

4-6 October, Nationals Park, Washington DC



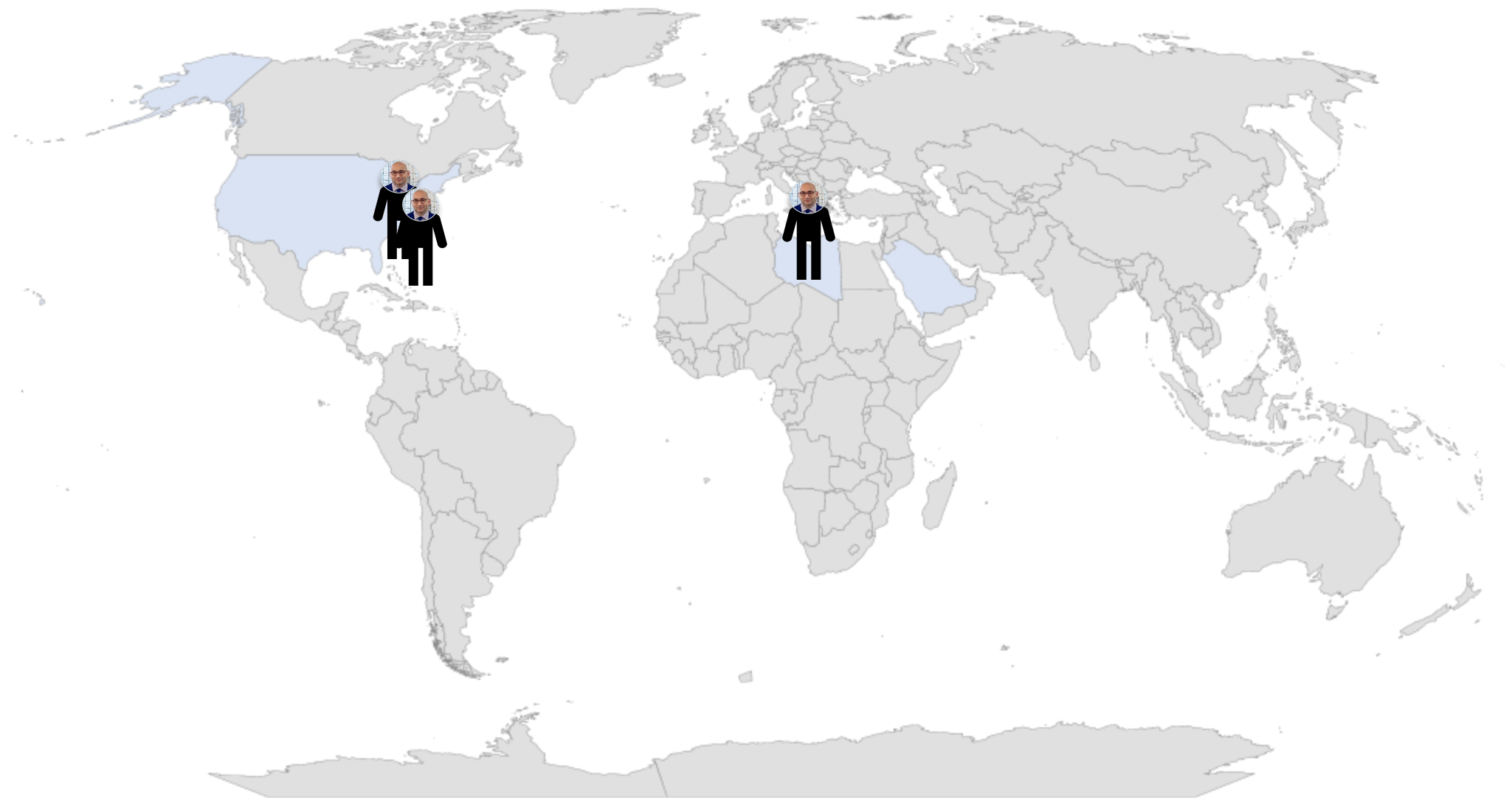
“The Dawn of the Controls Engine”
By: Osama Abdelfatah
Regional Program Controls Director,
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2022



