ASSESSMENT

Prepared by Accenture for Offshore Norge

June 2023

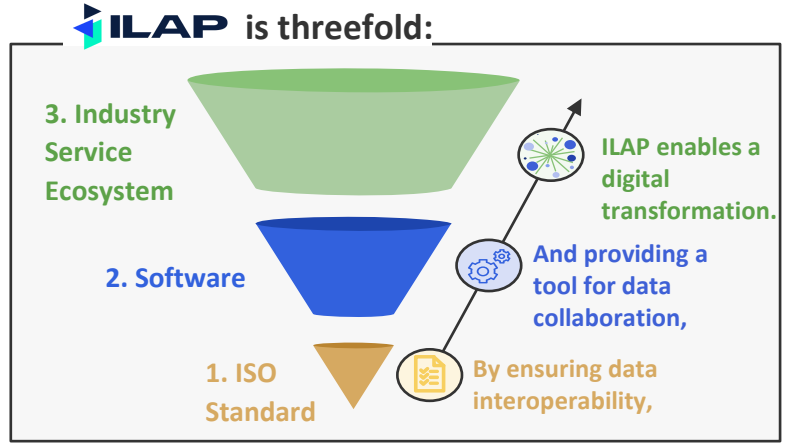
Enabling interoperability of schedule data, ILAP provides value to the Norwegian Continental Shelf and is key to advancing digitalization

EXECUTIVE SUMMARY

Offshore Norge is attempting to solve a pressing challenge for owner/operators and contractors on the Norwegian Continental Shelf, the efficient exchange of schedule data.

To do so, they have developed an initiative called ILAP, Integrated Lifecycle Asset Planning. ILAP consists of an ISO standard defining an ontology for scheduling, ISO 15926-13, and a software enabling the efficient exchange of scheduling information, ILAP Data Exchange, and an ambition to become an industry service in an ecosystem.

ILAP primary functional objective is to enable interoperability across scheduling thereby opening the door for an ecosystem digital transformation for increased value, similar to what other industries have experienced such as travel with Global Distribution System, and email with Simple Mail Transfer Protocol.



ILAP initiative overview

ILAP is well positioned to meet it's strategic objects, however work remains in that;

- It is solving the widely experienced challenge of inefficient schedule data exchange across the NCS
- It is unique in that there exist no overlapping initiatives globally, however, should consider pursing strategic partnerships with trusted initiatives
- It adheres to global leading strategic roadmaps of the WEF and Industrie 4.0
- The need is well recognized in both the planning domain and the project management domain at the largest players on the NCS with good interest to implement
- It is applicable and scalable beyond oil and gas and outside the NCS, however scope expansion beyond the NCS is outside Offshore Norge's area of focus
- It is positioned for a pilot, meeting strategic objectives, however both further operational and technical work is necessary to ensure readiness for production and scaling
- The focus has been on the technical tool leaving key components required for implementation not prioritized e.g., change processes, training, contracting

In conclusion, ILAP provides strategic and technical value by resolving pressing challenges and advancing digitalization on the Norwegian Continental Shelf and Offshore Norge should continue to invest in ILAP's advancement.

Over 60 people have provided input to the technical and strategic assessment of ILAP and ILAP use cases (1/2)

STAKEHOLDER OVERVIEW

	NAME	TITLE	CONTRIBUTION
equinor	Robert Skaar	Senior Project Planner	Discover ILAP use cases and participation in the integrated planning maturity survey
	Cecilie Strøm	Manager Business Efficiency	Discover technical requirements for ILAP, assess ILAP's fit to operators IT strategy and discover ILAP use cases
	Per Kristian Veiberg	Digital Project Manager	Discover technical requirements for ILAP, assess ILAP's fit to operators IT strategy and discover ILAP use cases
	Knut Grini	Project Planner	Discover ILAP use cases
	Robert Johansen	Project Control Manager	Discover ILAP use cases and participation in the integrated planning maturity survey
	Mari Braaten	Project Control Manager	Discover ILAP use cases and participation in the integrated planning maturity survey
	Arild Gjerstad	Project Director	Discover ILAP use cases
	Ole Martin Bull	Project Control Manager	Discover ILAP use cases and participation in the integrated planning maturity survey
	Jens Sverre Hauge	Planning Lead	Discover ILAP use cases
	Elin Marie Halvorsen	VP Project Control & Management	Discover ILAP use cases
	Trond Karlsen	Specialist IT Architecture	Discover technical requirements for ILAP and assess ILAP's fit to operators IT strategy
	Heljar Ballo	Digital Lead Project Control	Discover ILAP use cases
	Terje Forsell	Project Control Manager	Participation in the integrated planning maturity survey
	Hilde Kristin Rettedal	Senior Planning Engineer	Participation in the integrated planning maturity survey
	Tommy Løkke	Advisor – Supply Operations	Participation in the integrated planning maturity survey
	Gaute Øyestad Slettemark	Project Planner	Participation in the integrated planning maturity survey
	Oddgeir Søvik	Discipline lead turnaround planning	Participation in the integrated planning maturity survey
	Thorben Henriksen	Project planner	Participation in the integrated planning maturity survey
AkerBP	Chris Westland	Digital Excellence - Integrated Planning	Discover ILAP use cases and participation in the integrated planning maturity survey
	Camilla Leon	VP Integrated planning	Participation in the integrated planning maturity survey
	Lars Johan Austli	Asset Integration Manager	Discover ILAP use cases and participation in the integrated planning maturity survey
	Vidar Berg Dyblie	Senior Planner	Discover ILAP use cases and participation in the integrated planning maturity survey
	Bård Atle Hovd	VP Projects	Discover ILAP use cases
	Georg Vidnes	VP Operations	Discover ILAP use cases
	Rune Lekve	Digital Lead	Discover technical requirements for ILAP and assess ILAP's fit to operators IT strategy and participation in the integrated planning maturity survey
	Bjørn Terje Galdal	Activity Planning Systems Owner	Participation in the integrated planning maturity survey
	Frode Hølland	Senior Project Planner	Participation in the integrated planning maturity survey
	Vinh Vuong Tran	Intervention Crew Lead	Participation in the integrated planning maturity survey
vår energi	Pål Ingard Dahl	Head of Project Services - Modification Projects	Discover ILAP use cases and participation in the integrated planning maturity survey
	Jan-Oddvar Søvik	Project Control Manager	Discover ILAP use cases
	Rune Lidal	Platform Manager	Discover ILAP use cases
	Asbjørn Skoge	VP Development Projects	Discover ILAP use cases and participation in the integrated planning maturity survey
	Svein Magne Leine	IT Technology Execution Manager	Discover technical requirements for ILAP and assess ILAP's fit to operators IT strategy
	Inge Bjørkevoll	VP Modifications Projects	Participation in the integrated planning maturity survey

Over 60 people have provided input to the technical and strategic assessment of ILAP and ILAP use cases (2/2)

STAKEHOLDER OVERVIEW

	NAME	TITLE	CONTRIBUTION
vår energi	Anton Stornes	Project Management Manager	Participation in the integrated planning maturity survey
	Øyvind Valaker	Senior Planner	Participation in the integrated planning maturity survey
	Dominic Izzard	Modifications Supervisor	Participation in the integrated planning maturity survey
ConocoPhillips	Dag Fiskaa	Planning Lead	Discover ILAP use cases and participation in the integrated planning maturity survey
	Claus Østegaard	Shutdown Plan Coordinator	Discover ILAP use cases and participation in the integrated planning maturity survey
	Bernt Evensen	Supervisor, Europe ERP Services	Discover technical requirements for ILAP and assess ILAP's fit to operators IT strategy and participation in the integrated planning maturity survey
	Tom Ivar Barka	Brownfield and Commissioning Planner	Participation in the integrated planning maturity survey
	Ståle Waagen	Senior Planner	Participation in the integrated planning maturity survey
	Anders Skandsen	Director	Participation in the integrated planning maturity survey
	Jørgen Aamodt	Maintenance Deliverry Lead	Participation in the integrated planning maturity survey
accenture	Rune Larsen	Industry X Nordics Lead	ILAP assessment supervision and investigating requirements for scaling ILAP
	Jonas Kampik	Industry X Capital Projects Europe Lead	Project supervision and ILAP assessment
	Johan Kroon	Industry X Capital Projects Gallia Lead	Project supervision and ILAP assessment
	Oddvar Nesse	Industry X Energy Nordics Lead	Project supervision and ILAP assessment
	Anunay Kumar Prasad	Capital Projects Control Tower Product Owner	Investigating synergies between ILAP and Accenture Control Tower
	Mandar Rody	Capital Projects Control Tower Manager	Investigating synergies between ILAP and Accenture Control Tower
	Sudhanshu A. Goyal	Capital Projects Control Tower Manager	Investigating synergies between ILAP and Accenture Control Tower
	Stephan Wein	Team Lead Competence Center Agile Mnf & Smart Automation	Industry 4.0 guidance
	Ken Dunn	Data Architecture Senior Manager	Assessment of ILAP technical architecture
	Nathanel Chaouat	Industry X & Supply Chain Specialist Open Innovation Team	Project supervision and ILAP assessment
ALICE TECHNOLOGIES	Kevin Fuller	Industrial Solutions Leader	Investigating synergies between ILAP and Alice Technologies
	Jeff Rosseth	Director Strategic Alliances	Investigating synergies between ILAP and Alice Technologies
HEXAGON	Joshua Tennent	EcoSys Product Owner at Hexagon PPM	Investigating synergies between ILAP and Hexagon and potential service overlaps
	Doga Akkus	Senior Account Manager	Investigating synergies between ILAP and Hexagon and potential service overlaps
COGNITE	Jan Eivind Danielsen	Customer Success Manager	Investigating synergies between ILAP and Cognite
promineo	Leif Arild Åsheim	CEO	Assessing ILAP Product
	Atle Kaland	Software Engineer	Assessing ILAP Product
	Erik Danielsson	Product Manager	Assessing ILAP Product
CEGAL	Knut-Morgen Ødegård	IT Engineer Specialist	Assessing ILAP Product
	Jakob Johansen	IT Engineer	Assessing ILAP Product

