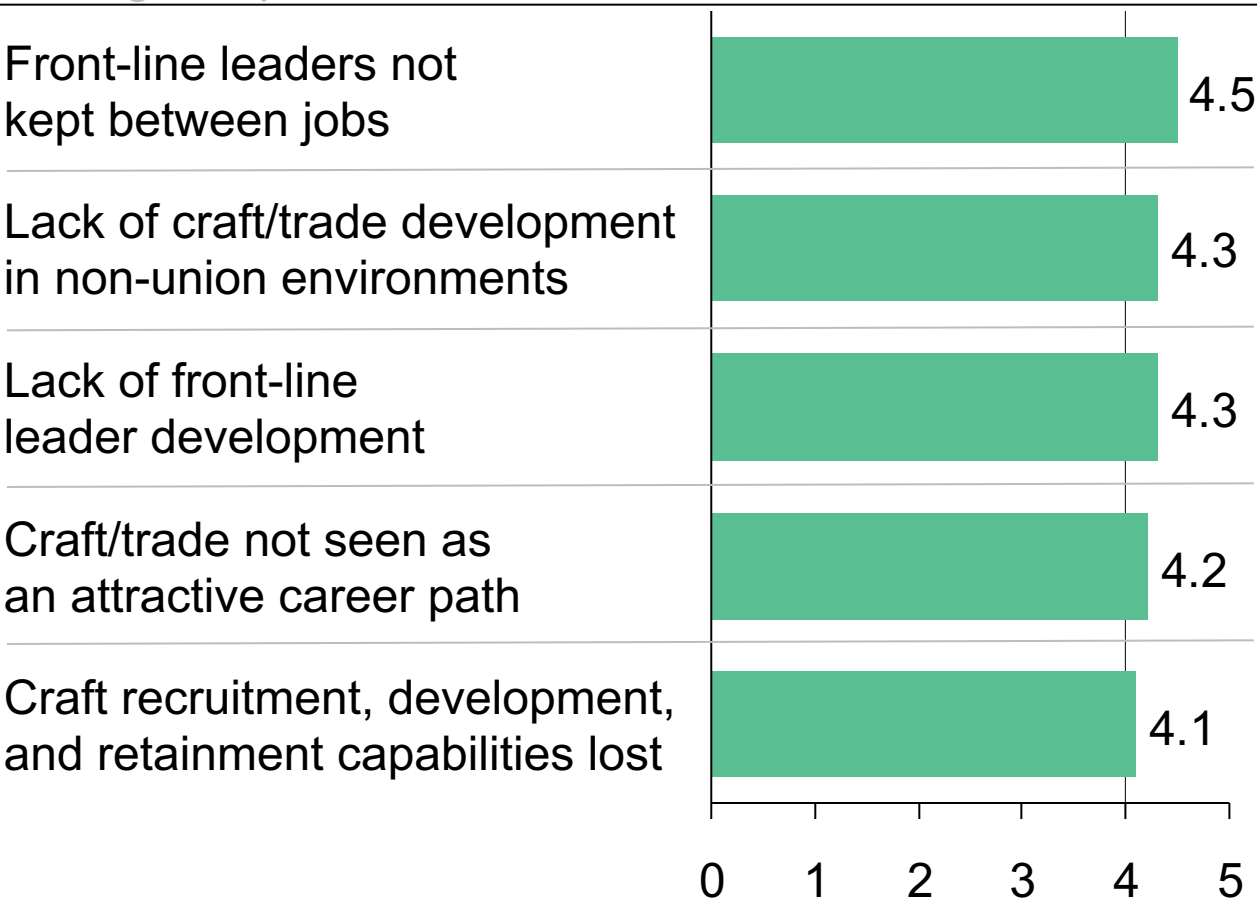
A split of owner and contractor feedback was provided



Challenge #1: Greatest impact from board responses focused on crafts and frontline leaders