Introduction



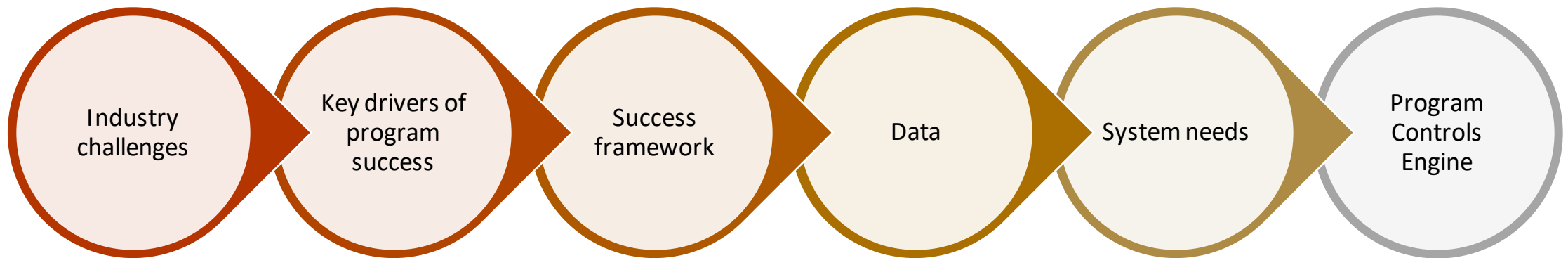
Osama Abdelfatah

Regional Program Controls Director for Americas at AECOM

Prior to my current role as the Regional Program Control director for Americas, I led Program Controls teams on major Programs worldwide in Egypt, Libya, Qatar, and North America. Some of the programs that shaped my experience and knowledge base are Libya HIP, the Second Ave Subway, East Side Access, Tappan Zee Bridge, RLCY, and LaGuardia Airport Redevelopment.

My focus is always on how we support our clients to achieve program benefits, create legacy and support and enable my teams' advancement.

Outline:



- Leveraging Data
- Putting Data into action to

- Vertical Data alignment
- Horizontal Data alignment
- Functional Data alignment

Industry Challenges:

Construction-heavy sectors struggle to deliver large investment projects on time.

Projects per sector, n = 137

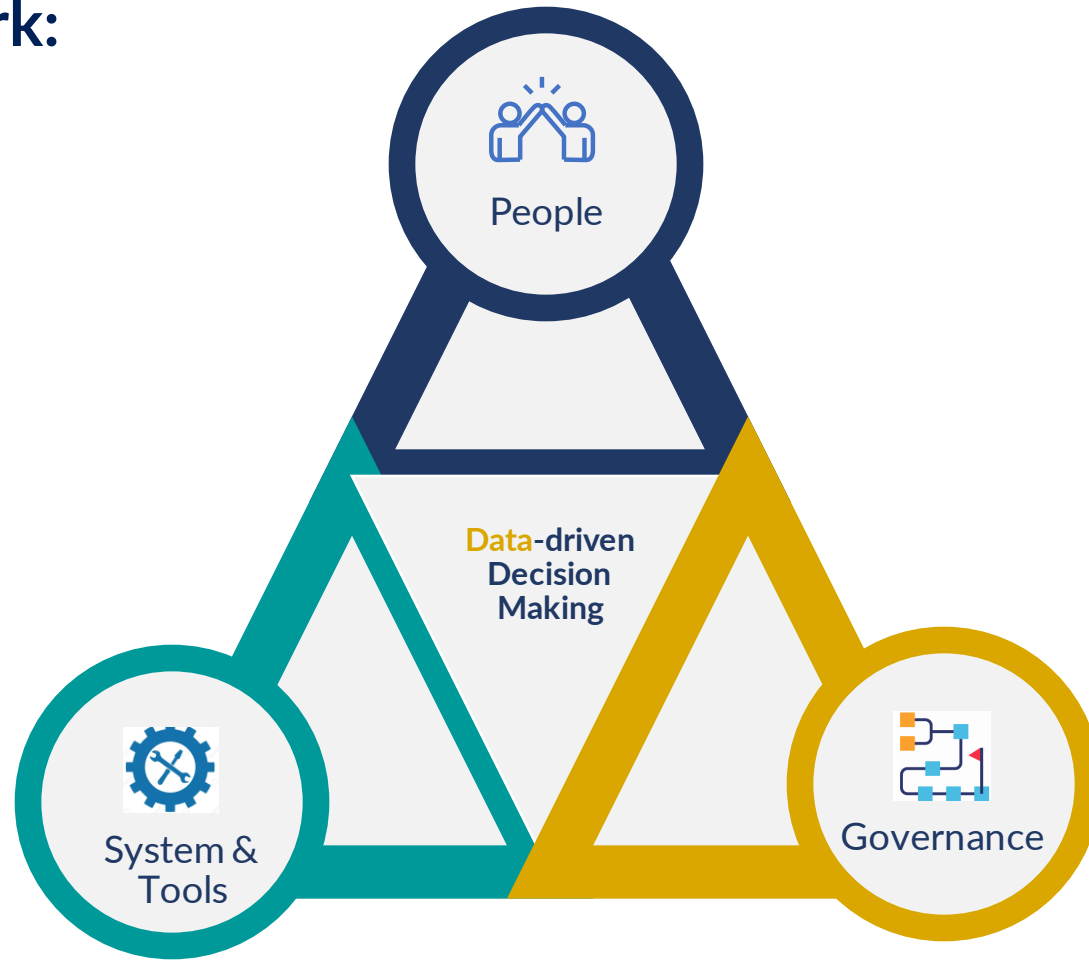
	Delays in projects, % average	Number of years delayed, average	Number of projects
Mining	60	2.2	11
Oil and gas	68	1.8	55
Power	67	2.0	3
Real estate	92	2.0	12
Transport	69	2.3	44
Other infrastructure	108	2.8	12

