

INDEPENDENT PROJECT ANALYSIS



Restoring Owner Confidence in Alberta's Capital Effectiveness

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Context

- **The first decade of the 21st Century was very difficult for projects in Alberta**
- **The province, which previously had been considered a very good place in which to do projects, developed a distinctly poor reputation amongst international owners**

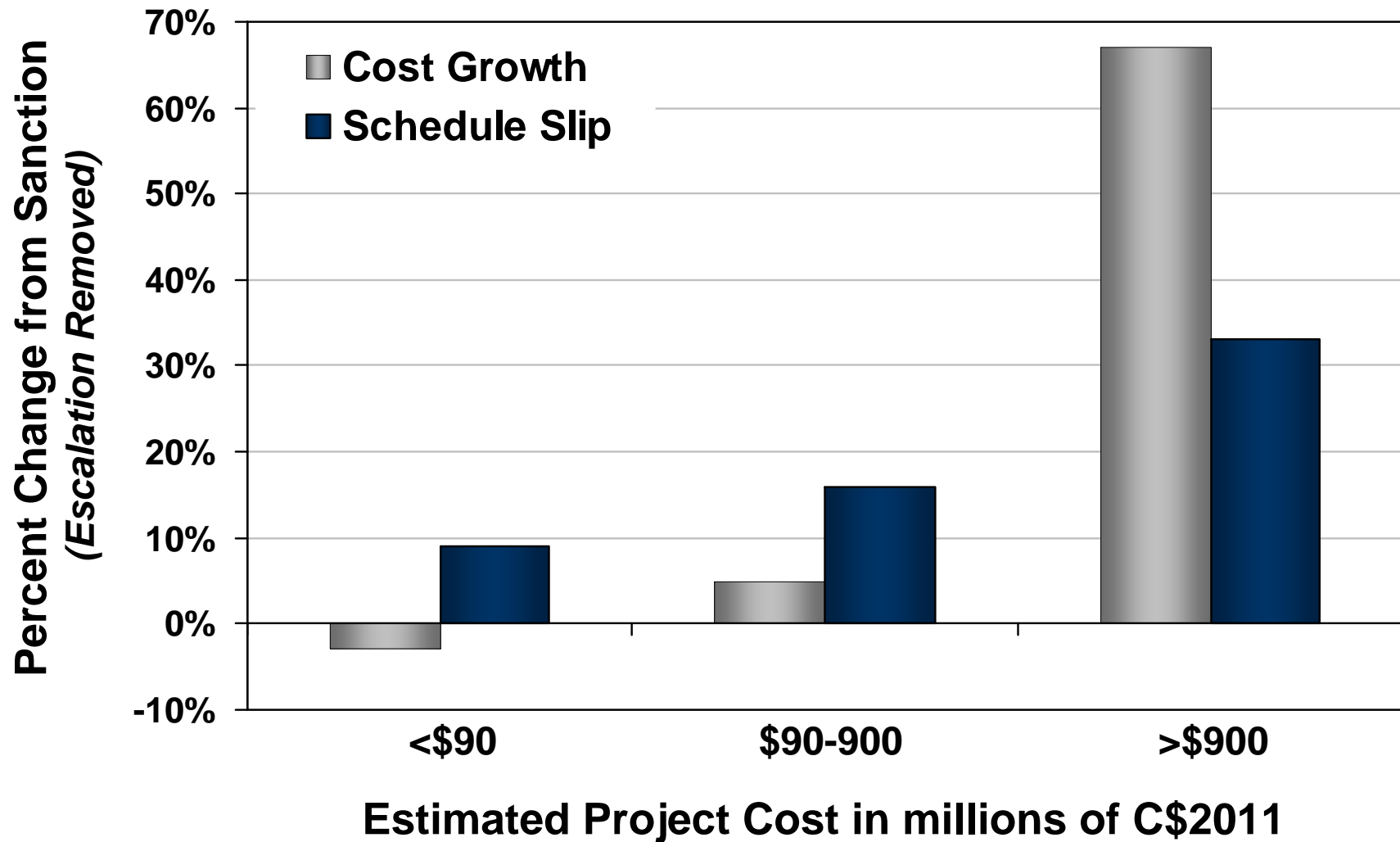
“Engineering and labour productivity are terrible up there!”

“Disastrous cost overruns!”

“Out of control!”

“No construction management at all!”

Actually, the Large Projects Were the Problem*



* Based on 173 projects authorized and completed in Alberta between 2000 and 2010



Some Questions

Is Alberta peculiar for having so many large project failures?

Why do large projects fail so often?

Who can fix the problems? (Who is to blame!)

Most Key Outcomes Degrade with Size

As Project Size Increases	Outcome	Probability
Cost Growth	Increases	<i>0.001</i>
Cost Competitiveness	Gets Worse	<i>0.0001</i>
Schedule Slip	Decreases up to \$600 million and then increases	<i>0.001</i>
Operability	Declines	<i>0.02</i>



Outcomes Diverge as Size Increases

- **We mostly maintain control of projects up to about megaprojects size**
- **Over \$900 million, project outcomes start to degrade very rapidly**
- **A wide chasm develops between good and poor projects:**
 - **Good projects are genuinely excellent**
 - **Poor projects tend to be poor on most every outcome**

