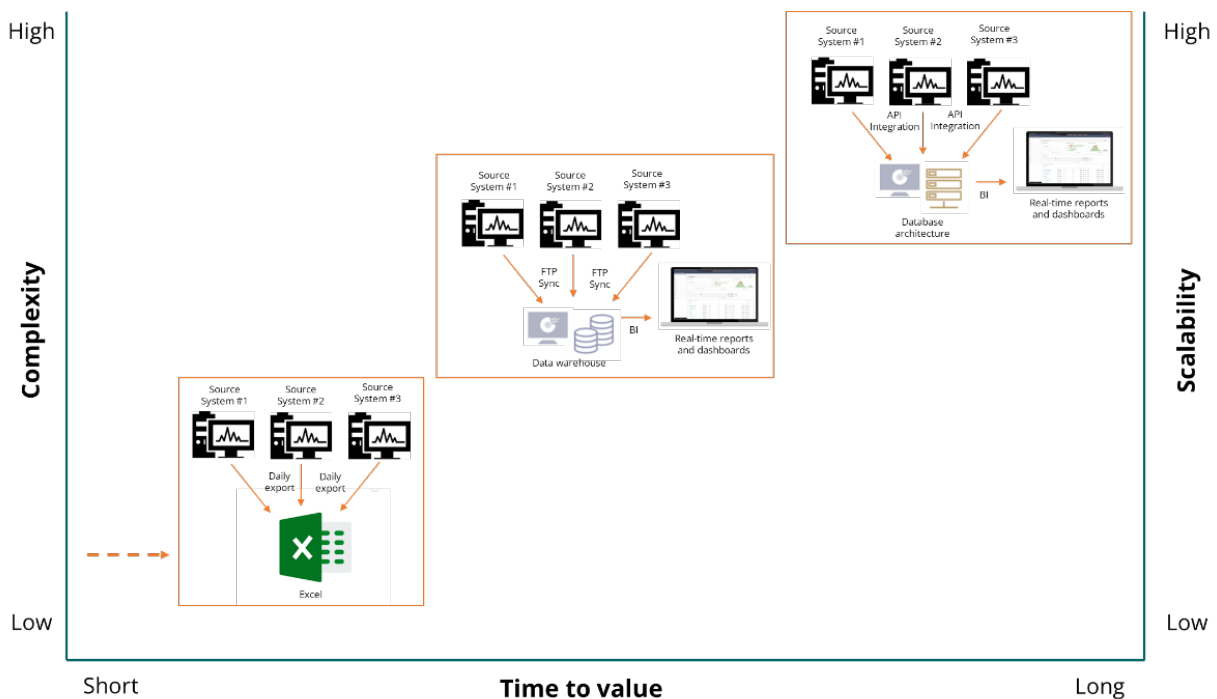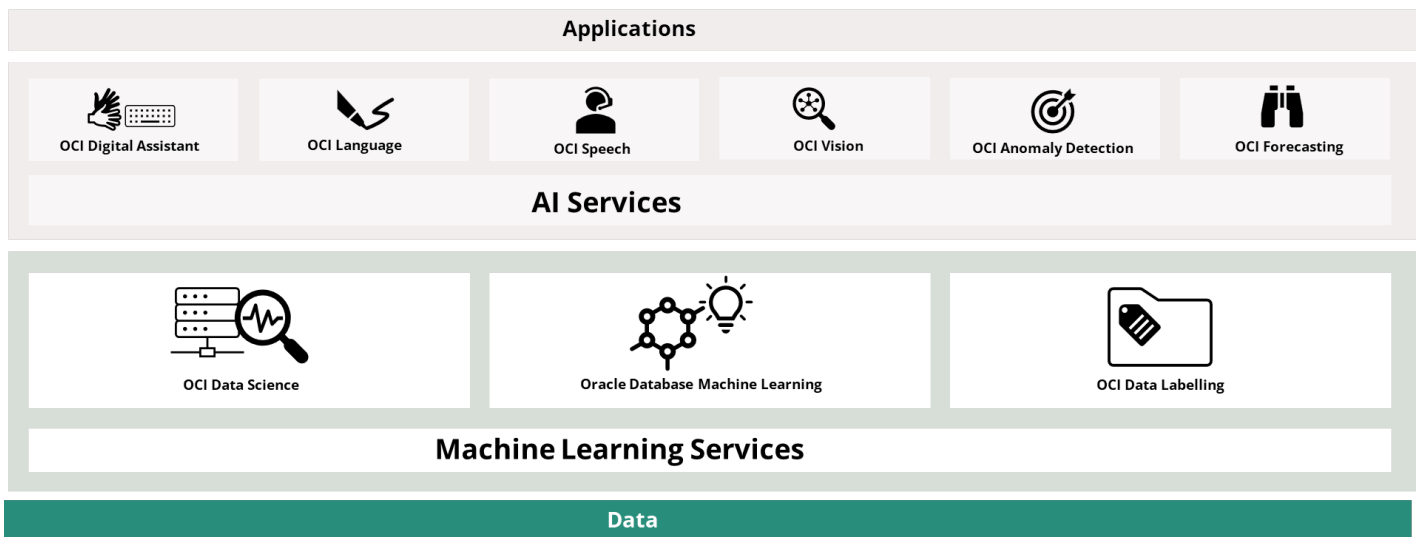# Turning your project data into predictive intelligence

