Project Controls EXPO Global

Roche

Status of Project Controls & Future with AI

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Speaker Introduction

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- **BEng (Mechanical), MBA, IEng, CCP, PSP, FCASA**
- **Spent over 20 years practicing Project Controls in Oil & Gas, Defense and Infra projects**
- **Founder of various Project controls initiatives**
  - Project Controls Expo – Largest Project Controls Events taking place in USA, UK, UAE, Australia and Brazil
  - Project Controls TV- Netflix of Project Controls
  - London Metropolitan College – Dedicated academic institution focused on Project delivery offering diploma to degree qualifications

Agenda

Implications for Capital Projects, R&D Infrastructure and Major Programmes

Discussion Points

- Increasing complexity of capital projects globally
- Need for transparency, governance and predictability
- Growing role of data, digital platforms and AI

Key Message

> Project Controls is evolving from reporting and monitoring to predictive decision support powered by data and digital technologies.

What is Project Controls?

Simple definition –

A niche function responsible for managing large/complex projects time, cost and risk to achieve successful project delivery

For detailed definition,

please visit Project Controls : What is it and why is it important ?

How Project Controls achieves that ?

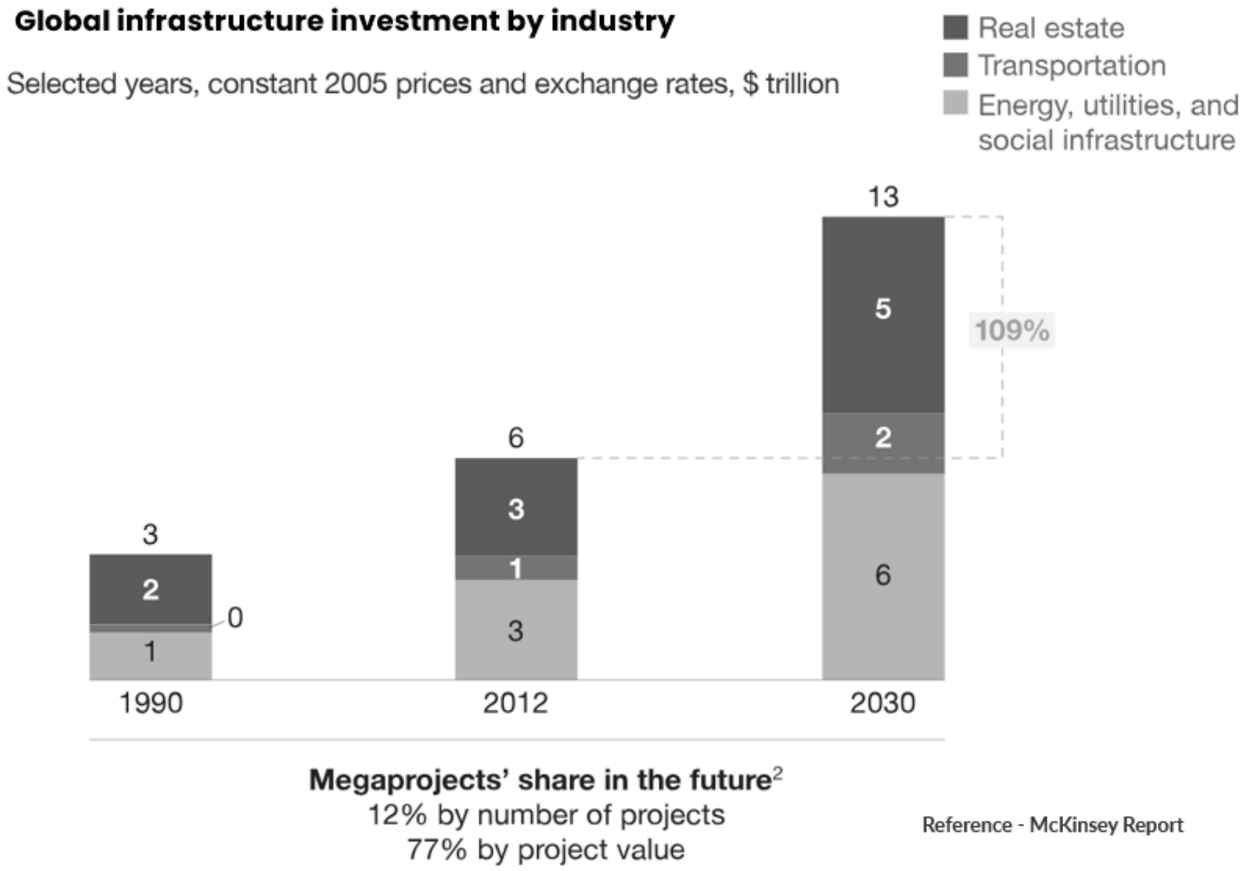
By sharing the right information (KPIs) to the right stakeholders at the right time to ensure the right decisions are taken at the right time