Level of impact on the decline in overall owner and contractor capabilities

Average response score

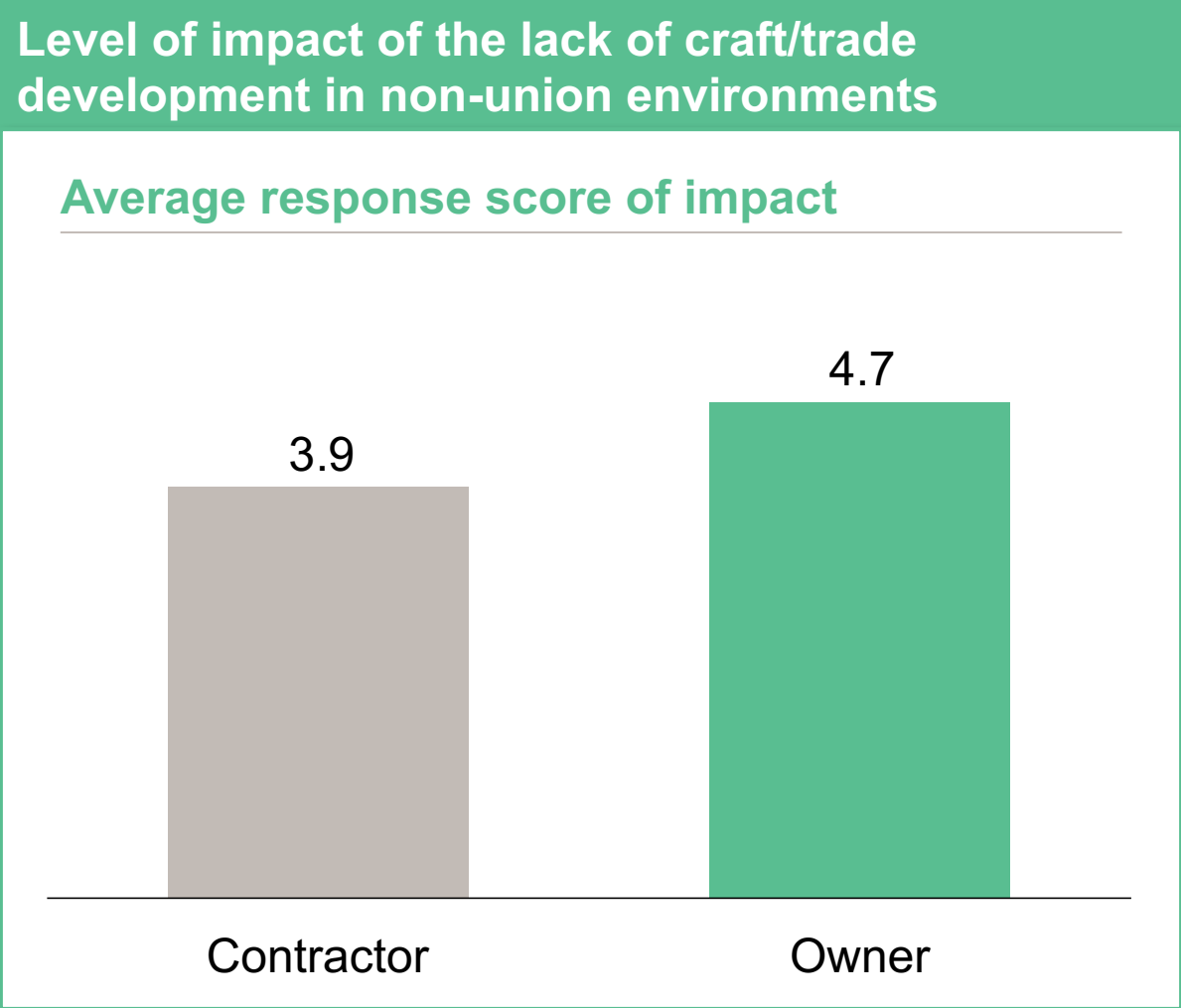


15 potential root causes were rated across industry, owner, and contractor categories

Key comments:

- *“Procurement departments have taken over negotiations with a focus on the short-term only”*
- *“Owner commitment to the costs associated with improving skills is needed”*

Owner responses were higher than contractors on the impact of the lack craft/trade development



Challenge #2: A mix of owner and contractor root causes were rated highest for suboptimal contractual risk-taking

Level of impact on suboptimal contractual risk-taking and adversarial relationships