Agenda

Assessment Key Question:
Does ILAP provide strategic and technical value now and in the future?

SECTION 0 – EXECUTIVE SUMMARY and STAKHOLDER OVERVIEW

SECTION 1 – ILAP'S STRATEGIC FIT

- **A. Alignment to digital roadmaps**
- **B. Alignment to technology trends**
- **C. Standardization initiatives**

SECTION 2 – ILAP DATA EXCHANGE

- **A. Product overview**
- **B. Technical architecture assessment**

SECTION 3 – ILAP USE CASES

- **A. Maturity assessment of partner companies**
- **B. Use cases**

SECTION 4 – CONCLUSION & RECOMMENDATIONS

OFFSHORE NORGE

02 ILAP'S STRATEGIC FIT

ILAP is the tools and methods for the efficient transfer of standardized scheduling data for integrated planning

INTRODUCTION TO ILAP

ILAP is threefold:

3. Industry Service Ecosystem

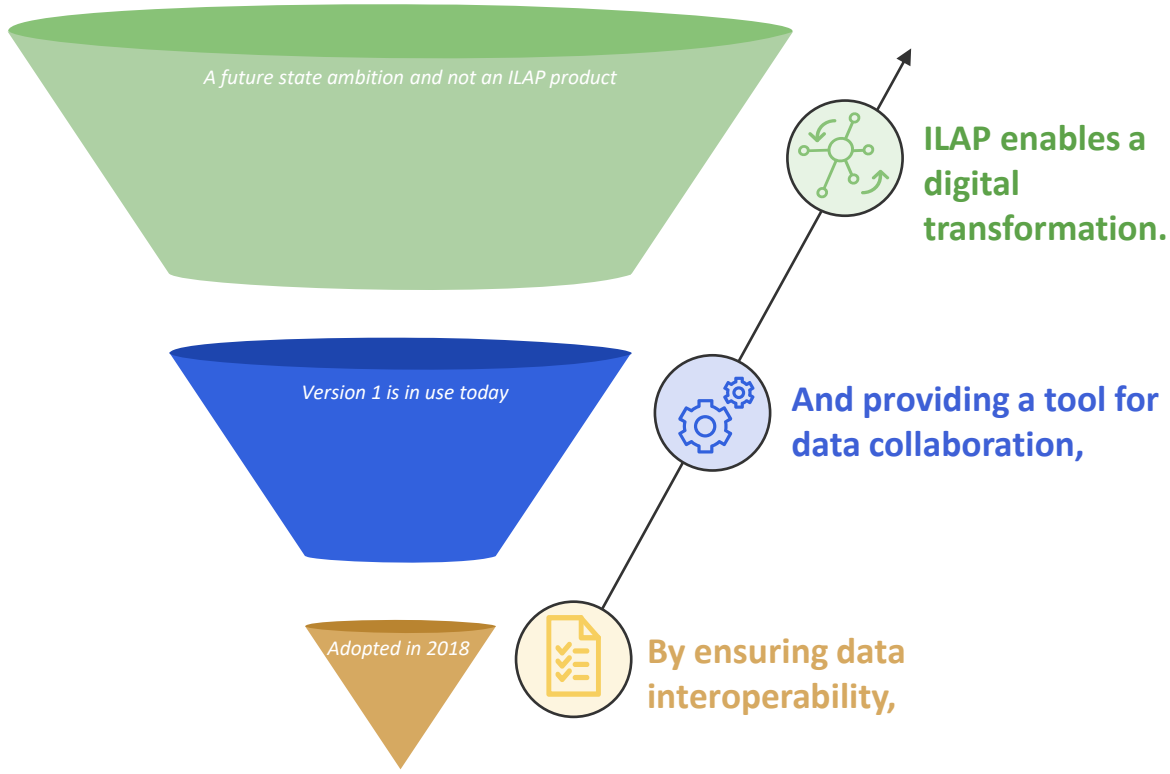
ILAP has ambition to be a digital transformation for capital projects scheduling by opening the door for collaboration across the energy industry in providing data standardization through the ISO standard and tools for data collaboration by way of digital tools.

2. Software

ILAP is an industry cloud platform that enables the efficient transfer standardized schedule data that is in development today with go-live Fall 23'. In the future, it will be a data base for corporations to analyze their scheduling data and a platform for the sharing of anonymized information for learning.

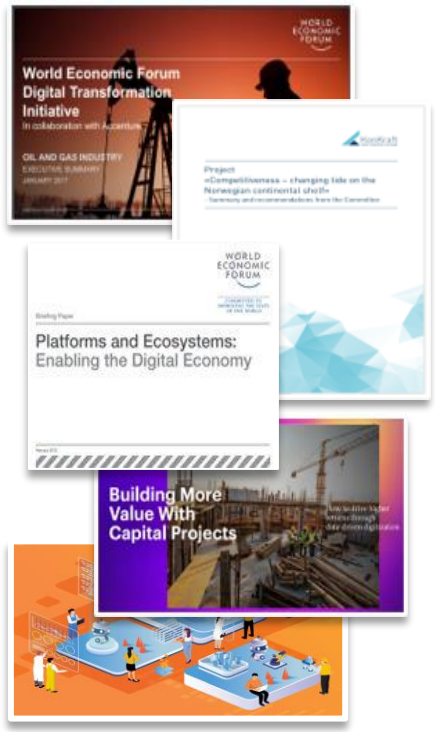
1. ISO Standard

ILAP is an ISO Standard, 15926-13, that establishes an ontology and data exchange format for asset planning and scheduling for use in the energy industry, ensuring planning and scheduling data is standardized such that it is understandable and sharable between parties. The ISO standard provides a common language allowing for an open global information exchange.



O&G digital roadmaps and strategy reports all point towards digital collaboration and standardization for industry efficiency gains

DIGITAL ROADMAPS



REPORT	RELEVANT FINDINGS	STRATEGIC FIT
WEF Digital Transformation Initiative – Oil & Gas Industry	Data sharing and standardization is key to unlock digital transformation and significant value creation	Yes
Platforms and Ecosystem: Enabling the Digital Economy	While digital ecosystems are the future, interoperability and data sharing are significant challenges for owner-operators and EPCs. This is not a challenge to the ILAP standard and tool but may challenge commercial ambitions for ILAP.	Partially
Competitiveness – Changing Tides on the NCS	New forms of data collaboration is vital for the Norwegian oil and gas industry to remain competitive	Yes
Building More Value with Capital Projects	Data-sharing and data-driven infrastructure across owner-operators and EPC's is key to unlock the full value from digitalization in capital projects	Yes
Industry 5.0	Quite a futuristic topic for the oil and gas industry	Partially

DIGITAL PLATFORM	RELEVANT FINDINGS	STRATEGIC FIT
Industry 4.0	Data standards are essential for the successful implementation and widespread adoption of its technologies and practices	Yes

Evaluating strategic fit by considering ILAP's, and partners, contribution to key technology trends enabling digital business in the energy industry