Difference between PC and PM

Project Controls is the art that turns Project Management into a science.

Project Controls is eyes and ears of project management helping to deliver projects **successfully** with no surprises.

Why Project Controls?



Reference - McKinsey Report

In recent years project controls have become established as a dedicated discipline with a rapidly growing community of senior professionals recognized for their value to all projects. For a project to succeed, appropriate planning is vital and hence accurate estimating, cost and schedule management, risk management, change management and forecasting is now deemed essential. The development of a suitable project control system, and a team to execute these systems, is an integral part of the overall project management effort.

A report by PWC suggested that worldwide infrastructure spending will grow to $9 trillion per year in 2025 and increasing thereafter. With project controls investment estimated to average at least 2% of a project cost, this values the spend on project controls at around $20 billion. Little wonder this is a sector that now has dedicated departments, staff and is establishing best practice techniques.

Drivers Behind Growth

- Increasing scale and complexity of projects
- Higher regulatory and governance expectations
- Increased capital investment globally
- Digital transformation of project delivery

Global growth of Project Controls

Industries Leading Adoption

- Energy & Oil & Gas
- Infrastructure & Construction
- Aerospace & Defence
- Pharma, Life Sciences & Manufacturing

Trend

Project Controls is moving from “project support” → “strategic project governance function.”

Evolution of Project Controls

Project Controls has evolved through **four major technology waves**

Phase 1

Manual Controls

- Spreadsheets
- Static schedules
- Manual reporting

Phase 2

Enterprise Software

- Primavera
- ERP integration
- Digital dashboards

Phase 3

Data Integration

- BIM / Digital Twins
- Integrated cost and schedule platforms
- Real-time reporting

Phase4

Intelligent Project Controls

- AI analytics
- Predictive forecasting
- Autonomous planning tools

Global Standardisation Efforts

Despite rapid growth, global standardisation of Project Controls is still evolving.

Challenge

- Fragmented standards
- Different maturity across industries
- Varying terminology and frameworks

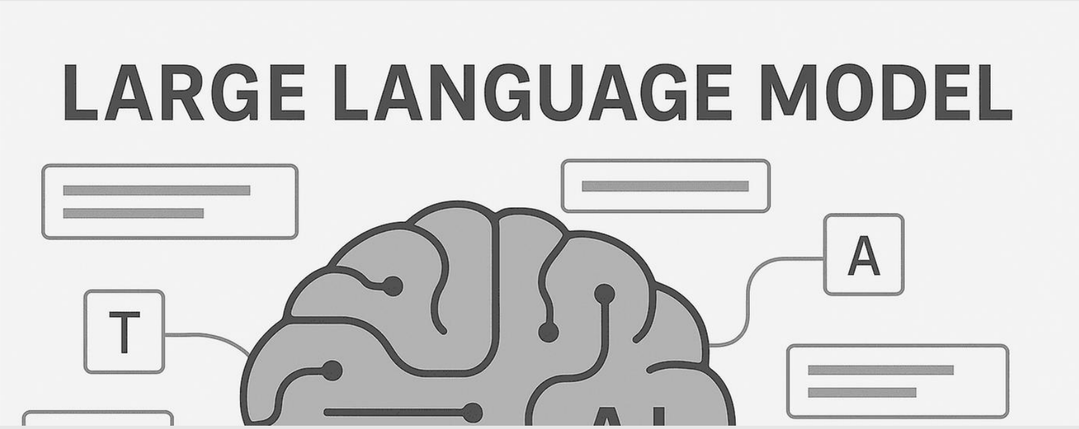
Development

- Development of PC Diploma and Degree qualifications in the UK
- Development of the PC Diploma qualification in Australia