ORACLE PARTNER

Turning your project data into predictive intelligence by creating a Smart Construction Platform.

Presentation Synopsis:

How existing Oracle Primavera and Aconex customers, can develop an Oracle Smart Construction Platform by using past and present project data on their existing platforms to predict the future to improve project delivery. E.g., using Natural Language Processing (NLP) AI, like Alexa, to analyse project communications by scanning emails to extract text to identify risks early on by cc'ing central mailbox to scan for trigger key words (e.g., "breach of contract") to identify commercial claims to continuously monitor a "risk radar".

Applications

| OCI Digital Assistant | OCI Language | OCI Speech | OCI Vision | OCI Anomaly Detection | OCI Forecasting |

AI Services

| OCI Data Science | Oracle Database Machine Learning | OCI Data Labelling |

Machine Learning Services

Data

Complexity — High / Low
Scalability — High / Low
Time to value — Short / Long

Source System #1, Source System #2, Source System #3
Daily export — Excel
FTP Sync — Data warehouse — BI — Real-time reports and dashboards
API Integration — Database architecture — BI — Real-time reports and dashboards

- Greater control over suppliers
- Tracked communication
- Decrease in lead times
- Control over the process
- Greater transparency
- Current workflow status

Natural Language Processing (NLP) to not just read, but understand project communication to identify risks

Analysing litigation-based conversations

Using Natural Language Processing (NLP) AI, just like Alexa, Siri, and Google Home, we can analyse project communications to scan emails, project correspondence to extract text and classify data to identify risks early on.

"On inspection, I have found that there is a crack in the concrete. Please fix this issue before you proceed any further as this is a breach of contract. No payment will be made, until this issue is resolved"
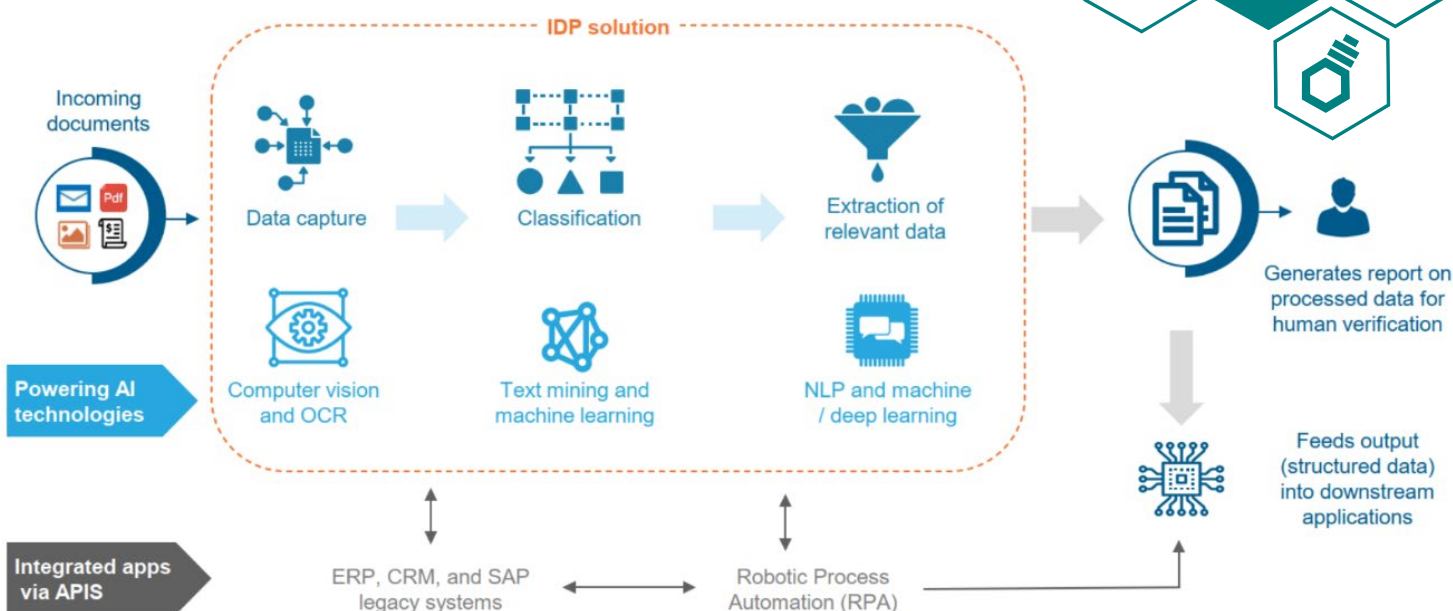
Litigation risk