DIGITAL TRENDS

Color indicates ILAP's strategic fit:

- Strong
- Enabler
- Not Now

Trend 3

Robotics and Generative AI

ILAP support this trend via enabling potential ecosystem partners

ALICE TECHNOLOGIES

Trend 2

Advanced Analytics

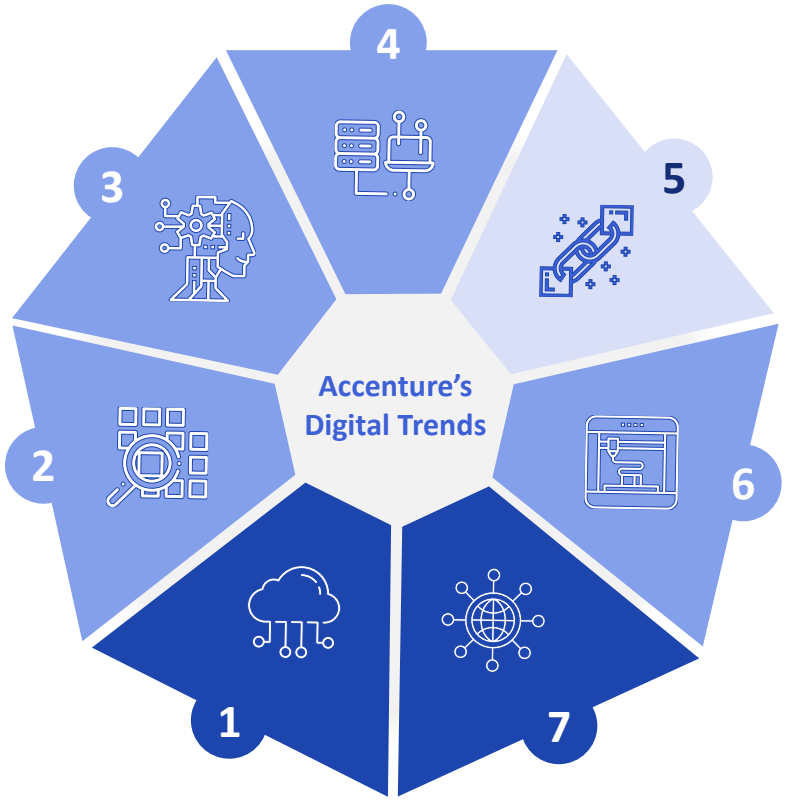
ILAP support this trend via enabling potential ecosystem partners

HEXAGON

Trend 1

Cloud Technology

As a cloud native solution, the ILAP software clearly aligns



Trend 4

Connected Assets

ILAP Its not a connected asset but it connects assets

Accenture's Capital Projects Command Center

Trend 5

Digital Transactions

Something to keep an eye on for the future. Innovator to watch

DATA GUMBO

Trend 6

Digital Workforce

While ILAP aligns with the digital workforce concept, it also serves to strengthen and enhance it.

AVEVA

Trend 7

IT Modernization

ILAP is essential for the IT modernization of planning and scheduling

Source: *Accenture, Industry X*

There are several data standardization initiatives influencing digital transformation in oil and gas to contrast ILAP against

STANDARDIZATION INITIATIVES

Exchange and management of **asset lifecycle information**

IOGP, est. 2012

- Leverages ISO 15926 data model but is not associated with it
- Open-source and freely available
- Simplifies handover to operation

Standardization of **equipment procurement specification**

IOGP, est. 2016

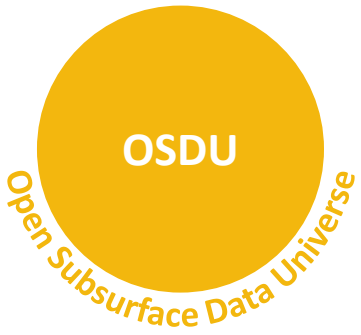
- Leverages ISO 15926 data model but is not associated with it
- Open-source and freely available
- Simplifying specifications through the procurement value chain

Digital representation frameworks for **assets in the context of I4.0**

German Gov't, Est. 2016

- Not a specific standard but integrates with standards such as ISO 15926
- Open-source framework
- Specific to digital representation for digital twins

Exchange and management of **subsurface data**



Open Group, est. 2018

- Not connected to any standards, creating its own data library
- Open- source, all members of the Open Group have access
- Developing their own data model for subsurface data

Standardized report of capital project **performance data**

USA DoD, est. 2020

- Influenced by Earned Value Management Standards
- Schedule Performance dataset requirements are freely available
- No ontology, hence, no schedule data interoperability

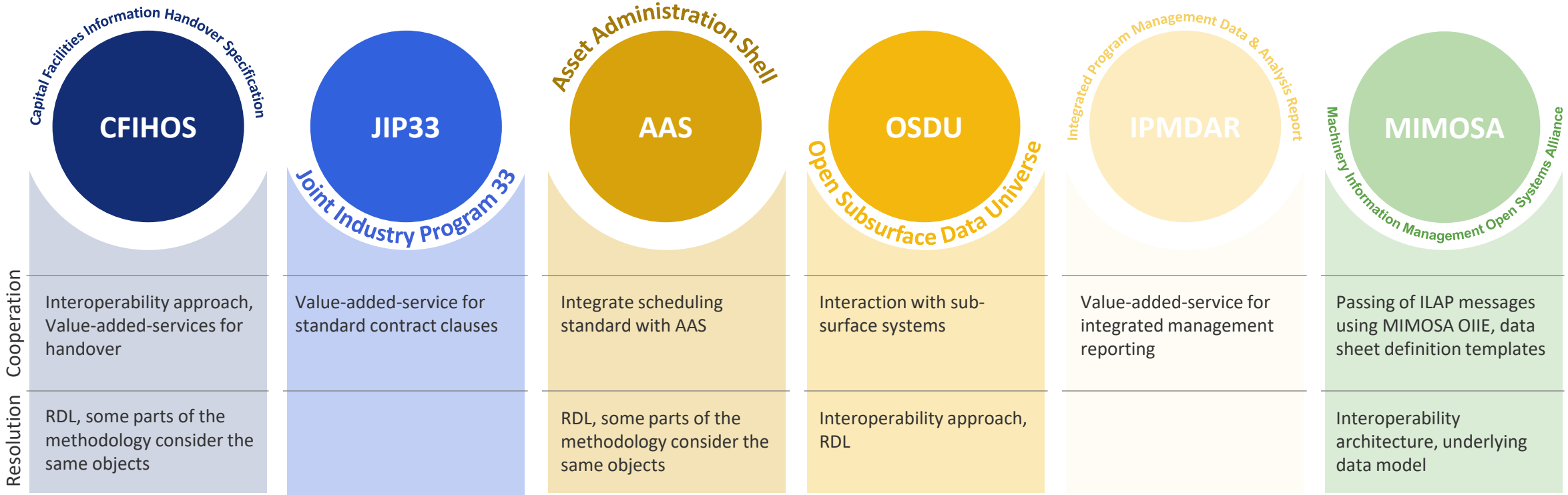
Promoting interoperability for **machinery equipment**

A consortium, Est. 1997

- Owns and promotes standards across the industrial and manufacturing sectors
- A not-for-profit organization
- Standards interact with scheduling information

ILAP should seek partnerships with other influencing standardization initiatives to increase visibility and gain traction

STANDARDIZATION PARTNERSHIP



Other potential partnerships that can be beneficiary for ILAP:

PIDX INTERNATIONAL · Construction Industry Institute® · ENERGISTICS · The OpenO&M Initiative