Average response score

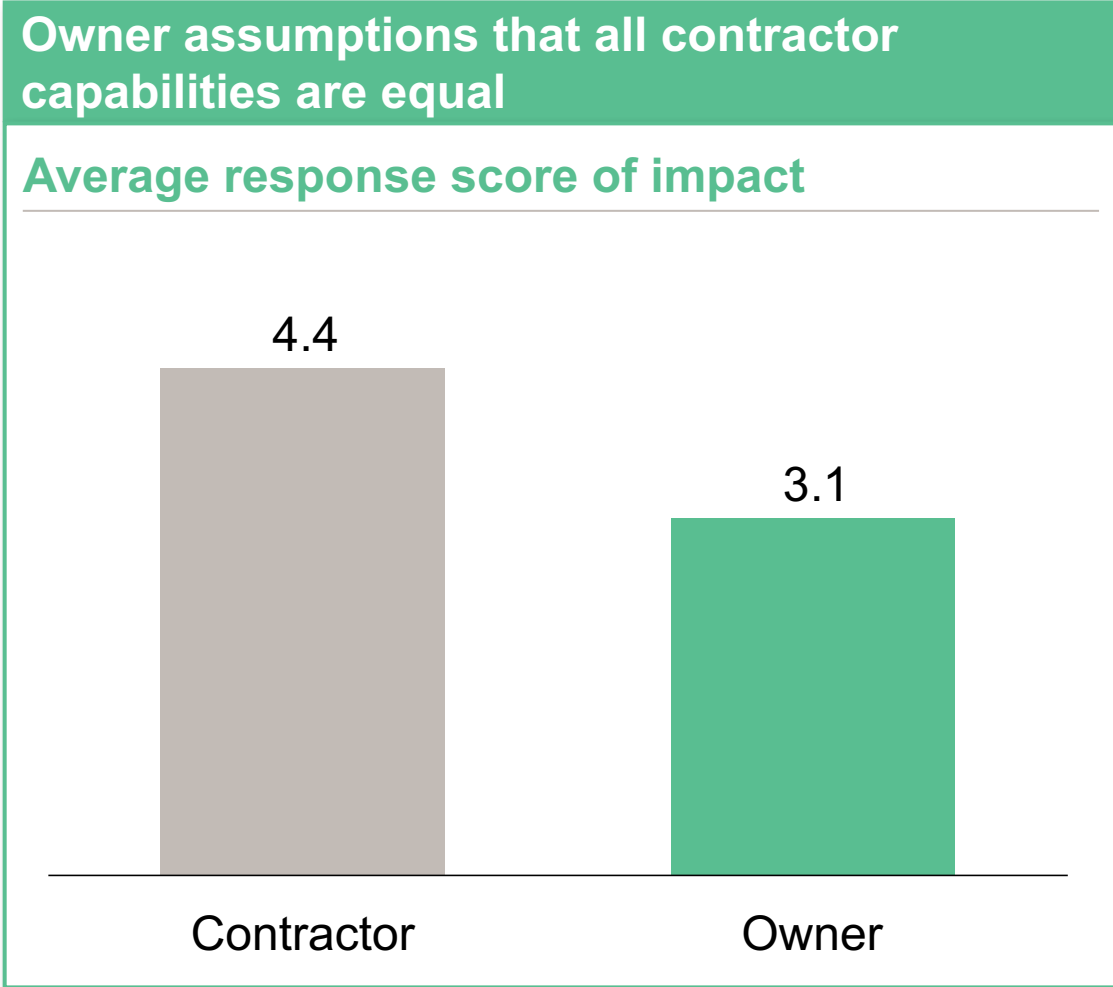
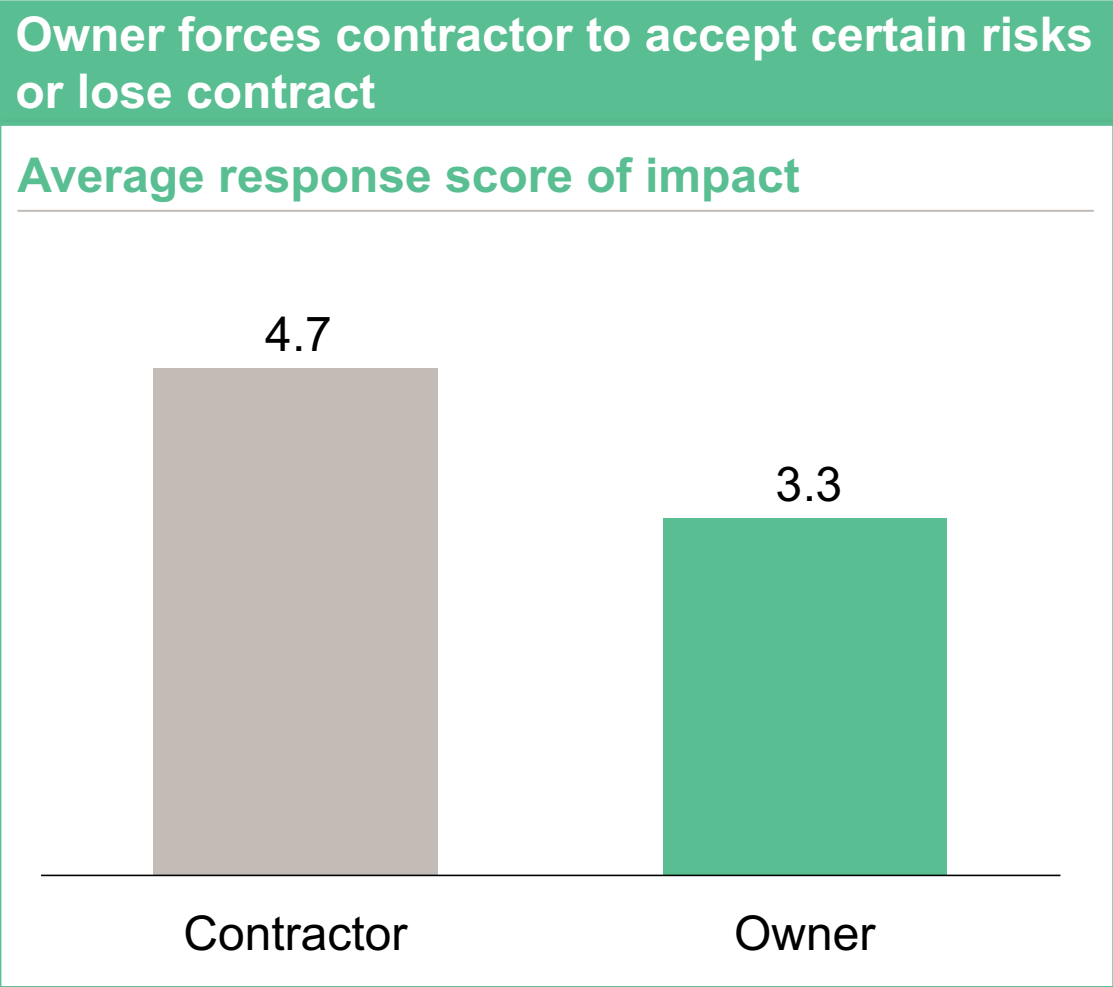


10 potential root causes were rated across industry, owner, and contractor categories

Key/additional comments:

- *“There has been a commoditization of contractor’s capabilities”*
- *“Contractor’s bidding on what the owner wants...”*
- *“Procurement is driving the process”*

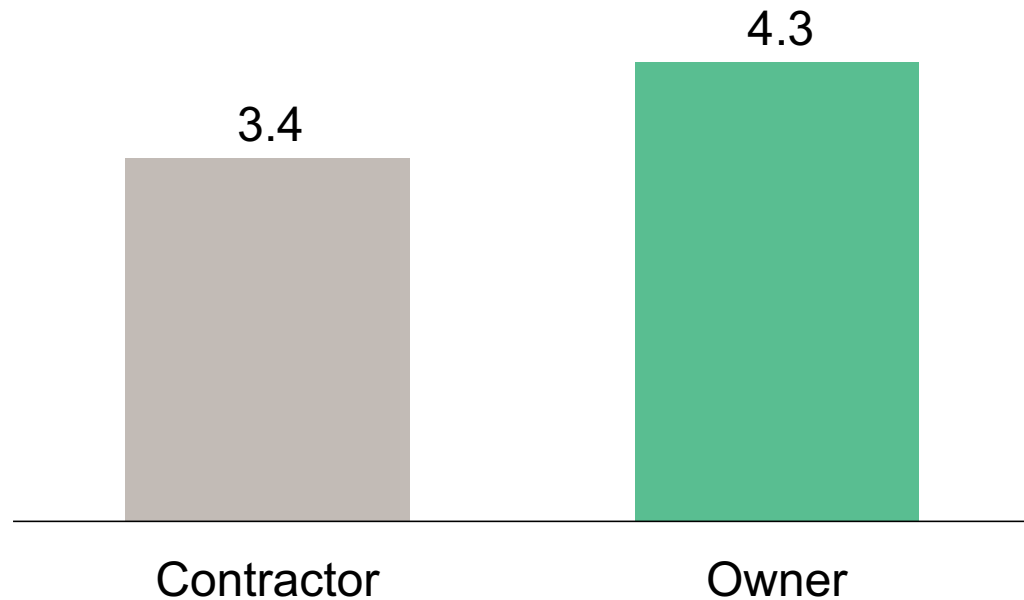
As might be expected, contractors are blaming owners...



