

## How to Use AI When You Have Too Much Data But Not Enough Information

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- 1. The era of the mega-project
- 2. Knowledge over data
- 3. Taming the data beast gaining control

Reducing project risk is not just "what you know"



#### **Failures** Make Headlines

"California high-speed rail loses \$929M in federal funds over 'critical failures'"

> "Metro Tunnel builders battle claimed \$2B blowout"

"Sydney's troubled \$2.1B light-rail project delayed again"

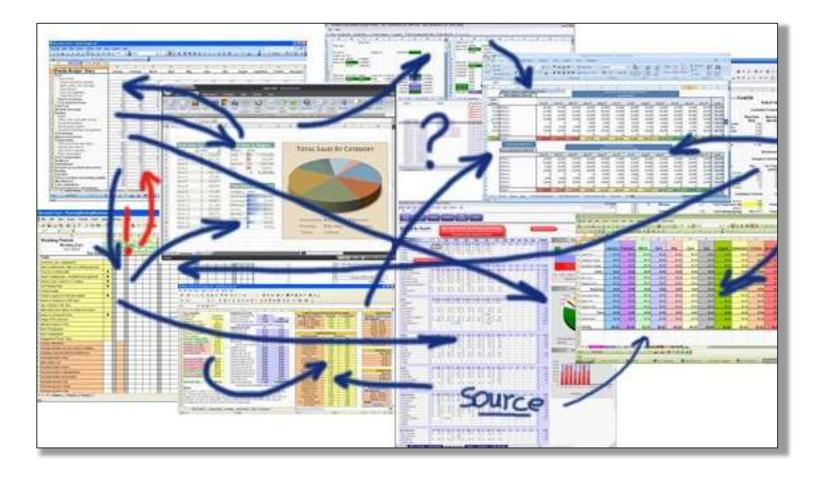
> "Bleeding red ink: Australia's \$150B energy projects gamble falls flat"

"Berlin mayor faces calls to resign over embarrassing airport construction delays"



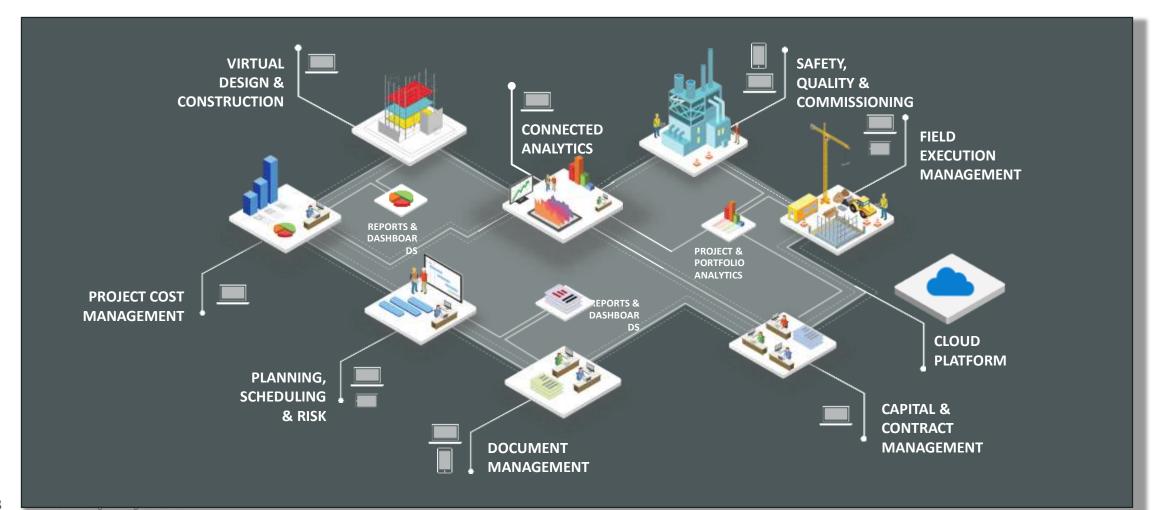
#### Projects Are Bigger and More Complex Than Ever Before

- Larger scale
- More sub-projects
- Longer timelines
- Greater scrutiny
- More data than ever!