OFFSHORE NORGE

03 ILAP DATA EXCHANGE

OFFSHORE NORGE

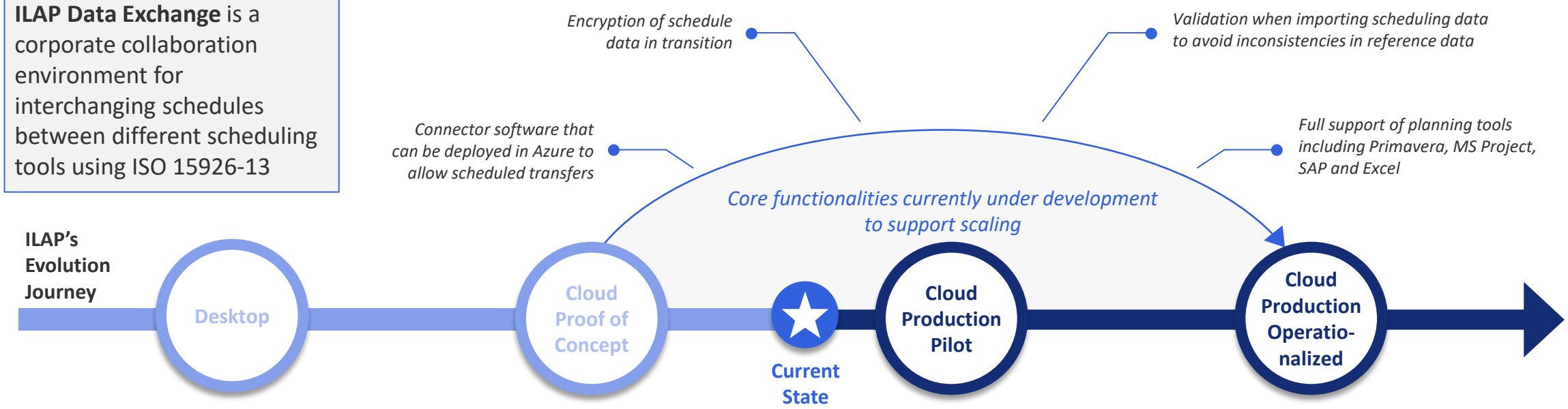
PRODUCT OVERVIEW

Presenting ILAP Data Exchange’s evolution roadmap, architecture and development landscape.

The ILAP software is transitioning from a desktop application to a hybrid cloud solution and is nearing launch of the production environment

BACKGROUND

ILAP Data Exchange is a corporate collaboration environment for interchanging schedules between different scheduling tools using ISO 15926-13



ILAP Adapter

Desktop application developed to validate that the standard and adapter software would work.

The application was implemented in pilot planning projects to test the viability of growth.

ILAP Lite

Proof of concept, hybrid, Azure solution was developed to demonstrate the feasibility of transitioning the adapter to cloud and testing out the ISO standard.

ILAP Data Exchange

Cloud solution extended with improved exchange agreement, support for multiple user types and scheduled transfers.

Hosted in Offshore Norge's production environment to support pilot planning projects with ecosystem partners.

ILAP Data Exchange

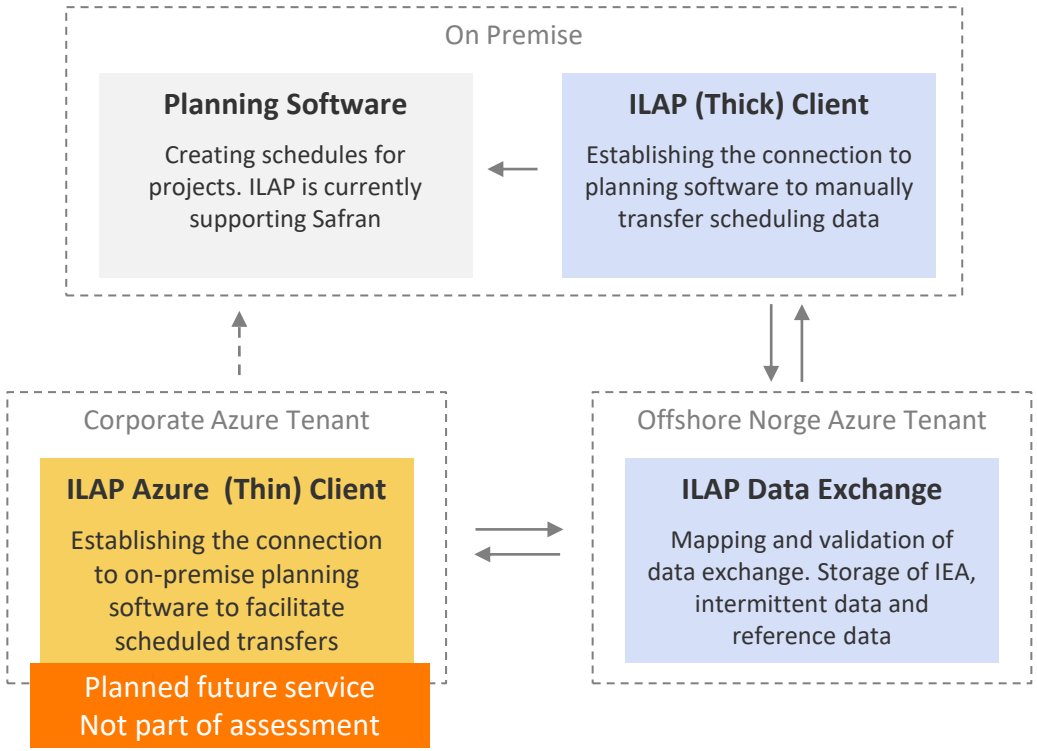
Matured cloud solution with secure infrastructure and established support and operations.

Established as an industry service to support a larger number of projects.

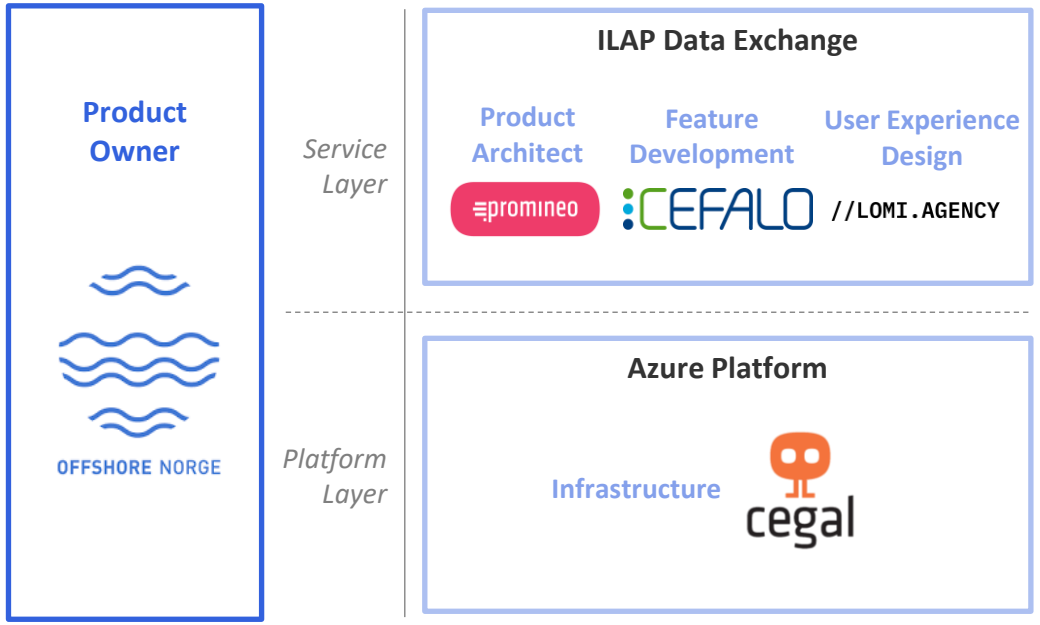
The development from ILAP Adapter to ILAP Data Exchange is being completed by a hybrid model with several agencies involved

ARCHITECTURE & DEVELOPMENT

CLOUD PILOT PRODUCT ARCHITECTURE



DEVELOPMENT LANDSCAPE



ILAP Data Exchange is being developed in a hybrid model where Promineo, Cefalo, and Lomi develop the service and Cegal hosts the application. Offshore Norge, as the product owner, defines the feature roadmap and infrastructure requirements.

OFFSHORE NORGE

TECHNICAL ASSESSMENT

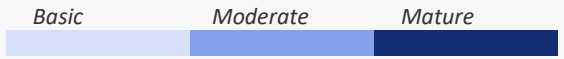
Evaluating ILAP Data Exchange against the requirements for Pilot- and Scale-phase through a five-pillar assessment.

