

Delivering LNG Megaproject with Proactive Intelligence and Predictability

End-to-End Digital AWP + Lean Implementation in JV Project

By: Consuelo Granata

Regional General Manager, Teknobuilt



Agenda

1. Introduction
2. The capital Projects at a Glance
3. The Project Paradigm
4. Introducing the Digital Construction Block™
5. The Digital Shift in a Project at a Glance
6. Q&A

Introduction

• 2

Built Environment & Data Science Expertise Led Team

RELIANCE

Imperial College
London



wood.



Tanvi Garg
Regional Director



Dr. Consuelo Granata
Regional General
Manager (EMEA/UK)



Daniel Canning
VP Projects



Jacek Morawski
VP Engineering



Nishant Rao
Regional Director



Ramesh Sharma
Global Director, HSE



Yulia Conway
Director Sustainability



Charlie Foster
Innovation

Calgary



London



Poland



Milan



Cairo



Dubai



New
Delhi



Mumbai



Seoul



Singapore



Incorporated entity



Satellite office



Partner

10+ nationalities in the team, 35%+ Women



Global Leaders Transforming with Teknobuilt



Innovate UK, the Urban Future Lab, and Greentown Labs bring innovative clean energy and climatetech startups to the U.S.

January 19, 2023 in Latest News

BROOKLYN, New York, Thursday, Jan. 19, 2023 – Beginning in January, the [Urban Future Lab](#) at the [NYU Tandon School of Engineering](#), in partnership with [Greentown Labs](#), will provide a soft landing pad in the U.S. for the third cohort of Innovate UK's [Global Incubator Programme](#): Clean Growth edition, which is designed to cultivate and support the launch of innovative climatetech companies with a strong potential to scale internationally to new markets.

The program annually provides eight U.K.-based businesses with the opportunity to explore the potential of the U.S. market and access to world-class mentors. This third cohort will consist of businesses in electric vehicle (EV) charging, urban logistics, distributed energy, and other technologies focused on reducing greenhouse gas emissions or addressing the effects of global warming.

Startups from both cohorts one and two have expanded operations into the United States. These cutting-edge companies leveraged the Global Incubator Programme's strong mentorship opportunities, connections to potential customers, and tactical, focused cohort curriculum to build a presence in the New York and national markets.



0

US 2023

This year's selected companies are:

- [Sylvera](#) – the leading carbon intelligence company. Companies with net-zero targets rely on Sylvera's carbon credit ratings to ensure that the offsets they invest in are legitimate and impactful. Sylvera's team of experts leverages proprietary data and machine learning (ML) technology to produce the most comprehensive and accessible insights on carbon projects, allowing its customers to act confidently in the voluntary carbon markets and ensure they deliver on their climate commitments.
- [Teknobuilt](#) – its innovative digital platform connects and guides whole project delivery to boost productivity and real-time visibility with machine learning. Its PACE OS platform enables unified progress tracking, faster payments, carbon tracking, and comprehensive safety management. Teknobuilt brings to clients a measurably safe and accountable data-integrated control tower that creates a responsive and faster work process with no disruptions to business as usual.
- [Smart Power Networks \(SMPnet\)](#) – a UK-based technology company offering an advanced suite of smart solutions to support efficient energy transition and flexible control of energy systems. SMPnet helps clients (utilities, energy service companies, and asset owners) deliver effective, sustainable, and profitable asset management essential to energy integration and development of future energy distribution. Using SMPnet's patented Omega technology, clients can monitor, optimize, and control multiple network assets in real time and ensure secure and resilient operation.

<https://scienmag.com/innovate-uk-the-urban-future-lab-and-greentown-labs-bring-innovative-clean-energy-and-climatetech-startups-to-the-u-s/>

SMART CONSTRUCTION ZONE

Eliminating uncertainties
and de-risking execution

**DIGITAL BLOCK
DRIVEN PROJECT
DELIVERY**

 Nationals Park,
Washington DC

26 SEPT
2023

Yogesh Srivastava 
CEO, Teknobuilt

**WORLD'S LARGEST EVENT
FOR PROJECT CONTROLS**

25-27 September 2023
Nationals Park, Washington DC

GOLD PARTNER


US 2023

projectcontrolexpo.com/usa/expo/partners

#US2023

ADIPEC 2021



ADIPEC 2023



IPS 2024



The Capital Projects at a Glance

Today, Across the Globe

North America

55% Delayed

51% Over Budget

Europe

74% Delayed

57% Over Budget

Middle East

87% Delayed

58% Over Budget

Asia Pacific

80% Delayed

57% Over Budget



Losing \$1.6T Annually



A contemporary view of project performance



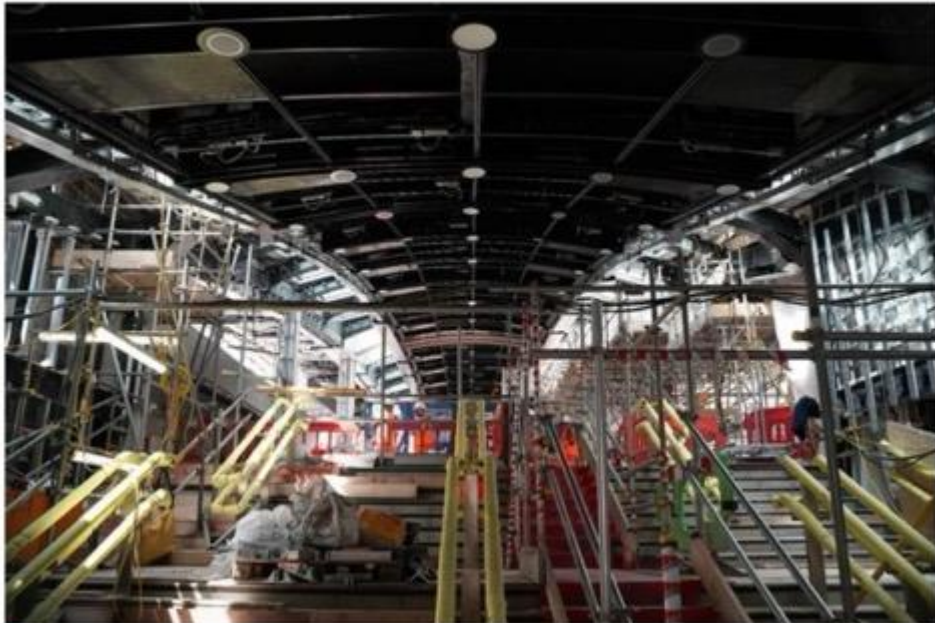
[BUY A PAPER](#) [FUNERAL NOTICES](#) [JOBS](#) [VOUCHER CODES](#) [PROPERTY](#) [DIRECTORY](#) [ADVERTISE WITH US](#) [MARKETPLACE](#) [BUY A PHOTO](#) [BOOK AN AD](#) [NEWSLETTER SIGNUP](#)

my LDN News Zone 1 News Elizabeth Line

Elizabeth line: The £19 billion Crossrail fiasco - 'Guessing what needed building', brazen sabotage and staff at war

DELAYED 4 YEARS

EXCLUSIVE: The full story of shambolic project plagued by delays and chaos
Billions wasted



At one station a whole ceiling was built based on what the contractors thought should have been installed, but when they checked with the design team, the whole thing had to be removed (Image: Chris BevanLee)

Crossrail: 'Build whatever you think'



A report found that many of the mistakes on the project were driven by the obsession with a fixed completion date (Image: Leon Neal/Getty Images)

