NODES & LINKS

Next Generation PMOs
Combining People and Machines

Greg Lawton|| co-founder & CEO
greg@nodeslinks.com

Our Partners

Google · bam · Turner & Townsend · HS2 · DPR Construction · VINCI

Our Accolades

- CogX — Best Innovation in Simulation
- CogX — Best AI Product
- bcia 2020 — Product Innovation
- CIR — Risk and Product Innovation
- CIR — Risk Innovation

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complexity, made simple

Nodes & Links uses cloud-tech and AI to enable engineering projects to be delivered on time, on budget and at less cost.

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Nodes & Links is an environment that allows every member of your team to track, analyse and prioritise work to make great decisons.

Durham University

BAE SYSTEMS

MANCHESTER 1824
The University of Manchester

STEVENS INSTITUTE of TECHNOLOGY
THE INNOVATION UNIVERSITY

University of BRISTOL

UNIVERSITY OF BATH

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- Served: **300 projects**
- Across: **30 enterprise customers**
- Across **3 continents**
- Hitting **automation levels of 96%**, saving one customer £63M per year
- Hitting **acceleration savings** of 1.5% of project budgets, saving one customer £60M on a single project
- **Doubling company size** every 4 months

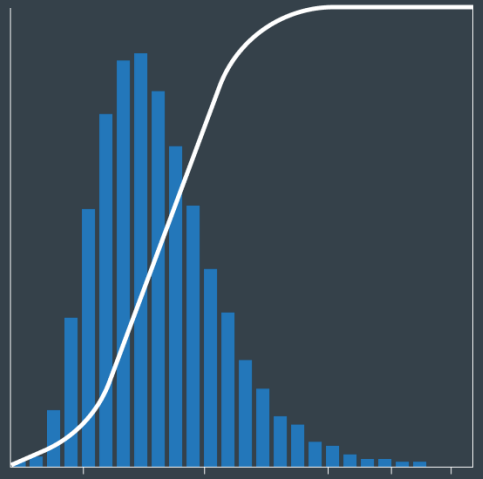
What we knew that

enabled us to do this

Fact #1

Projects earn revenue
from **delivery**

Projects earn profit from
Project Management



Fact #2

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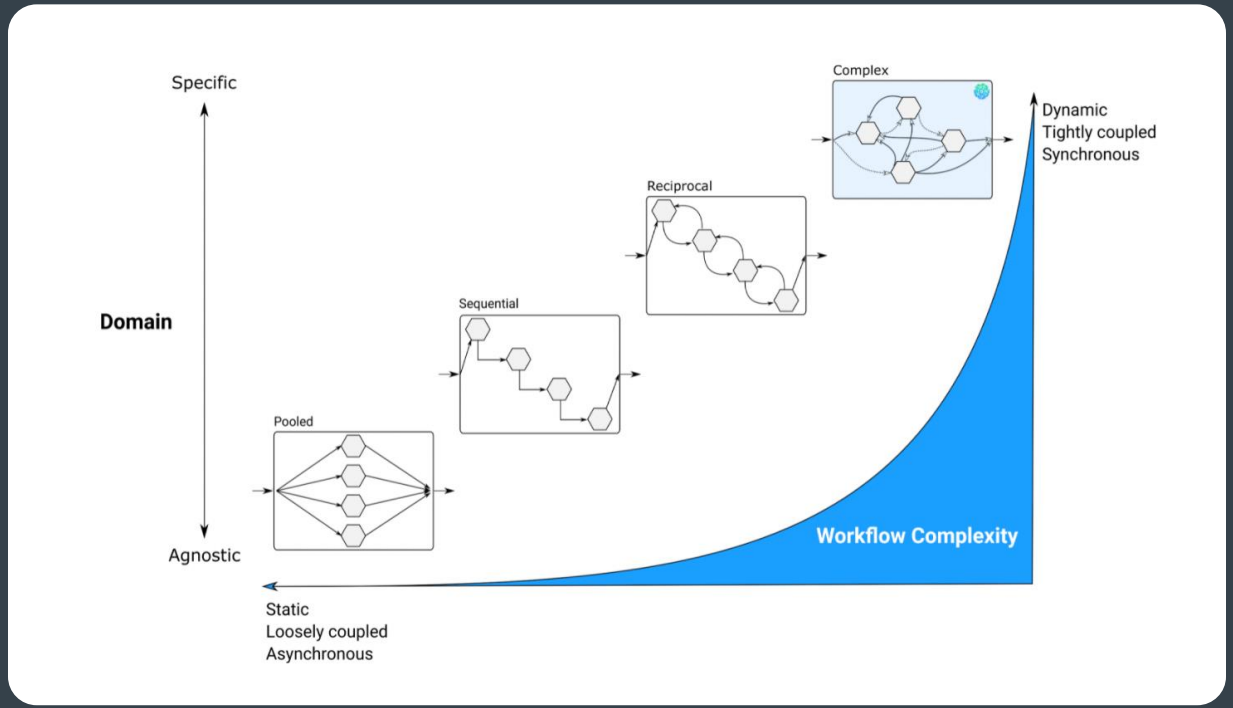
Project Management is about **managing complexity**