" On inspection, there appears to be a crack in the concrete. I understand that extra time is needed to fix this and I am willing to accommodate an extension. Want to ensure there is no breach of contract at the end. Please fix this as soon as possible"

Not a litigation risk

Intelligent Document Processing (IDP) solutions use AI technologies to analyse risks from e-mails

We can identify litigation risks in **Aconex Collaboration platform**, by using AI to analyse conversations between stakeholders to plot the trend over time and then look at the distribution across project teams. Also, NLP can plot these risks and how this developed over time and the key words being triggered.

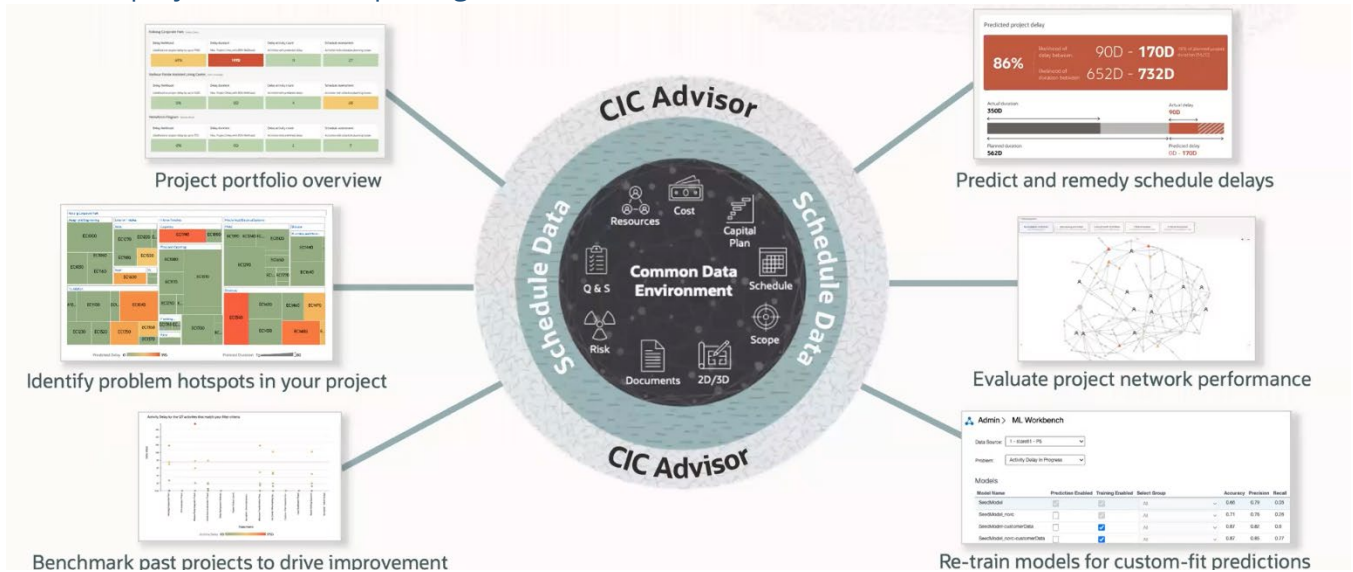Greater control over suppliers | Tracked communication | Decrease in lead times | Control over the process | Greater transparency | Current workflow status
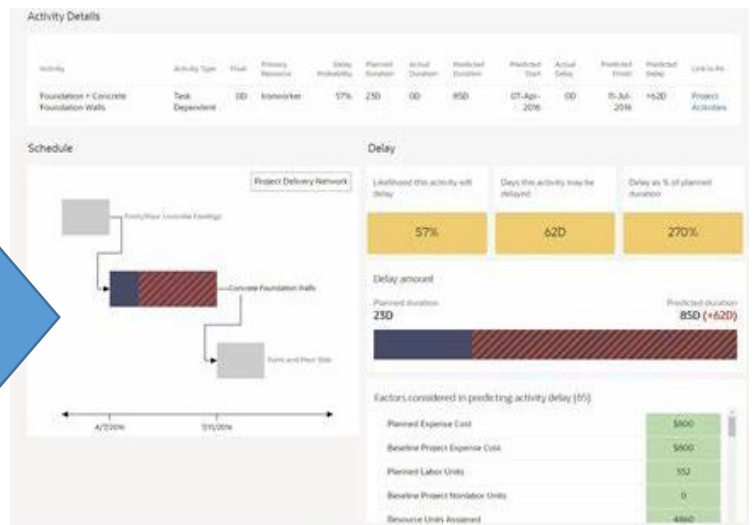
Scheduling Scenarios leverage data from past projects and continuous "learning" to enable fast, proactive decision-making