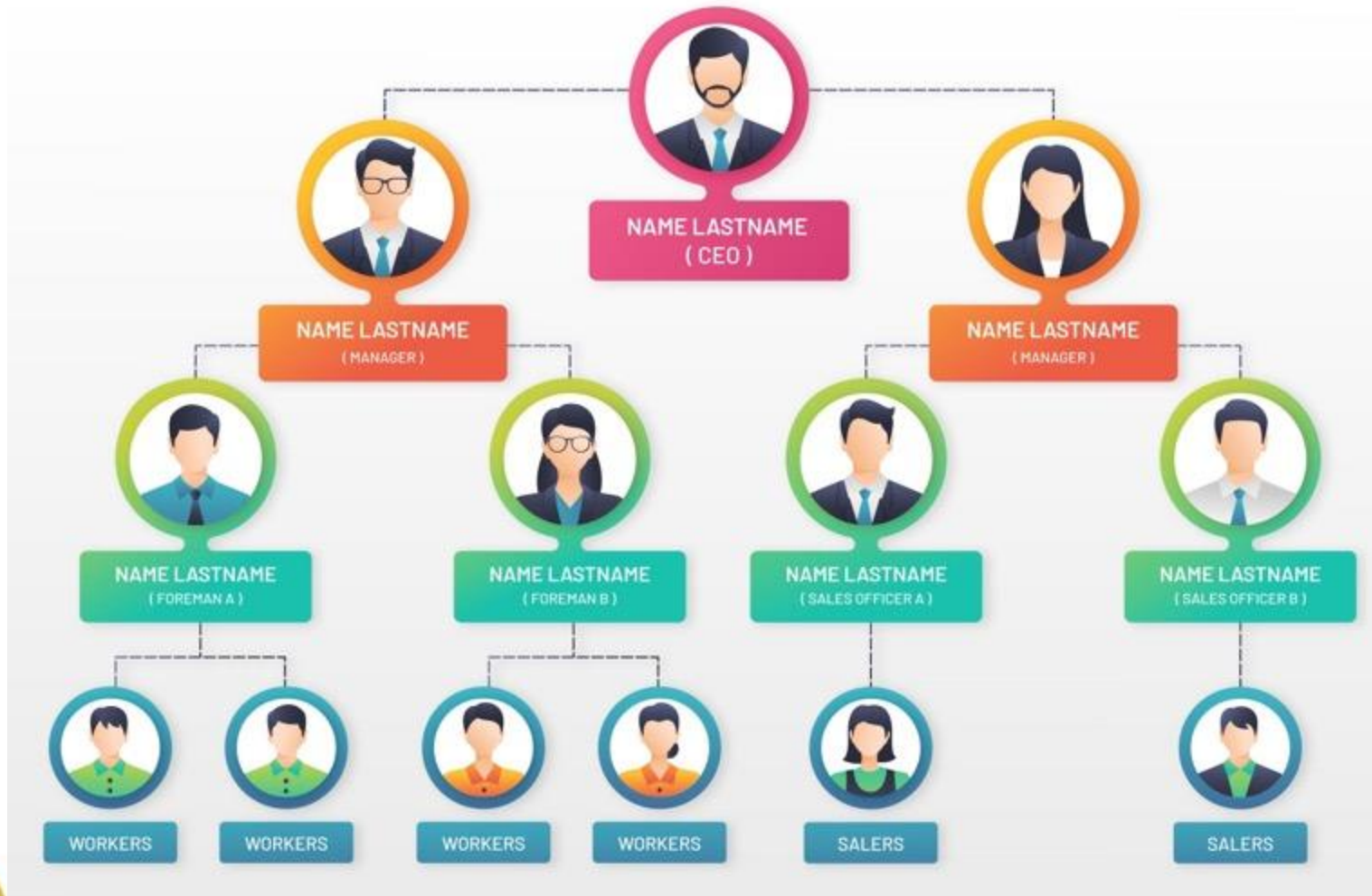


The Project Paradigm

• 1



People



People – may or may not be the problem; everyone wants to do a good job

Process



Everyone
knows what to
do



100 year Old Project Management Method – WW I

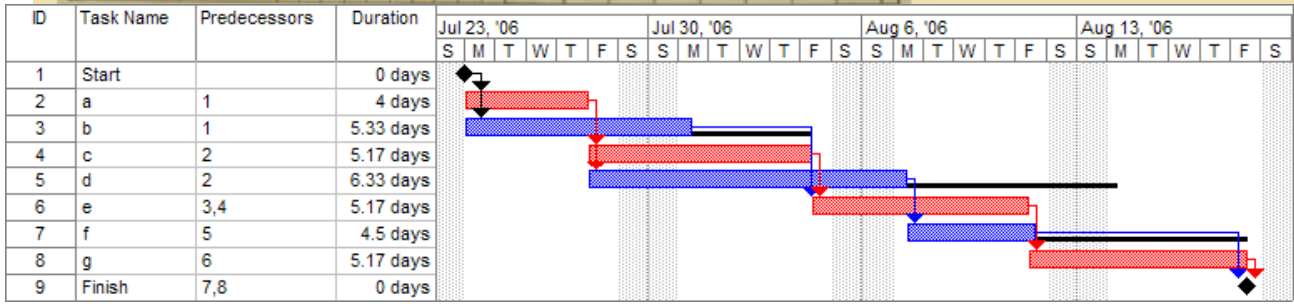
1. Tasks to be done
2. When they are supposed to be done
3. Relation to other tasks
4. Who will do it
5. What they need to do it

THE GANTT CHART (1917)

BY: H. L. GANTT

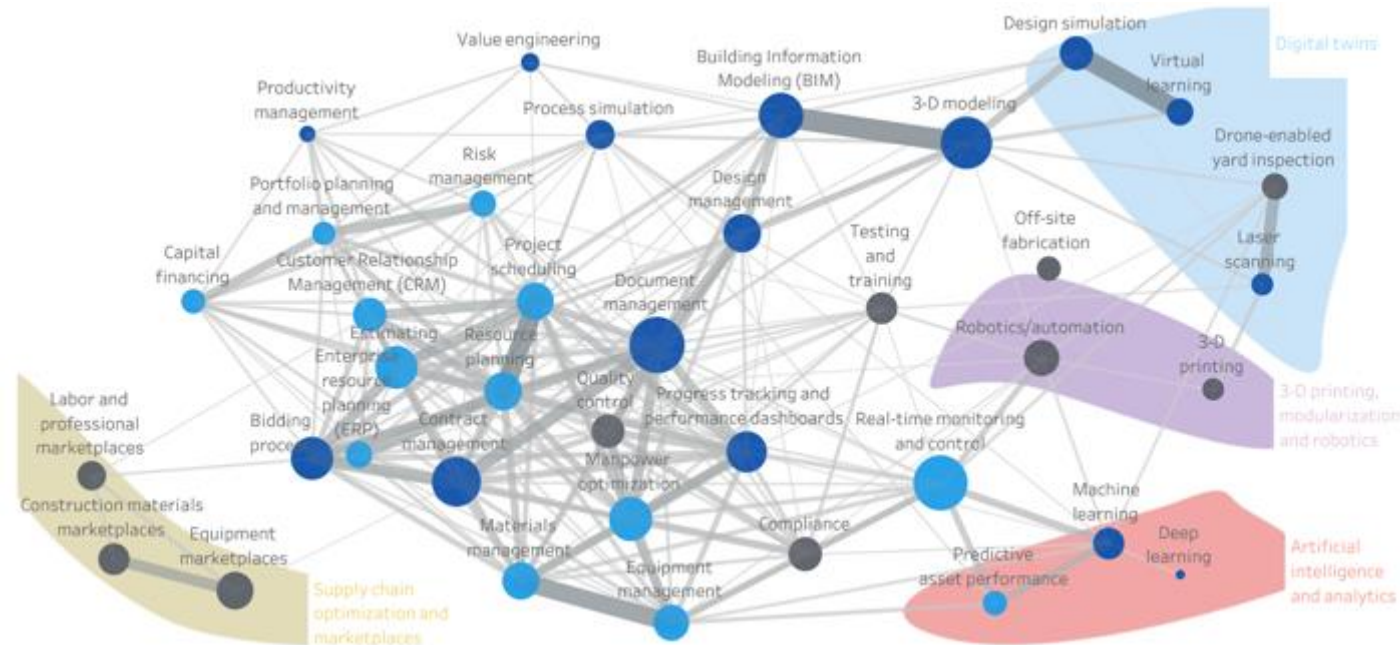
One of the first major applications of Gantt charts was by the United States during [World War I](#), at the instigation of [General William Crozier](#)

In 1999, Gantt charts were identified as "one of the most widely used management tools for project scheduling and control"