...and owners are blaming contractors

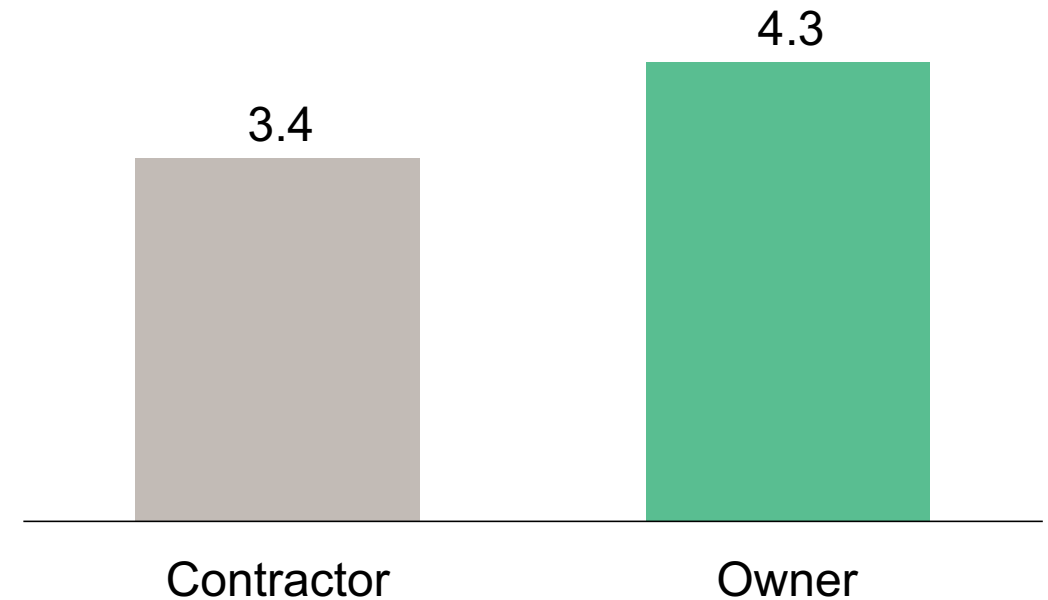
Limited understanding of project risks by the contractor

