

Evolving Landscapes

Modern Contracting in the
Mining Sector

Getting to Win-Win



Sun Tzu: The Art of War

"Know yourself and you will win all battles."

This stresses the importance of self-awareness and understanding one's own strengths and weaknesses in conflict.

"In the midst of chaos, there is also opportunity."

Suggests that times of confusion and disorder can be leveraged for strategic advantage.




Execution issues are regularly cited as major reasons for value erosion, especially in boom times....



1. Megaprojects are projects with Capex greater than \$500m (n=44)

Root causes of mega-capital projects¹ cost & schedule overruns, ranked 1 to 8

	Owners	Contractors
Increasing project and site complexities	1	1
Design processes and investment are inadequate	2	4
Bespoke or sub-optimal owner requirements	3	5
Insufficiently skilled labor at frontline and supervisory level	4	6
Poor project management and execution basics	5	2
Industry underinvests in digitization, innovation, and capital	6	8
 Contractual structures and incentives are misaligned	7	3
Extensive regulation and cyclical nature of public investment	8	7

Our Panelists

Decommissioning of Mature Potash Mine Shafts

Shawn Haeusler, *Engineer Lead, The Mosaic Company*

Alliance Contracts: Risk Sharing and Dispute Resolution

Augusto Patmore, *Managing Director, Alvarez and Marsal*

A Contractor's Perspective – Communication is Key

Patrick Hudd, *Corporate Manager – International, Cementation*

Integrated Project Management Team – Issues / Benefits

Harold Danilkewich, *Project Director, Foran Mining*

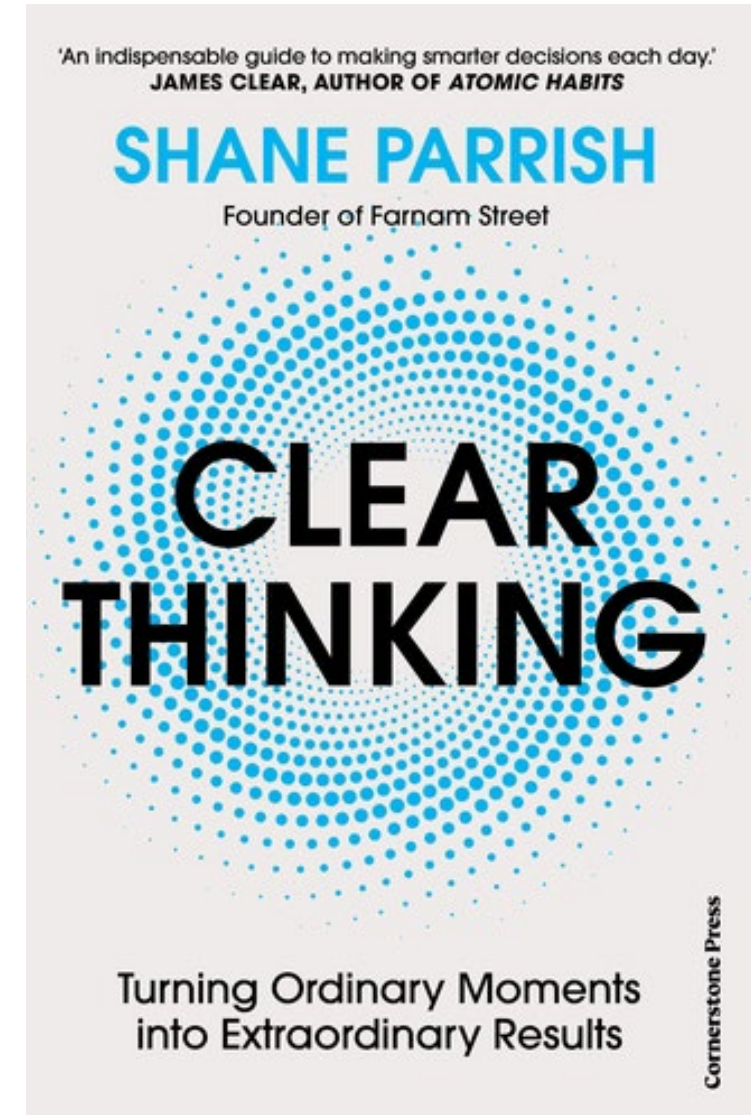


Evolving Landscapes Modern Contracting in the Mining Sector

- **Contracting Model Options**
- **Factors to Consider**
- **Tools & Resources**