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Delivering successful projects is as **hard** as today...

Project Performance Map

	Mean cost overrun	Frequency of cost overrun	Mean schedule overrun	Frequency of schedule overrun	Mean benefit overrun	Frequency of benefit shortfall
Solar power	1%	4 out of 10	0%	2 out of 10		
Energy transmission	8%	4 out of 10	7%	1 out of 10		
Wind power	13%	6 out of 10	22%	6 out of 10		
Pipeline	14%	6 out of 10				
Water	21%	7 out of 10	33%	8 out of 10		
Road	24%	7 out of 10	38%	8 out of 10	-3%	6 out of 10
Bridge	27%	6 out of 10	19%	7 out of 10	2%	7 out of 10
Mining	27%	5 out of 10	45%	6 out of 10		
Oil+Gas	31%	8 out of 10				
Thermal	33%	6 out of 10	37%	8 out of 10	-6%	7 out of 10
Tunnel	37%	8 out of 10	21%	6 out of 10	-21%	8 out of 10
Rail	38%	7 out of 10	39%	6 out of 10	-26%	7 out of 10
Airport	46%	6 out of 10			-15%	5 out of 10
Defense	52%	5 out of 10	41%	8 out of 10	0%	3 out of 10
Aerospace	61%	9 out of 10	27%	9 out of 10		
Buildings	63%	7 out of 10	38%	6 out of 10	-5%	6 out of 10
IT	74%	4 out of 10	47%	5 out of 10	17%	5 out of 10
Dams	85%	7 out of 10	42%	8 out of 10	-11%	6 out of 10
Nuclear power	122%	10 out of 10	65%	9 out of 10		
Olympics	172%	10 out of 10	0%	0 out of 10		

N=11,907 (Oxford Global Project's Database, as of March 2019)

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…as it was in

Ancient Greece

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Fact #3

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Complexity implies ambiguity, which requires people in roles

PMBoK KNOWLEDGE AREAS

- Integration Management
- Cost Management
- Quality Management
- Resource Management
- Communications Management
- Scope Management
- Schedule Management
- Procurement Management
- Stakeholder Management
- Risk Management

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The next leap forward in **Project Management** will happen when we are able to reimagine the division of labour within roles