Average response score of impact

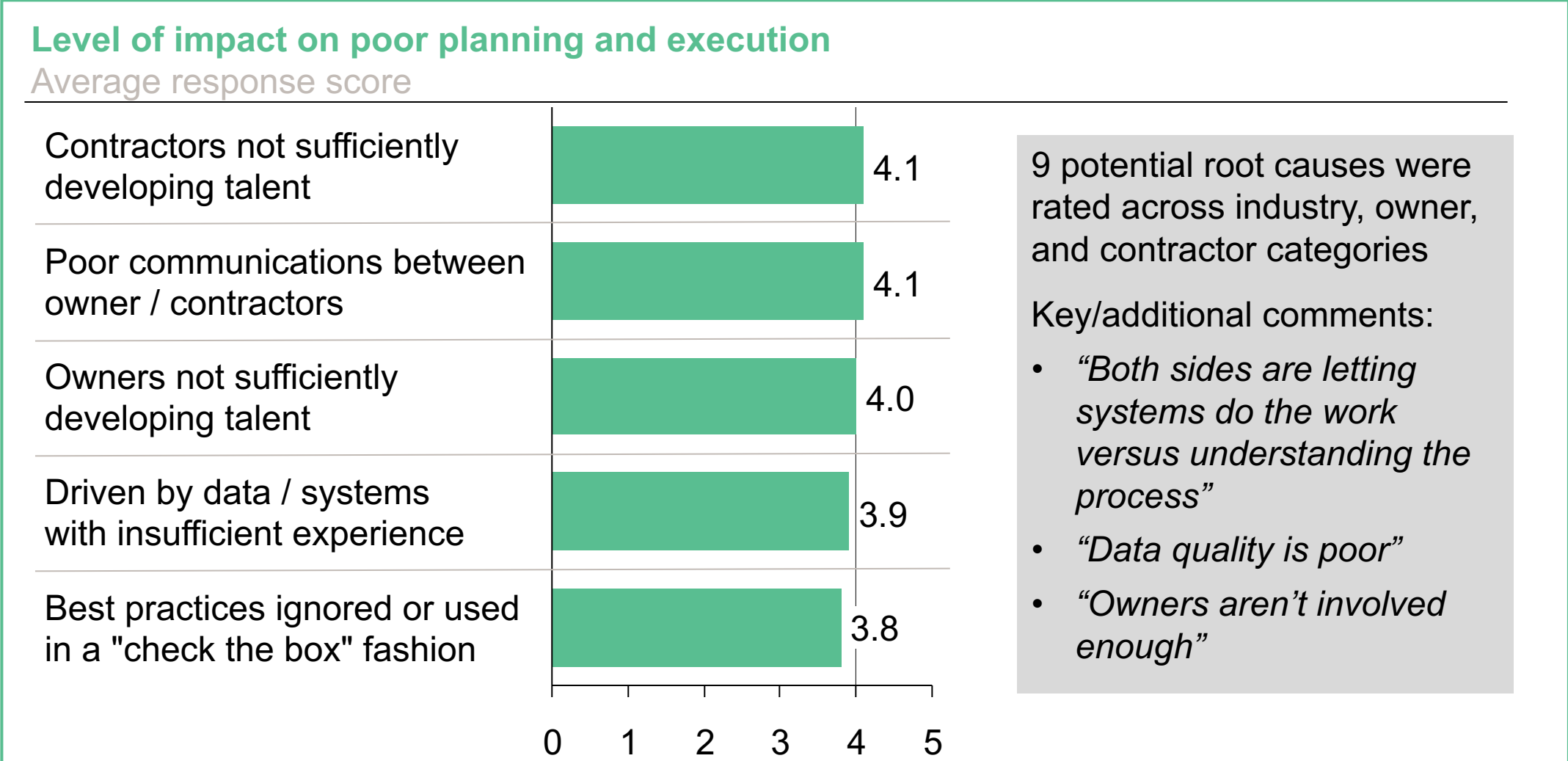


Limited risk management capability residing with the contractors due to reduced overhead

Average response score of impact



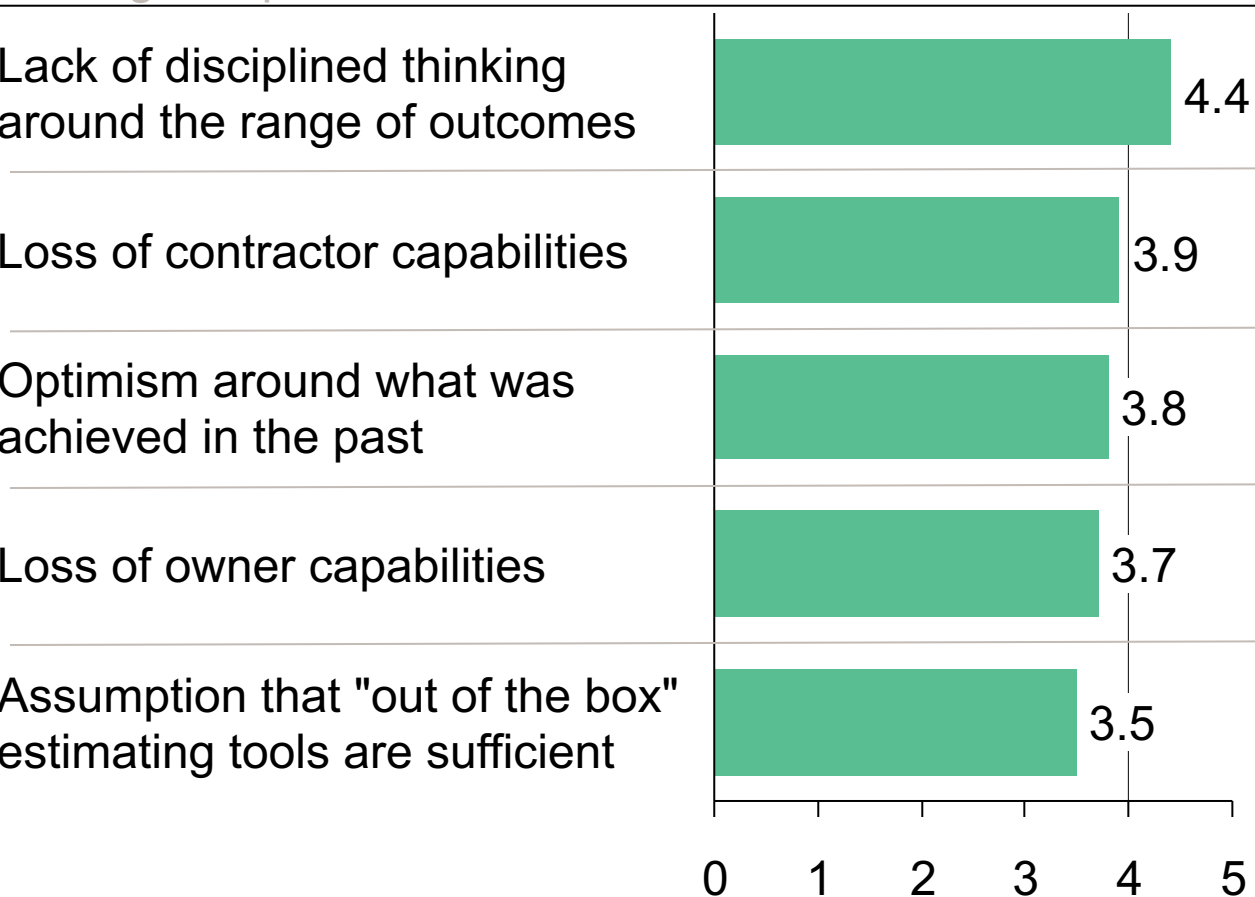
Challenge #3: Owner/contractor talent, poor communication, and ignoring best practices blamed for poor planning and execution



Lack of thinking about the range of outcomes, capabilities, and optimism causing over-reliance on backwards-looking data

Level of impact on over-reliance of backwards-looking data

Average response score



6 potential root causes were rated across industry, owner, and contractor categories