Cognitive Psychology and Behavioral Economics

- **Thinking Fast & Slow:**
Daniel Kahneman
- **Antifragile**
Things that gain from disorder
Nassim Taleb
- **Clear Thinking:**
Turning Ordinary Moments into Extraordinary Results
By Shane Parrish
- **How Big Things Get Done:**
The Surprising Factors That Determine the Fate of Every Project,
from Home Renovations to Space Exploration and Everything in Between.
By Bent Flyvbjerg and Dan Gardner
- **Superforecasting:**
The Art and Science of Prediction
By Phillip Tetlock and Dan Gardner
- **Future Babble:**
Why Expert Predictions Fail - and Why We Believe Them Anyway
by Dan Gardner, Walter Dixon, et al.



Considerations

Procurement options

Roles and responsibilities

**Engineering and construction
management capability**

Financial indicators

**Contracting company's economic
realities**

Project design maturity

Schedule and cost

Contractor market

Owner's philosophy

Strategy Features

Contract Structure

Project Phases

Risk Allocation

Cost Control

Flexibility and Control

Timeline

Collaboration

Suitability



Fifteen Contracting Strategy Options

- Lump Sum (Fixed Price)
- Cost Plus (Cost Reimbursable)
- Time and Material (T&M): Design-Bid-Build (Traditional Method)
- **Design-Build**
- Construction Management at Risk (CMAR)
- **Integrated Project Delivery (IPD)**
- **Engineering, Procurement, Construction (EPC)**
- **Engineering, Procurement, Construction Management (EPCM)**
- **Progressive Design-Build**
- Target Price Contract
- Guaranteed Maximum Price (GMP)
- Unit Price Contract
- **Alliance Contracting**
- Public-Private Partnership (P3/PPP)

- **EPCM and EPC:** These methods might have higher consequences due to the complexity and scale of projects typically undertaken. EPC projects, while having a lower likelihood of risk due to a single point of responsibility, can have significant consequences if risks do materialize due to the scale of the projects.
- **Progressive Design-Build and Alliance Contracting:** These methods involve a high degree of collaboration and shared risk, potentially reducing the likelihood of risks but still having significant consequences due to the shared nature of the project.
- **Design-Build and IPD:** These are generally considered to have a lower likelihood of risks due to the integrated approach and collaboration. However, as with any project, if risks do materialize, the consequences can still be significant.

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Design-build is not specifically authorized for public agencies