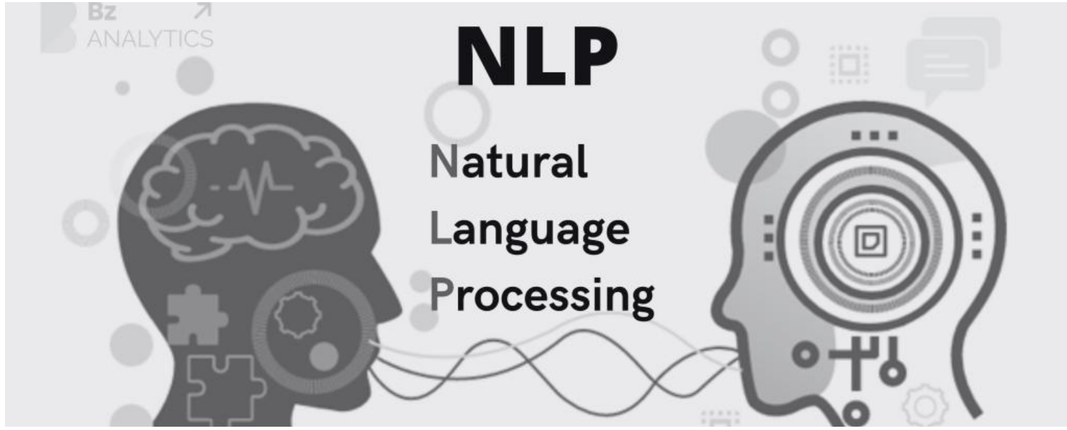
Emerging

- Standard frameworks for cost management
- Common project performance metrics
- Integrated project data environments
- Digital reporting standards

AI Basics



Large Language Models are AI systems trained on vast amounts of text data. They are capable of understanding natural language, summarising complex information and generating human-like responses.



Natural Language Processing focuses on enabling machines to understand and analyse human language. Projects generate large amounts of unstructured data, including correspondence, contractor reports, technical documents and meeting discussions.

Ontologies and Knowledge Graphs

One of the biggest challenges in Project Controls is the fragmentation of project data.

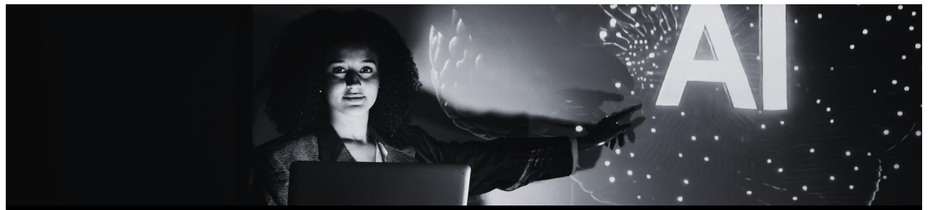
Cost information, schedules, risk registers and engineering deliverables often exist in separate systems with limited integration. Ontologies and knowledge graphs help create structured relationships between these datasets.

For example, they can link:

- **Schedule activities**
- **Cost accounts**
- **Risk events**
- **Contract clauses**
- **Engineering deliverables**

Generative AI

Generative AI refers to systems capable of producing new content such as reports, analyses, simulations or summaries.



In Project Controls, generative AI can support:

- **Performance report generation**
- **Scenario analysis summaries**
- **Risk register drafting**
- **Forecast narrative preparation**