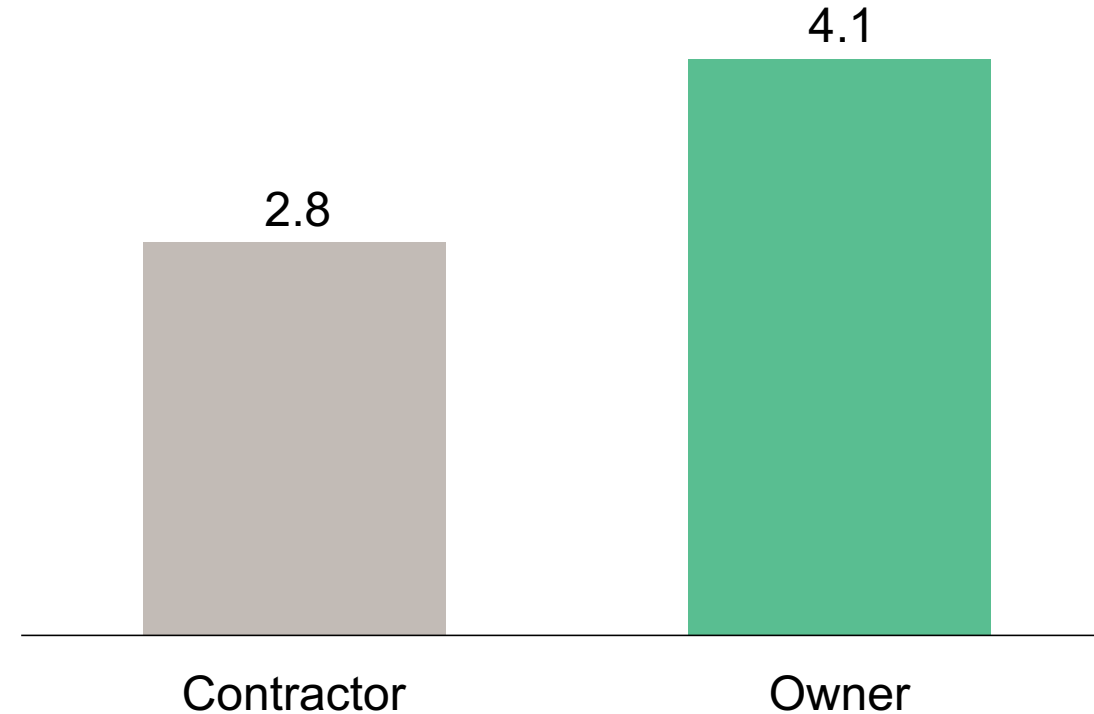
Key/additional comments:

- *"Need to develop talent in cost engineering – the accidental engineering career"*
- *"Available tools are not aligned with industry reality today"*

“Out of the box” tool use is rated as more of an issue by owners

Assumption that "out of the box" estimating tools are sufficient

Average response score of impact



Breakout: Developing solutions

Instructions

- Your table will be assigned to take either an owner or contractor perspective
- Given your assigned perspective, you have 20 minutes to develop solutions to your challenge that:
 - Your organization can/will implement in the short and long-term
 - Recommendations you would like your owner/contractor counterpart to implement, including how you plan to convince them to do so



**Be prepared to
share your
responses**

Solutions from ECC board: Decline in owner/contractor capabilities

Details	Contractor response	Owner response
Working with trade schools and government agencies to increase pool of craft talent	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Dedicate funds to recruiting and training the next generation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Require personnel mentoring as part of experienced staff annual performance review	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Implement rotational development assignments	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Enable a field leadership a career path to the Home Office	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Standardize on contractors tools and systems instead of owner's preferences	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Solutions from ECC board: Suboptimal owner/contractor risk-taking

Owner	Contractor response	Owner response
Shared risk, pain/gain, performance rewards	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Restructuring early phase opportunity development to ensure full range of risks and uncertainties are identified and addressed	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Make certain that procurement decisions are not only cost-based	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Bolstering risk management capability through risk leadership similar to the approach taken to behavior-based safety	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Relationship building through Owner / Contractor workshops	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Solutions from ECC board: Poor planning and execution

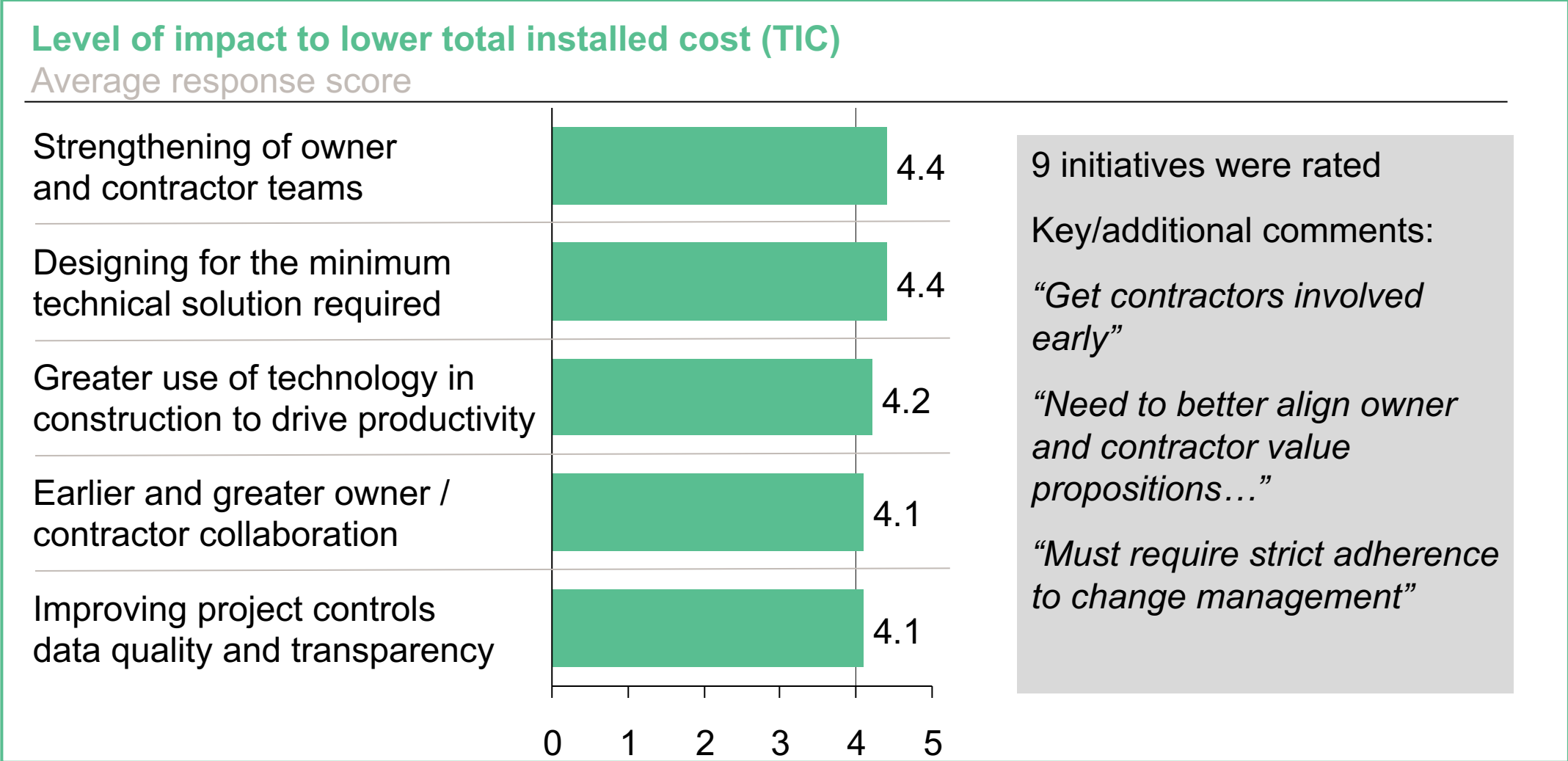
Owner	Contractor response	Owner response
Realign all work processes to ensure consistent execution and implement better tools	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Implement advanced work packages	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Provide additional training	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Work with contractors to build a long-term relationship to develop talent	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Standardize systems across owners and contractors that can ensure data consistency	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Monthly and quarterly executive-level meetings between owners and contractors	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Solutions from ECC board: Over-reliance on backwards-looking data