#### The Distribution of Our Data and Decisions





## The Data Refinery

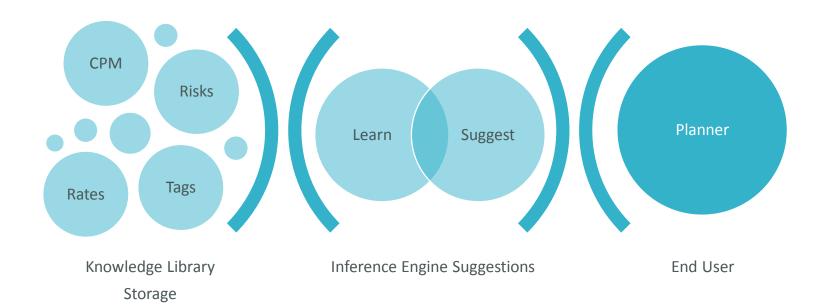
- Gather, aggregate, analyse and support decision making
- Maintain a continuous process through the project life cycle
- Retain knowledge and develop intelligent project practices





## How Can Al Help?

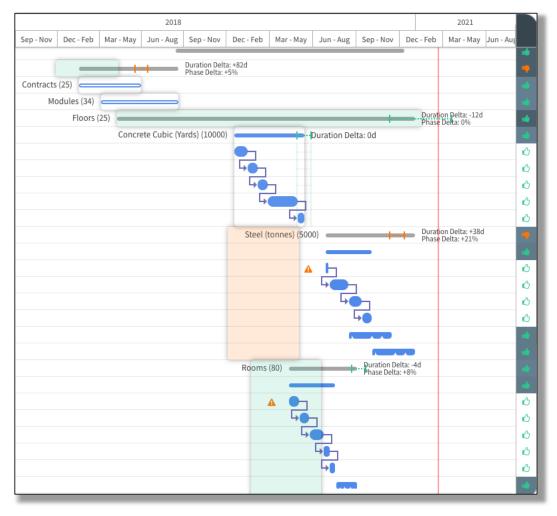
- Emulating the way a human thinks
- Computer only gives suggestions
- Planners and directors still have ultimate control
- Neural nets and knowledgebased systems
- Augmented intelligence, not artificial intelligence





## Rapid Templating and Sub-Netting Using AI

- The Old Way
  - Recreating subnets is incredibly time-consuming and inefficient
  - Subnetting is inherently hard due to logic cutting and retying
  - Copy-paste in traditional tools doesn't account for quantity differences
- The New Way
  - Smart templating
  - Guidance on how to re-sew logic
  - Automatic normalisation



**Reducing Project Risk** 



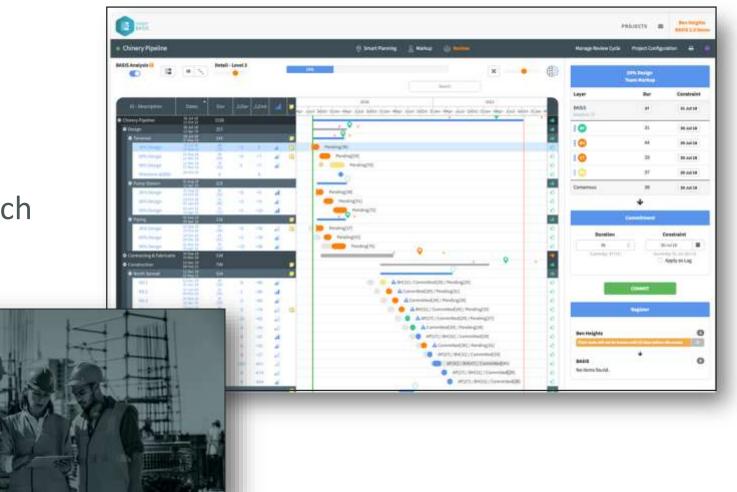
# Use Lessons From the Past and Today's Insights to Determine More Predictable Outcomes





