Industry Standards, Automation, and AI: Navigating the Shift from Automation to Intelligence

Evan Filis

Principal Solutions Engineer, Deltek

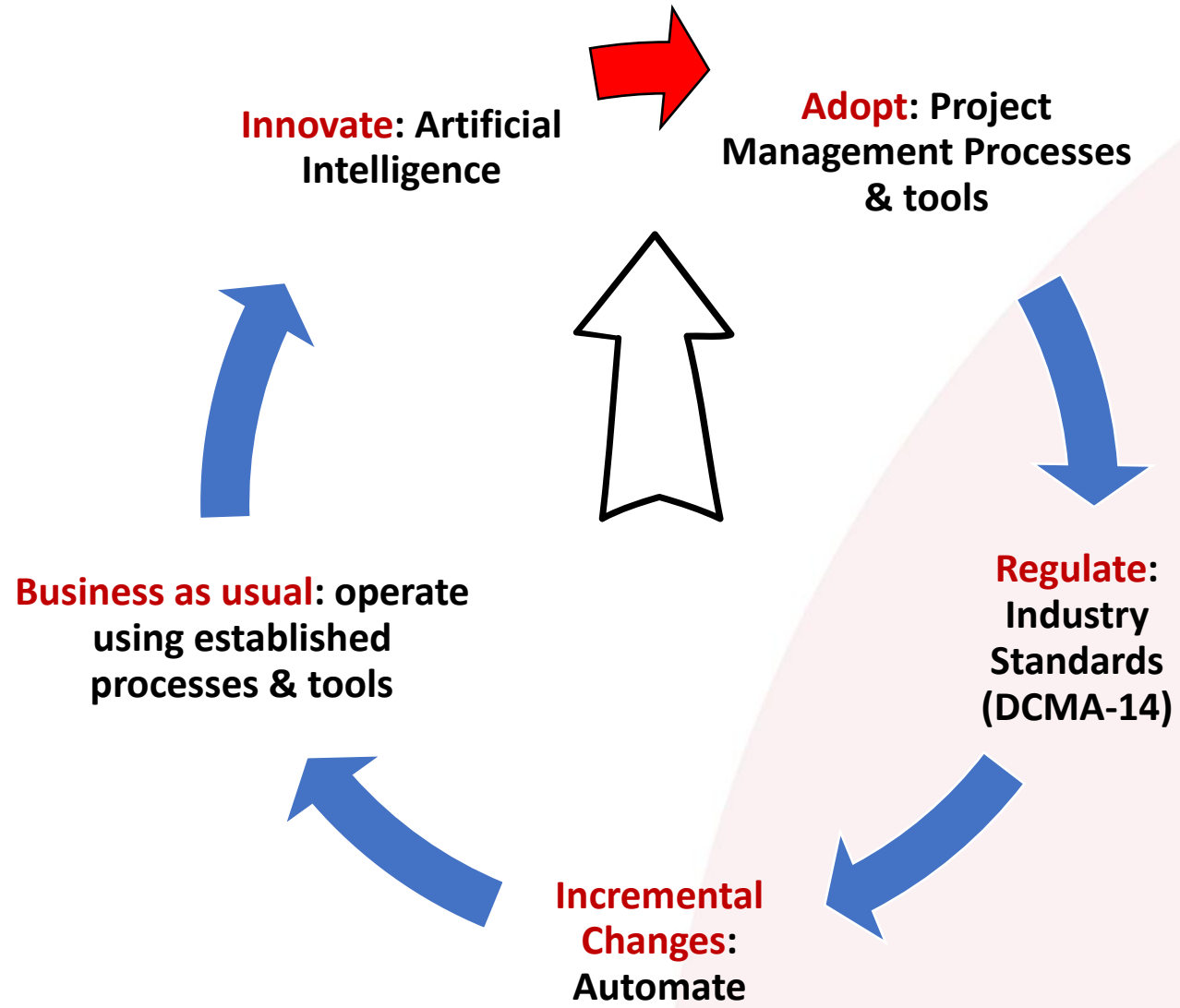
Project Controls EXPO London, UK

Deltek

Abstract

In the pursuit of smarter, more reliable project delivery, compliance with industry standards is essential. Deltek Acumen has long supported this goal—offering intuitive, automated tools for schedule quality assessments, forensic analysis, and risk modelling that simplify complexity and promote consistency.

Now, Acumen is entering a transformative new phase. Its latest release introduces AI-powered capabilities that elevate automation to intelligence—delivering smarter inputs, faster outputs, and more informed decision-making. This marks the beginning of a new era, where automation evolves into true intelligence, empowering users to manage projects with greater precision, confidence, and control.



Project Controls EXPO London, UK

Deltek

Industry Standards & Automation

Deltek

Project Controls EXPO London, UK

Industry Standards & Automation

In a constantly evolving environment, professionals strive to identify benchmarks that distinguish objective evaluation from subjective interpretation.

- ❑ Over the past 15 years, Acumen has been providing industry standard metrics.
- ❑ Whether it's DCMA-14, CIOB-21 or AACE standards and best practices, Acumen accommodates the users' needs for objectivity and benchmarking.