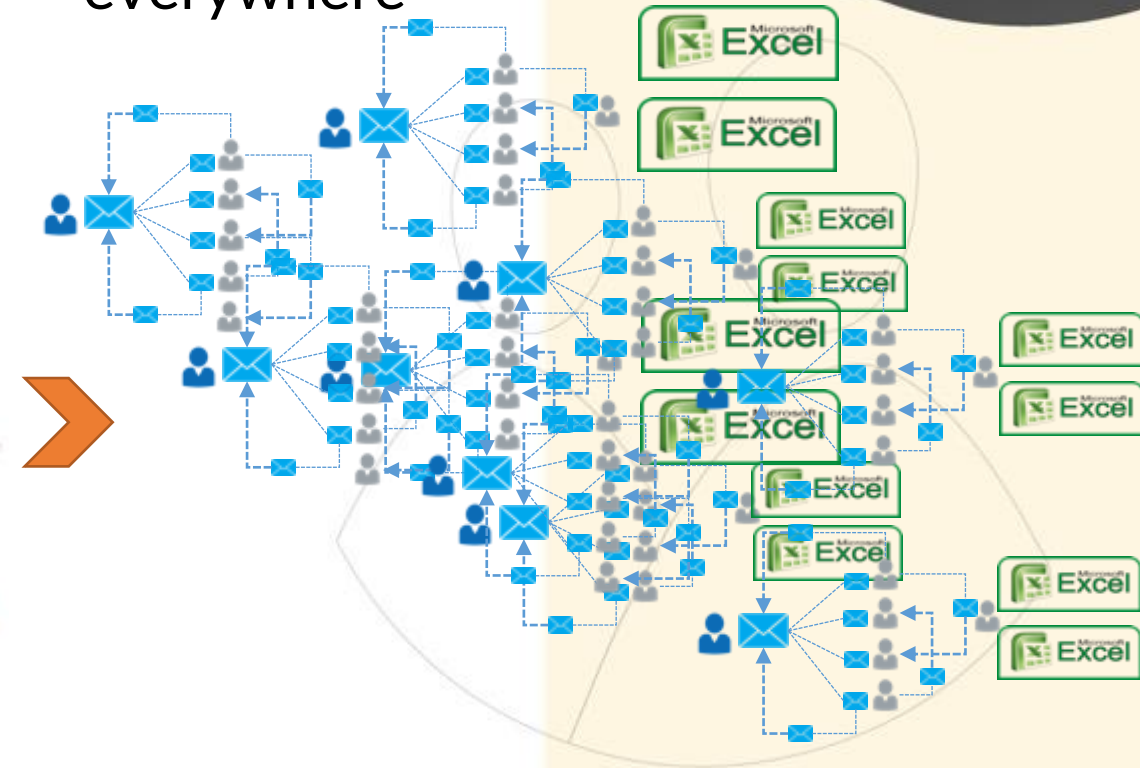


Technology

Systems & Tools: Many



No lack of Data: Data is everywhere





The Way Teams are Functioning Traditionally

1. Engineering

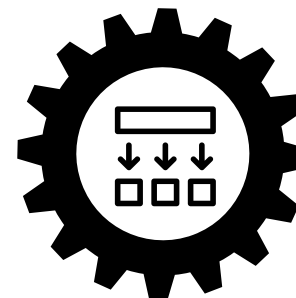


2. Project Controls /
Scheduling

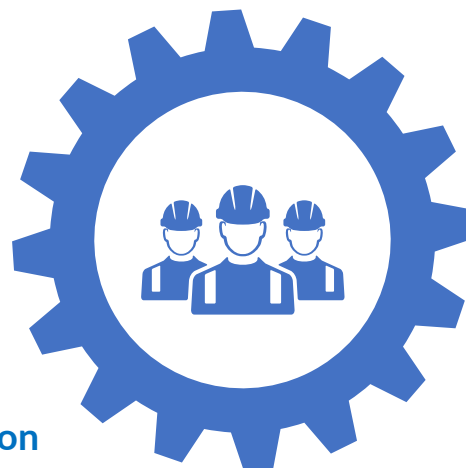


3. Supply Chain

5. Fabrication



6. Health, Safety &
Environment



4. Construction

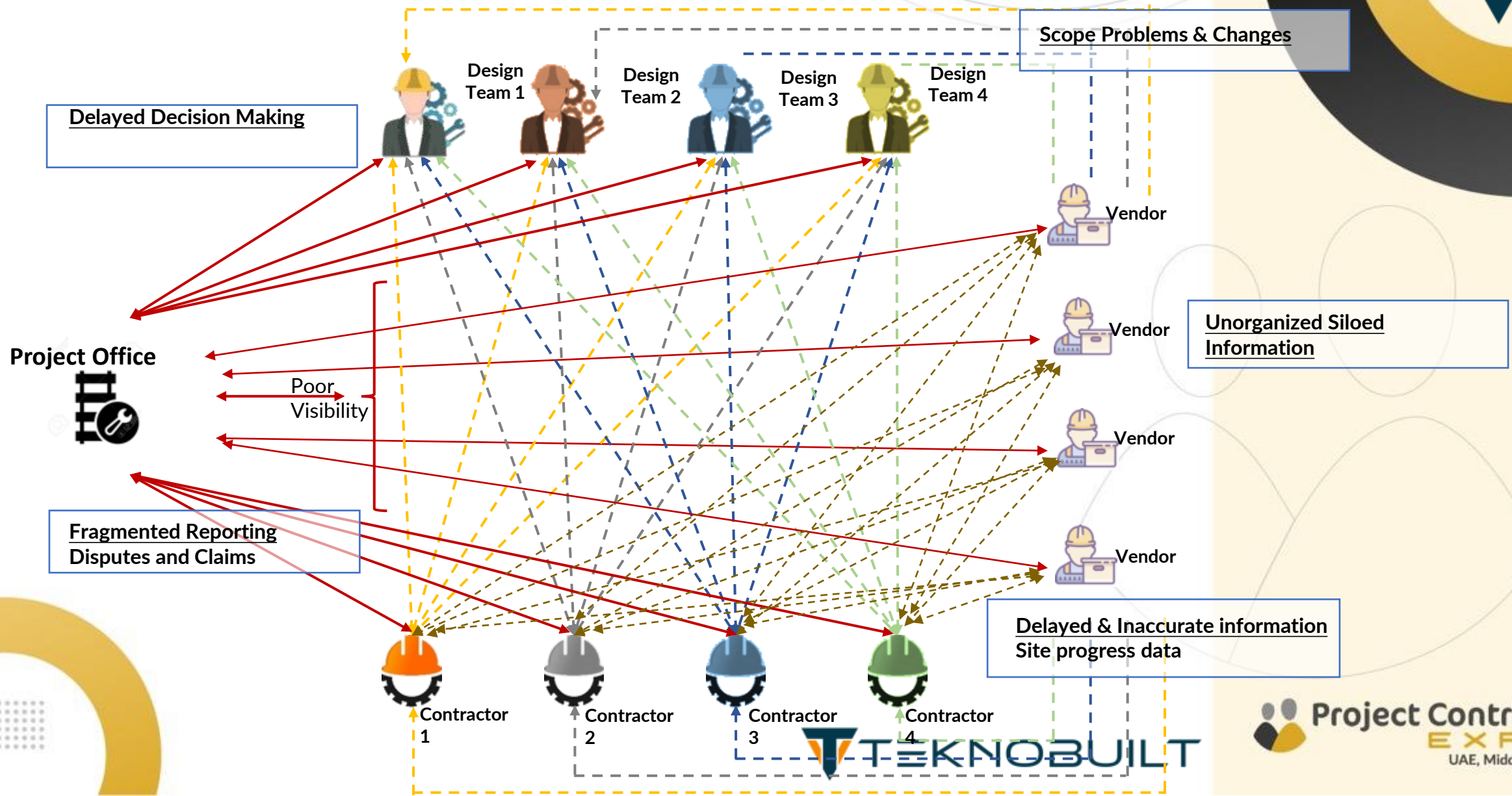


7. Indirects / Services
Scaffolding

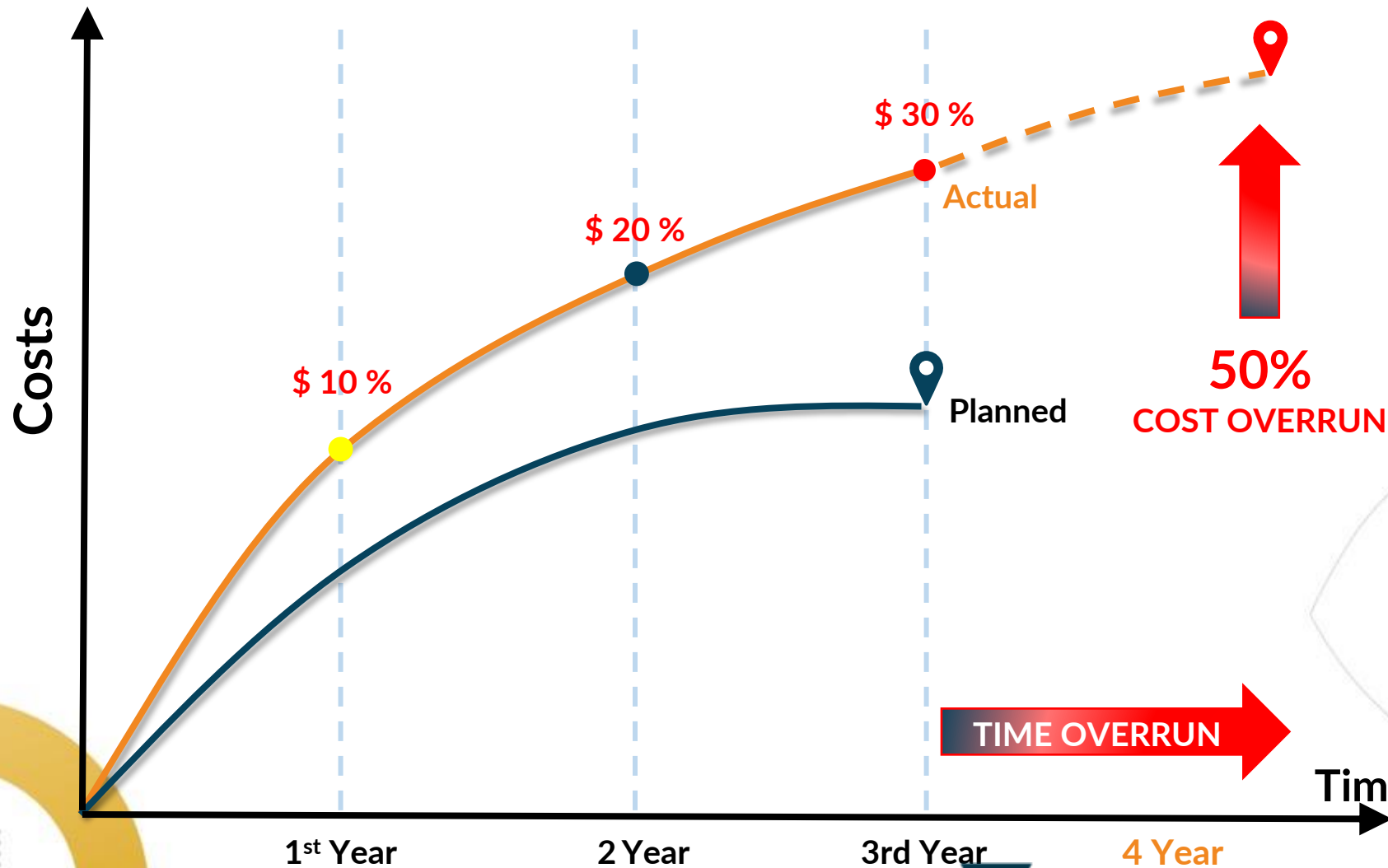


8. Quality & Close-out

The Project Paradigm



Late Risk Identification Adds 3% cost every month



Introducing “Digital Construction Block™” and the Block Driven Project Delivery



The Digital Construction Block™

- a Multi-dimensional Kanban Container™

- Dynamic, goes live from project start
- Build focus – area and sequence
- Dynamically aligns scope between Construction & Engineering
- Proves field execution readiness and control progressively
- Supported by functions such as Project Controls, Supply Chain & Quality
- May have multiple Assets within
- May have multiple Systems within
- Connected to the Unified Delivery Network