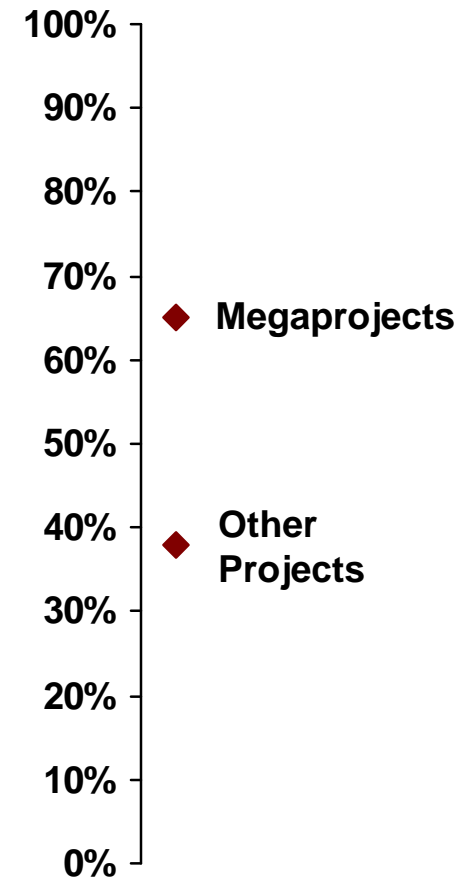


Defining Success and Failure

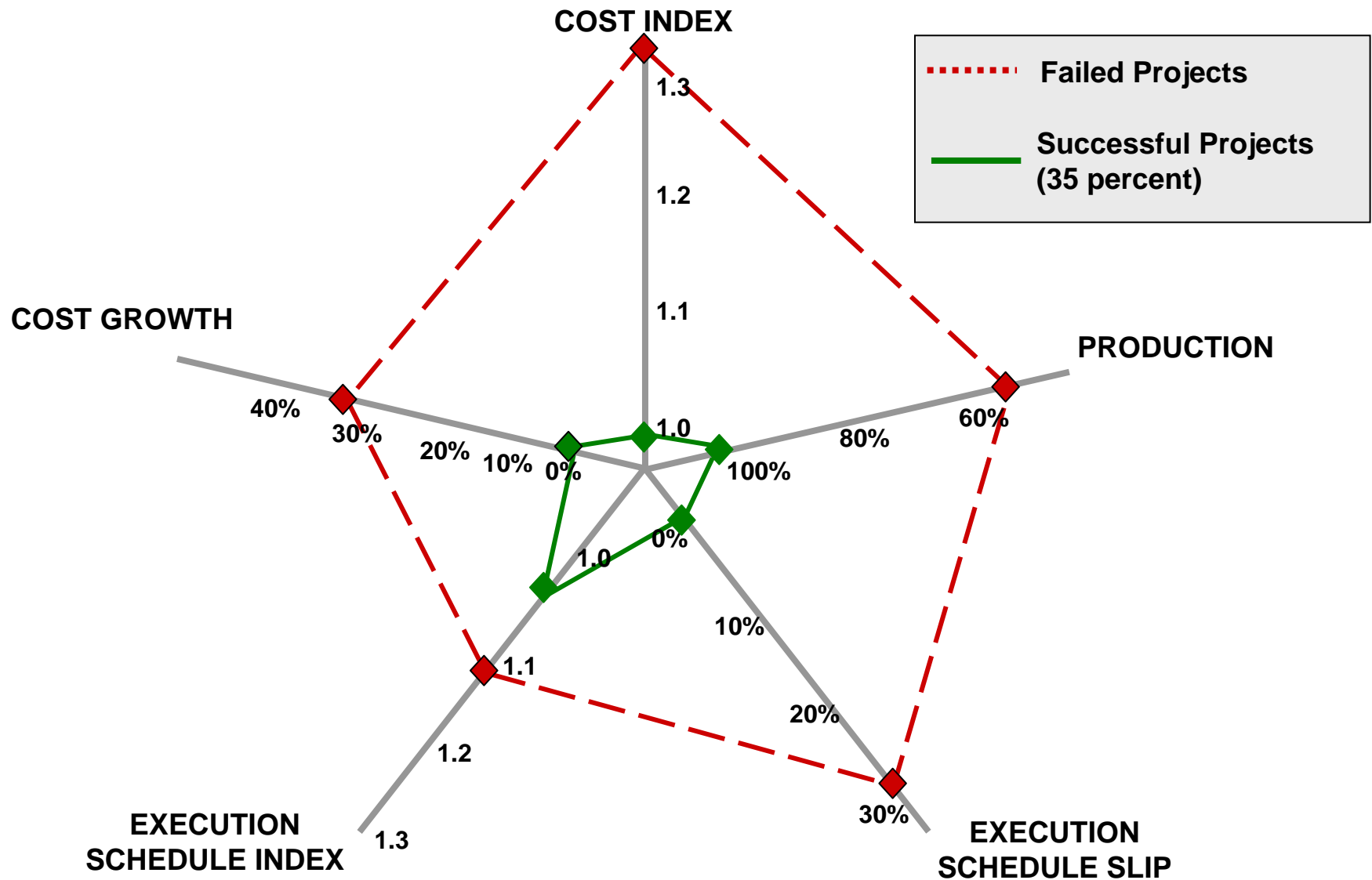
- We deem a project to be a **failure** if one or more of the following occurred:

Costs grew (real)	25% +
Schedule Slipped	25% +
Overspent (<i>Absolute Measure</i>)	25% +
Execution time (<i>Absolute Measure</i>)	50% +
Severe and Continuing Operational Problems for 2 or more years after startup	Yes

Failure Rate

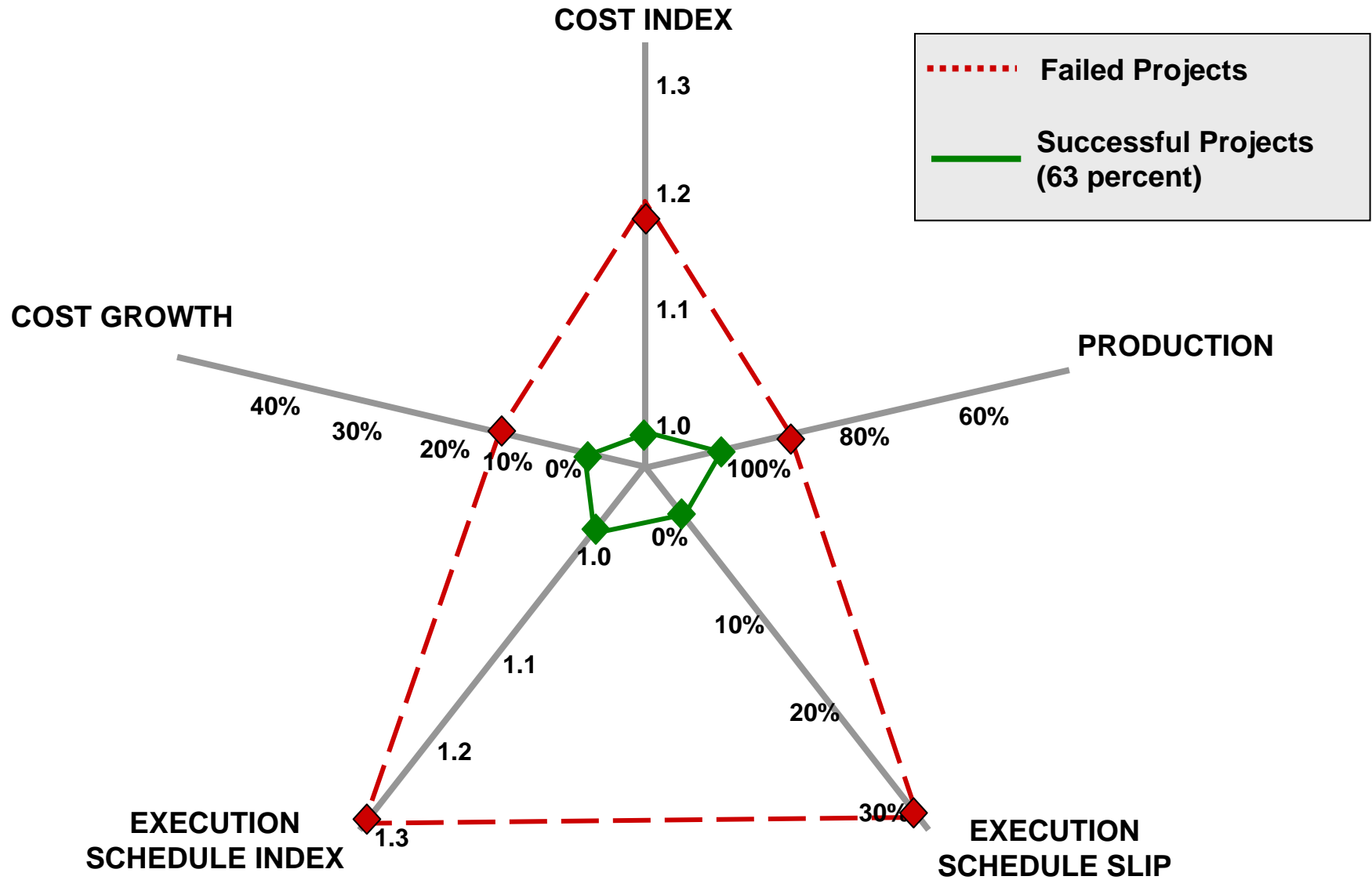


Megaprojects Split Into Radically Different Groups



Source: Merrow, Edward W. (2011). *Industrial Megaprojects : Concepts, Strategies, and Practices for Success*. Hoboken, New Jersey: John Wiley & Sons, Inc.