Key Drivers of Program Success



Reference: What are the causes and cures of poor megaproject performance? A systematic literature review and research agenda; Denicol, Davies and Krystallis, 2020

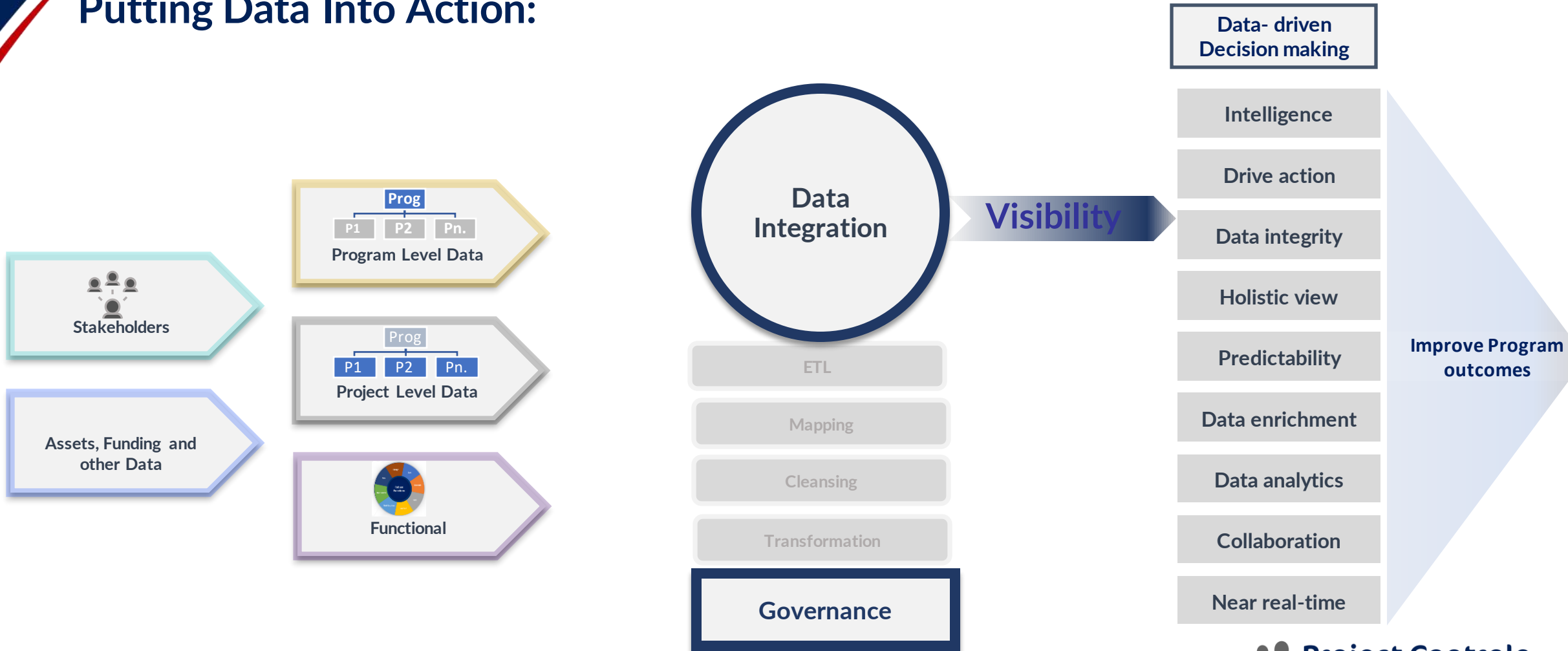
Success Framework:



Leveraging Data: Data Harmonization



Putting Data Into Action:



System needs:



System Requirement

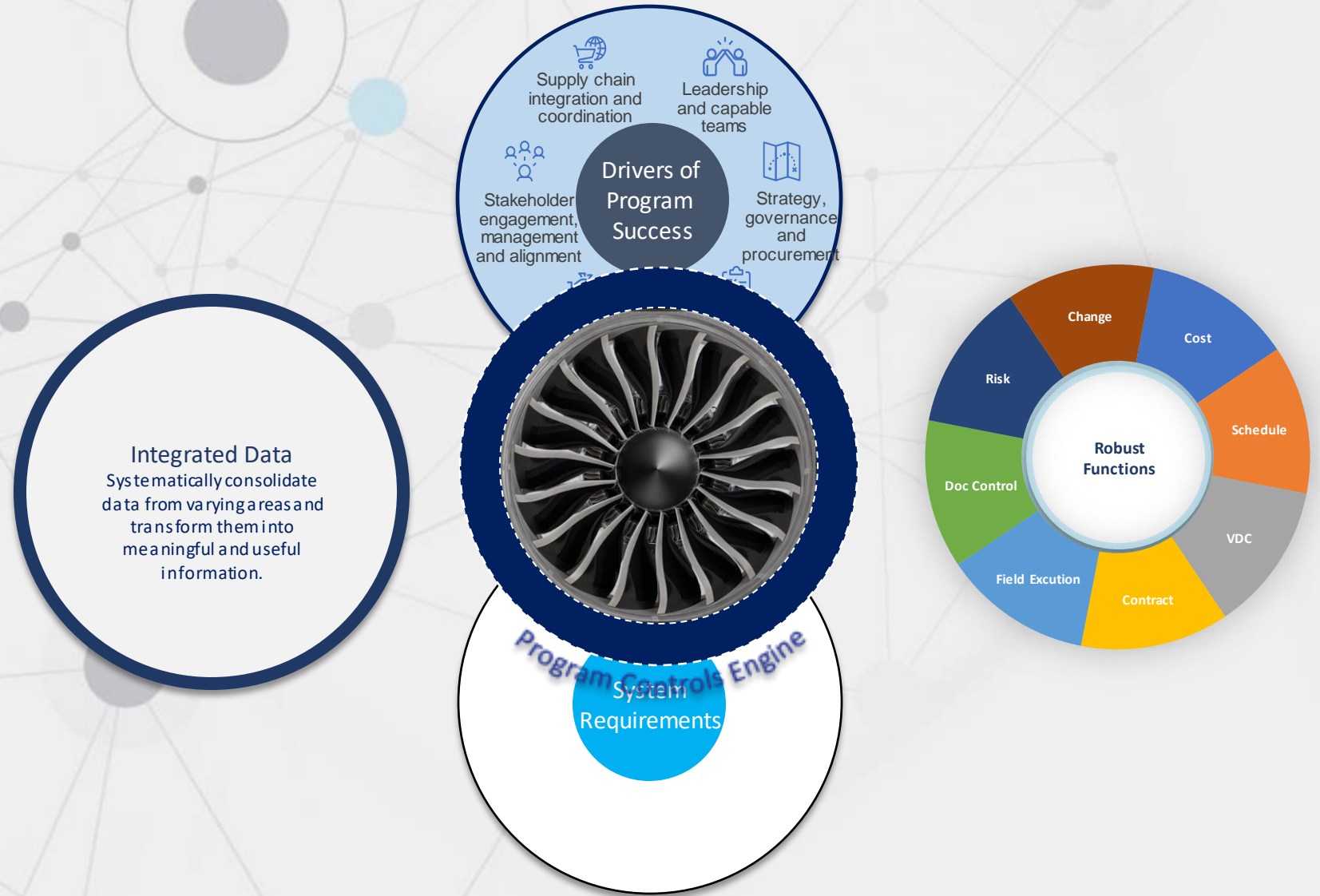
- One single source of the truth
- Robust and scalable
- Globally accessible
- Data security
- Near real-time
- Workflow automation
- Eliminate data silos
- Pre-configured and quick Implementation
- Data Integration and bi-directional integration with legacy systems
- Allow utilization of AI and machine learning
- Modularity
- Flexibility
- Role-based security
- Power BI integration
- Scalability