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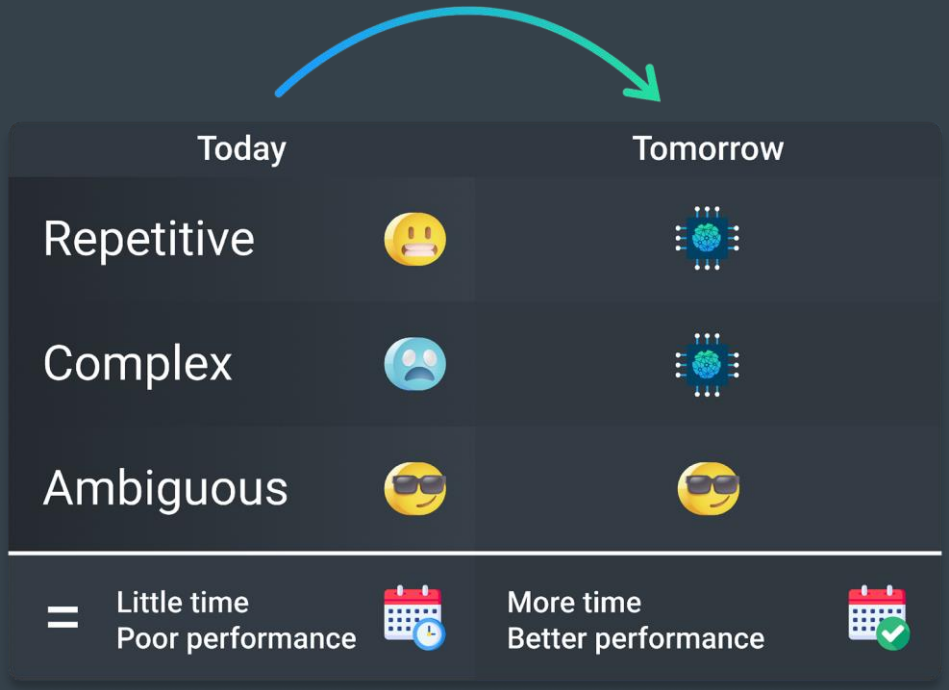
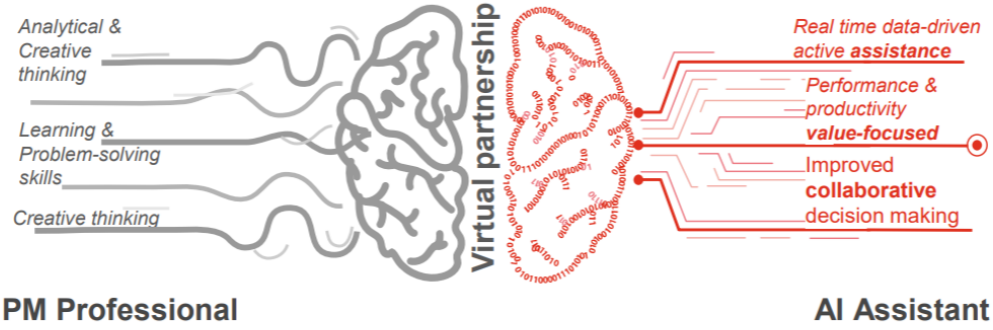
We ask our project teams to do **the impossible**



Virtual partnership
Man and the machine

Project management has evolved over time, by adding value to organizations. **Man and the machine**, together facing the large-scale challenges named 'technological breakthroughs' – are raising both profound opportunities for business and people. In particular, Artificial Intelligence (AI), will have a huge impact on the role of the project manager also.