Stress Test	Subject	Explanation	Threshold	Mandatory for Standard Projects?	Mandatory for Major Projects?
1	Logic links	Each Activity should have a predecessor and successor	0%	Yes	Yes
2	Negative Lag	There should be no Logic Links with Negative Lag	0%	Yes	Yes
3	Lead	There should be no Finish-Start Logic Links carrying Lead between Activities	0%	No	Yes
4	Logic type	Use of Start-Start and Finish-Finish Logic Links should be kept to less than 10% of total number of Activities	10%	No	Yes
5	Hard Constraints	There should be no hard Constraints	0%	Yes	Yes
6	Float	The (total) Float present should be less than twice the reporting period (where defined) or 44 working days (where silent)	0%	Yes	Yes
7	Negative Float	All Float present should be zero or above	0%	Yes	Yes
8	Long Durations	Activity Durations present should be less than twice the reporting period (where defined) or 44 working days (where silent)	0%	Yes	Yes
9	Invalid dates	Progress and remaining works should be accurately set out with no invalid dates present	0%	Yes	Yes
10	Missed detail	Detail set out in the Programme should be reflective of the full scope of the project	0%	Yes	Yes
11	Key dates	Key dates and completion dates forecast in the Programme should be reflective of obligations set out in contract documents	0%	Yes	Yes
12	Calendars	Detail set out in the Programme should be	0%	Yes	Yes

Test 1. Logic Links	Test 2. Negative Lags	Test 3. Lags	Test 4. Logic Type: SS/FF Relationships	Test 5. Hard Constraints	Test 6. High Float	Test 7. Negative Float	Test 8. Long Durations	Test 9. Invalid Dates	Test 10. Missed Detail	12. Critical Path Test	Test 15.A Critical Path (Milestones)	Score
2 (3%)	0 (0%)	1 (1%)	0 (0%)	1 (1%)	2 (3%)	0 (0%)	13 (25%)	N/A (N/A)	67 (94%)	✓	2 (3%)	92%
3 (4%)	1 (1%)	2 (3%)	1 (1%)	1 (1%)	2 (4%)	25 (51%)	10 (26%)	0 (0%)	68 (94%)	✓	1 (2%)	87%

Project Controls EXPO London, UK

Deltek

Industry Standards & Automation

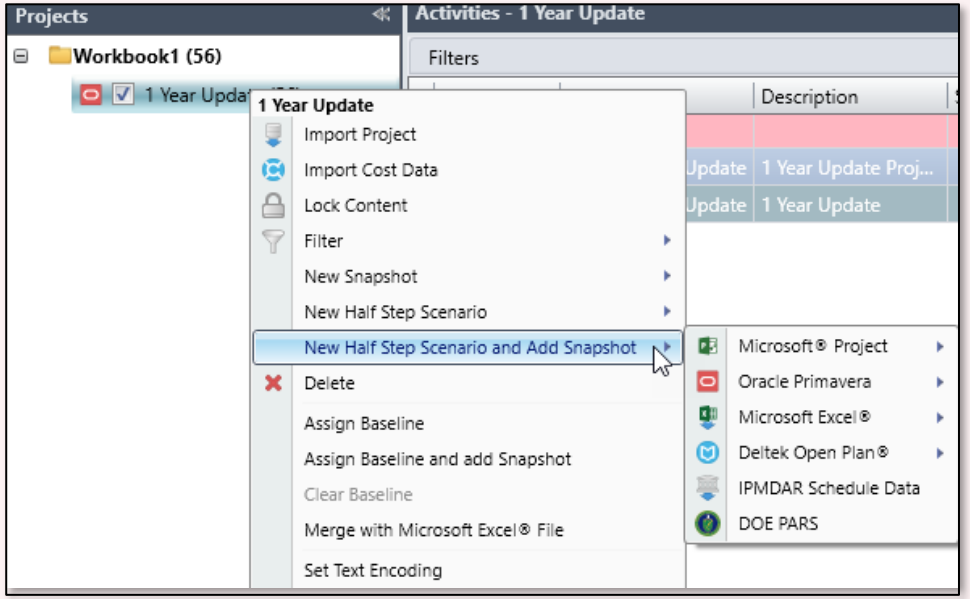
Half Step Analysis

The procedure is codified in the AACE Recommended Practice Number 29R-03, “Forensic Schedule Analysis” in Method Implementation Protocol (MIP) 3.4, “Observational / Dynamic / Contemporaneous Split”.

1. Compare two schedule updates (Schedule A and B) and separate the list of changes into two groups: progress-related and revisions (everything unrelated to progress).
2. Apply only the progress-related changes to Schedule A and recalculate the critical path using Schedule B’s data date to create an intermediate or half-step schedule (Schedule A½).
3. By comparing Schedule A to Schedule A½, you can study the variances related to pure progress and determine how much they impacted the finish date. By comparing Schedule A½ to Schedule B, you can examine the variances related to schedule revisions and assess their impact.