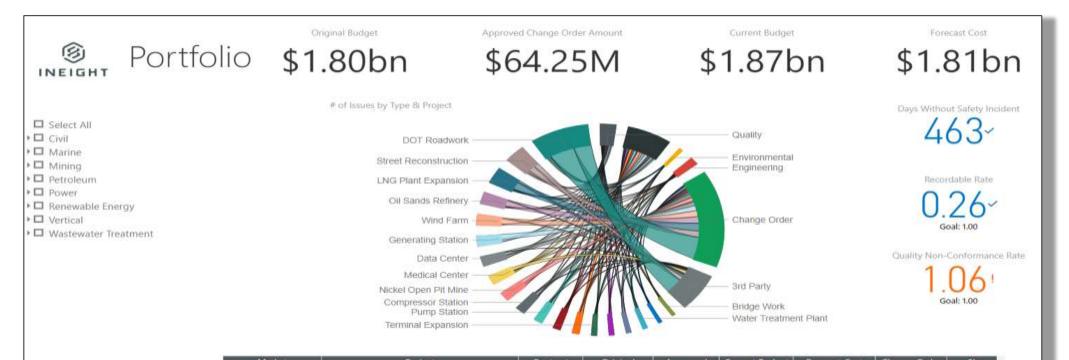
## Share the Knowledge and Collaborate

- Capture expert opinion
- Drive buy-in
- Perform consensus analysis
- Use survey scorecard approach
- Build risk models





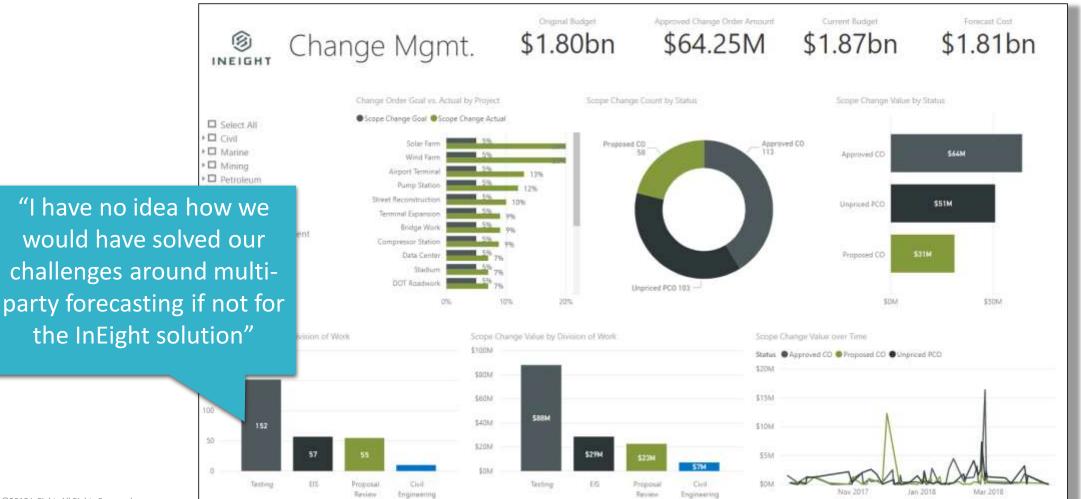
#### Your Entire Project Portfolio on a Page