https://www.ipma.world/assets/IPMA_PwC_AI_Impact_in_PM_-_the_Survey_Report.pdf

Project Scheduler

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Project Scheduler

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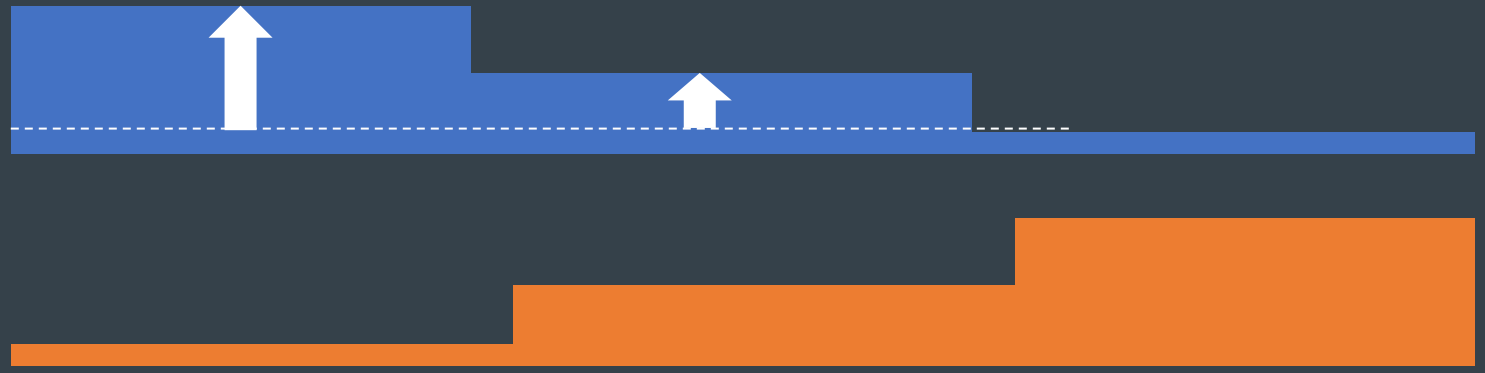
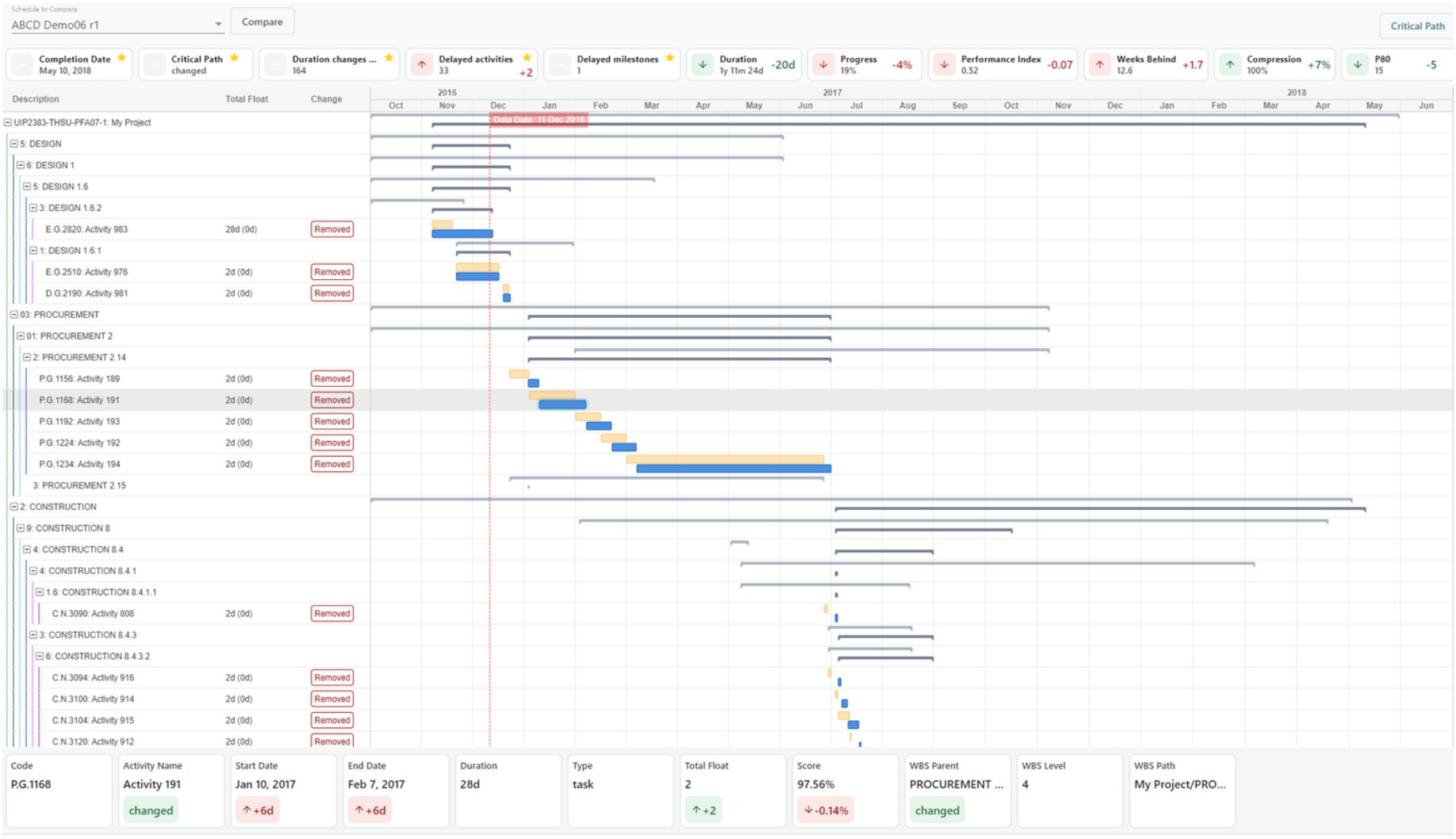
Project Scheduler