Agentic AI

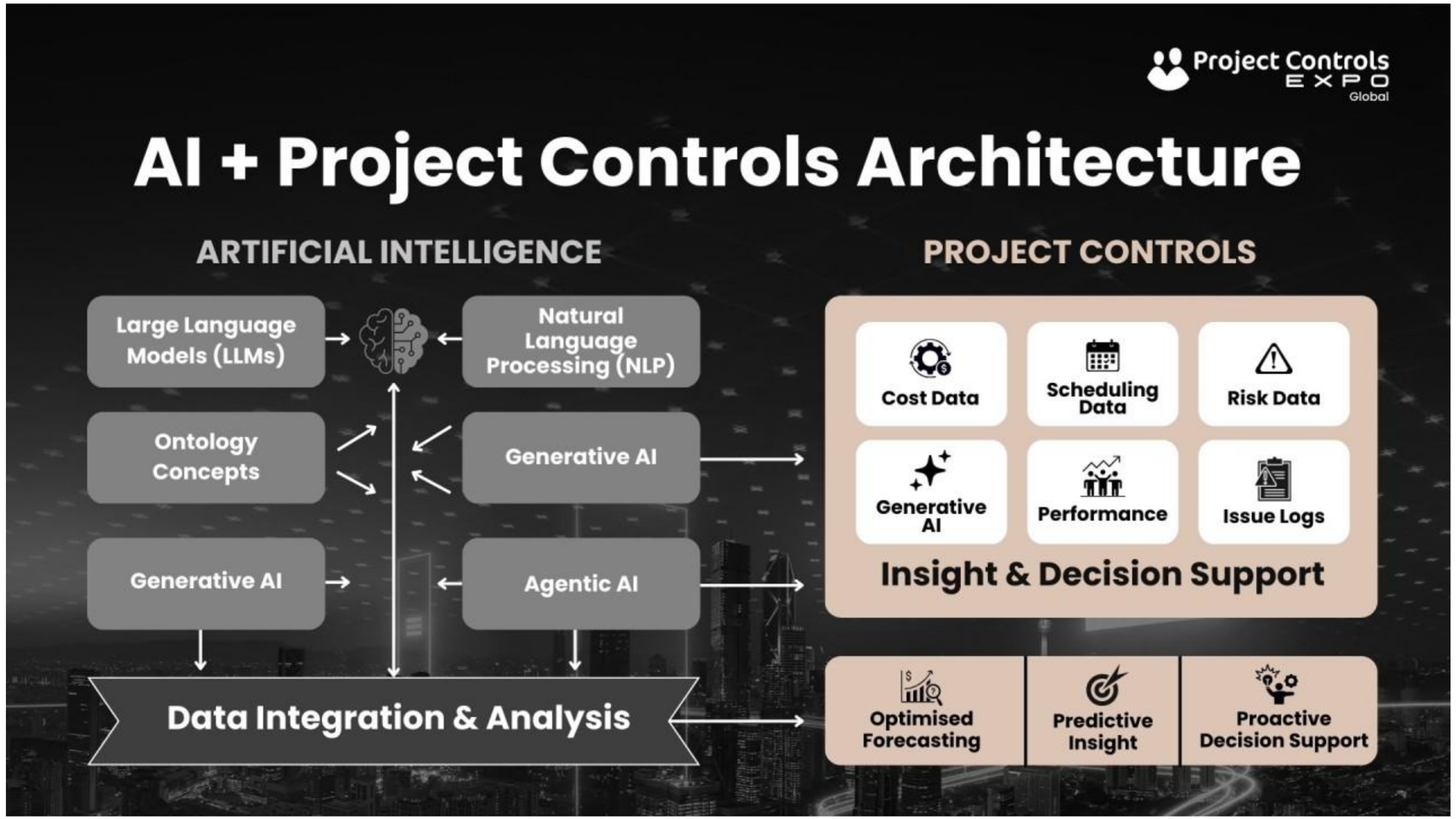
Agentic AI represents the next stage of AI evolution.

Unlike traditional tools that respond to queries, agentic systems can operate autonomously within defined boundaries.

In a Project Controls context, AI agents could:

- Continuously monitor cost and schedule performance
- Detect anomalies or emerging trends
- Generate early warning alerts
- Suggest mitigation strategies
- Trigger reporting workflows automatically

How AI Will Transform the Role of Project Controls



Skills the Future Project Controls Professional Must Develop

- **Data Literacy**
- **AI Awareness and Prompting**
- **Systems Thinking**
- **Critical Thinking**
- **Communication and Influence**

The Human–AI Partnership

The future of Project Controls will not be defined by humans versus machines. Instead, it will be shaped by human–AI collaboration.

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Thank You!

For further information, please reach us out

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