We have evaluated ILAP Data Exchange to ensure that the cloud service is of high-quality with robust practices

ASSESSMENT INTRODUCTION

APPROACH

- Applied a five-pillar assessment framework to holistically consider the main architectural choices and practices that were taken when transitioning ILAP Adapter to a hybrid cloud solution in Azure
- Input to the assessment questions was gathered from interviews with Offshore Norge, Promineo, Cegal, and by reviewing existing documentation
- The assessment evaluated ILAP Data Exchange against the requirements for Pilot- and Scale-phase separately as the two phases have differing requirements for architecture, practices and development maturity:
    - **Pilot:** The results across the five pillars for ILAP's current state is aggregated to a final maturity score describing ILAP Data Exchange's readiness to go into Pilot phase

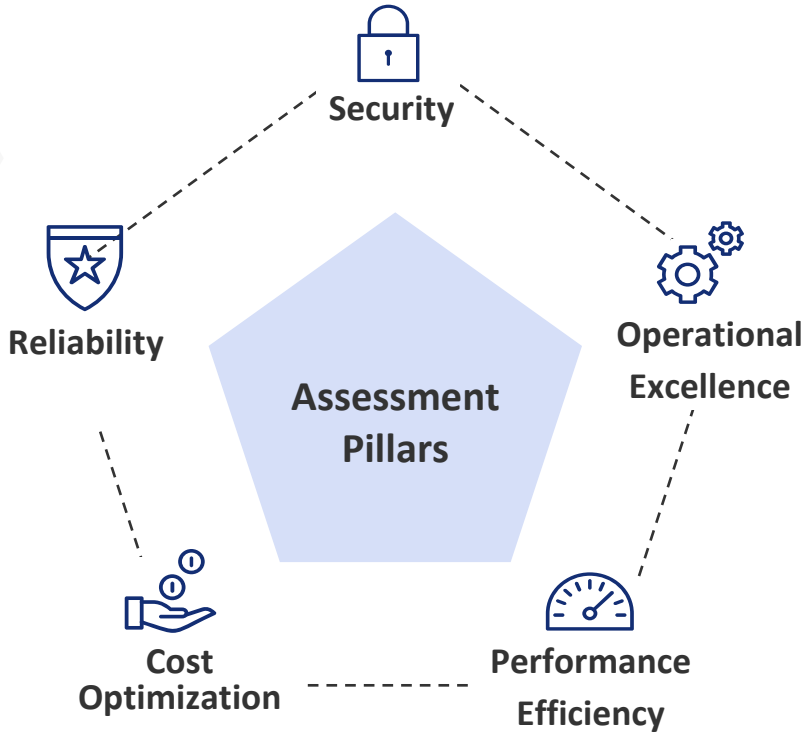


    - **Scale:** The results across the five pillars for ILAP's current state are compared to the future requirements for scaling and are presented as next-step recommendations for ILAP to take after going into production
- A detailed output from the assessment is found in the Appendix

LIMITATIONS

As the production environment is currently not established, the assessment was completed based on planned future functionality, not the existing environment

APPROACH FRAMEWORK



The approach framework covers the areas Performance Efficiency, Cost Optimization, Security, Operational Excellence and Reliability to ensure that the solution is scalable, resilient, efficient and secure.

ILAP Data Exchange is well-positioned for Pilot phase and should use the opportunity to establish a strong foundation for the service

Cloud Production Pilot

ASSESSMENT OUTCOME

Reliability

- Leveraging PaaS services has brought reliability benefits with consideration of auto scaling
- Disaster recovery capability is limited and currently manual for single region

Security

- Good foundation with well-established identity provider, Key Vault and use of Managed Identity
- Security operations not established for responsive action
- Practices not consistent internally and across environments

Operational Excellence

- Full-feature logging solution has been selected and is being implemented
- Operations model has been discussed, but more work needed to define a detailed RACI and key operational metrics
- Need to refine measurement of application health and automatic alerting

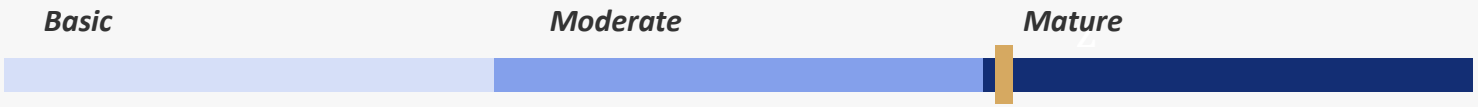
Cost Optimization

- Initial environment is being configured with appropriate consideration for minimizing costs
- Not yet taking advantage of tagging features to allocate cost

Performance Efficiency

- Initial environment does not offer significant opportunities for substantial improvements in performance efficiency
- Pilot phase gives a valuable opportunity to fine-tune scaling operations gradually and validate the behavior of auto-scaling mechanisms and capacity/performance assumptions

OUTCOME



ILAP is well-positioned to move into Pilot phase with a suitable application architecture and an overall understanding of data and user requirements. In order to effectively scale, the Pilot phase should be leveraged to enhance reliability and security aspects and start developing an operations model that is mature for production.

ILAP Data Exchange should leverage learnings from Pilot to further enhance operations and cloud architecture as they scale

Cloud Production Operation-alized

ASSESSMENT RECOMMENDATIONS

Reliability

- Evaluate if additional resiliency needs to be added in architecture to meet availability targets
- Determine disaster recovery targets and evaluate the ability to rebuild in a different region

Security

- Ensure that best practices for security operations are being followed
- Implement additional security tools to support secure code development

Operational Excellence

- Evaluate learnings from operations model used during Pilot phase and adjust where needed
- Add automation for issue detection and response where feasible and practical

Cost Optimization

- Continue to closely monitor Azure consumption and look for opportunities to optimize cost
- Evaluate that scaling is impacting costs as expected

Performance Efficiency

- Review the performance data gathered during Pilot and make required adjustments to environment sizing, thresholds and scale-out strategy

OUTCOME

It is not applicable to evaluate readiness to scale across the five pillars as ILAP Data Exchange is not yet in production. The assessment should be revisited as the service is established to verify that the appropriate actions are taken.

To successfully transition into the Scale phase, ILAP needs to establish robust operational processes, validate the application's ability to meet reliability targets and strengthen the overall approach to security. As the product scales, more focus should be put into cost management and ensuring the environment is properly configured and dimensioned to handle increased load.

Strategically advancing ILAP Data Exchange from Pilot to Operationalization: Key success factor prioritization for Offshore Norge

KEY TAKEAWAYS

Offshore Norge is on the right track to go into the Pilot phase in August with ILAP Data Exchange but should further mature the architecture and operating model in this phase before scaling. To successfully scale, they should leverage this period to develop robust processes and a mature organization that are ready to go to market including:

MATURING THE PRODUCT MANAGEMENT MODEL

It is crucial to establish product management discipline with a clear product roadmap and solid support processes for both active and onboarding users. The user experience should be at the forefront, ensuring that users have best-in-class onboarding with responsive and capable ongoing support during projects. The product roadmap is an essential tool for prioritizing development and managing expectations with customers and stakeholders.

ESTABLISHING A TIGHT OPERATING MODEL

As ILAP scales, it will require sound operations to proactively monitor, manage, and maintain the health of the environment. The collaboration model to monitor and respond to events must be clearly defined with tight alignment and end-to-end communication. Configuration and competence for infrastructure management must be developed and integrated across environments to optimize release processes and failure recovery.

DEVELOPING OPERATIONS PARTNERSHIP

Offshore Norge should work closely with their operating partner to define and align on their short, medium, and long-term infrastructure plans and requirements, leveraging expertise from the partner to define and implement the appropriate solution capabilities to meet these objectives.

OFFSHORE NORGE

USE CASES

OFFSHORE NORGE

MATURITY ASSESSMENT OF PARTNER COMPANIES

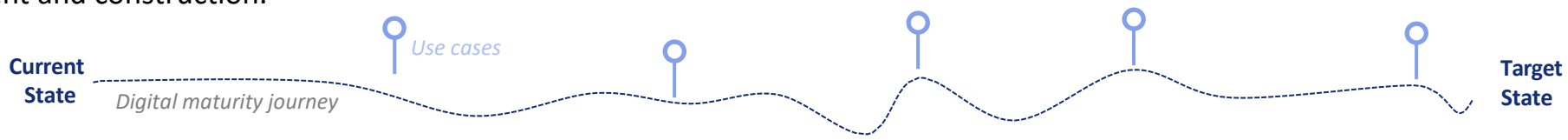
Leveraging Accenture's Capital Projects Maturity Assessment tool to determine gap, and use-cases to close them, between current and targeted digital maturity at ILAP stakeholder planning organizations.

Accenture's Capital Project Maturity Assessment is a tool to identify gaps in an organizations digital maturity and provide uses cases to close them

CAPITAL PROJECT MATURITY ASSESSMENT (CPMA) INTRODUCTION

CPMA PURPOSE:

Identify the gaps and use cases required for an organization to achieve a digital transformation in their capital projects lifecycle across engineering, procurement and construction.