…just let Acumen do the boring tasks for you

vs



Project Controls EXPO London, UK

Deltek

Industry Standards & Automation

Half Step Analysis

- Elements that are non-progress revisions include:
  - × Addition or deletion of activities
  - × Split or combined activities, using new activity IDs
  - × Addition or deletion of logic links
  - × Changes to lag value of logic links
  - × Addition, deletion or changes to constraints
  - × Changes to Original Durations (OD)
  - × Increase in Remaining Durations (RD) such that RD becomes greater than OD
  - × Changes to RD not accompanied by changes to Percent Complete
  - × Increase in RD of activities that have not started
  - × Changes to calendar assignments
  - × Changes to holiday assignments within a pre-existing calendar

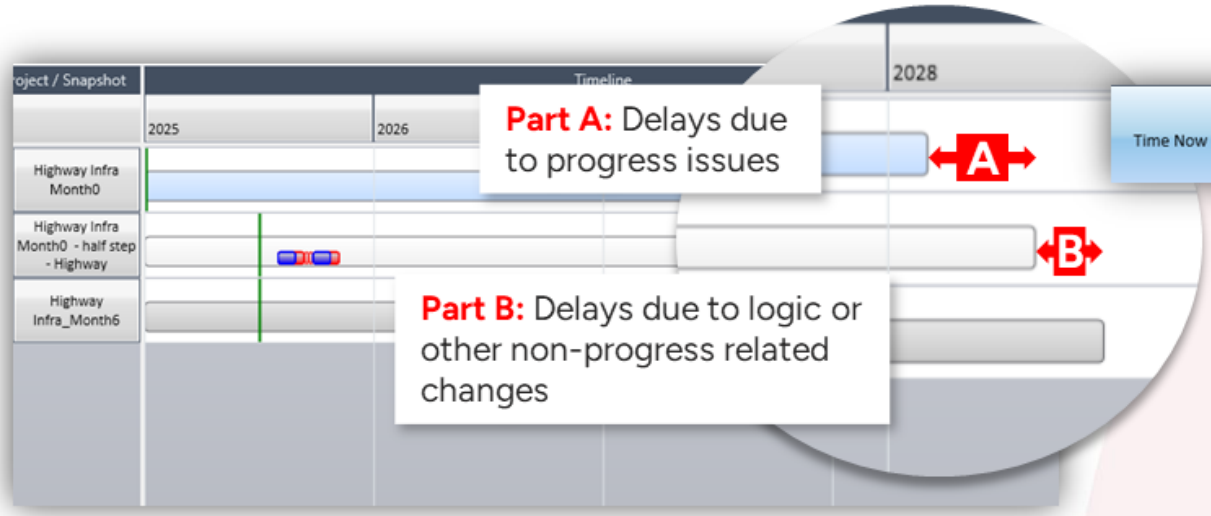
Industry Standards & Automation

Half Step Analysis

- ❑ Out of the box “half step” metrics.

Use the built-in metrics to identify which activities are driving changes in the overall project duration.

- ❑ Detailed view of the “what” and the “why”
  - Activities that **started** late (**Part A**)
  - Activities that **finished** late (**Part A**)
  - Critical Remaining Duration increase (**Part B**)
  - Net Finish impact (**Part B**)



Time Now	Label	Forecast to be Started but not Started yet	Removed from Critical Path	Remaining Duration Increases	Remaining Duration Increases on Critical Ac...	Started Late	Forecast to be Finished but not Finished yet	Finished Late	Net Finish Impact (Days)	Project Finish
31/12/2024	N/A	0 (0%)	0	0	N/A	0 (N/A)	0 (0%)	0 (N/A)	0	15/02/2028	83%
30/06/2025	half step	16 (30%)	0	0	N/A	9 (35%)	17 (32%)	5 (23%)	0	13/06/2028	80%
30/06/2025	N/A	0 (0%)	8	4	2	0 (0%)	0 (0%)	0 (0%)	-76	28/08/2028	83%

Duration Increases on Critical Activities in Project Highway Infra_Month6 (2 of 25)

	Description	Project	Previous Remaining Duration	Remaining Duration	Critical	Previously Critical	Or
A_ACT_34	Gate 3 Design Review	Highway Infra_Month6	5	7	☑	☑	
A_ACT_47	Site Utility Protection and Diversions	Highway Infra_Month6	60	62	☑	☑	