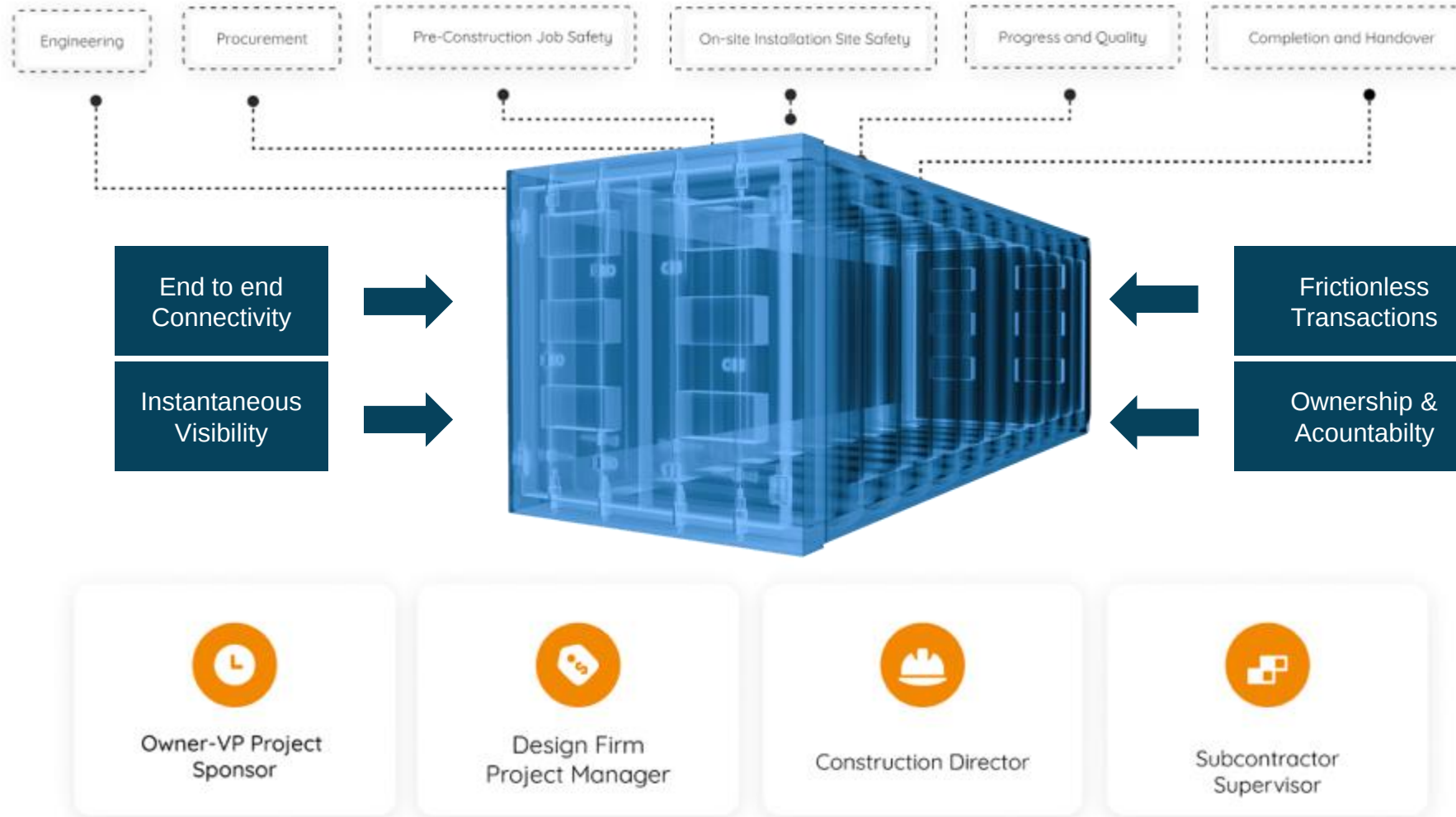


Containerization: Revolutionizing Concept in 1950s



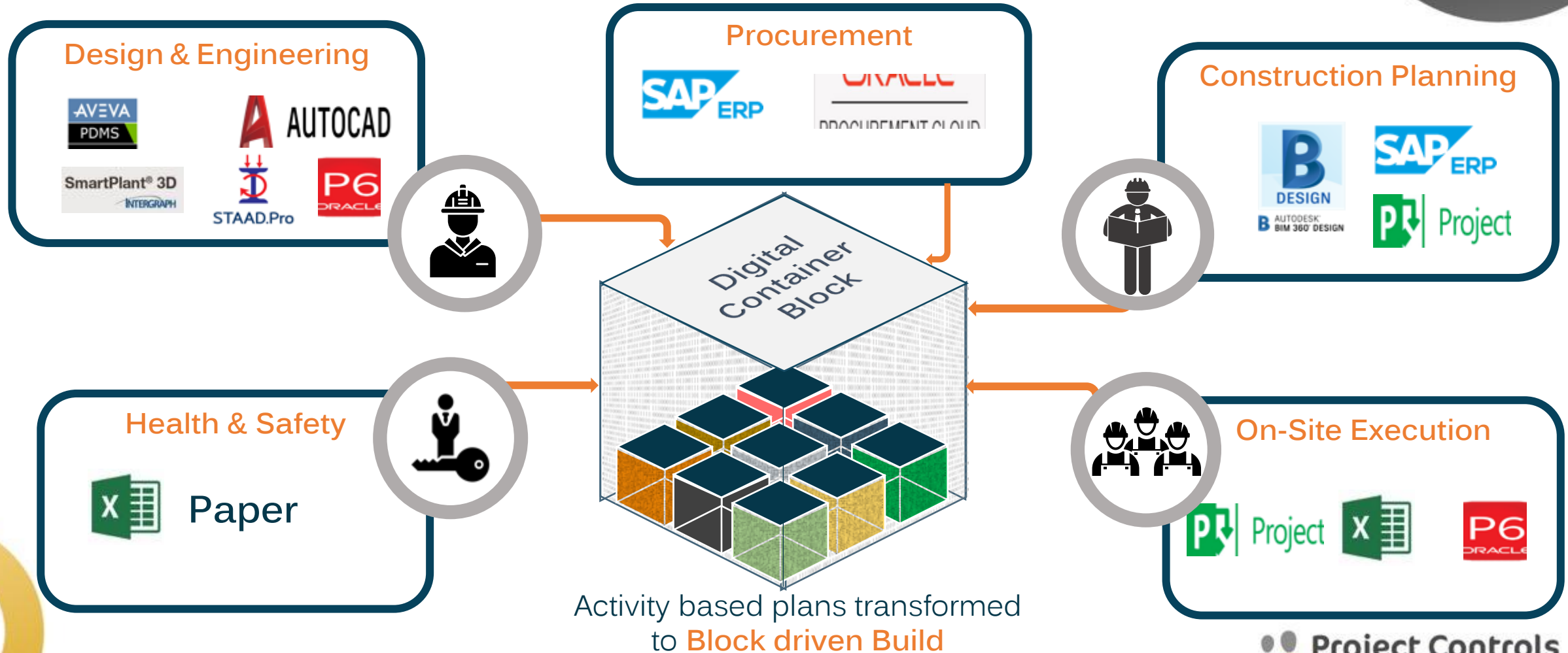
- 20 times faster
- Dramatically reduced costs
- Transformed transportation and international trade
- Globalization