The CPMA is a three-step approach for a comprehensive assessment of an organization's digital maturity across lifecycle of the capital project

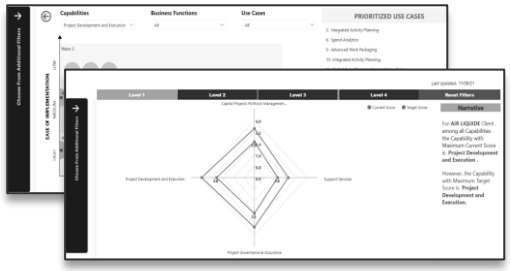
01 COLLECT INPUT

Gather input from an organizations stakeholders by asking them to benchmark their organization's current and target digital maturity across three levels via a digital survey:

02 PROCESS DATA

Automatically synthesize survey responses to derive key themes from the organization's identified respective maturity levels to derive a gap analysis:

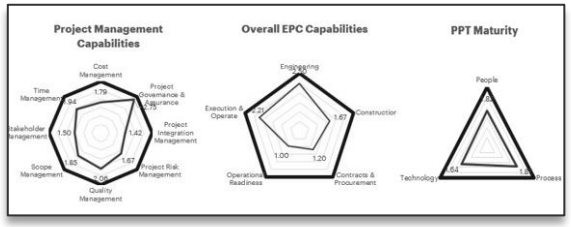
Sample outcome of survey response reports



03 VALIDATE RESULTS

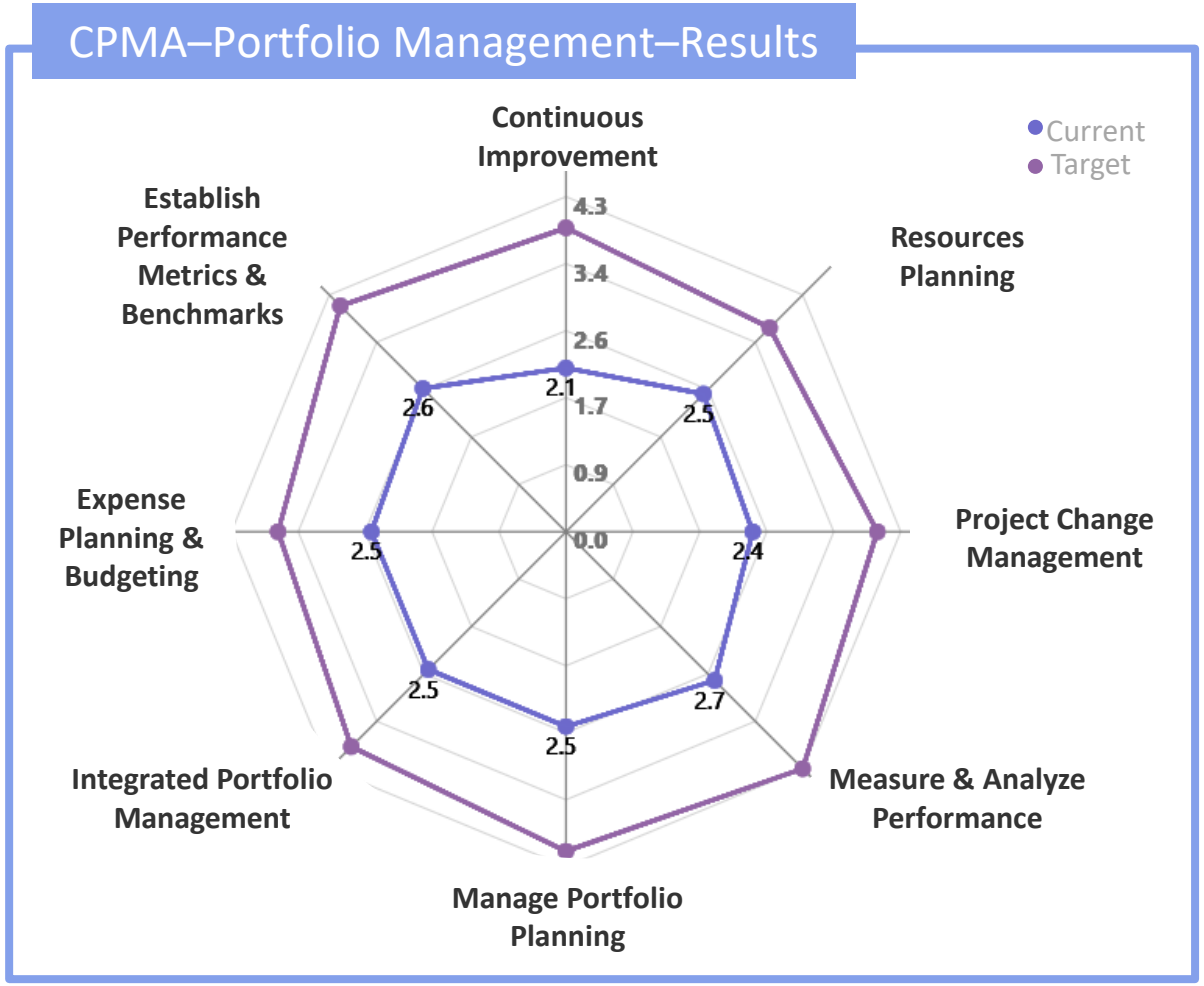
Highlight of improvement to close the gap via personal interviews with key stakeholders and comparisons with Accenture's user stories and industry best practices:

Sample outcome of end of diagnostic assessment



ILAP's partners are targeting a high level of digital maturity, however that is quite far from their current capabilities

CPMA RESULTS



1. Measure and analyze performance is the most mature, however is targeting the highest maturity – ***organizations have an appetite for tools that enable performance analysis***
2. Largest gap between current and future targets is regarding continuous improvement – ***organizations digital improvement agendas need to be accelerated***
3. Organizations are targeting high digital maturity in establish performance benchmarking and analytics – ***there is value in developing tools for data analysis***
4. Gap between current and target is smallest for expense planning & budgeting, however target maturity is low – ***those we surveyed are less aware or concerned with financial requirements***

After conducting the CPMA, ILAP use cases were divided into two categories, those enabled by ILAP itself verse ecosystem enabled

ILAP USE CASE INTRODUCTION

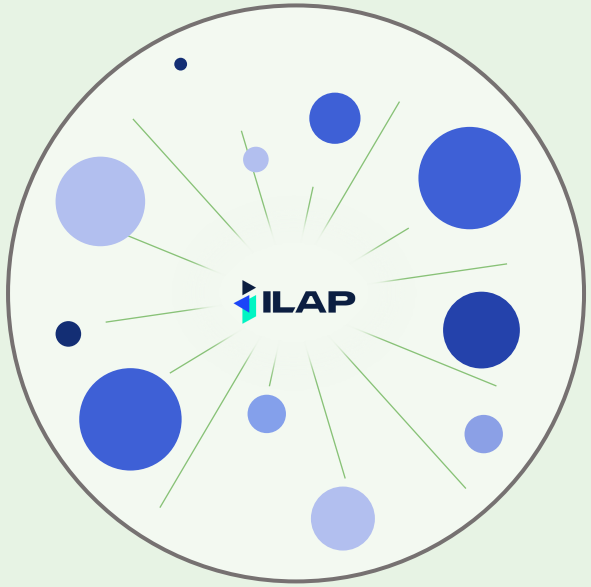
ILAP USE CASE

*Use case that are directly realized **by the implementation and utilization of ILAP alone***

- Primary use case is going from **MANUAL** to **AUTOMATIC** exchange of schedule data
- Value case are based on input from key personnel[1] with hands-on experience regarding the large effort required to manually transfer schedule data
- Automatic exchange of schedule data is the key to unlock further ILAP use cases provided by the ecosystem

ECOSYSTEM ENABLED USE CASES

*Use cases that are facilitated for by ecosystem players and are realized **after implementation and utilization of ILAP***



- 4 categories of use cases **unlocked by the utilization of ecosystem** tools and capabilities
- **Use cases are validated** by operators' project managers, planners and controllers
- Use cases **add value to all parties** involved in the value chain, not only to operators

Note: **1.** Calculated based on input from ILAP representatives from Equinor, Aker BP, Vår Energi and ConocoPhilips, who have several years of experience in capital project planning and scheduling

OFFSHORE NORGE

USE CASES

Identifying in what situations the ILAP standard and Data Exchange can provide measurable value within capital projects.