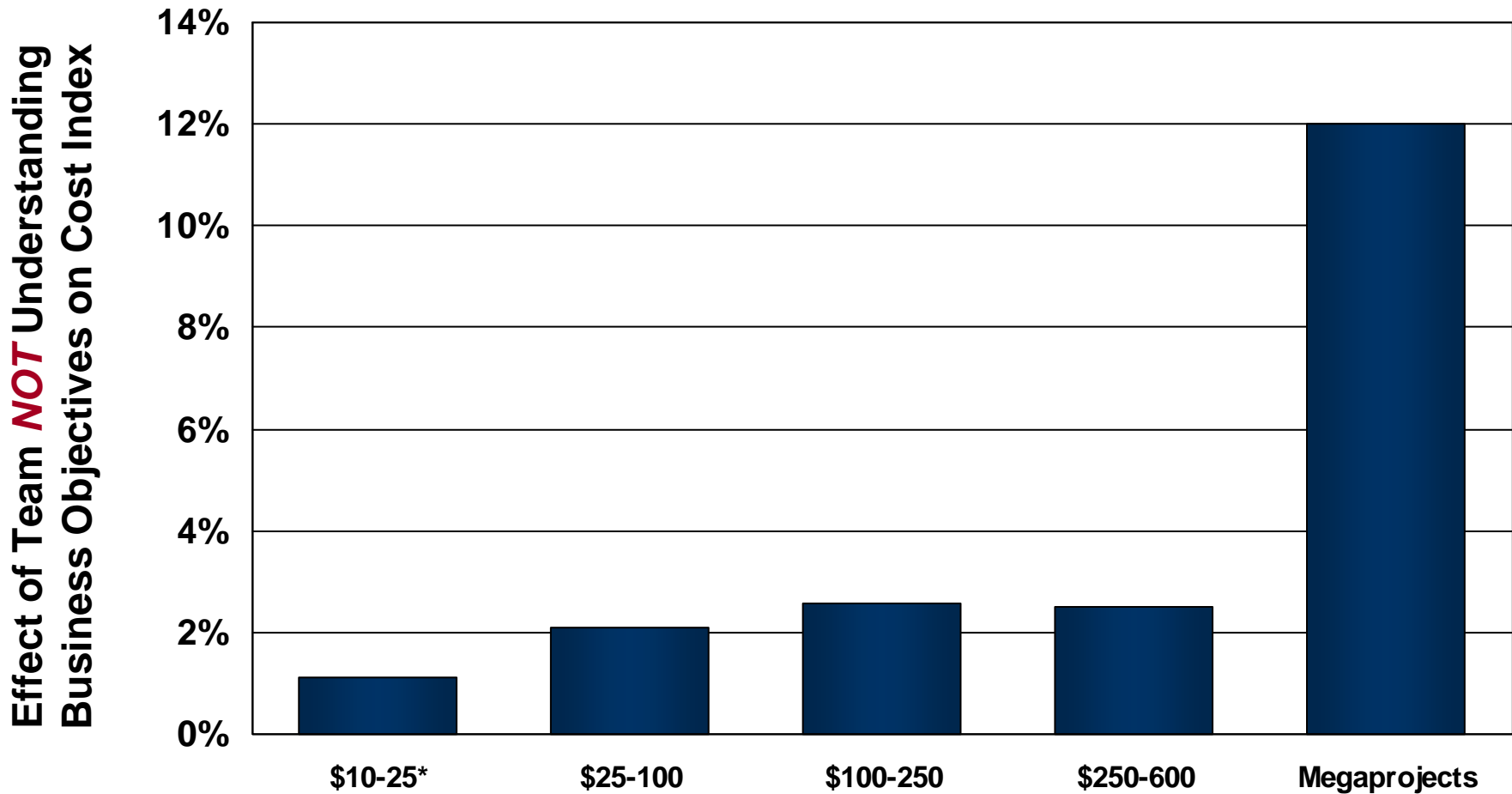
Non-Megaprojects Separate Very Differently



Four Essential Megaproject Practices

- 1** Clear business objectives, including clarity around the cost, schedule, operability tradeoffs
- 2** Full owner team staffing – no missing functions
- 3** Excellence in front-end loading
- 4** Stability in owner team leadership

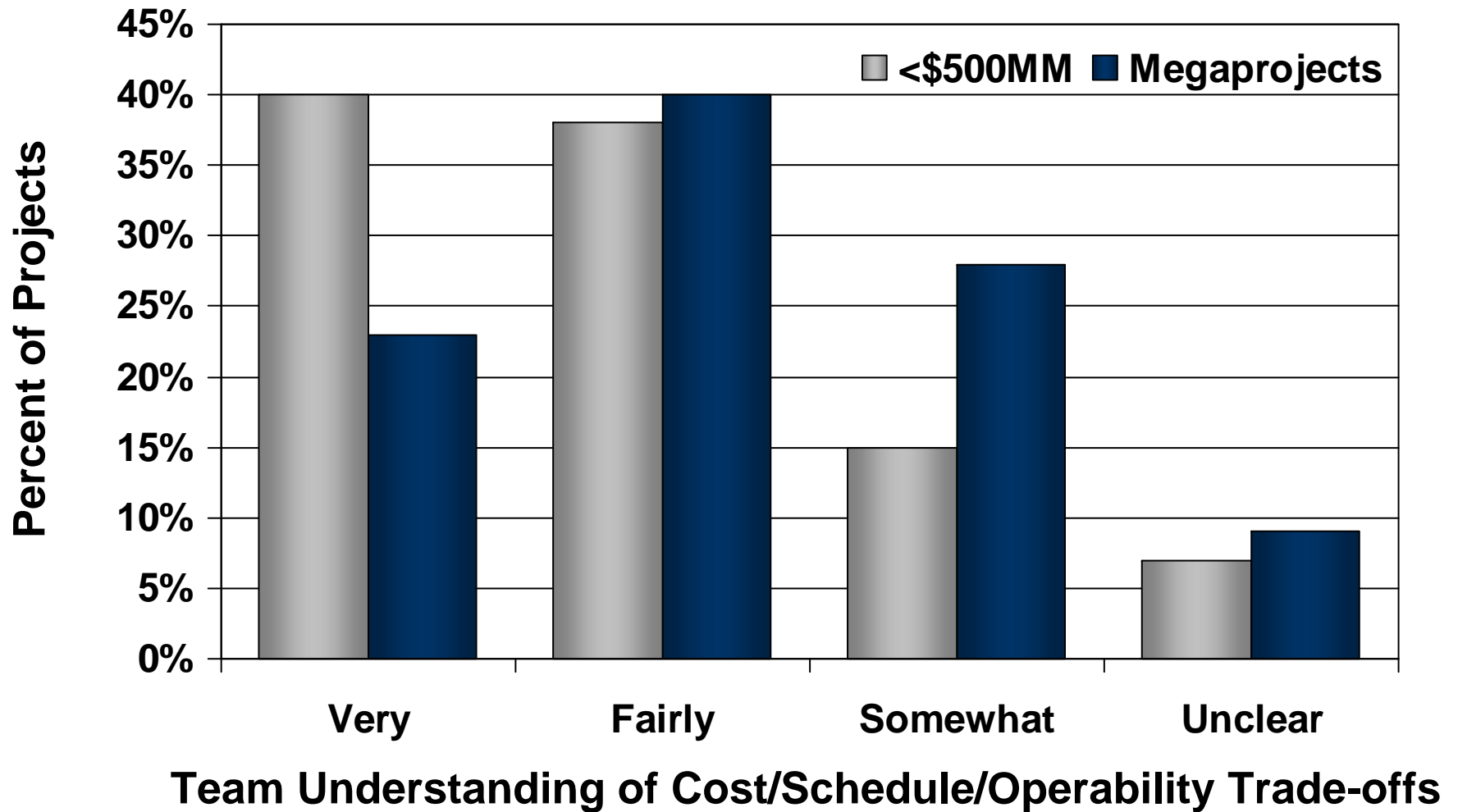
Clear Objectives Are Much More Important for Megaprojects