The Multi-Stage & Organization Connectivity

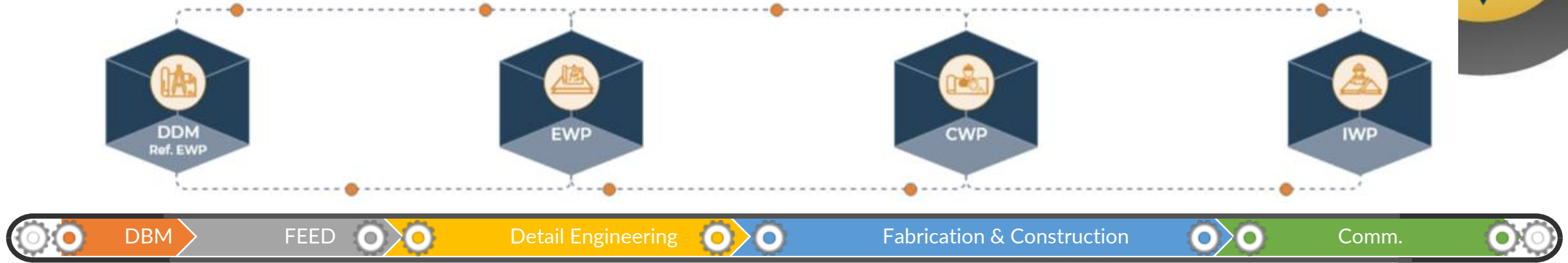


Overcoming Fragmentation of Systems & Organizations

Transformed by Digital Construction Blocks™



Blocks Flow Faster on a Digital Assembly Line



Document Register

M714-CE-E-12121 / T-14.112.121
M714-CE-E-12123 / T-14.112.123
M714-CE-B-12120 / T-14.112.120
M714-CE-B-12122 / T-14.112.122

Engineering Deliverable

EWP-A01-WP2.3-220-FI-LC-101

	Plan	Actual
	2023-02-17	YYYY-MM-DD
	2023-02-17	2023-02-09
	0 hrs	0 hrs

Pre-Construction Planning

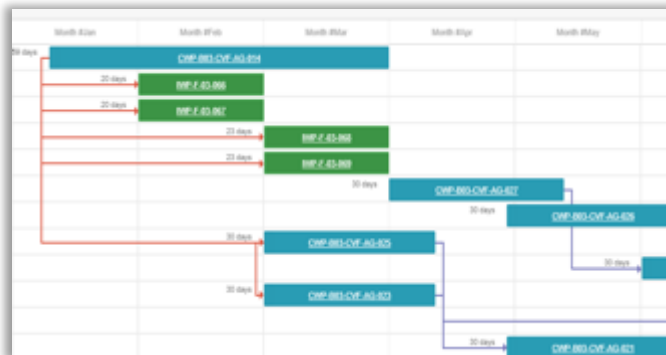
CWP-A01-WP2.3-220-FI-LC-101

	Plan	Actual
	2022-12-31	2023-02-10
	2023-04-14	2023-02-10
	0 hrs	0 hrs

Onsite Execution

...0-FI-LC-101-CV02-101
...0-FI-LC-101-CV02-102
...0-FI-LC-101-CV02-104

Ref. CWP



No Disruptive Blocks

Easy Overlay on Existing Systems & Processes



Connectivity across Multiple Project Systems & Tools





End-to-end Unified Digital Platform

Building better, saving costs, reducing carbon - Block by Block

The Digital Shift in a Project at a Glance

Brief description of the project

- A complete new train adding 35,000 MTPA to existing
- Greenfield, Brownfield and Marine scope
- FEED near completion / client mandated AWP in bid for next phase
- Teknobuilt involved from FEED completion and bidding stage
- Awarded to EP & C joint venture (no prior AWP project done)
- Project in construction now

Expansion multi-billion dollar LNG plant



MAIN CHALLENGES



Location

Complexity of multiple inter-continental entities



Systems and culture

Divisions between Engineering, Procurement and Construction



External

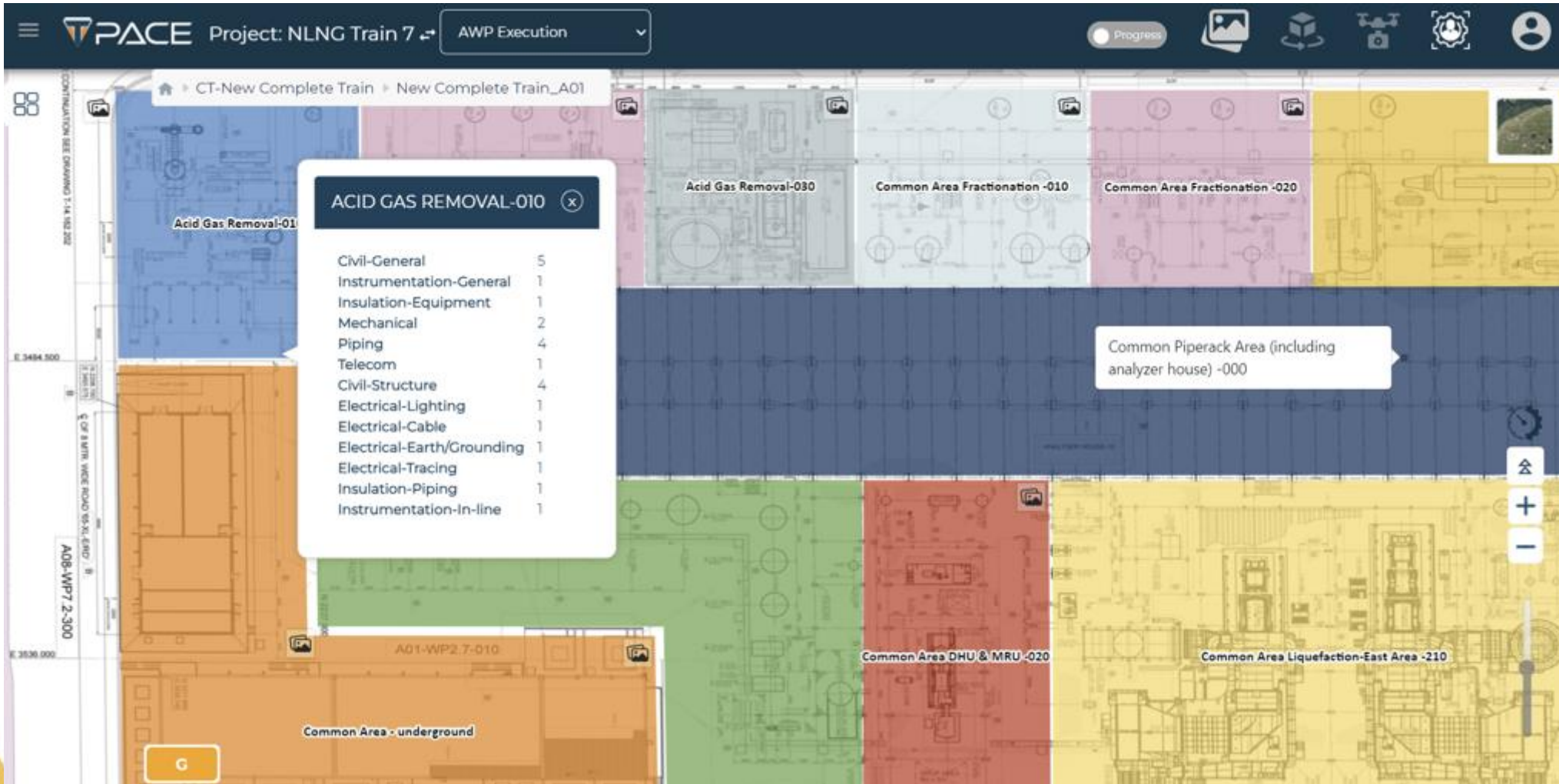
Fragmentation compounded by Covid

Fast PACE into Digital AWP



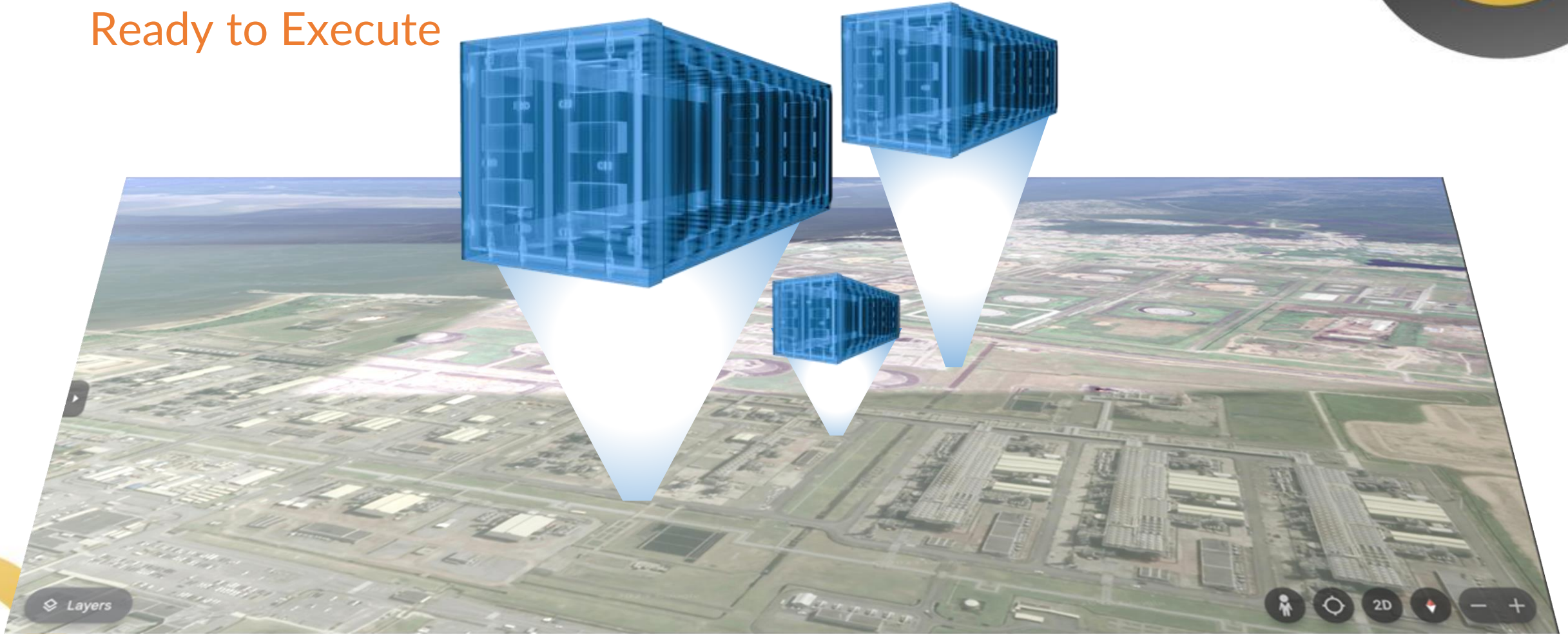
- People, Process & Technology
- Leadership, Strong framework & Transformation
- Executive leadership sessions / parallels with Shutdown & Turnarounds
- 8 to 10 leaders on the project floor converted
- Digital platform based strong AWP framework that didn't require everyone to learn AWP
- Minimal disruption to people's day to day work
- Team based focus group sessions: engineering disciplines, project controls, supply chain, in-house tool owners, 3rd party tools
- Simulation in parallel for AGRU area
- All of above done within first 3 months