Project Controls EXPO London, UK

Deltek

Artificial Intelligence

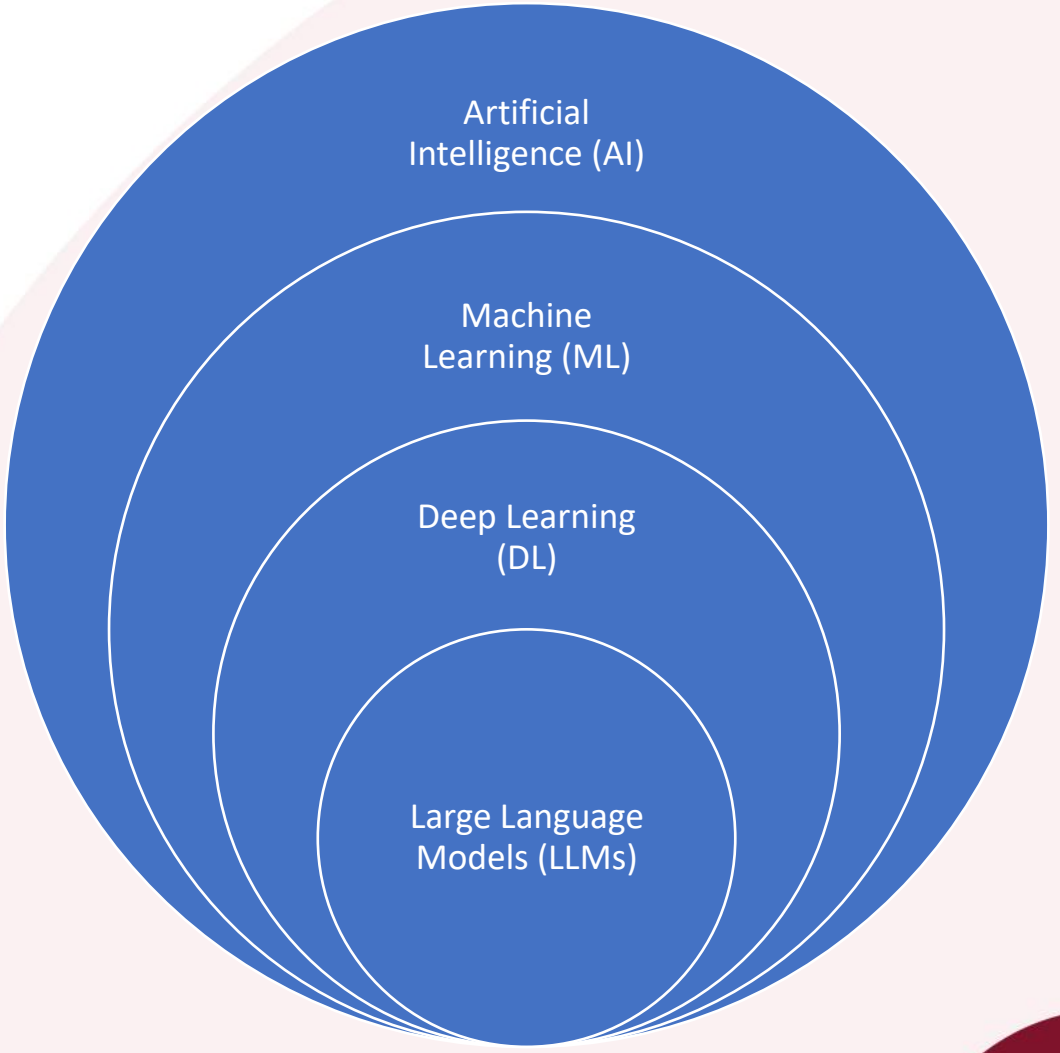
Deltek

Project Controls EXPO
London, UK

From Automation to Intelligence

Artificial Intelligence (AI) is a broad field of computer science focused on creating systems that can simulate human cognitive abilities, such as reasoning, learning, perception, and problem-solving. e.g. **Google Maps**

- **Machine Learning (ML):** A subset of AI that uses algorithms trained on data to create models capable of performing specific tasks. e.g. **Netflix, Spotify**
- **Deep Learning (DL):** A specialized subset of machine learning that uses multi-layered neural networks. These "deep" networks are highly effective for identifying complex patterns in vast amounts of data without manual human intervention. e.g. **Siri, Alexa**
- **Large Language Models (LLMs):** A type of deep learning model that uses a transformer-based neural network architecture. LLMs are trained on massive datasets of text and code to understand, process, and generate human language. e.g. **code generation, support chatbots**



From Automation to Intelligence

- **Deep learning** mimics biological brains via artificial neural networks to **process data**, recognize patterns, and predict future outcomes (e.g., from historical cost/schedule data). It enables bias-free forecasting, feeding results back into datasets for continuous improvement.
- **Examples in Project Management** – in risk management, it enhances decision processes by uncovering opportunities or root causes faster than human-led approaches.
- **Applications in Risk Management**: Uses historical project **data** to identify prolongation/cost uplift risks early; supplements traditional methods in built environment sectors for more accurate quantification.
- **Data Quality Imperative**: Requires large, varied, accurate datasets; organizations need robust infrastructure for storage/processing to ensure reliable insights.

From Automation to Intelligence

- *Is Project Controls community ready to implement a "self driving" approach to well established processes such as estimating, scheduling or risk identification and quantification?*