Clear Business Objectives & Tradeoffs

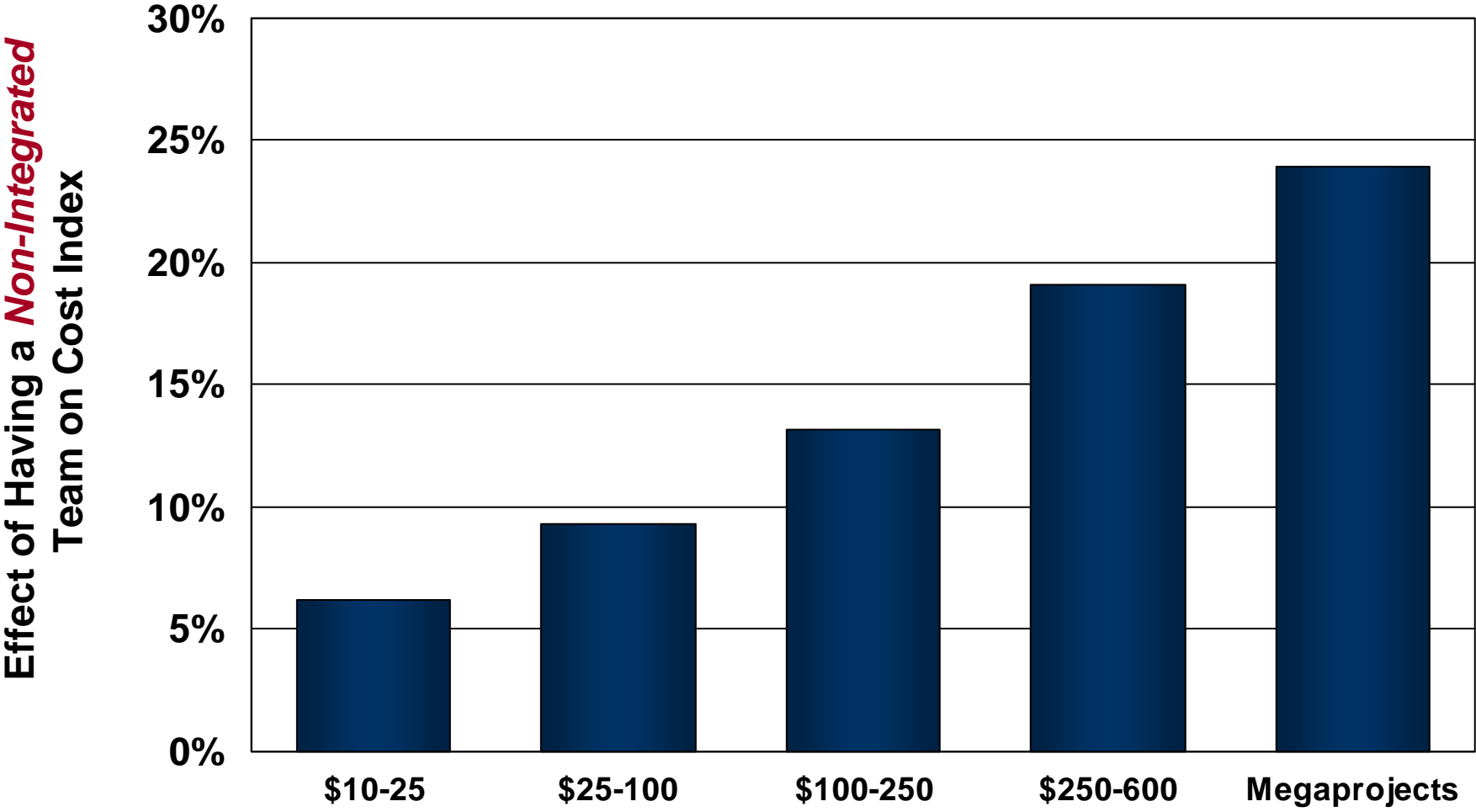
* All dollars in millions

Trade-offs Are Less Clear for Megaprojects



Clear Business Objectives & Tradeoffs

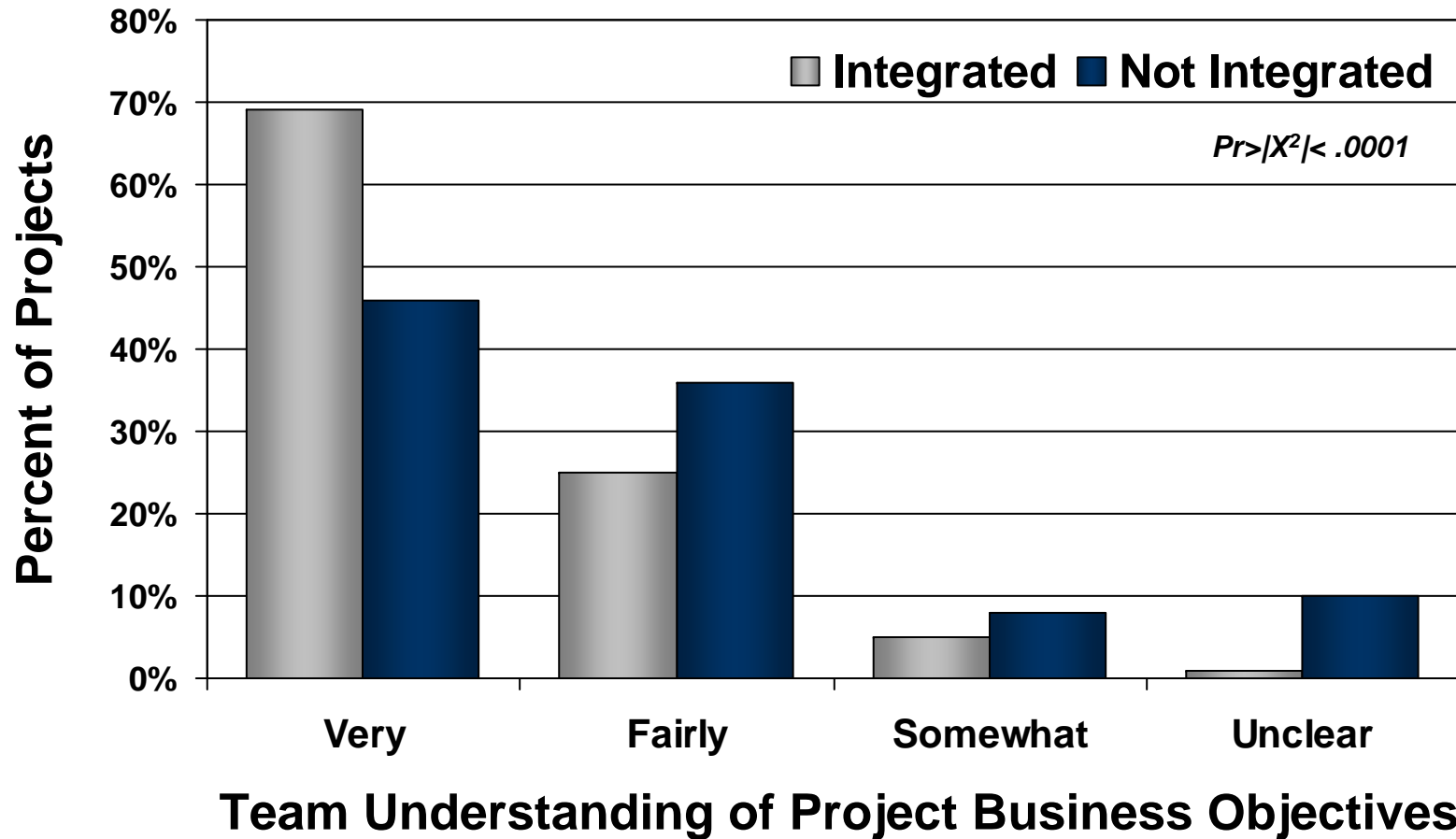
Team Integration Is Important for All *But Crucial for Larger Projects*