WBS Augmented with DCBs



The Planning to Execution Continuum

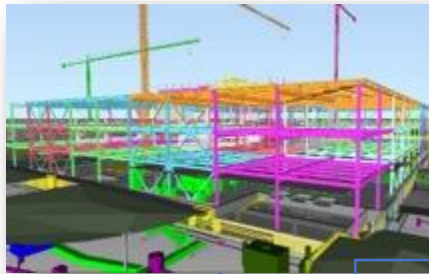
AI De-Risked &
Ready to Execute





Digital Construction Blocks: “The Kanban Container™”

3D Model



Schedule



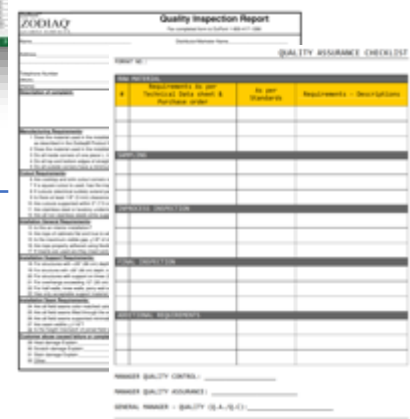
Purchasing



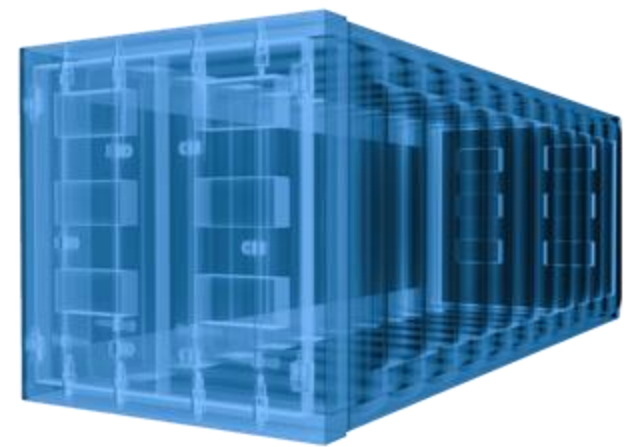
Tasks to do



Quality & Safety



Docs. & Drawings



10X Efficiency to bring all that's needed to build

The Block in the Network for Project Delivery



The 360 Degree Digital Control Tower View



Containing the Scope



PACE

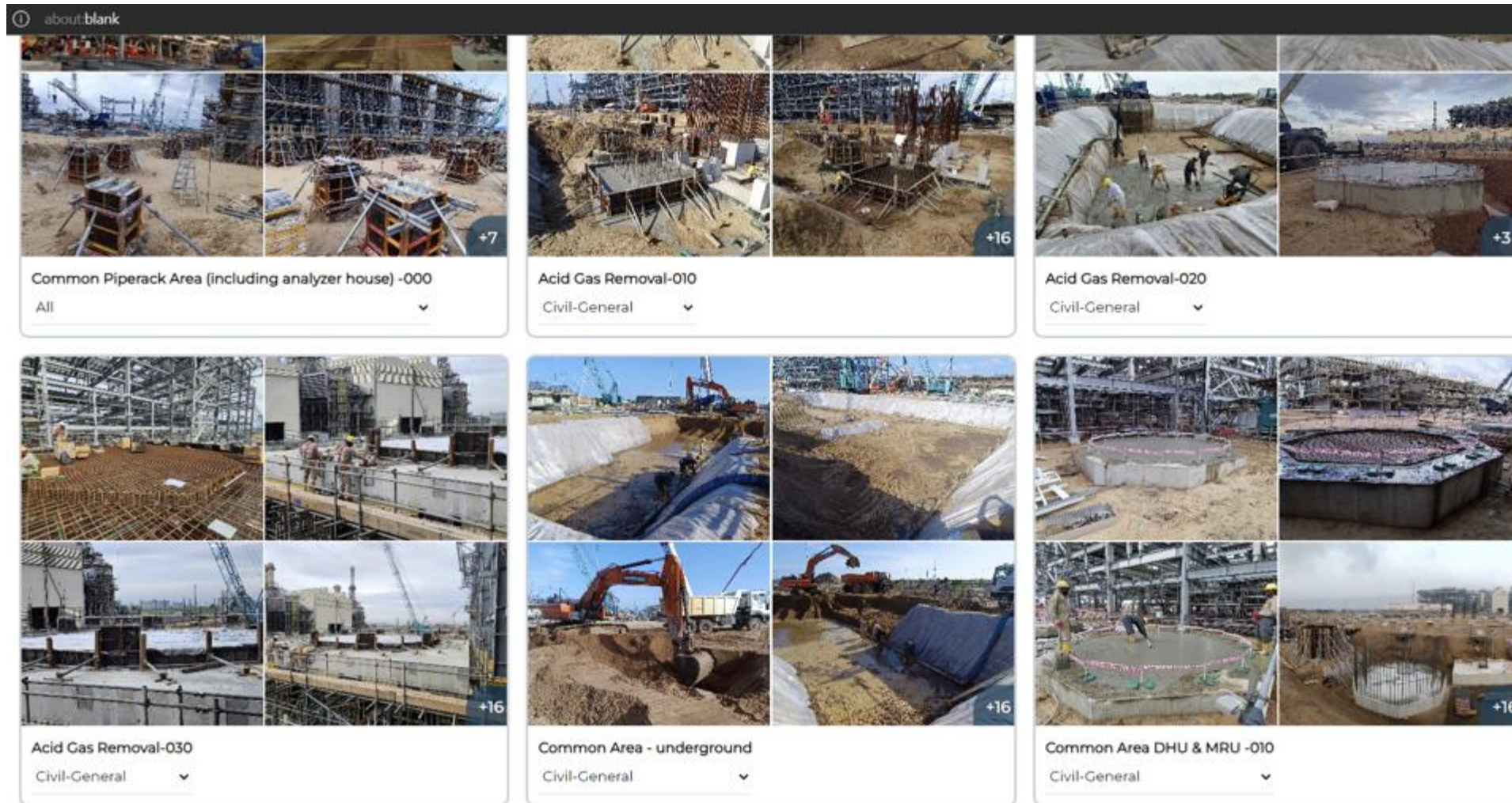
EWP Content Checklist

Upload Document Check Status EWP Compiler

No.	Description	Included Yes / No / NA	Action	Remarks
1	Scope of work Stefano 24 Feb 2023	☒ ☐ ☐	☒	Drop Files Here
2	Specifications and standards references Stefano 24 Feb 2023	☐ ☒ ☐	☒	Drop Files Here
3	Technical deviations Stefano 24 Feb 2023	☐ ☒ ☐	☒	Drop Files Here
4	Drawings and data Stefano 24 Feb 2023 	☒ ☐ ☐	☒	Drop Files Here