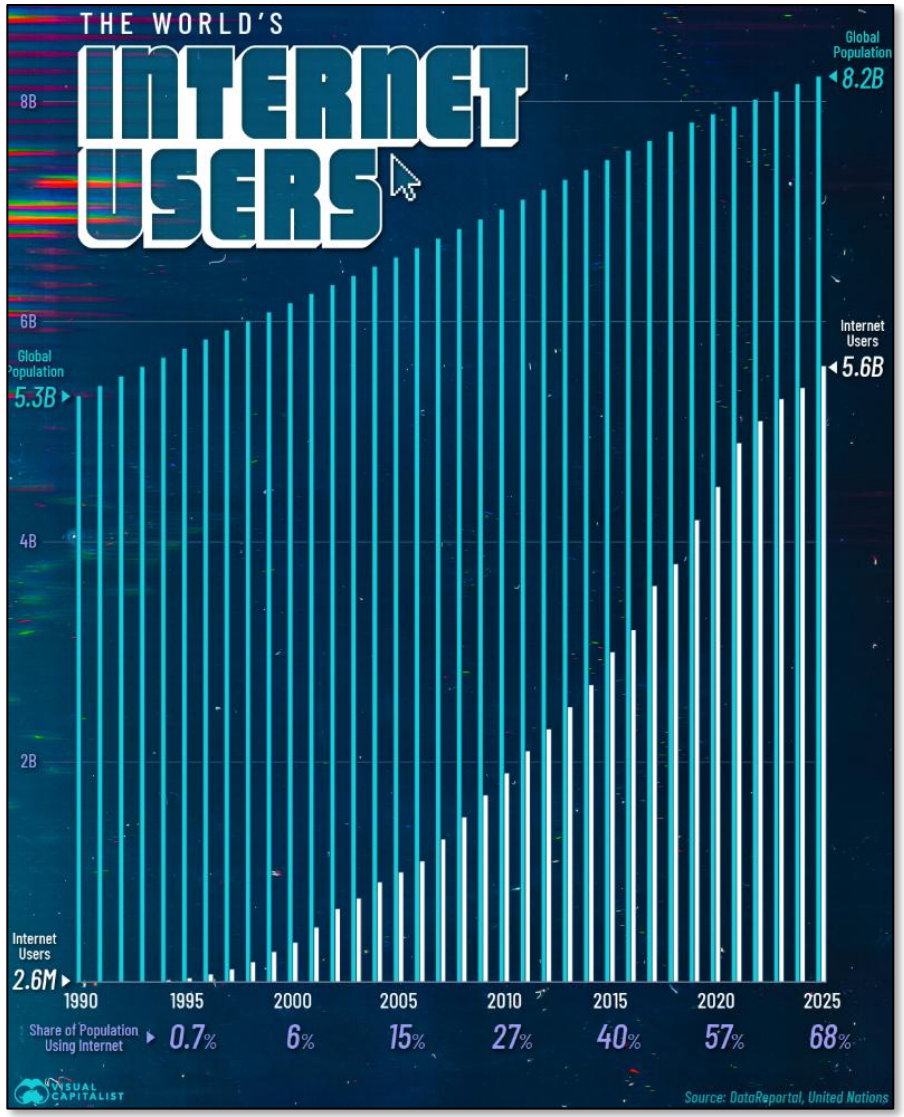
- *Are enterprises ready to:*

A. *Re-structure historical data?*
B. *Provide properly structured datasets to AI providers?*
C. *Trust the Data governance of AI providers?*

- Samsung engineers are reported to have inadvertently leaked sensitive company data sometime in March 2023, including source code and internal meeting notes, by using ChatGPT to assist with tasks. The AI retained the inputted data, leading to a breach of confidentiality.

Source: AI Incident Database Incident 768: ChatGPT Implicated in Samsung Data Leak of Source Code and Meeting Notes