Full Owner Team Staffing

* All dollars in millions

Team Integration and Clarity of Objectives Go Together

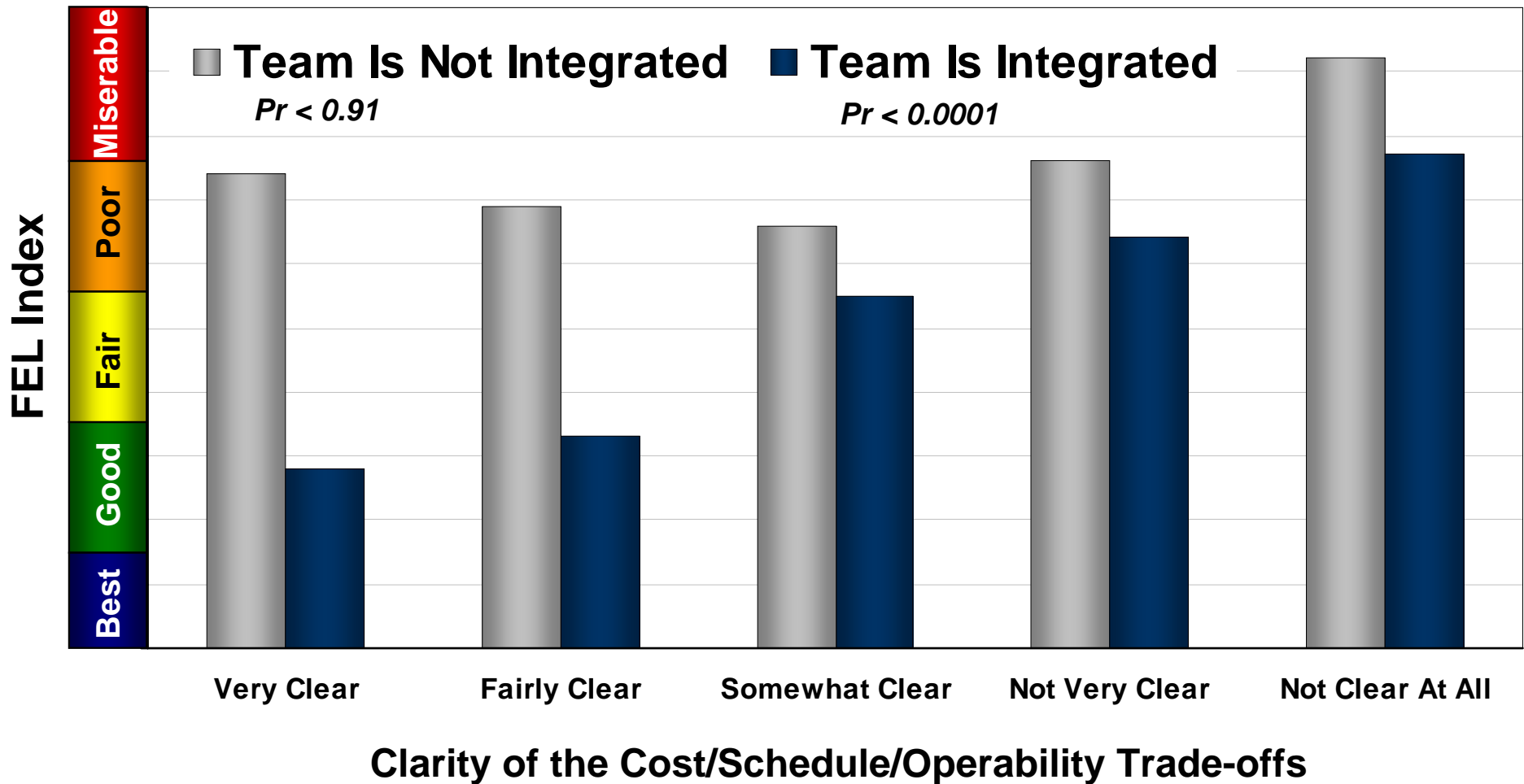


Data are for megaprojects only, but are similar for all projects