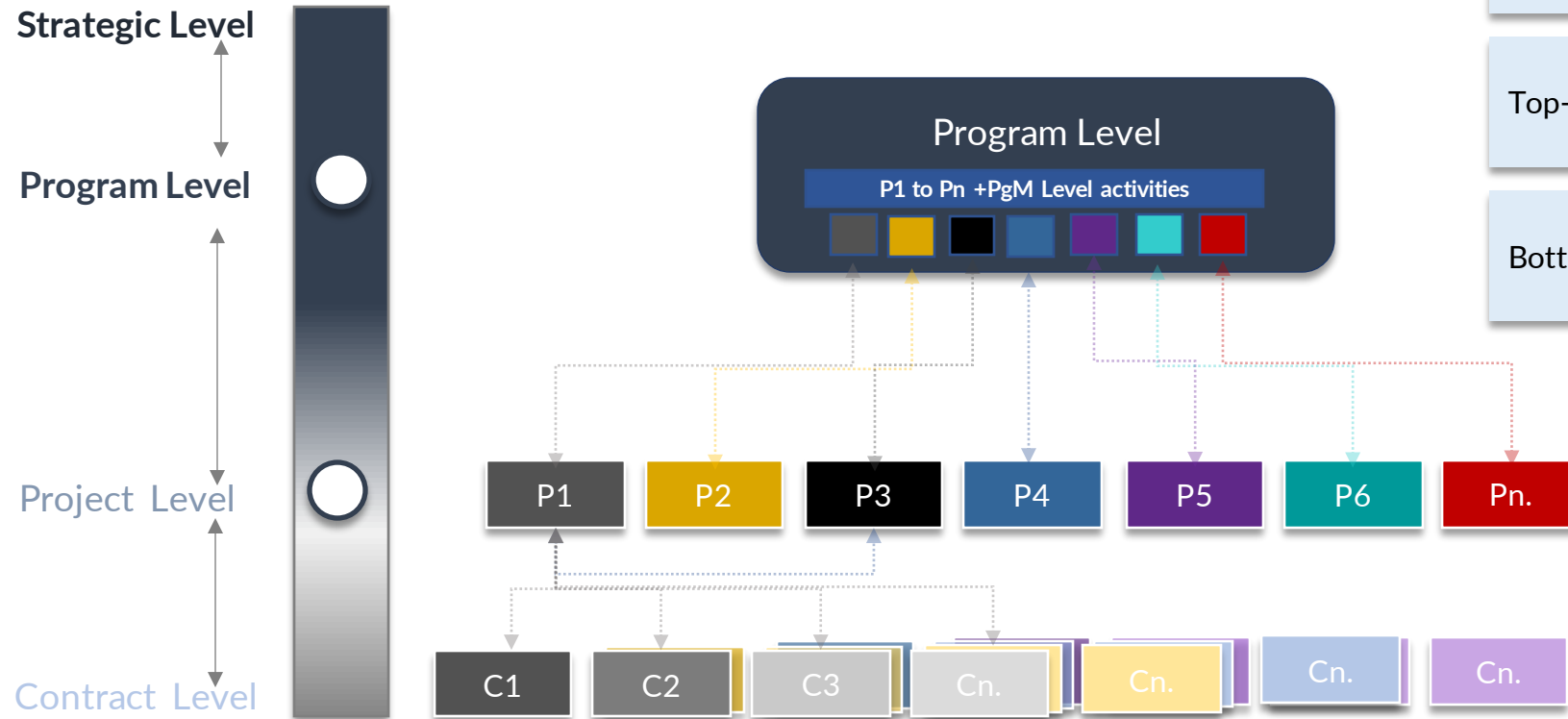
Functionality

- Comprehensive controls and management capabilities throughout program and project lifecycle.
- Cost, schedule, change, risk, Contract, procurements, field Execution, capital planning, quality and health Safety.
- Allow vertical and horizontal data alignment.
- Fully integrated.
- Ability to track benefits and value drivers
- Robust data analytics
- BIM, digital twin, and GIS
- Forward -looking reporting and visualizations
- Time visualization (site cameras, drones, and 3D, 4D models)
- Meaningful benchmarking data for future programs

Program Controls Engine



Vertical Data-Alignment: (Program, Project and Contract Level)