Comparing Schedules

Identify Differences → Evaluate Impact → Take Action




Schedule to Compare
ABCD Demo06 r1
Compare
Critical Path
Completion Date
May 10, 2018
Critical Path
changed
Duration changes ...
164
Delayed activities
33
+2
Delayed milestones
1
Duration
1y 11m 24d
-20d
Progress
19%
-4%
Performance Index
0.52
-0.07
Weeks Behind
12.6
+1.7
Compression
100%
+7%
P80
15
-5
Description
Total Float
Change
2016
2017
2018
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Data Date: 11 Dec 2016
UIP2383-THSU-PFA07-1: My Project
5: DESIGN
6: DESIGN 1
5: DESIGN 1.6
3: DESIGN 1.6.2
E.G.2820: Activity 983
28d (0d)
Removed
1: DESIGN 1.6.1
E.G.2510: Activity 976
2d (0d)
Removed
D.G.2190: Activity 981
2d (0d)
Removed
03: PROCUREMENT
01: PROCUREMENT 2
2: PROCUREMENT 2.14
P.G.1156: Activity 189
2d (0d)
Removed
P.G.1168: Activity 191
2d (0d)
Removed
P.G.1192: Activity 193
2d (0d)
Removed
P.G.1224: Activity 192
2d (0d)
Removed
P.G.1234: Activity 194
2d (0d)
Removed
3: PROCUREMENT 2.15
2: CONSTRUCTION
9: CONSTRUCTION 8
4: CONSTRUCTION 8.4
4: CONSTRUCTION 8.4.1
1.6: CONSTRUCTION 8.4.1.1
C.N.3090: Activity 808
2d (0d)
Removed
3: CONSTRUCTION 8.4.3
6: CONSTRUCTION 8.4.3.2
C.N.3094: Activity 916
2d (0d)
Removed
C.N.3100: Activity 914
2d (0d)
Removed
C.N.3104: Activity 915
2d (0d)
Removed
C.N.3120: Activity 912
2d (0d)
Removed
Code
P.G.1168
Activity Name
Activity 191
changed
Start Date
Jan 10, 2017
+6d
End Date
Feb 7, 2017
+6d
Duration
28d
Type
task
Total Float
2
+2
Score
97.56%
-0.14%
WBS Parent
PROCUREMENT ...
changed
WBS Level
4
WBS Path
My Project/PRO...

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“Like for like, 2 hours of work becomes 2 minutes. As a by-product we are able to produce insights we never would have been able to.”