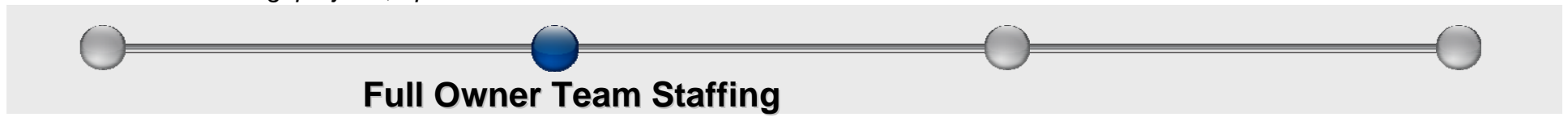


Full Owner Team Staffing

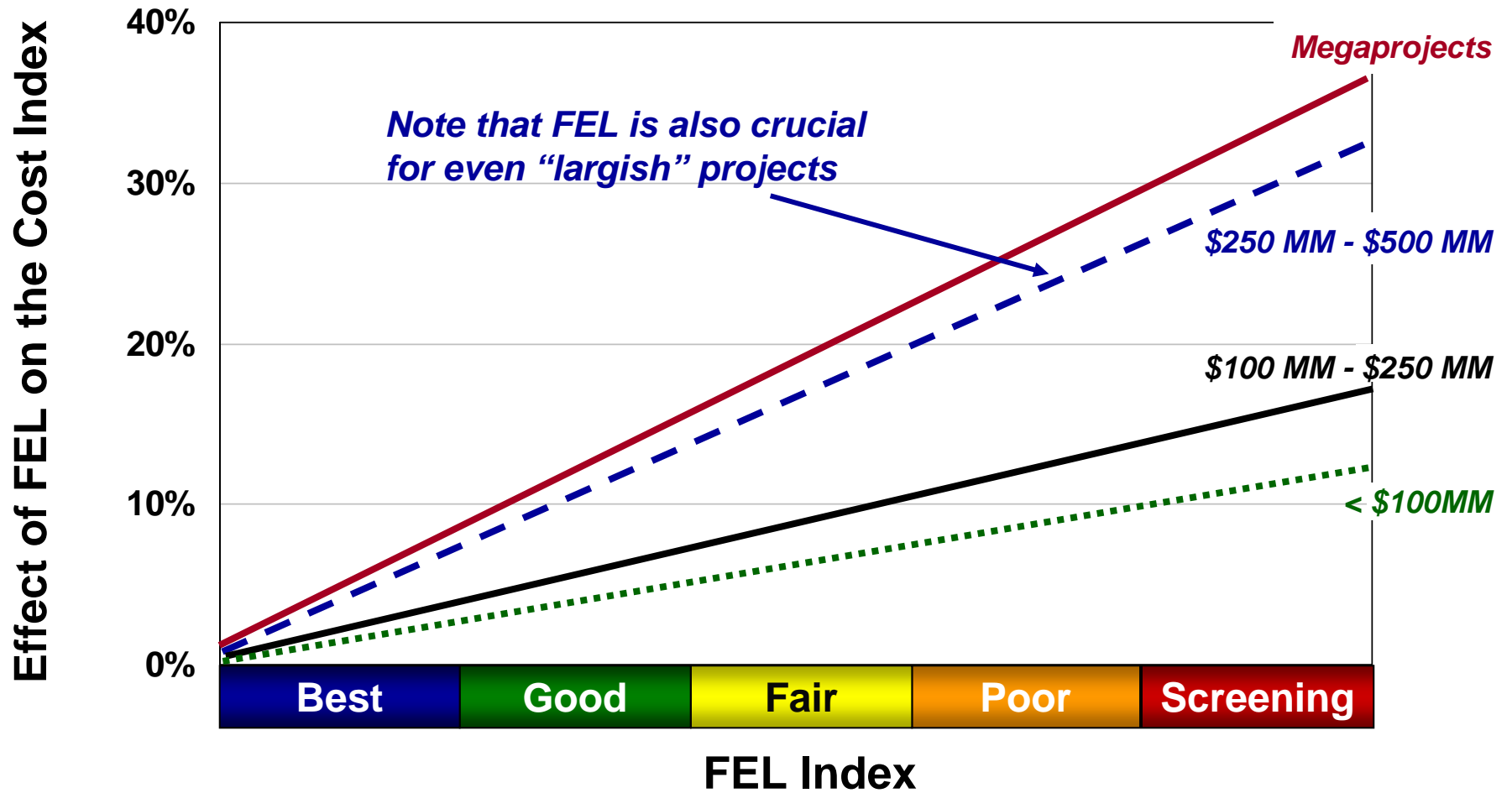
Team Integration Is the Critical Enabler



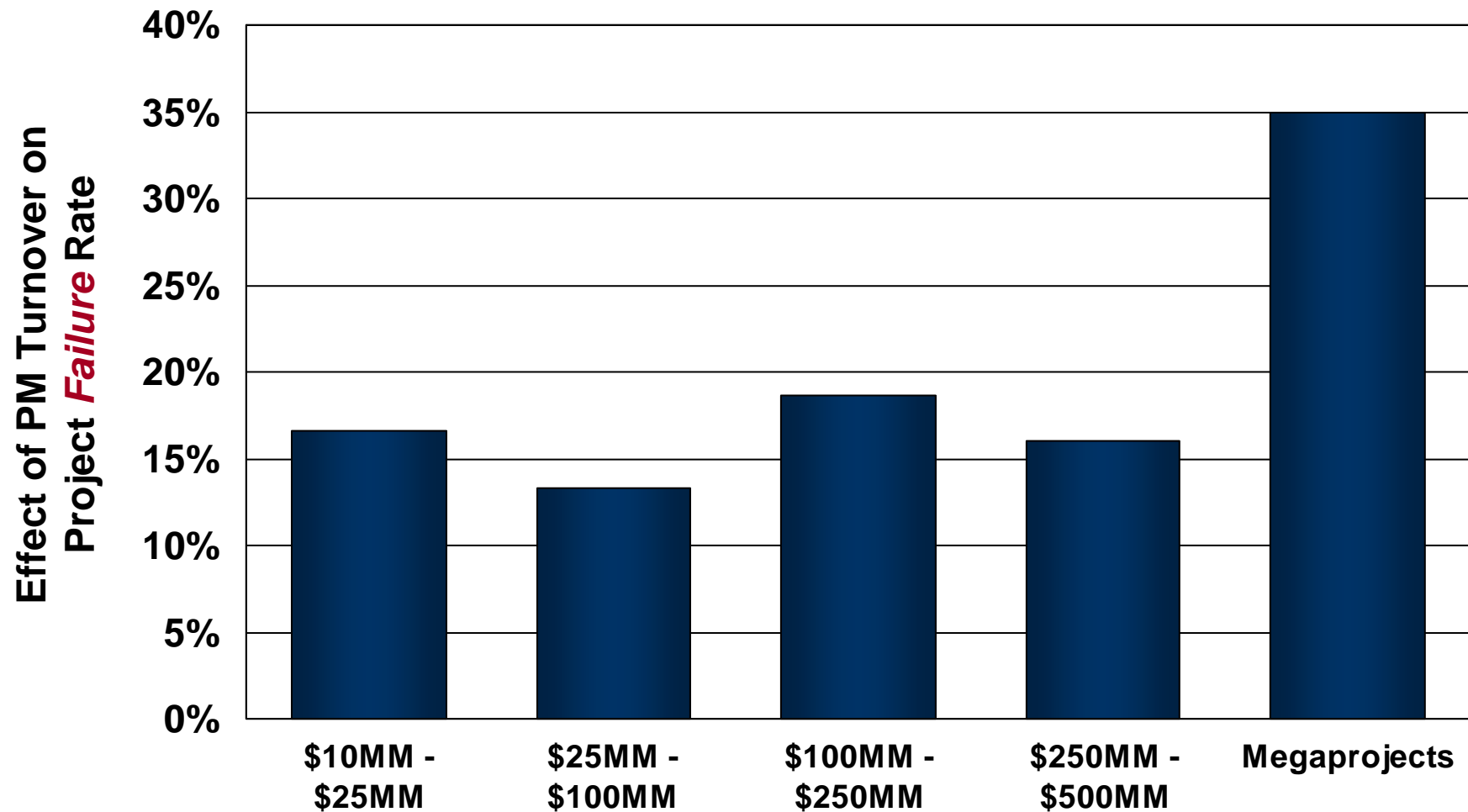
Source: *Industrial Megaprojects, op. cit.*