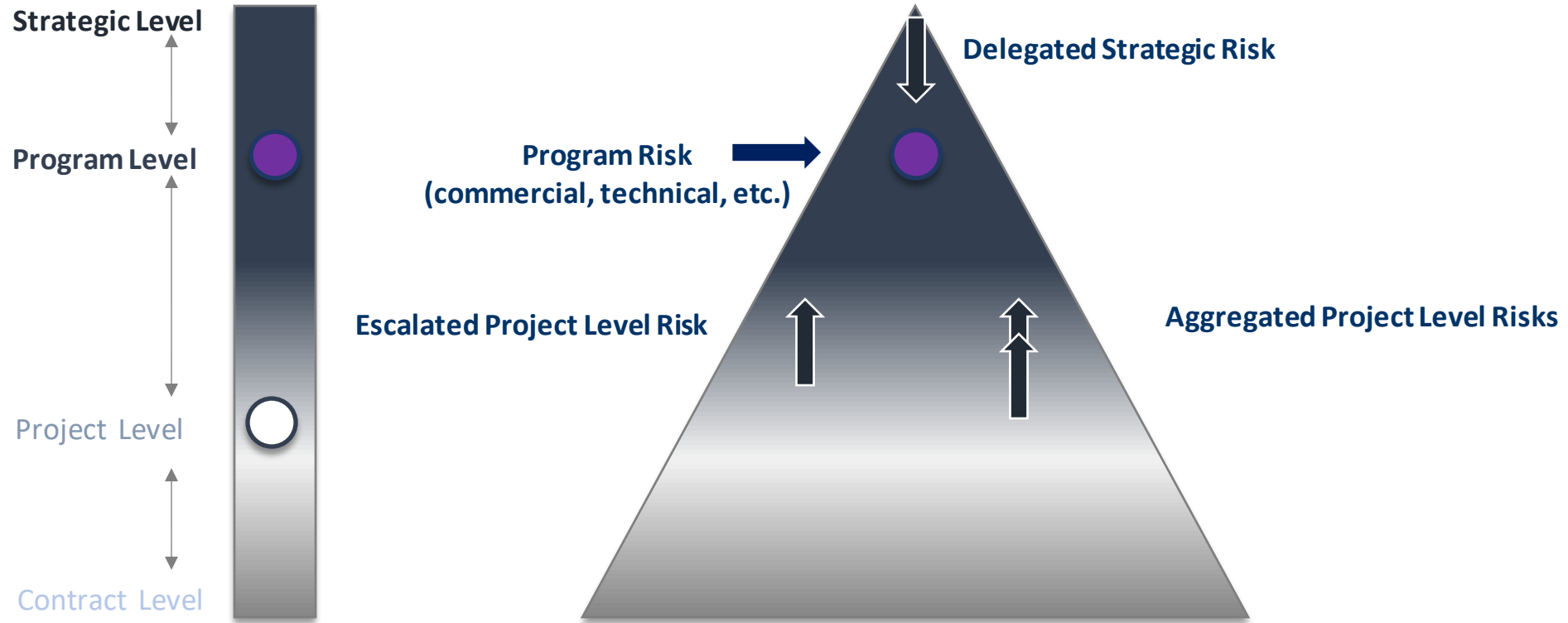
Promote to delivering program benefits

Top-down, strategic driven alignment

Bottom-up, execution driven alignment

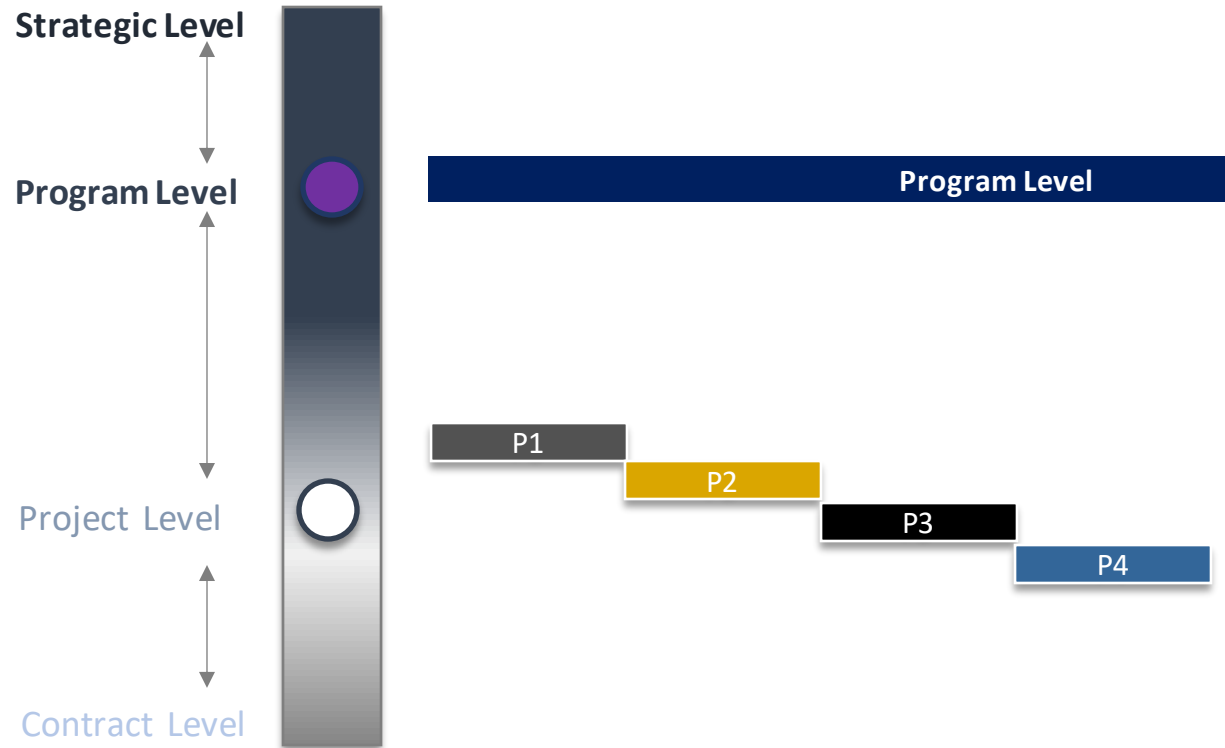
Vertical Data-Alignment: (Program, Project and Contract Level)

Full viability to the entire Risk Profile



Full viability to the entire Risk Profile

Vertical Data-Alignment: (Program, Project and Contract Level)



Identify the **optimal program and projects sequence** and interdependencies considering cost and strategic risk/threats and opportunities.

Provide a **holistic view** of the factors that are impacting program outcomes.