Real Site Data Backed by Visuals



The Details in the Field



PACE 163

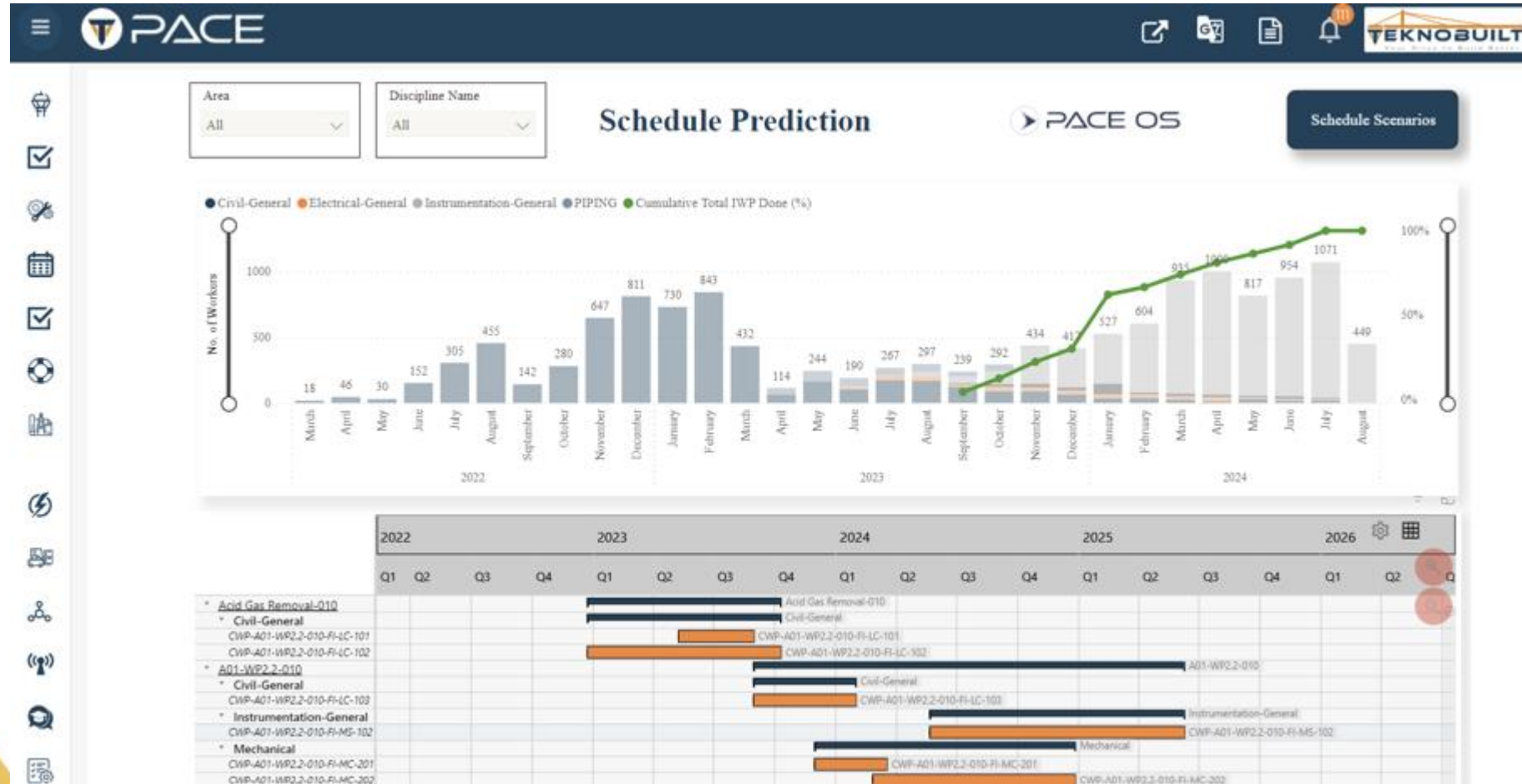
[IWP Leadership Report](#)
[IWP Management Report](#)
[IWP Supervisor Report](#)
[IWP Team Leads Report](#)
[IWP Release/Exe Status](#)
[IWP Field Report](#)
PACE OS

CWP: All | Discipline: All | Status: All | IWP: All

Discipline	IWP	IWP Type	Stage	Status	Site Image	Planned Earned Q'ty	Actual Earned Q'ty (at Site)	UOM	Planned IWP EMH	Spent MH(PACE)	IWP-PlannedSt
Civil-General	IWP-A06-WP5.4-000-FI-LC-101-CV02-106	Concrete Work	Closed Out	Completed		914.83	914.83	M3	35129	26450	Tuesday, April 18
Civil-General	IWP-A02-WP2.4-220-CI-LC-101-CV02-104	Concrete Work	Closed Out	Completed		635.97	1,271.94	M3	24319	22380	Saturday, July 08
Civil-General	IWP-A01-WP2.3-210-CI-LC-102-CV02-104	Concrete Work	Closed Out	Completed		588.47	588.47	M3	22500	21770	Friday, March 17
Civil-General	IWP-A06-WP5.4-000-FI-LC-101-CV02-107	Concrete Work	Closed Out	Completed		725.85	725.85	M3	27871	21600	Friday, May 05, 2
Civil-General	IWP-A06-WP5.4-000-FI-LC-101-CV02-104	Concrete Work	Closed Out	Completed		742.80	742.80	M3	28523	21250	Friday, March 10
Civil-General	IWP-A06-WP5.4-000-FI-LC-101-CV02-105	Concrete Work	Closed Out	Completed		595.40	595.40	M3	22863	17300	Tuesday, April 04
Civil-General	IWP-A03-WP5.3-000-FI-LC-101-CV02-102	Concrete Work	Closed Out	Completed		1,106.67	1,080.00	M3	41979	15960	Monday, March 1
Civil-General	IWP-A06-WP5.4-000-FI-LC-101-CV02-103	Concrete Work	Closed Out	Completed		538.21	538.21	M3	20667	15150	Friday, February
Civil-General	IWP-A06-WP5.4-000-FI-LC-101-CV01-101	Excavation / Backfill	Closed Out	Completed		16,882.14	16,882.14	M3	50646	14130	Tuesday, Decemb