Raise Early Warnings Notices (EWNs) early

Construction Intelligence Cloud (CIC) affords Portfolio Health Checks by providing Schedule Heat maps on activities, by quickly scanning your Portfolios in your P6 database, to then allow you to drill-down for detailed projects metrics reporting.

Project portfolio overview

Predict and remedy schedule delays

Identify problem hotspots in your project

Evaluate project network performance

Benchmark past projects to drive improvement

Re-train models for custom-fit predictions

AI and Machine Learning (ML) then continuously identifies hidden risks that need to be actioned such as schedule delays, poor schedule quality, budget over-runs, resource bottlenecks and process inefficiencies. It provides advanced warnings and 'learns' over time improving the accuracy of predictions, so you can take pre-emptive action early.

Greater control over suppliers

Tracked communication

Decrease in lead times

Control over the process

Greater transparency

Current workflow status

How we can use this for winning work and being competitive

Schedule

- Which activities have been typically delayed?
- Which activities have been delivered ahead of schedule?
- How much time on average did we take on average this activity?

Budget

- How accurate are we with budgets usually?
- How many Change Requests do we typically have on these jobs?
- Who raised the most variations?

Risk

- What are our usual risks for this type of project?
- How many of them did we identify ahead of time?
- Did our mitigation strategies work?
- Where our risks come from?

Quality

- What kind of quality issues have we typically had?
- How much time did we lose to rework?
- Are the root causes for the quality issues identifiable?
- Whom are the Suppliers?

Safety

- How many safety incidents have we had in the past?
- Where did they arise from?
- Are there patterns to highlight areas to fix?
- Can we prevent them in the future?

Art of construction meets the science of data to mitigate risk and improve decision-making
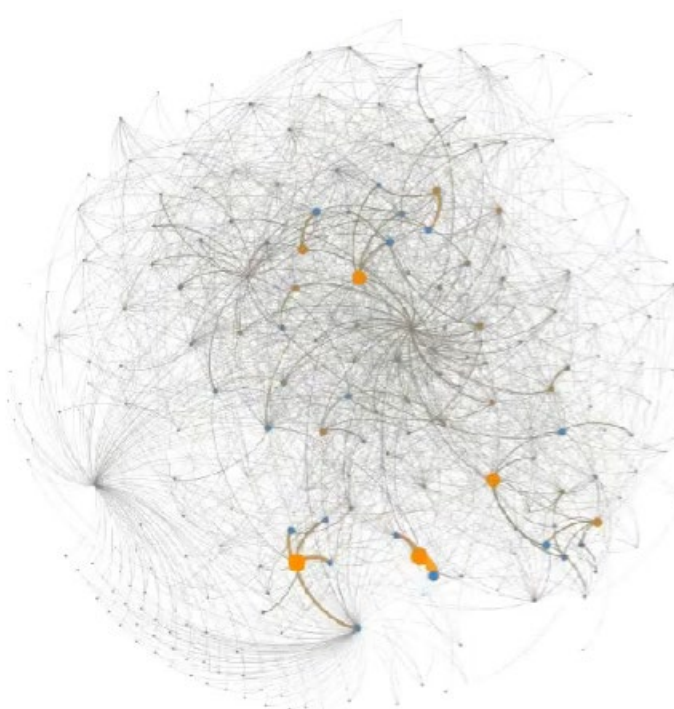
Consolidate: the learning from using historical data and make them 'ready for use'