From Automation to Intelligence

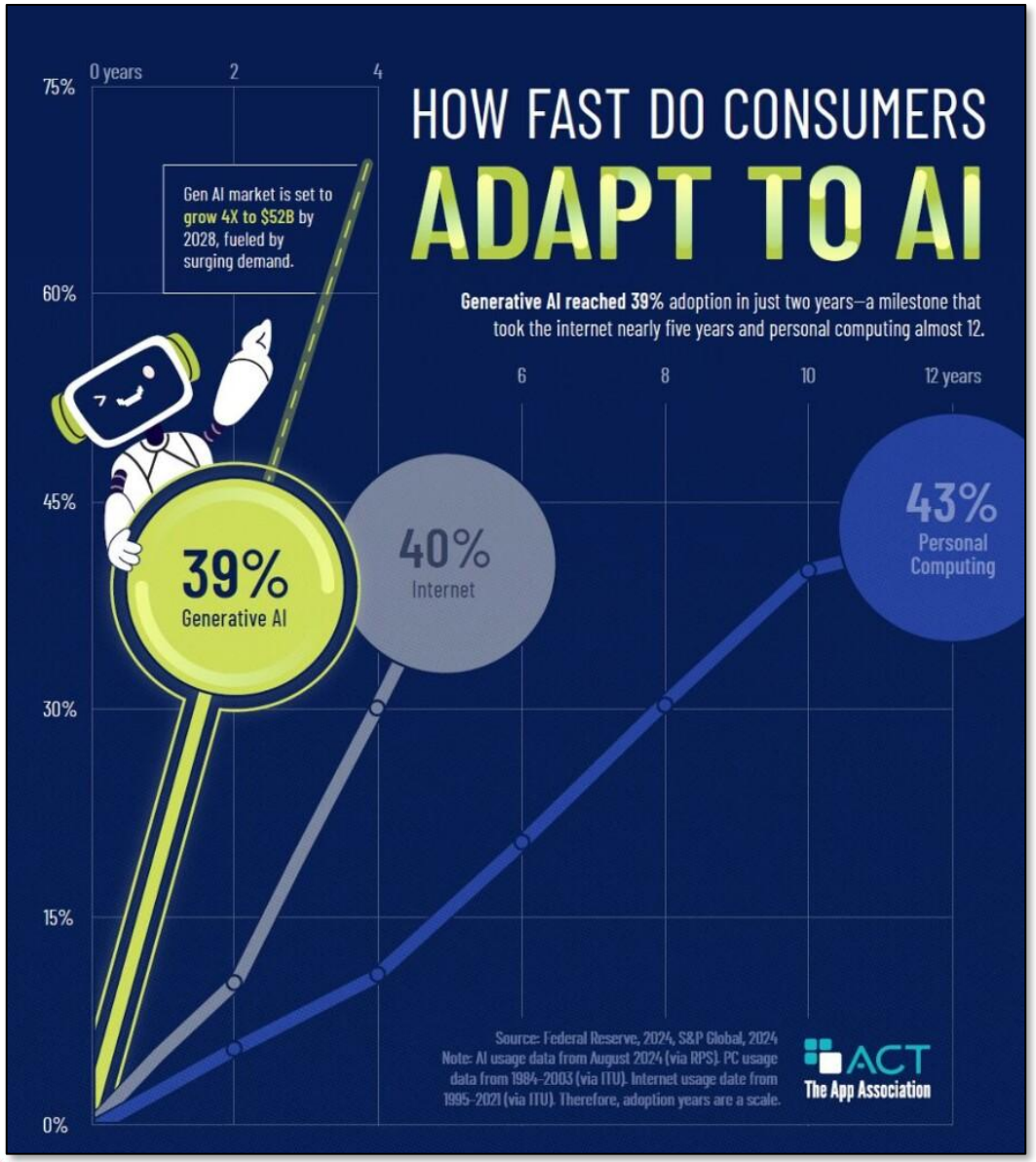


Source: [Visualized: The Growth of Global Internet Users (1990–2025)]

•**Innovators:** This first group of adopters, making up about 2.5% of the market, consists of risk-takers and tech enthusiasts. In the internet's case, these were researchers, computer scientists, and academics. By 1991, with the launch of the World Wide Web, only about 0.1% of the global population was online.

•**Early adopters:** This group, about 13.5% of the market, was composed of visionaries and opinion leaders who saw the internet's potential. They were crucial for proving the technology's value to a wider audience.

From Automation to Intelligence



- The large language model (LLM) ChatGPT debuted in November 2022, and by March 2024 the most common generative AI tools were being accessed by hundreds of millions of users each month.

- **Early adopters:** in August 2024 almost 40% of the U.S. population ages 18 to 64 used generative AI to some degree, and almost 1 in 3 respondents said they used it daily or at least once but not every day during the week.

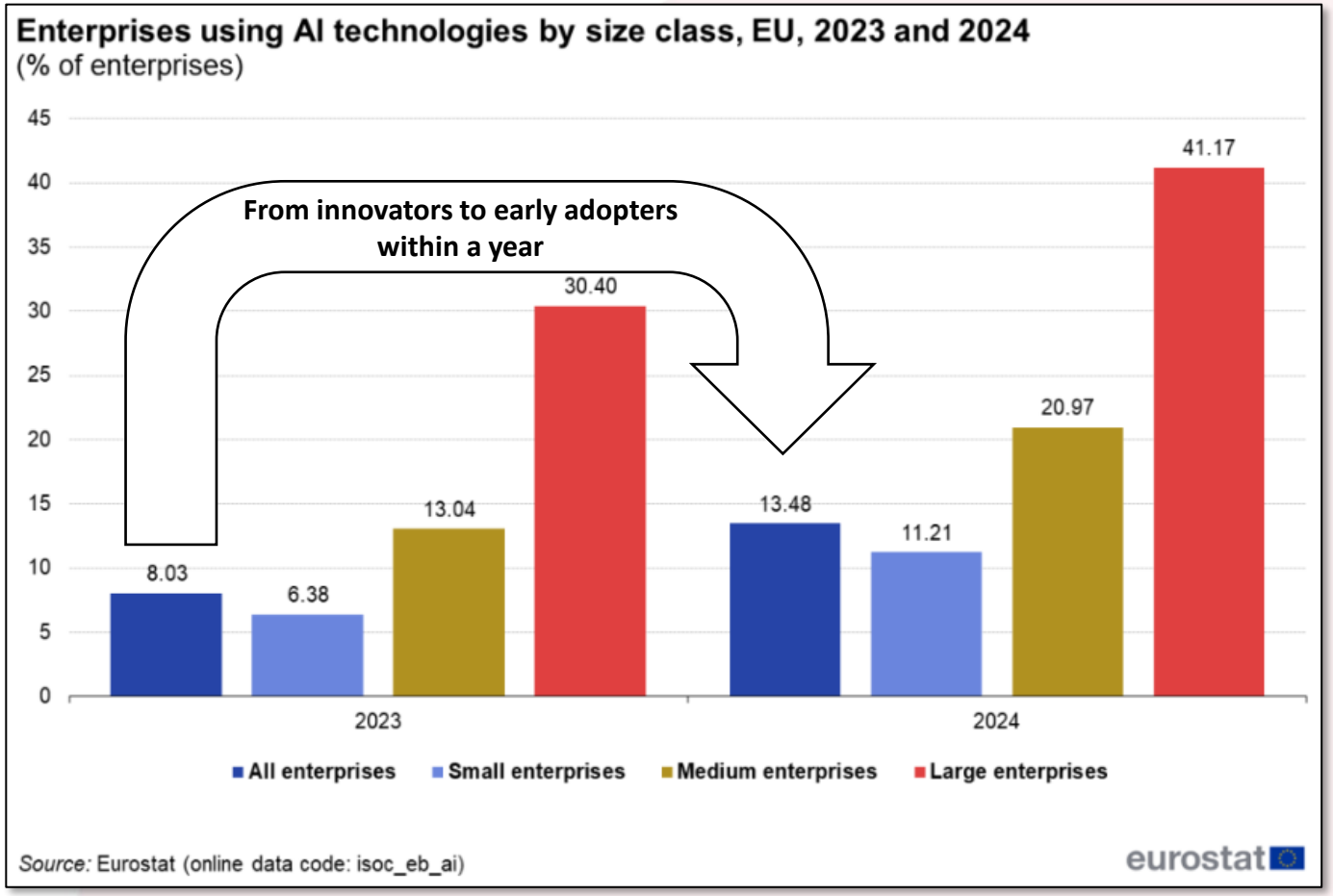
- It took **nearly five years (2.5X)** for the internet to reach similar levels of adoption and a full **12 years (6X)** for personal computers to achieve comparable penetration.