The Skyline





Operational Discipline & Execution Control



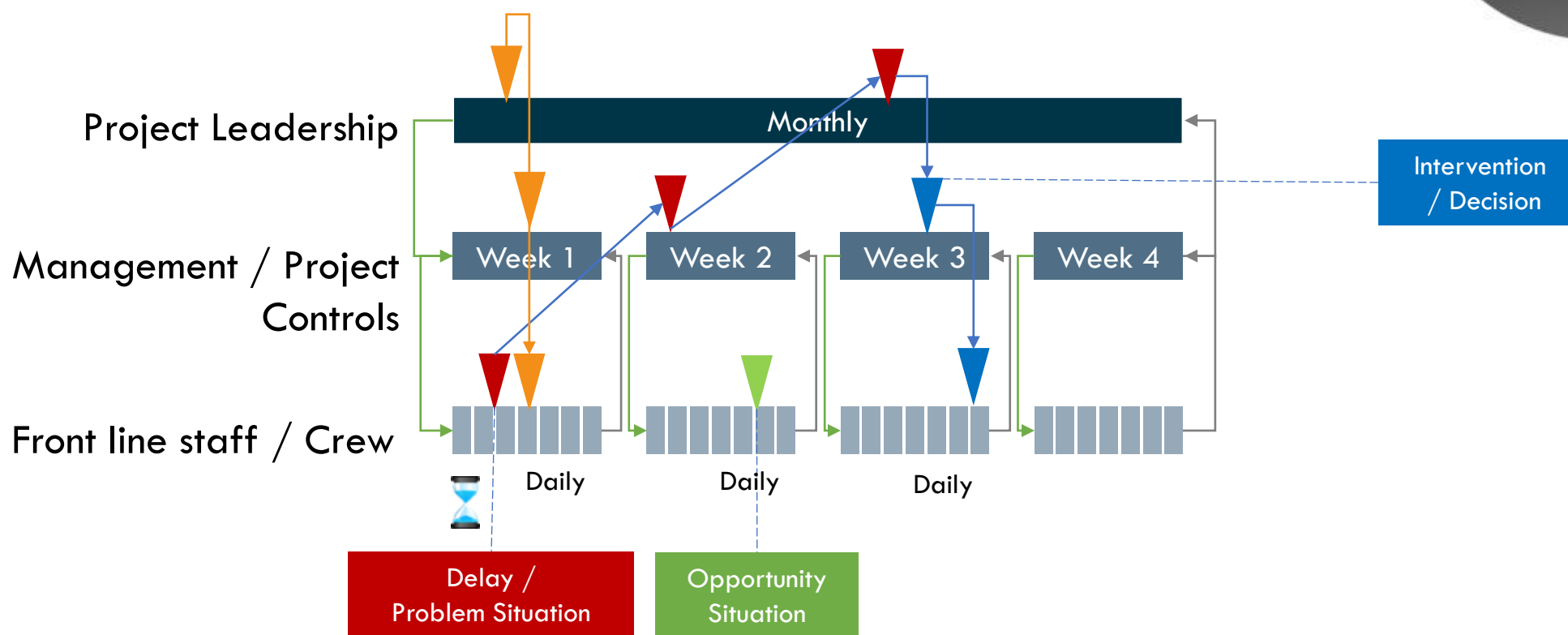
Digital Control Tower



Hindrance Management



PACE Site Mobility

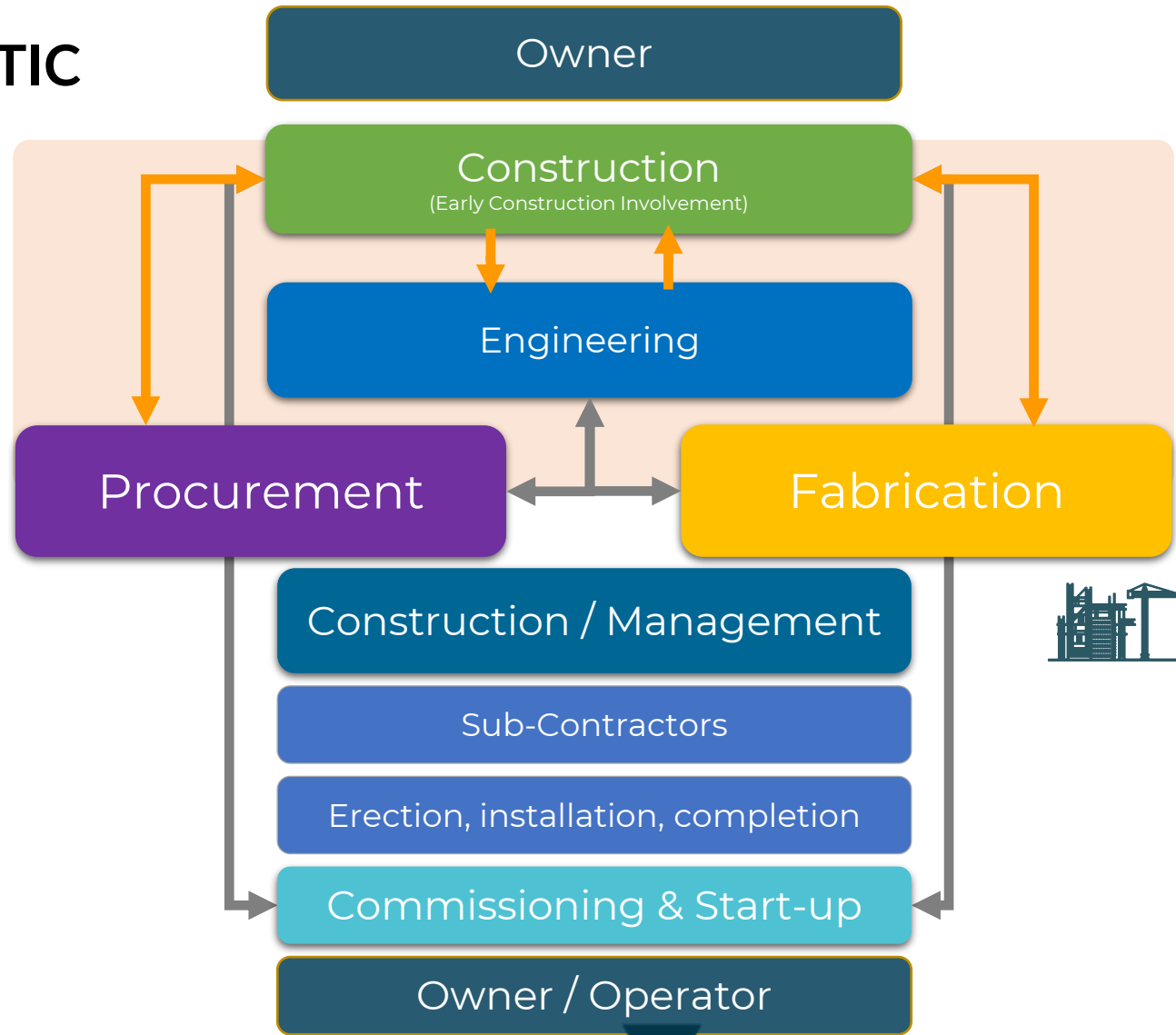
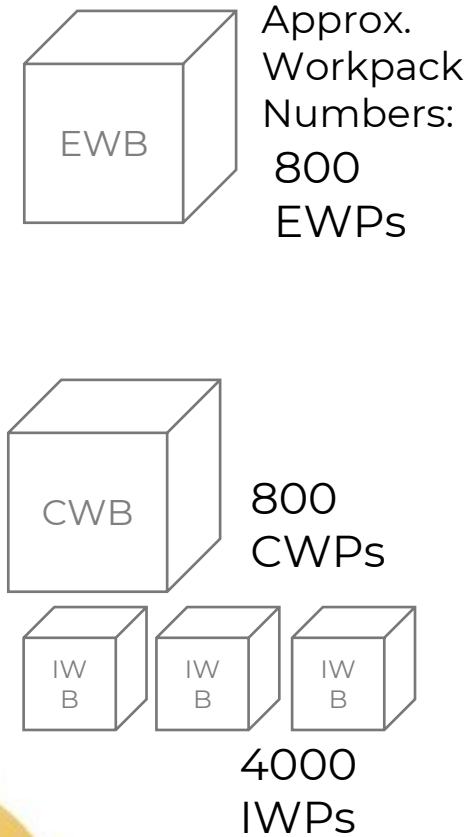


Data Driven Continual De-risking
Instantaneous Visibility, Granularity & Audit Trail



Manufacturing Projects by DCBs

Example of \$1 Billion TIC



20% increased effort (investment) in good engineering

(20% of 8% of TIC)

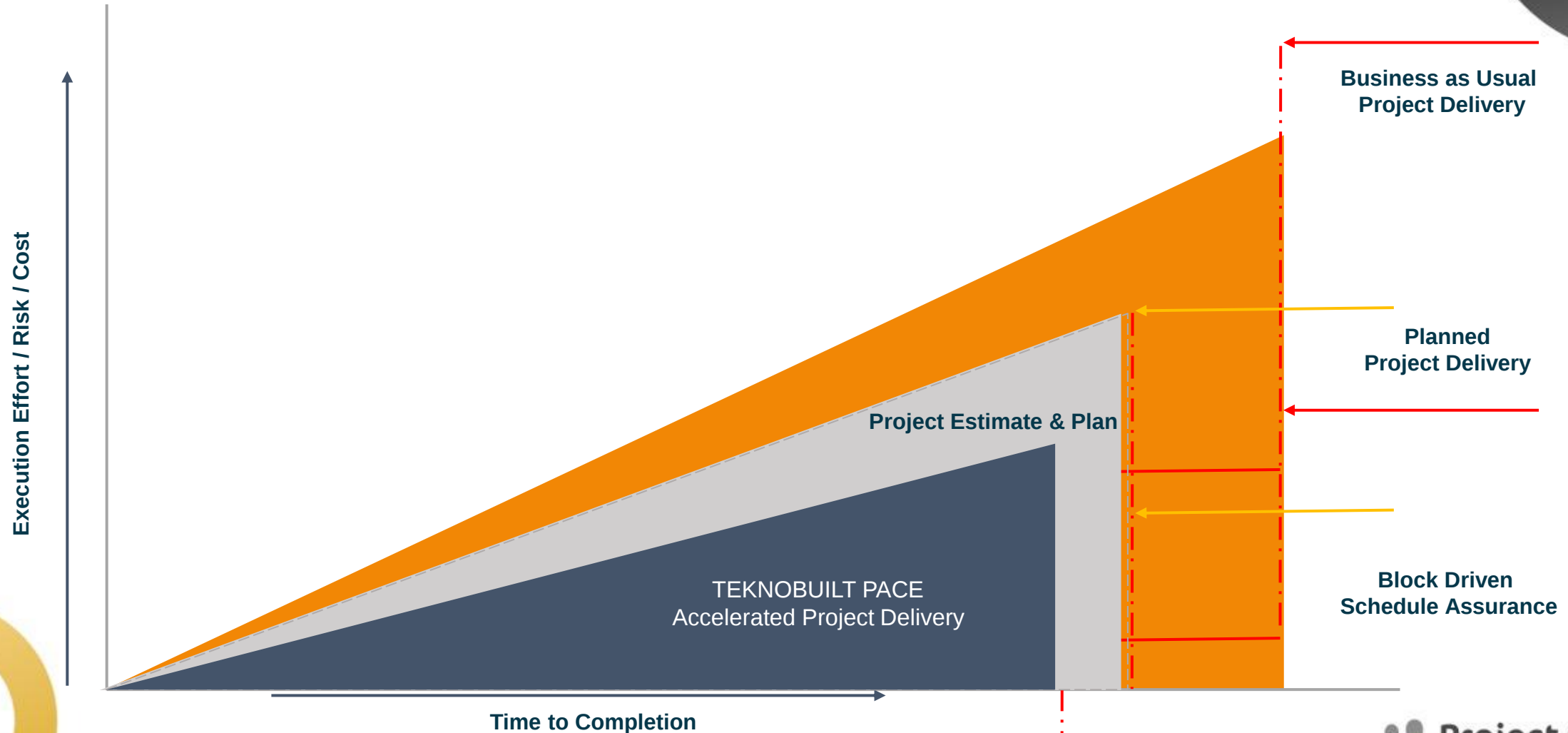


Aggregated savings target of 8 to 10% in Construction

(10% of 40% of TIC)



De-risking Execution and Accelerated Project Delivery



UPTO
20%
INCREASED PRODUCTIVITY

UPTO
100%
ON SCHEDULE EXECUTION

UPTO
10%
REDUCED OVERALL PROJECT COSTS





THANK YOU

Your Company Logo