Design-build is a limited option



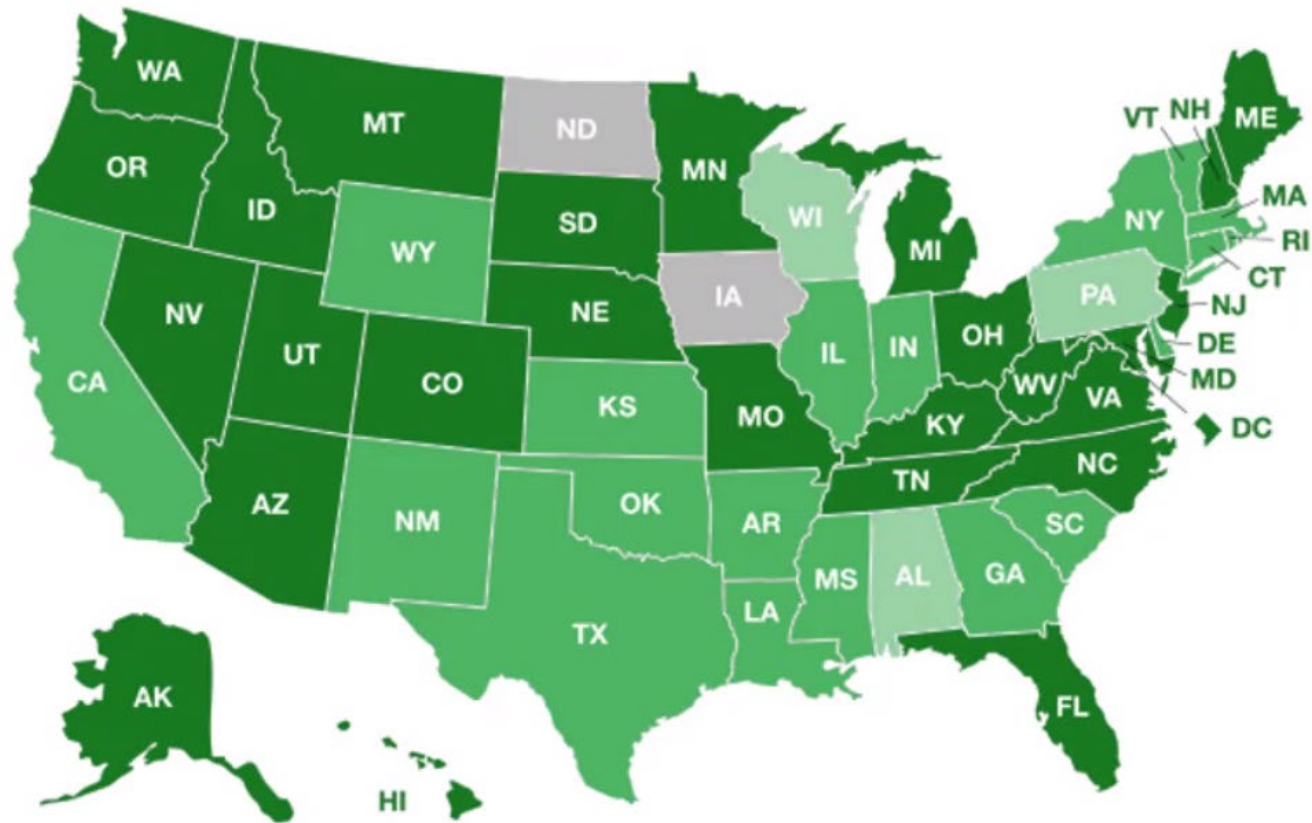
Design-build is widely permitted



Design-build is permitted by all agencies for all types of design and construction