Source: [The Rapid Adoption of Generative AI | St. Louis Fed]

Deltek Project Controls EXPO London, UK

From Automation to Intelligence

- In 2024, **13.48%** of enterprises in the EU, with 10 or more employees and self-employed persons, used at least one of the following AI systems:
- technologies generating written or spoken language (natural language generation)
- machine learning (e.g. deep learning) for data analysis
- **technologies automating different workflows or assisting in decision-making (process automation)**
- technologies enabling machines to physically move by observing their surroundings and taking autonomous decisions.
- technologies analyzing written language (text mining)
- technologies converting spoken language into a machine-readable format (speech recognition)
- technologies identifying objects or people based on images (image recognition, image processing)



Source: [Use of artificial intelligence in enterprises - Statistics Explained - Eurostat]

Project Controls EXPO London, UK

Deltek

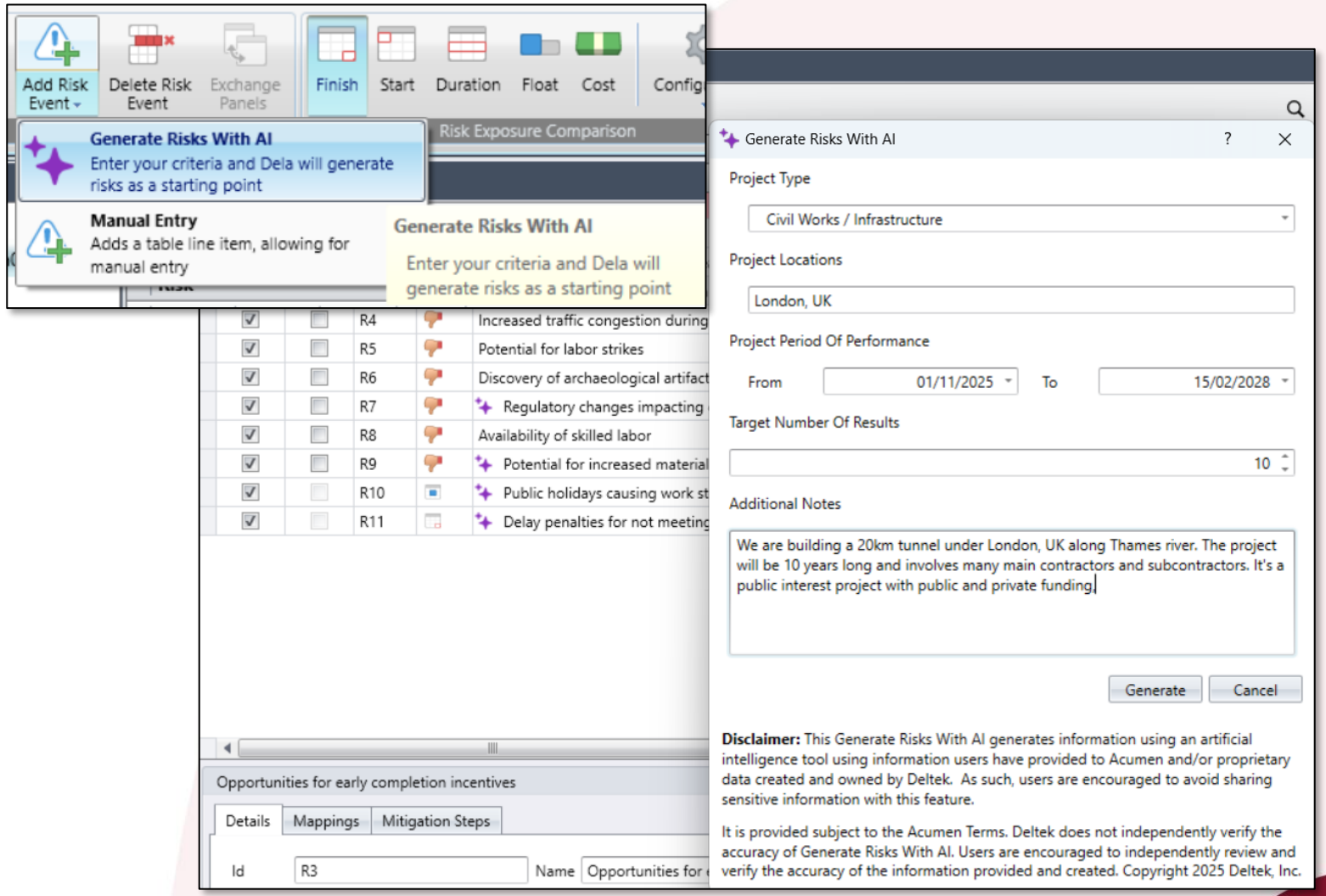
From Automation to Intelligence