Senior Planning Engineer
EDF Energy

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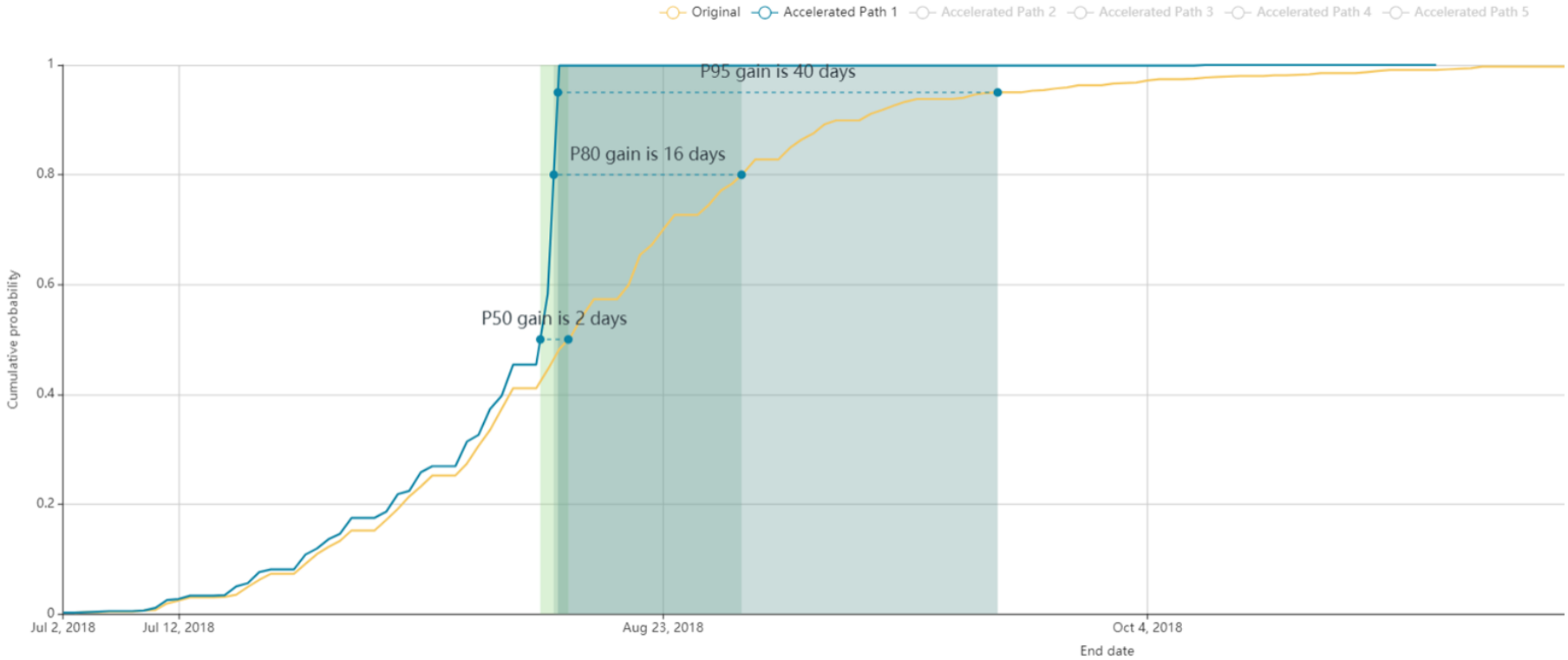
Identifying Opportunities for Acceleration

Evaluate the status-quo → Create and evaluate scenarios → Select and action insights


Original
Accelerated Path 1
Accelerated Path 2
Accelerated Path 3
Accelerated Path 4
Accelerated Path 5
P95 gain is 40 days
P80 gain is 16 days
P50 gain is 2 days
Cumulative probability
1
0.8
0.6
0.4
0.2
0
Jul 2, 2018
Jul 12, 2018
Aug 23, 2018
Oct 4, 2018
End date

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“I went from looking at critical paths on a manual basis to full automation. Nodes & Links instantly gives me the **top 5 paths**, enabling far more intelligent what ifs.”