FEL Is Most Important for Megaprojects

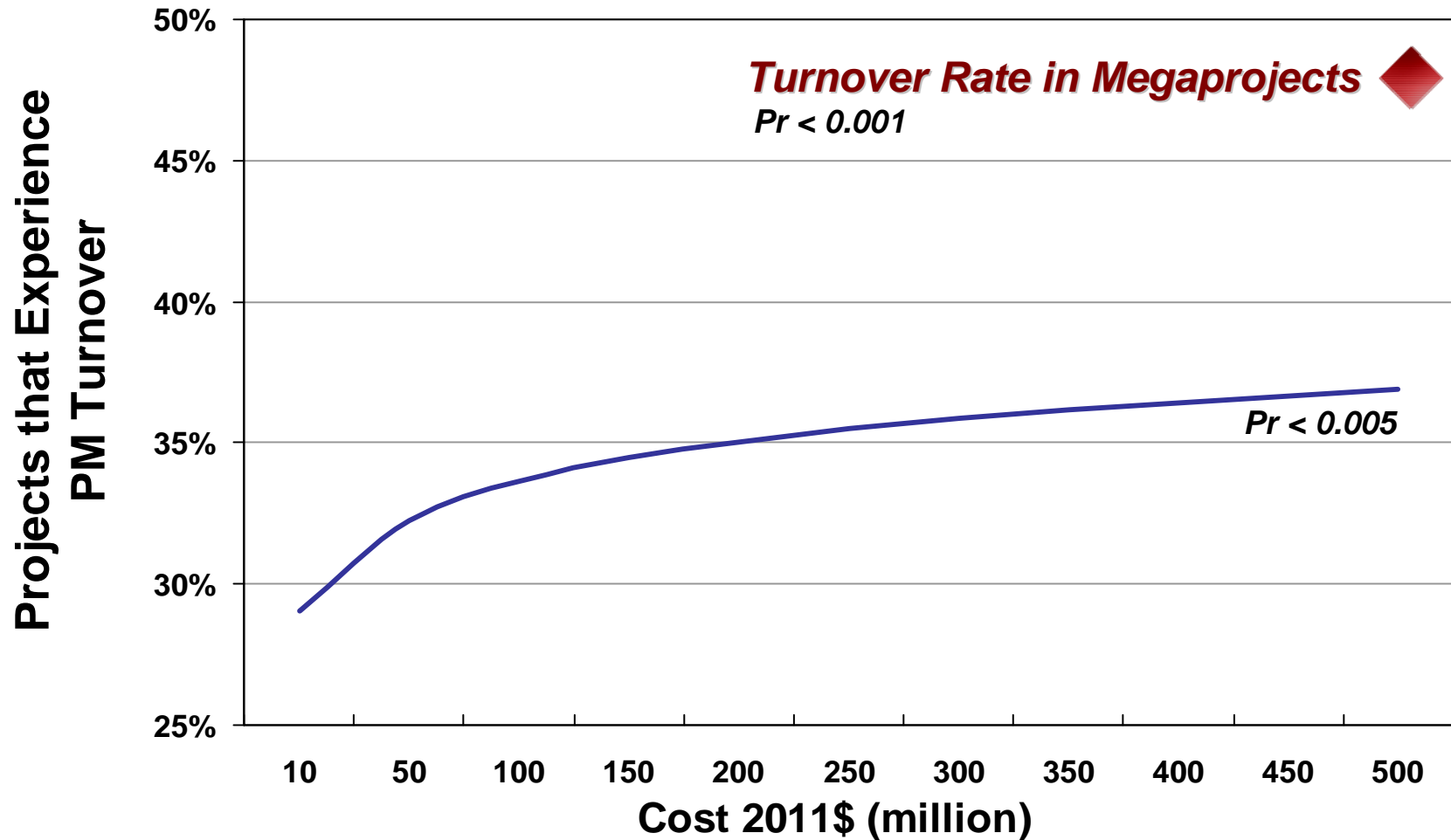


Turnover of the Project Leader Hurts All Projects *But It Destroys Megaprojects*



Stability In Owner Team Leadership

Larger Projects Experience More Frequent Project Manager Turnovers



Note: Controlling for Execution Schedule Index



Stability In Owner Team Leadership



The Effects of Practices Increase with Project Size









- **Large projects are very sensitive to practices because they are more complex**
- **Much more difficult to “work around” surprises because so much more has to be coordinated**
- **All of this is well known**
- **Therefore, logic would suggest that larger projects systematically follow better practices than smaller ones**