Monitor changes in **risk profile** along program and project life cycle.

Enhances **Interface management** across Projects & Contracts

Evaluate and identify program cost and schedule **contingency reserve** that is required to achieve a desired level of certainty, and which risks are driving the program.

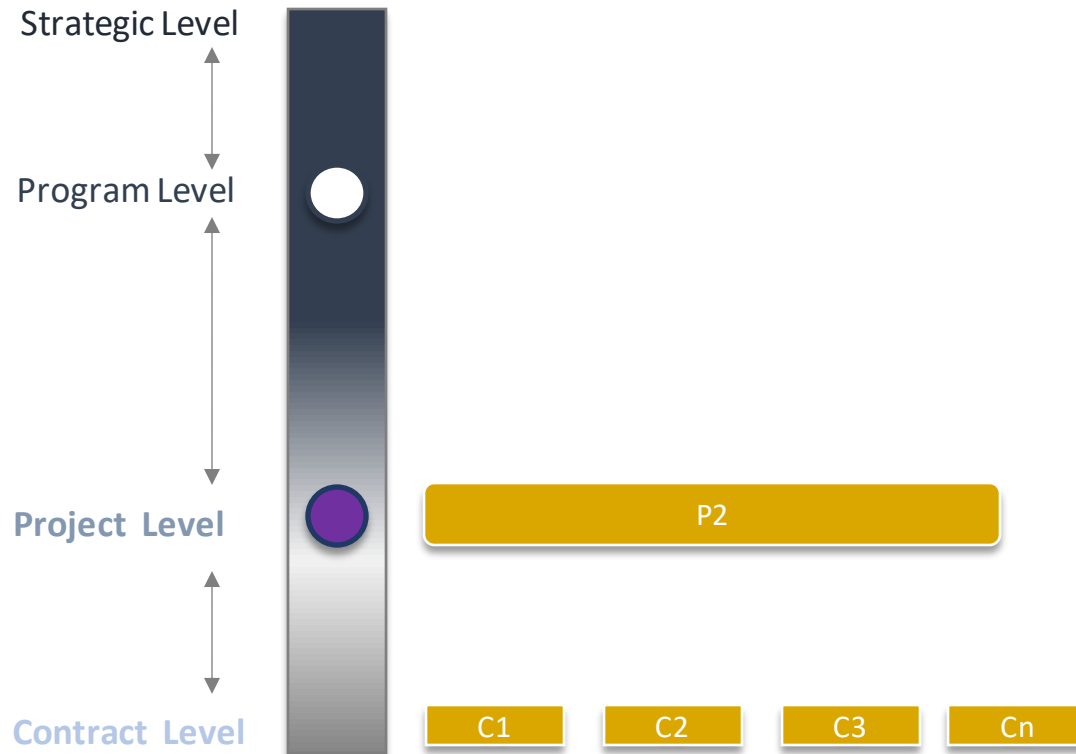
Provides **assurance** of achieving program benefits.

More effecting and efficient **procurement** strategy.

Effective **capital planning** and **funding strategy**.

Effective Contingency Plan and Overall **Change Management** Process.

Vertical Data-Alignment: (Program, Project and Contract Level)



Optimization to project schedule and cost by leveraging **AI and machine learning**

Reliable **project execution** considering risk events and realistic cost and schedule

Ability to **mitigate** the risk that impacts cost and duration, rather than just the riskiest items in the schedule.

Reduces uncertainties which allows to allocate a more **accurate contingency** to project.

A better chance of completing projects on-time and on-budget leveraging **enhanced resource allocation** strategy.

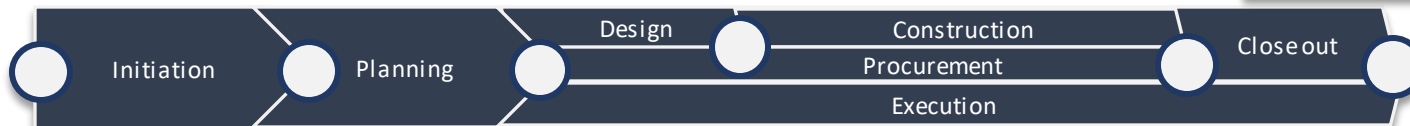
Perform “what if” analysis considering cost impact, risk and other resource and program constraints.

Leverages EVM applications as **performance** measure.

Provides assurance to delivering **project outcomes**.

Horizontal Data Alignment: Seamless flow of Data throughout Project Lifecycle

P2 Lifecycle



Enhances project **planning and execution**.

Provides a **holistic view** of the factors that are impacting the project.

Enhances tracking, monitoring and **controlling project scope, cost and schedule, and performance**.

Alignment of project lifecycle, and the **benefits** management plan.

Establishing Controls and **EWS** system in a very early stage.