Owner	Contractor response	Owner response
Meet with companies to benchmark trends	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Concerted effort in both data gathering and analysis by SMEs coupled with a program to ensure their use is appropriate	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Meet with tools suppliers to discuss effort to enhance their tools	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Project controls lunch and learn with project teams including all stakeholders	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Introduction to TIC

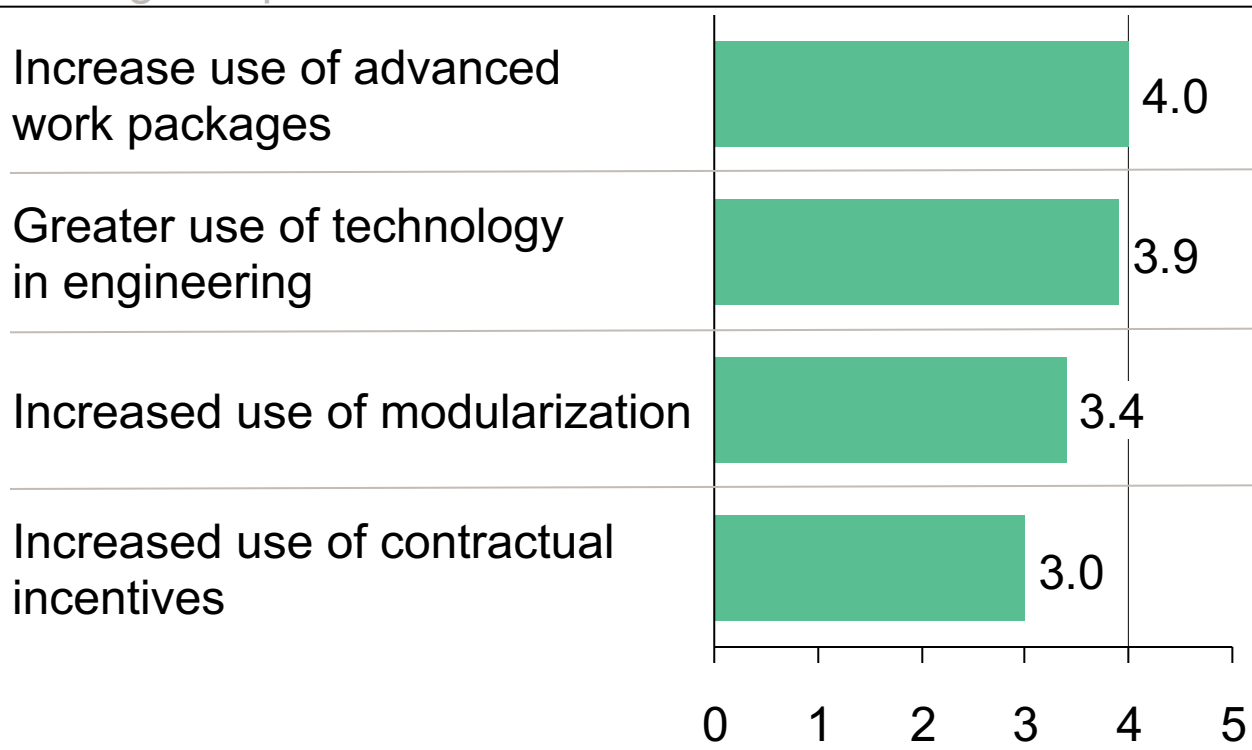
We also asked the board to comment on which opportunities would best help lower TIC (1/2)



We also asked the board to comment on which opportunities would best help lower TIC (2/2)

Level of impact to lower total installed cost (TIC)