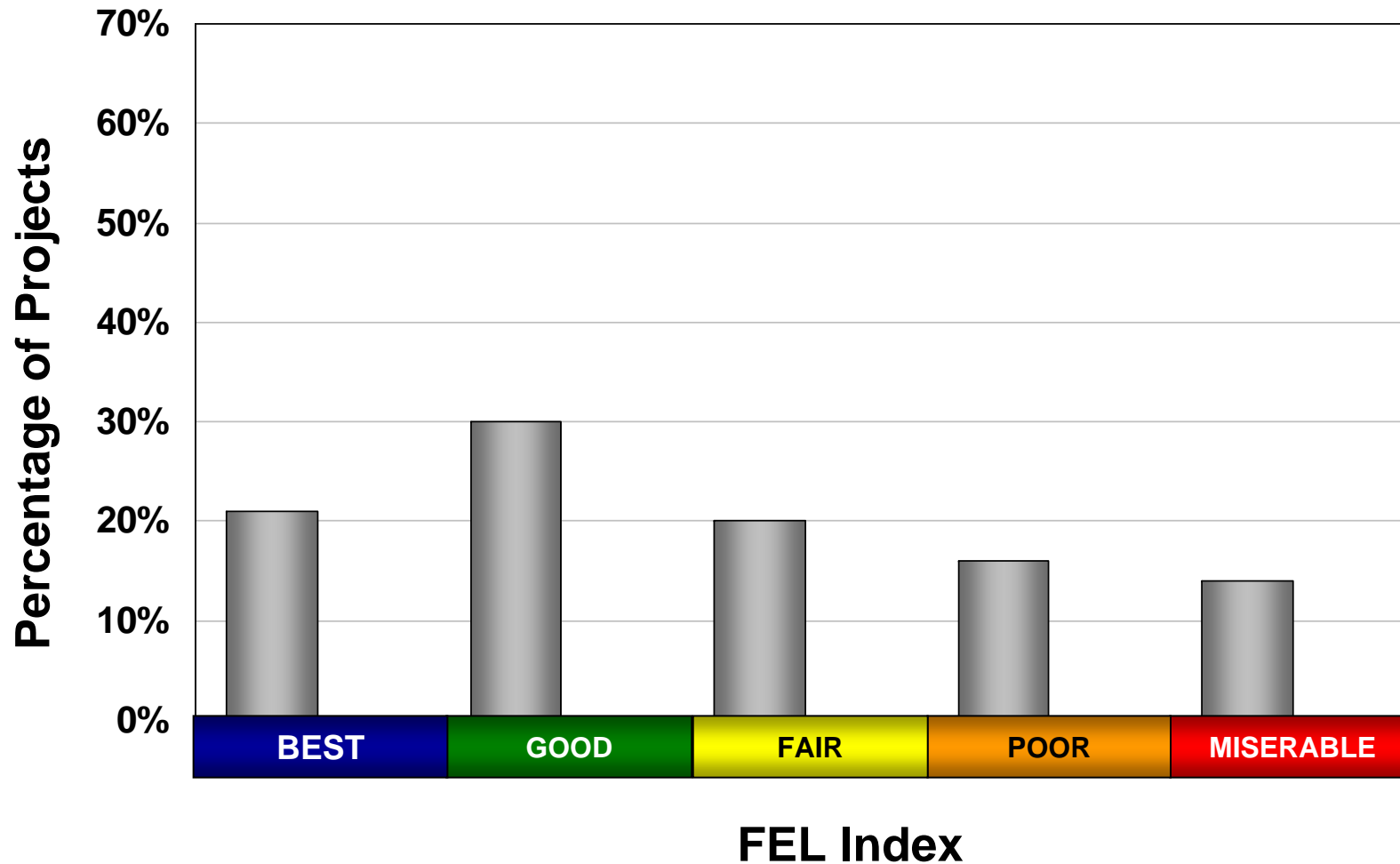
Practices Actually Degrade with Size

- **One megaproject team in five admits it does not understand the business objectives versus one in ten for smaller projects**
- **Megaproject teams are much more likely to report being confused about trade-offs among outcomes**
- **Team integration is much poorer for megaprojects (*55 percent*) than projects under \$900 million (*74 percent*)**
- **FEL completeness actually declines as projects get large**
- **Turnover increases**

Most FEL Elements Degrade as Size Increases

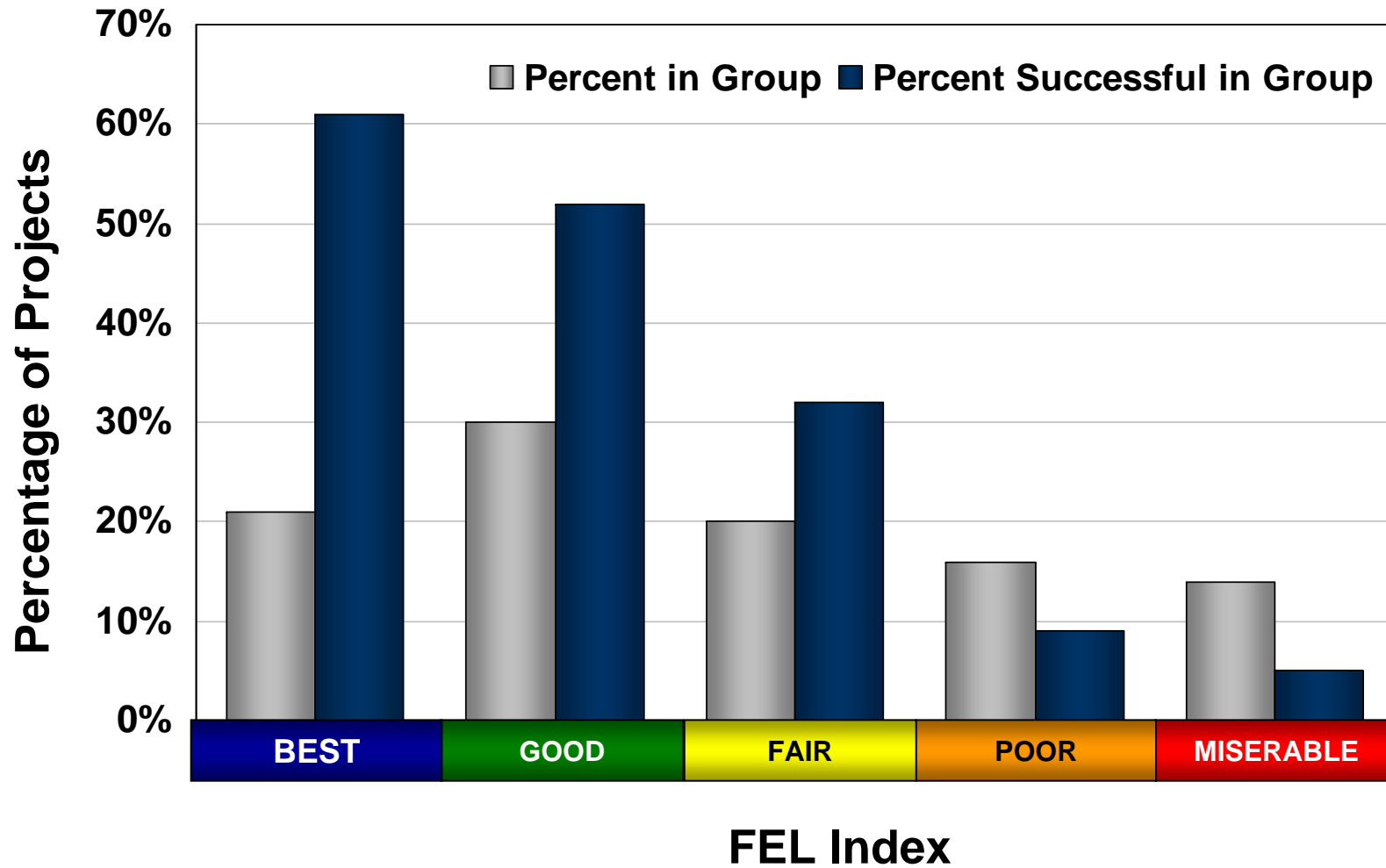
Element of Definition	Change with Project Size
Labor Availability Definition	 Degrades
Labor Productivity Definition	 Degrades
Local Material Costs	 Degrade
Plot Plans and Arrangements	 Degrade
Permitting	 Degrades
Operational Health and Safety	 Degrades
Execution Planning	 Tends to Improve
Engineering	 Tends to Degrade

How Well Are Megaprojects Defined at Authorization?



Source: *Industrial Megaprojects, op. cit.*

What Difference Does it Make?





Answering the Questions

- **Is Alberta peculiar for having so many large project failures?**

Unfortunately, the answer is “no”. Large industrial projects over the last decade failed almost two-thirds of the time.

- **Why do large projects fail so often?**

Large projects are extremely sensitive to poor practices. And the practices we follow on large projects tend to be poor.

- **Who can fix the problems? (Who is to blame!)**



Who Is to Blame!

- **The key practices that cause megaproject failure are:**
 - 1 Unclear business objectives and tradeoffs**
 - 2 Failure to fully staff the owner team**
 - 3 Poor front-end loading**
 - 4 Excessive turnover of owner staff**
- **All of these key practices are the responsibility of the owners**
- **Perhaps we should start and end the search for scapegoats with the morning mirror!**

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Thank you!

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