Market	Project	Contract Type	Original Budget	Approved Change Orders	Current Budget	Forecast Cost	Change Order as % Contract Value	% Complete
Power	Generating Station	Design-Build	\$129,537,566	No sector constant.	\$129,537,566	\$125,651,439.02		67.8%
Power	Lenexa Power Transmission	Design-Build	\$116,564,987	\$4,757,017	\$121,322,004	\$117,682,344.00	3.92%	54.8%
Wastewater Treatment	Water Treatment Plant	Hard Bid	\$104,899,364	\$1,982,598	\$106,881,962	\$103,675,503.12	1,85%	53.5%
Renewable Energy	Solar Farm	CMAR	\$103,769,503	\$2,008,563	\$105,778,066	\$102,604,723.54	1.90%	51.0%
Vertical	Terminal Expansion	LEED	\$103,089,732	\$3,001,906	\$106,091,638	\$102,908,888.84	2.83%	9.9%
Mining	Nickel Open Pit Mine	O&M	\$99,289,262	\$1,420,829	\$100,710,091	\$97,688,788,60	1.41%	9.5%
Vertical	Airport Terminal	LEED	\$98,256,369	\$4,901,961	\$103,158,330	\$100,063,580.22	4.75%	55.6%
Vertical	Data Center	Hard Bid	\$96,256,995	\$2,382,274	\$98,639,269	\$95,680,090.93	2,42%	81,1%
Petroleum	LNG Plant Expansion	Design-Build	\$94,768,685	\$2,051,311	\$96,819,996	\$93,915,395.96	2.12%	22.0%
Civil	Street Reconstruction	Hard Bid	\$93,369,548	\$3,712,815	\$97,082,363	\$94,169,891,82	3,82%	65.6%
Total			\$1,803,122,022	\$64,248,948	\$1.867,370.970	\$1,811,349,841.14	3.44%	1.1010400000



## Change is the Only Constant

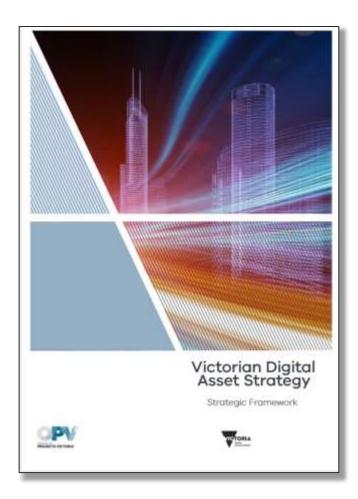




## "Invest" in Digital Engineering









#### **Asset Information Model**

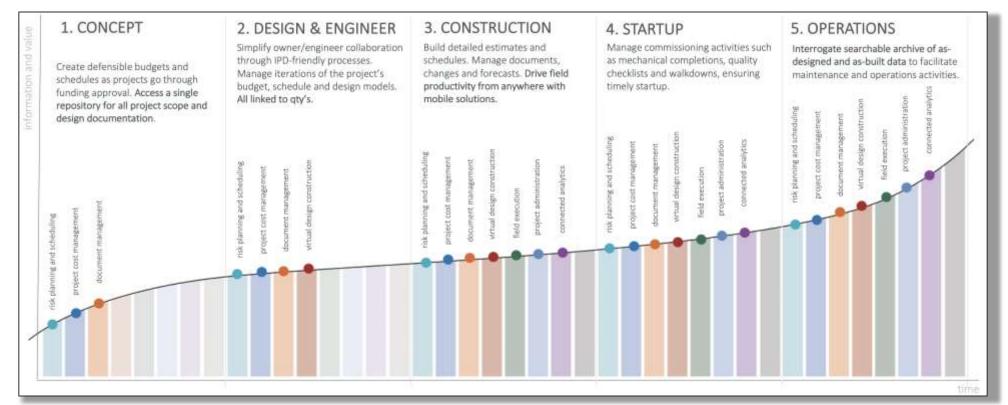
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## Applying Project Intelligence

- Increase project knowledge value through data aggregation and AI inference
- Continuously enrich data through life cycle
- Retain organisational expertise through a knowledge capture feedback loop





#### Three Ways Projects Can Benefit From This Approach

- 1. Add to the organisation's IP "It's how we work."
- 2. Reduce risk
- 3. Improve margin



## Thank You

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