The ILAP standard and software enables automated exchange of schedule data while the ecosystem provides solutions for utilizing the data

ILAP USE CASES

ILAP USE CASE

0

Automated Exchange of Schedule Data

Facilitate seamless data exchange and integration between various planning systems

Value Case:

Data administration, connection effort, project replanning

ECOSYSTEM ENABLED USE CASES

1

Integrated Activity Planning

Synchronize schedules and activities across borders, industries, organizations and business units

Potential Application:

- Integrated Helicopter, and Marine Activity Planning
- Maintenance, Turnaround, CAPEX, Drilling and Well Intervention Coordination
- SimOps

2

Predictive Scheduling

Deploy ML models trained on historical scheduling data to discover hidden insights to plan schedules

Potential Application:

- Optimize Capital Project Schedule with AI
- Turnaround Forecasting with AI
- Schedule Recommendations
- What-if Analytics
- Schedule Risk Simulation
- Project Risk Mitigation

3

Advanced Project Control & Analytics

Accurately identify possible schedule slippages, cost overruns and project risks

Potential Application:

- Analysis of Project Performance Across all Disciplines
- 4D Digital Twin
- Create Standard KPIs
- Project Portfolio Analysis
- Automatic Alert of Activities Involving Project Risk

4

Dynamic Project Reporting

Ensure all stakeholders are provided with needed information to promote effective collaboration

Potential Application:

- Connected Worker
- Dynamic Reporting Dashboards
- Self Service Portal For Reporting

Please find the attached Excel file containing a comprehensive list of identified applications for the use cases

ILAP's versatility and broad appeal evident in interviewees' strong belief

REPRESENTATIVE QUOTES FROM THE INTERVIEWS

0 Automated Exchange of Schedule Data

ILAP alone presents a strong business case, given the manual and painstaking processes currently required for importing contractor schedule data

- **Project Planning**

ILAP is set to deliver instant benefits by elevating quality and significantly minimizing errors—a transformative advantage for us

- **Project Control**

1 Integrated Activity Planning

The timing of ILAP couldn't be better, especially with the continuous rise in Tie-In and brownfield projects. The demand for enhanced coordination across Project and Operational departments has never been greater

- **Project Control**

ILAP holds immense potential for optimizing resource sharing across offshore activities—projects, operations, and drilling

- **Operations**

2 Predictive Scheduling

The elevated scheduling data quality facilitated by ILAP will serve as a pivotal foundation for embarking on the journey to leverage AI for optimization

- **Project Planning**

3 Advanced Project Control & Analytics

ILAP may enhance procurement coordination. Maintaining a tighter grip on procurement status is absolutely pivotal

- **Project Management**

Incorporating ILAP could open up opportunities for advanced analytics and provide a higher degree of control at the portfolio level, unlocking great benefits

- **Operations**

4 Dynamic Project Reporting

By utilizing Power BI for the distribution of ILAP data, we eliminate a cumbersome 300-page PDF and empower the ability to identify root causes within just a few clicks

- **Project Management**

0 Automated Exchange of Schedule Data

CHALLENGE

- Manual duplication of schedule data when migrating/collaborating between planning systems
- Often leads to schedule inconsistencies and discrepancies
- Master schedules are often based on limited visibility into sub-projects

Integrate planning systems to facilitate a seamless exchange of scheduling data.

IMPLEMENTATION

- Adapt the ILAP standard across planning systems for Owner/Operator and Contractor
- Install and configure the ILAP Data Exchange tool for planners at both Owner Operators and Contractors

DATA SOURCES

- Schedule data located in planning software (e.g., Primavera, Safran) from owner operators and contractors

REALIZATION COMPLEXITY (LOW)

Data: Schedule data is limited in number and update frequency

Integrational: Integrate with modern APIs present in the ILAP tool

Organizational: Adapt the ILAP standard which has a low threshold. No other organizational changes needed

Scalability: Due to the similarities of scheduling processes, scaling is easy across companies and departments

Stakeholder: Align few stakeholders within the project to moderate changes

Time & Resources: Implementing the solution is fast and requires a small team to do technical implementation, training in new standard

Technical & Functional: Installing ILAP is fast, due to the small footprint of the tool and that it is a SaaS solution

360° VALUE (LOW)

Financial: Reducing FTEs transferring schedule data, while improving quantity and quality of schedule data also reduces FTEs related to re-scheduling work. Timely update of quality schedule data.

Talent: Retain and attracting talent may be slightly easier, working with modern and simple tools

Experience: Improving user experience due to a more modern and simple planning and scheduling domain

The value of automating exchange of schedule data in an “average” brownfield project for both operators and contractors was calculated

VALUE CASE CONTEXT

Operator and Contractor Perspective

- The value case is assessed from the perspective of both an operator and a contractor.
- The objective is to utilize this value case as a rationale for implementing ILAP across capital projects.

Average Size of a Brownfield Capital Project

- The value case is calculated reflecting an average brownfield capital project of $1B USD lasting for 5 years from Fel 1 to Fel 4
- The rationale is to make the value case scalable for operators to adjust to their respective size

Digital Maturity Dependency

- The value case is derived from the use case dependent on the digital maturity of the organization
- The rationale is that the less digital mature the company is, the higher value will be derived from the use case

Automating exchange of schedule data reduced non-productive labor hours, which in turn reduces capital project costs

VALUE DRIVERS, USE CASE 0

0 Automated Exchange of Schedule Data

A

Streamline Data Administration

Reducing FTEs schedule data, and importing, mapping, validating and "double punching" schedule data between systems

***Yearly Value add** = FTEs spent on project administration * average **Project Planner** cost per hour*

B

Mitigate Effort for Project Replanning and Coordination

Reducing FTEs responsible for replanning of schedules

***Yearly Value add** = FTEs spent on project replanning and coordination * **Average Project Management** cost per hour*

C

Decrease Data Connection Effort

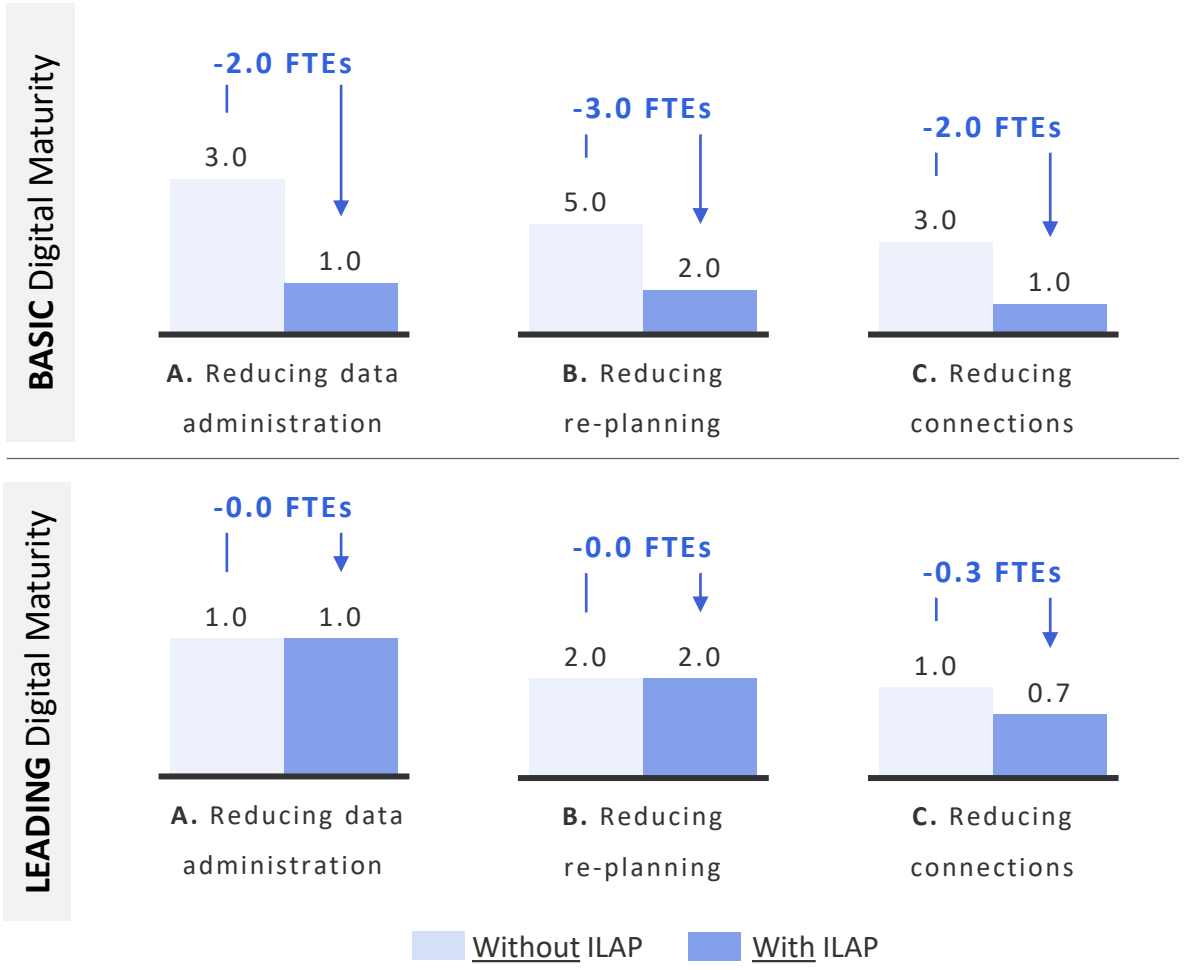
Reducing Project IT FTEs setting up and maintaining proprietary plan data transfers (connections)