Bob Hide
Planning Director
BBV

Project Scheduler

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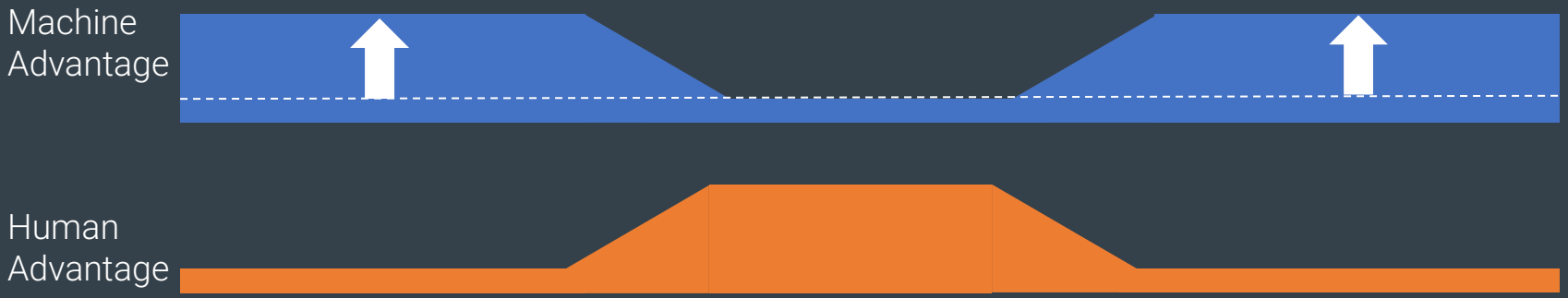
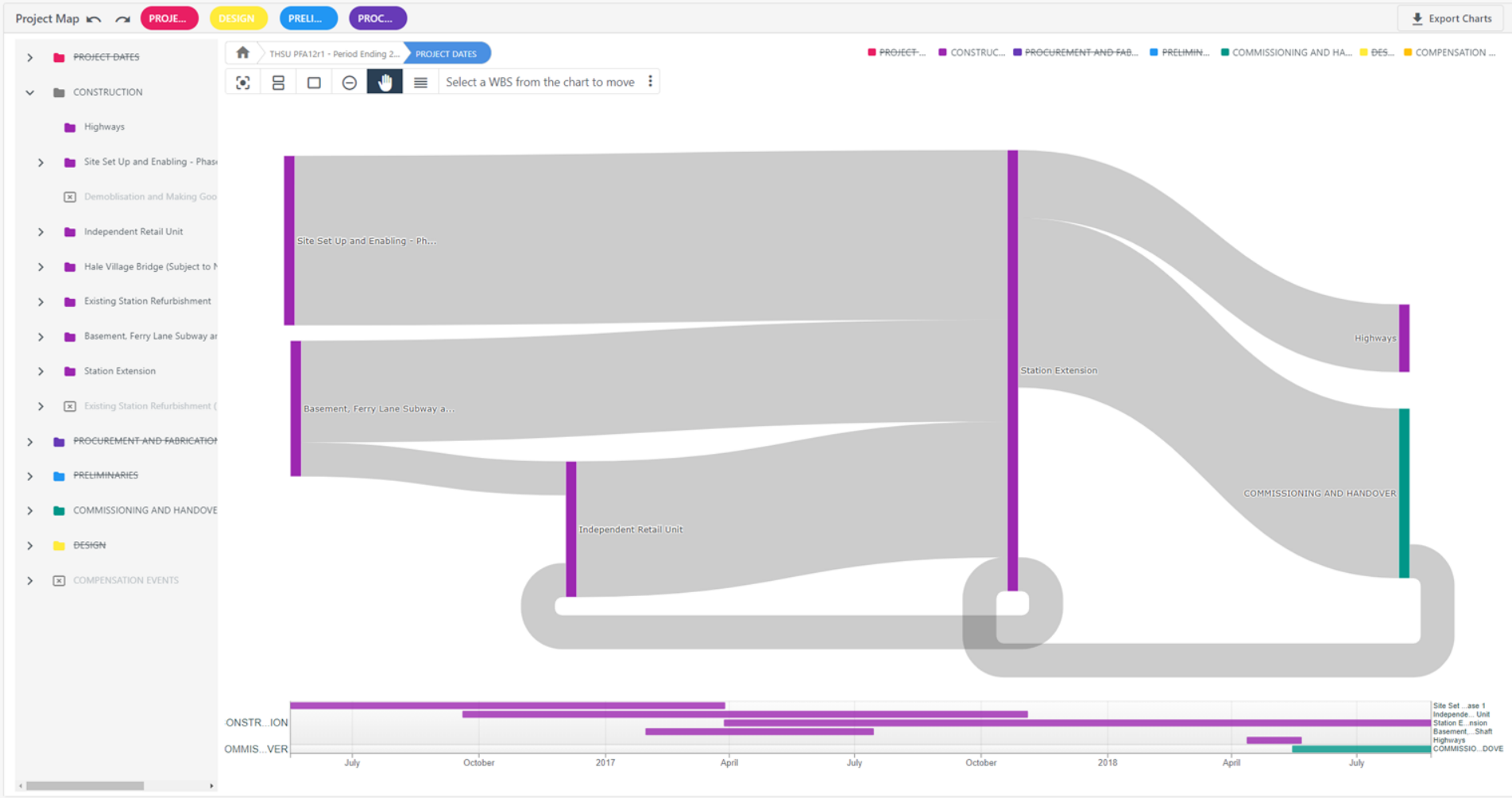
Project Scheduler