Average response score

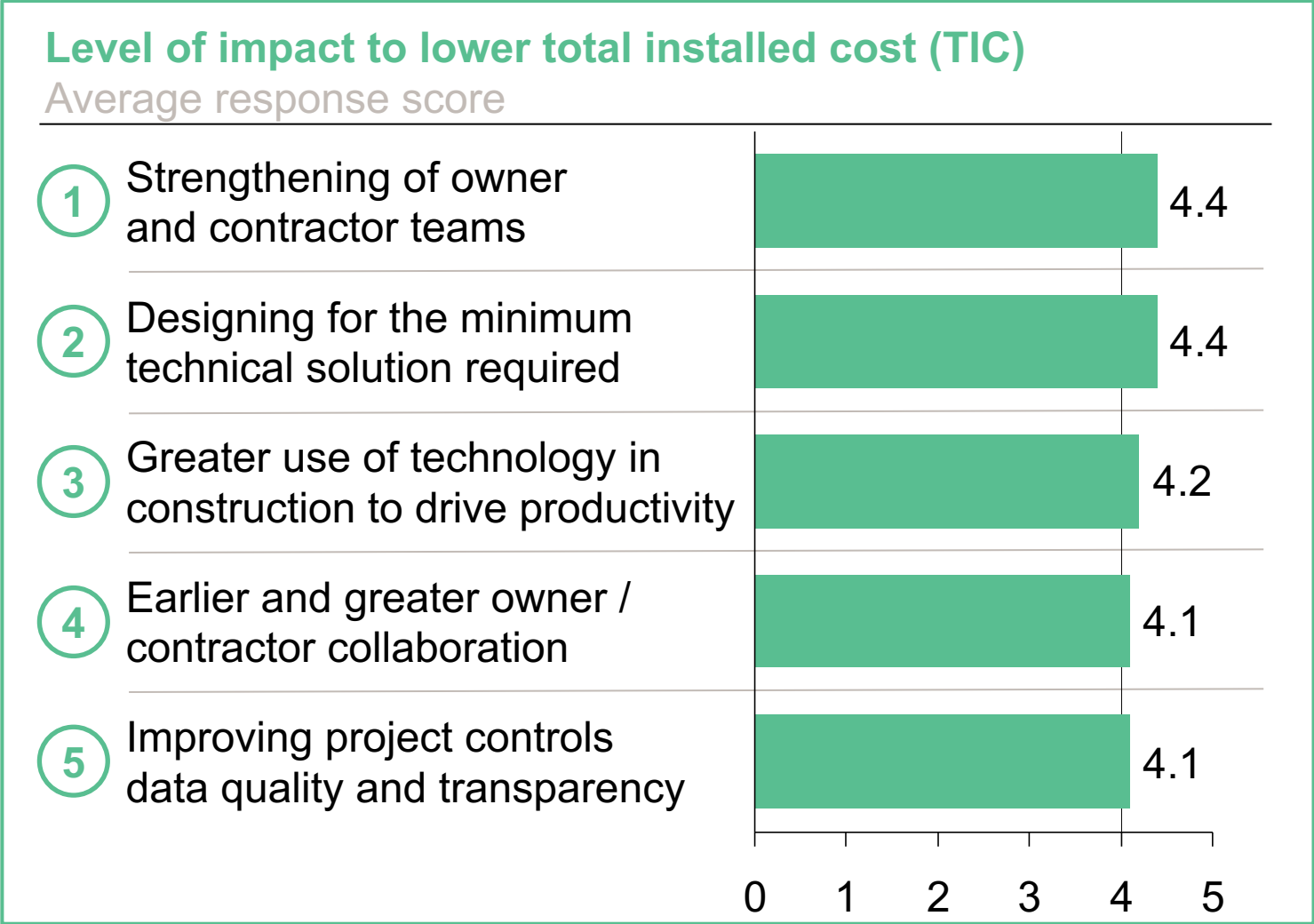


Key/additional comments:

...”the biggest impact on TIC is going to be with quantities. We don't tend to focus on quantities until we get to FEL 3 and by then, it is hard to undo what has been done...”

“Procurement driven owners are missing out on improving TIC”

When looking at the top 5 opportunities, there is an interesting owner/contractor split (1/2)



When looking at the top 5 opportunities, there is an interesting owner/contractor split (2/2)

Owner view

Opportunity

Score Δ^1

- ② Designing for the minimum technical solution required
- ③ Greater use of technology in construction to drive productivity
- ⑤ Improving project controls data quality and transparency

+0.5

+0.7

+0.7

Contractor view

Opportunity

Score Δ^2

- ① Strengthening of owner and contractor teams
- ④ Earlier and greater owner / contractor collaboration

+0.9

+0.9

¹ Delta between the owners average score and the contractors average score

² Delta between the contractors average score and the owners average score

Breakout: Realizing lower TIC

Instructions

- Choose one of the 9 opportunities to lower TIC shown on the next slide that your table feels is most promising
- Identify the activities that owners and contractors will have to do to ensure lower TIC is delivered through your chosen opportunity



**Be prepared to
share your
responses**

9 improvement opportunities

1. Earlier and greater owner/contractor collaboration
2. Increased use of contractual incentives
3. Increased use of modularization
4. Greater use of technology in engineering
5. Greater use of technology in construction to drive productivity
6. Increase use of advanced work packages
7. Designing for the minimum technical solution required
8. Improving project controls data quality quality and transparency
9. Strengthening of owner and contractor teams

Executive thinking

Harvey Vigneault, Technip



*Senior
Vice
President
Onshore/
Offshore
North
America*

- Responsible for all North American projects including Chevron Phillips and Sasol
- Previous roles include EVP WW Operations, SVP Upstream, VP Refining and Chemicals and VP Project Management
- Mega-project involvement includes LNG, GTL, ethylene, and heavy oil

Close

Thank You!