Design-Build State Authorization 2021



Design-build is limited to one political subdivision, agency or project

Design-build is a limited option

Design-build is widely permitted

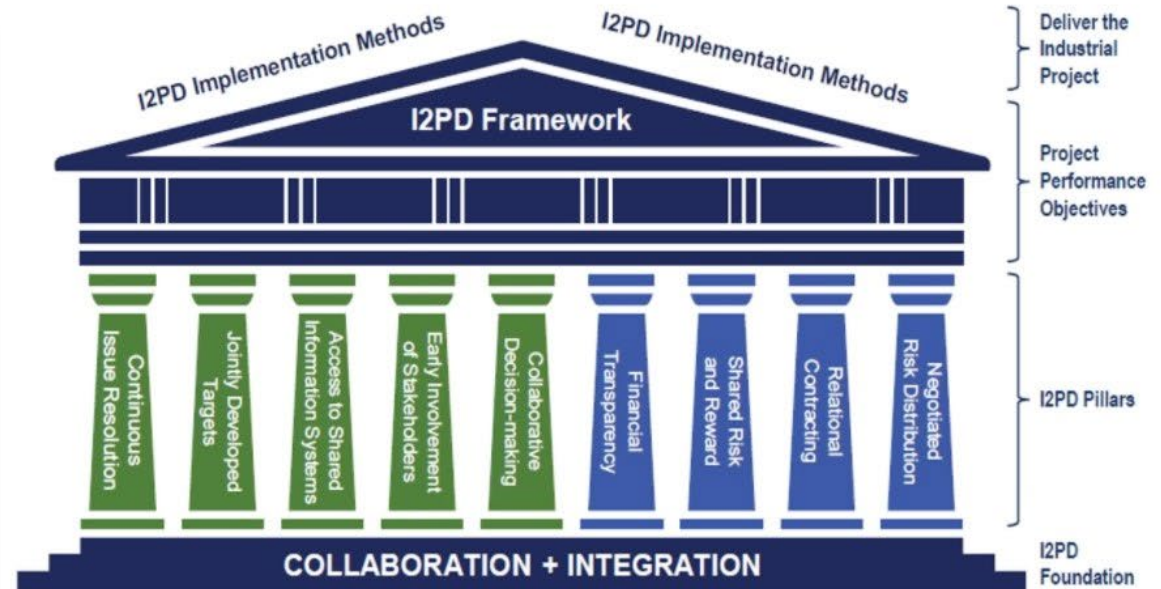
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Industry Research into Collaborative Contracting For Industrial Projects

Most industrial capital projects are inherently complex and challenging.

Given the complex nature of these projects, collaborative delivery approaches are especially desirable and applicable to them.

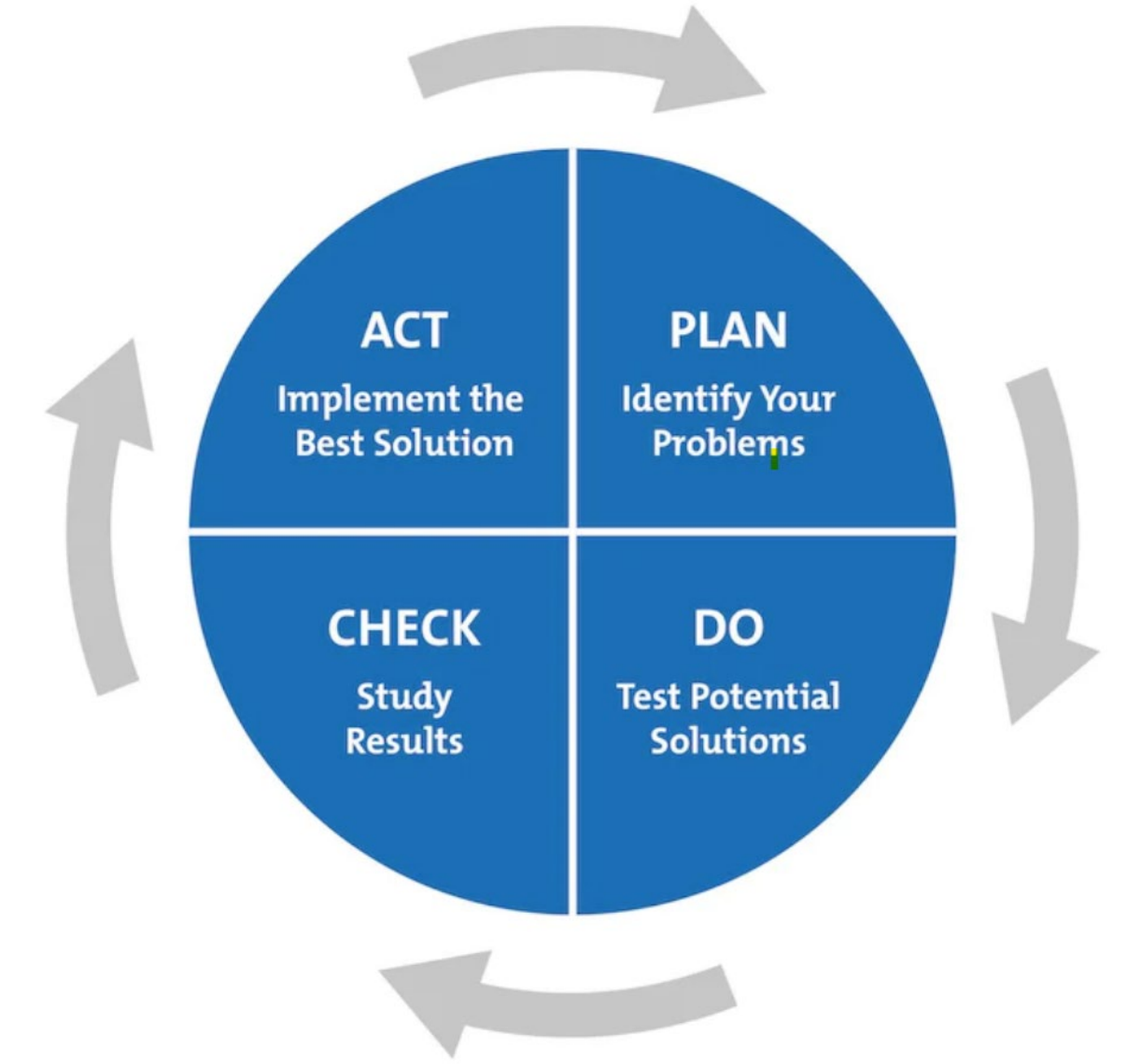
- In 2018, the Construction Industry Institute (CII) **Research Team RT-341's findings** indicated that industrial projects are good candidates for integrated delivery.
- The team provided guidance to structure **industrial integrated project delivery (I2PD)** by balancing experiences in the commercial buildings and infrastructure sectors.
- **The result was a framework consisting of principles and methods** that, when implemented, using a multi-Party Agreement will improve project performance by **enabling intense integrated and collaborative delivery**.