Explaining build strategy to the wider team

Create summary visuals of master plan → Present and narrate to the wider team → Empower the wider team to create for themselves




Project Map
PROJE...
DESIGN
PRELI...
PROC...
Export Charts
PROJECT DATES
CONSTRUCTION
Highways
Site Set Up and Enabling - Phas
Demobilisation and Making Goo
Independent Retail Unit
Hale Village Bridge (Subject to
Existing Station Refurbishment
Basement, Ferry Lane Subway ar
Station Extension
Existing Station Refurbishment (
PROCUREMENT AND FABRICATIO
PRELIMINARIES
COMMISSIONING AND HANDOVE
DESIGN
COMPENSATION EVENTS
THSU PFA12r1 - Period Ending 2...
PROJECT DATES
Select a WBS from the chart to move
PROJECT...
CONSTRUC...
PROCUREMENT AND FAB...
PRELIMIN...
COMMISSIONING AND HA...
DES...
COMPENSATION ...
Site Set Up and Enabling - Ph...
Basement, Ferry Lane Subway a...
Independent Retail Unit
Station Extension
Highways
COMMISSIONING AND HANDOVER
ONSTR...ION
OMMIS...VER
July
October
2017
April
July
October
2018
April
July
Site Set ...ase 1
Independe... Unit
Station E...nsion
Basement...Shaft
Highways
COMMISSIO...DOVE

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The future of **Project Management** has machines working for people

your Project Copilot

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Our Accolades

CogX Best Innovation in Simulation

CogX Best AI Product

bcia 2020 Product Innovation

CIR Risk and Product Innovation

CIR Risk Innovation

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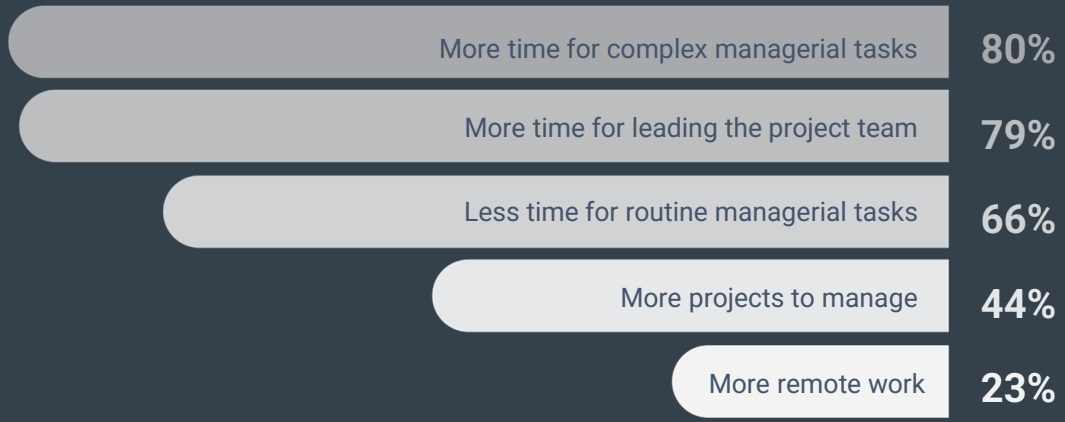
People will become **more valuable**

Top **three changes** made by AI in the way project managers spend their time



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Buck the trend

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We all will use cloud-tech and AI to deliver engineering projects on time, on budget and at less cost.

The time is now

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your Project Copilot

Next Generation PMOs
Combining People and Machines

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