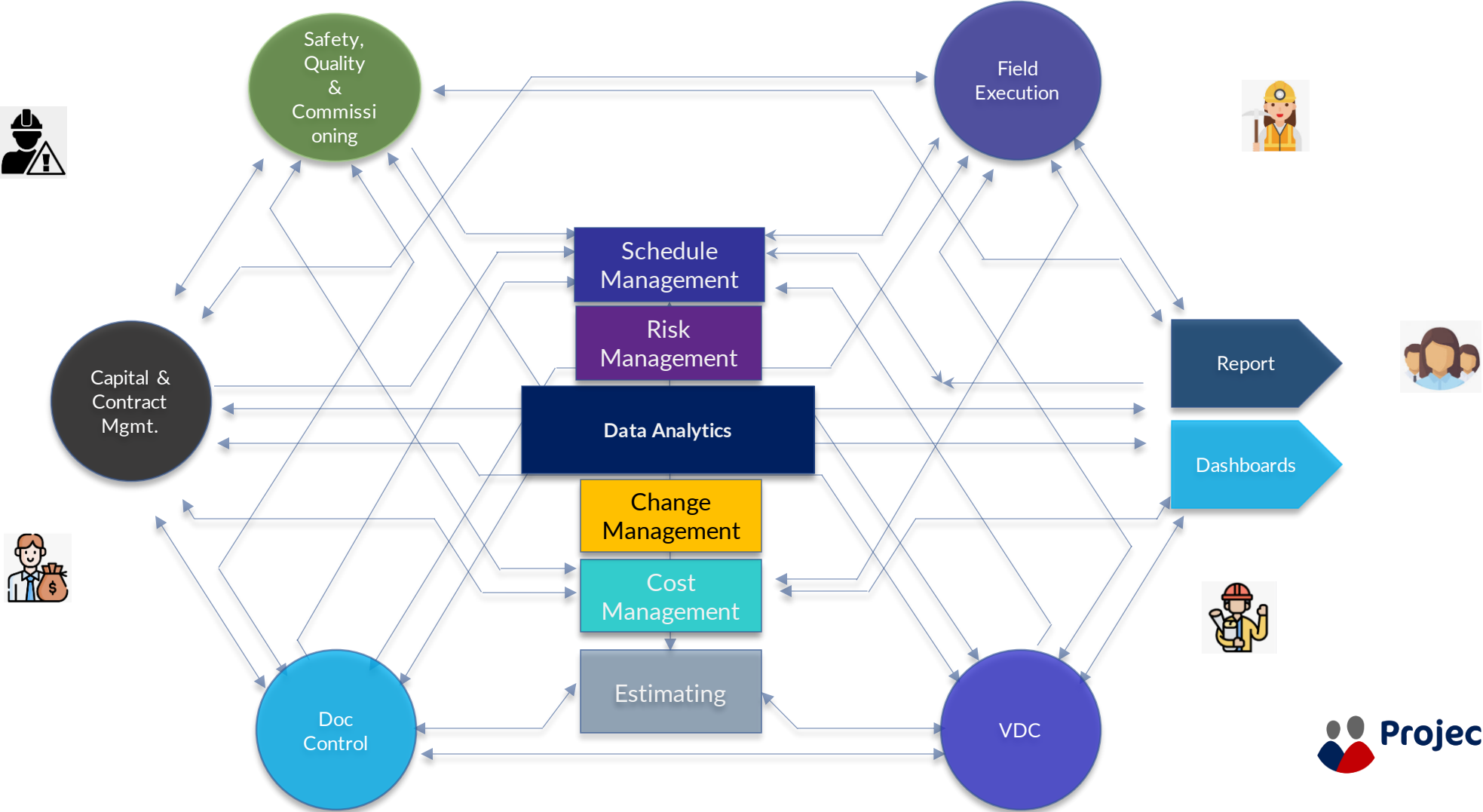
Robust **change management process**.

Enhances the **integrated project delivery** outcomes.

Visibility into the financial health of the project at all stages

Improve **Quality and Compliance**

Functional Data Integration: Integration of all Controls and Management attributes



PgMCE Summary

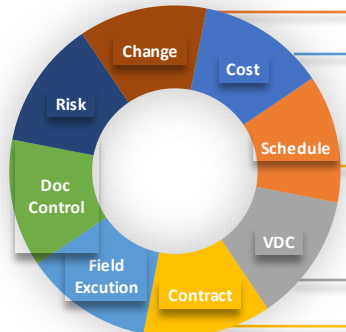


Strategic Level

Program Level

Project Level

Contract Level



Phase	Change	Cost	Schedule	VDC	Contract
Initiation		✓	✓		✓
Planning	✓	✓	✓	✓	✓
Design	✓	✓	✓	✓	✓
Construction Procurement Execution	✓	✓	✓	✓	✓
Close out	✓	✓	✓		✓

Questions:



THANK YOU