CII RT 341 I2PD Framework

Continuous Improvement Model

- Do we foster a learning culture?
- Were plans and estimates well-defined?
- How often are we testing the outcomes of our projects?
- Results are not always available or analyzed



Tools & Resources Intelligence

Processes

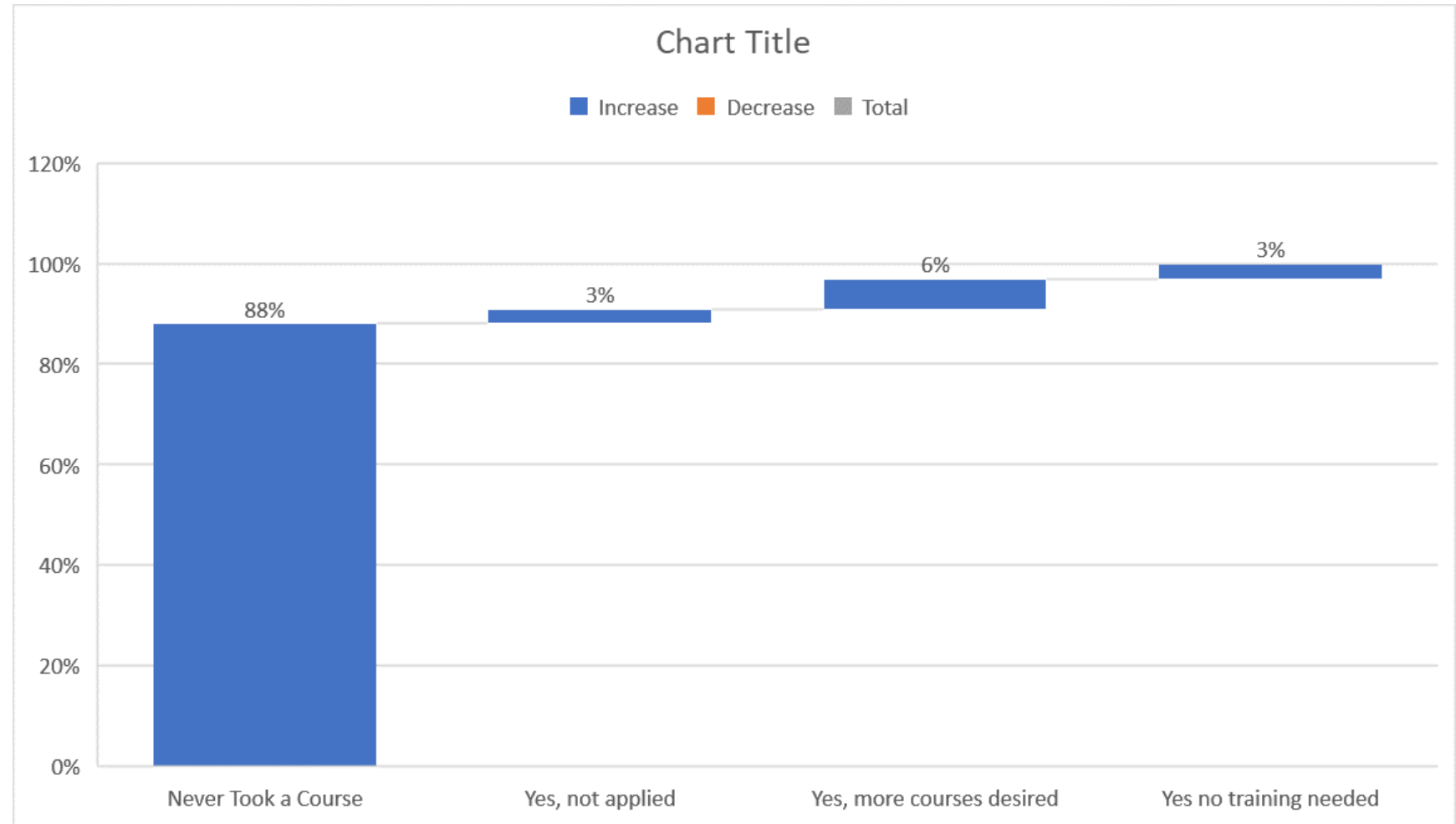
- Scope Development
- RFP Development
- Better interview questions
- Short-form contracts

Software

- Grammarly
- ChatGPT
- Perplexity



Did you take a dedicated course on writing a Statement of Work in your university years? If so, rate yourself on a scale of 1-3.



Potential Benefits from Artificial Intelligence

Predictive Analytics for Cost and Time Overruns

Risk Assessment and Mitigation

Contract Optimization

Performance Monitoring

Data-Driven Decision Making

Automated Contract Management

Supply Chain Optimization

Customized Contracting Strategies

Stakeholder Analysis

Legal Compliance and Updates





Local Procurement Reporting Mechanism

The Mining Local Procurement Reporting Mechanism (LPRM) is a set of disclosures that seeks to standardize global metrology.

MINING LOCAL PROCUREMENT REPORTING MECHANISM



giz



Local Procurement Mechanism

IVANHOE MINES
NEW HORIZONS



LUNDINGOLD

IAMGOLD[®]
CORPORATION

SOLARIS
RESOURCES

GOLDEN STAR

ENDEAVOUR
MINING



YAMANAGOLD

newgold™



<https://miningsharedvalue.org/>

Take-Aways

- Take a methodical approach in analyzing the different contracting options
 - Memorialize the decision-making process
 - Hire like your life depends on it... because it does
- Develop a learning culture
- Take a “First Principals” approach
- The fundamentals are “anti-fragile”
 - Scope
 - Cost Estimate
 - Schedule Estimate
 - Risk Identification & Mitigation





Evolving from
Win-Win
to

A Single Shared
Collective
WIN