Dela-enabled Risk Discovery and Mitigation

Deltek Acumen introduces AI powered features across its suite. Respecting data integrity and security, it follows a careful stepped approach.

Risk Identification

- ❑ Click on the **Dela** icon to generate potential risks for a project.
- ❑ Use **Additional Notes** provided about the project to help improve the results.



Project Controls EXPO London, UK

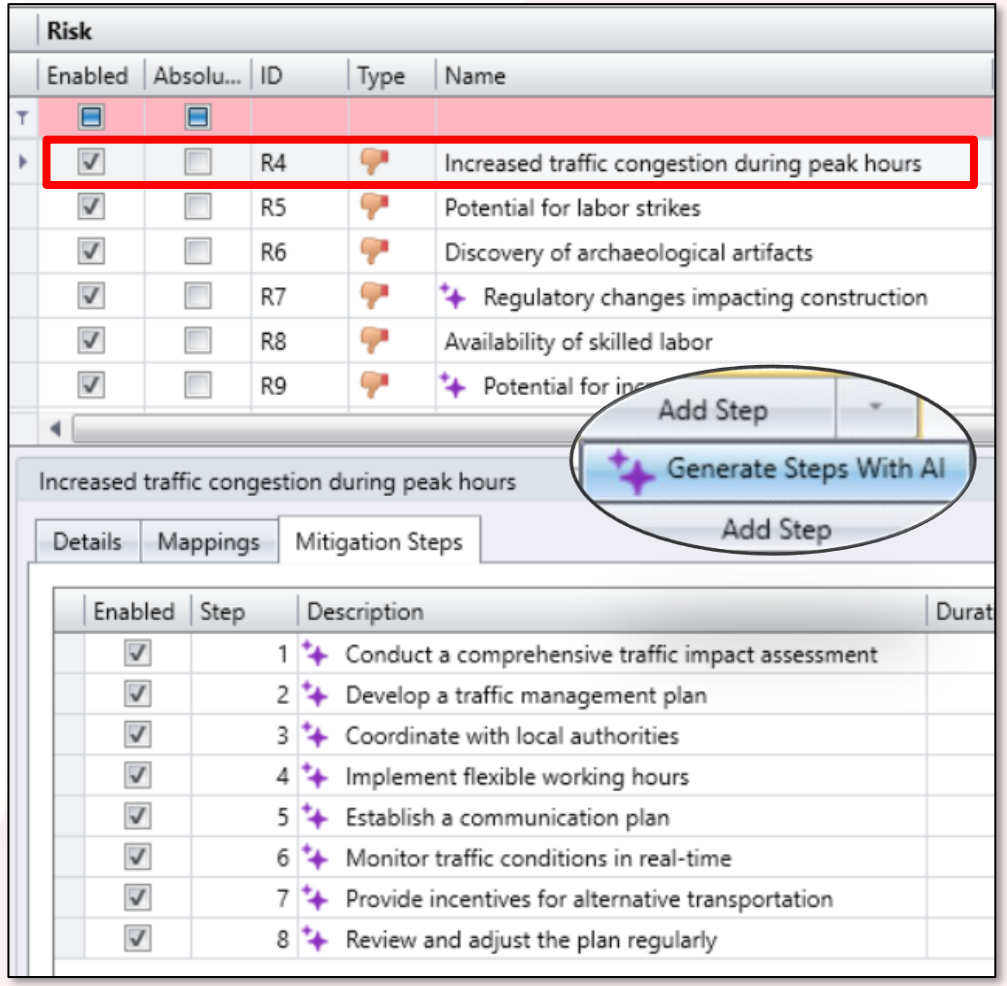
Deltek

From Automation to Intelligence

Dela-enabled Risk Discovery and Mitigation

Risk Mitigation

- ❑ Select a risk that needs to be mitigated and ask Dela to suggest ways to mitigate selected risks
- ❑ New Mitigation notes: document details of the mitigation



Project Controls EXPO London, UK

Deltek

Thank You

Disclaimer

The information shared today regarding future product features is considered **confidential**. Furthermore, it **does not represent a commitment** on the part of Deltek to deliver the new functionality that is discussed, **nor does it obligate Deltek** to deliver any new functionality within any specific timeframe.

Project Controls EXPO London, UK

Deltek