Build: reports and dashboards to track real time status of current projects

Respond: to highlights in analytics and make decisions based on what the data is saying

Change: based on the experience so that the next time is better

Greater control over suppliers

Tracked communication

Decrease in lead times

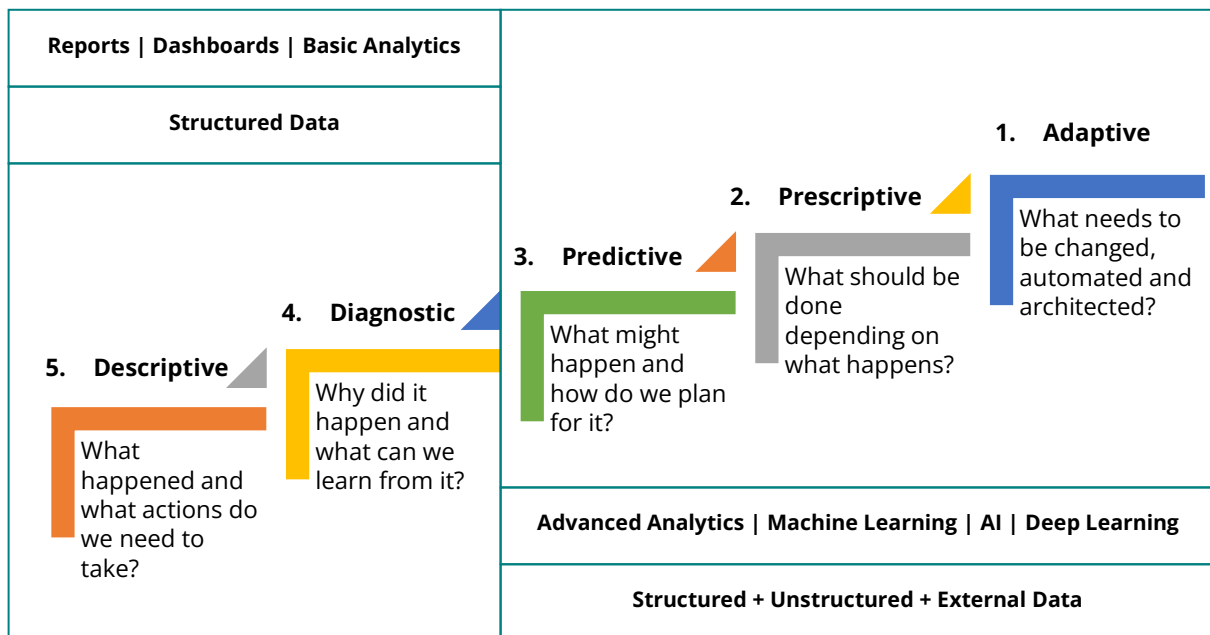Control over the process

Greater transparency

Current workflow status

Uncover potential future risks, assess their impact, and take proactive actions to improve overall project outcomes

How AI predicts risks to improve construction outcomes

Construction Intelligence Cloud Service (CIC) connects data across Oracle Construction and Engineering solutions to create a complete view across your projects and lifecycle phases. CIC Advisor leverages this connected data set to make predictions about project parameters including schedule, risk, cost, and resources. Predictions and recommendations are driven by custom algorithms and models.

Reports | Dashboards | Basic Analytics

Structured Data

1. Adaptive
What needs to be changed, automated and architected?

2. Prescriptive
What should be done depending on what happens?

3. Predictive
What might happen and how do we plan for it?

4. Diagnostic
Why did it happen and what can we learn from it?

5. Descriptive
What happened and what actions do we need to take?

Advanced Analytics | Machine Learning | AI | Deep Learning

Structured + Unstructured + External Data

These models, that are built and trained with historical project data, are fine tuned to suit the specific needs of the organisation through real-time feedback, manual retraining, and data-based auto–training as the project progresses. CIC Advisor continuously identifies hidden risks that need to be actioned such as schedule delays, poor schedule quality, budget over-runs, resource bottlenecks and process inefficiencies.

Answer the 'right' questions

How likely is the project going to be delayed and by how much?

What is the likelihood that we go over budget? By how much?

What hidden risks do we need to prepare and plan for?

What activities are likely to be delayed

What is the risk of rework due to incorrect information?

How do we improve our predictive capabilities?

Greater control over suppliers

Tracked communication

Decrease in lead times

Control over the process

Greater transparency

Current workflow status