***Yearly Value add** = FTEs spent on set up and connection maintenance * **Project IT** cost per hour*

Automating exchange of schedule data reduces costs for a $1B USD project by $1.4M for organizations with BASIC maturity and $60K for LEADING

FINANCIAL IMPACT - AUTOMATING EXCHANGE OF SCHEDULE DATA

Owner/Operators



Annual Forecasted Savings for BASIC-to-LEADING Organizations

$0K-400K savings annually...
As the schedule data is imported by few clicks

$0K-600K savings annually...
As schedule re-planning is replaced with other value adding activities

$60K-400K savings annually...
As all data connections are replaced with one connection to ILAP

$60K-1.4M annual savings in total

Assumed annual FTE costs for Project Planner: $200 000 & Project IT: $200 000 at a $1B USD capital project for an owner/operator on the NCS.

Note: FTE costs are based on input from project planners in Equinor, AkerBP, Vår Energi and ConocoPhilips

1 Integrated Activity Planning

CHALLENGE

- Bottlenecks in scheduling and coordination
- Managers are working with low visibility into project schedules and risk having multiple versions of the truth
- Cost and budget overruns for capital projects and maintenance projects
- Sub-optimal timing of adjacent operational processes, increase cost and safety risk

Synchronize schedules and activities across borders, industries, organizations and business units

IMPLEMENTATION

It is assumed that the ILAP standard and Data Exchange has been previously adapted and installed for capital project planning.

- Implement the ILAP standard also in operational, maintenance and financial planning systems
- Install the ILAP Data Exchange across Owner/Operators, Contractors and Suppliers in project departments, maintenance departments and operation departments

DATA SOURCES

- Schedule data located in planning software (e.g., Primavera, Safran) from owner operators and contractors
- Schedule data located in maintenance, operational and financial systems (e.g. SAP, Excel)

REALIZATION COMPLEXITY (MEDIUM - HIGH)

Data: Retrieve schedule data from various data sources with different standardization level

Integrational: Integrate with different systems, across companies, where APIs not always available

Organizational: Implement new ways of working across multiple departments and organizations

Scalability: Solutions are tailored toward specific situation

Stakeholder: Alignment of stakeholders with different agendas and motivations increases complexity

Time & Resources: Train and align resources across companies and departments

Technical & Functional: New functions may need to be developed to get full value out of the use cases

360° VALUE (HIGH)

Financial: Increasing coordination across the value chain and supply chain will have large positive efficiency effects

Sustainability: Improving resource utilization due to better coordination reduces emissions, while improving coordination between ongoing work and hazardous operations significantly reduces safety risks

Bringing to life integrated planning via potential applications identified throughout the assessment of ILAP use cases

1 INTEGRATED ACTIVITY PLANNING

Enabled by the **seamless exchange of schedule data** ILAP

	Integrated Helicopter Planning	Coordination Between Maintenance, Turnaround, CAPEX, Drilling and Well Intervention	Simultaneous Operations (SimOps)
Solution	An Accenture study found that integration of helicopter activities among stakeholders can improve utilization of helicopters	Seamless integration of schedules enables better coordination across all business units and improved operational efficiency	Integrated schedules enable improved coordination and monitoring of dependent activities allowing for simultaneous operations instead of sequential
Value Drivers	$ *Potential cost reduction $**175M USD*** *Potential emission reduction of **58K tons C02***	$ *Seamless coordination* $ *Improved Coordination & resource utilization* $ *Better alignment on risks* *Improved alignment on safety risks*	$ *Faster detection and planning of SimOps* *Reduced number of activities in high risk zone and better coordination of high risk activities*
	Source: Accenture credential	*Source*: Operator Interview	*Source*: Operator Interview

Additional Potential Applications from Interviews:

- Integrated Vessel Activity Planning
- Integrated Procurement in Operations and Projects
- Coordination between commissioning and operations
- LOTO coordination
- Mitigate consequences of People on Board Restrictions
- Coordination of MC and commissioning schedules with supplier schedules
- Insulation, Scaffolding and Surface Treatment (ISO) coordination

Accenture has identified significant value in integrating helicopter planning activities across the North Sea with the coordination enabled by ILAP

POTENTIAL APPLICATION – INTEGRATED HELICOPTER PLANNING

Reference Case

CHALLENGE

Today, while often going to similar destinations, **operators and contractors individually schedule helicopter activities across the North Sea**. Due to the scheduling individuality, the average space utilization for a helicopter tends to be low, leading to unproductive and wasted resources.

APPROACH

A group of leading oil and gas producers, under the World Economic Forum, came together and asked Accenture to conduct a proof-of-concept study to **assess the feasibility and benefits of integrating helicopter planning** across operators.

RESULTS

- Accenture found significant evidence that coordination among operators, contractors and other relevant parties on the North Sea leads to improved utilization of helicopters and increased shared value
- The required coordination must be enabled through **seamless and barrier-free transfer of interoperable schedule data** across the ecosystem

Potential use case application for ILAP

VALUE DRIVERS

Reduce operational & maintenance cost:

Identified potential to reduce North Sea transportation costs by

$175M annually[1]

Reduce environmental pollution (NetZero):

Identified potential to reduce North Sea emissions by

58K tons C02 annually[1]

Source: 1. *A study carried out by Accenture on behalf of WEF*

2 Predictive Scheduling

CHALLENGE

- Projects often lack regular evaluation against past and current events
- Neglecting to assess projects' progress can lead to significant knock-on impacts
- Lack of knowledge transfer from previous projects to subsequent ones

Deploy ML models trained on historical scheduling data to discover hidden insights to plan schedules

IMPLEMENTATION

It is assumed that the ILAP standard and Data Exchange has been previously adapted and installed for capital project planning.

- Store schedules in a repository for continuous training of models
- Implement a schedule optimization ecosystem AI partner, e.g., Alice Technologies

DATA SOURCES

- Schedule data located in planning software (e.g., Primavera, Safran) from owner operators and contractors
- Schedule data located in data repositories

REALIZATION COMPLEXITY (MEDIUM)

Data: Extra infrastructure is needed to store schedule data

Integrational: Integrating an AI partner

Organizational: Increasing AI competency and implementing results from the analysis in the processes

Scalability: AI partners presence across several industries facilitates scaling to new industries

Stakeholder: Build trust in AI generated schedules

Time & Resources: Training of planners and schedulers in developing AI models requires a larger implementation team

Technical & Functional: Dependent on the external AI tool selected

360° VALUE (HIGH)

Financial: Major optimization of resource use during the different project phases will have large positive financial effects

Sustainability: Improving resource utilization due to optimized schedules reduces emissions

Bringing to life predictive scheduling via potential applications identified throughout the assessment of ILAP use cases

2 PREDICTIVE SCHEDULING

Enabled by the **seamless exchange of schedule data** ILAP

	Optimize Capital Projects Schedule With AI	Turnaround Forecasting	Schedule risk simulations
Solution	Feeding schedule data to AI models can identify the optimal schedule and enhance and resource utilization ALICE TECHNOLOGIES	ML models have proven to improve turnaround forecasting and risk mitigation to enhance overall turnaround efficiency	ML models can predict both the location and magnitude of risks within the existing schedule
Value Drivers	$ *Up to **12% equipment** and **14% labor cost savings*** $ *Up to **17% reduction** in project duration leading to earlier realization of profits*	$ *Proven **10-20% reduction in TAM** duration risk with forecasting via ML models*	$ *Improved efficiency of the schedule risk process* $ *Improved schedule risk identification and mitigation*
	Source: Alice Technologies	*Source*: Accenture Credential	*Source*: Operator Interview

Additional Potential Applications from Interviews:

- Automatic alert of activities involving project risk
- What-if analytics
- Schedule Recommendations / Templates
- Project risk mitigation

From previous projects, Accenture has identified significant value in utilizing Alice Technologies' AI modules to optimize project schedules

REFERENCE CASE – OPTIMIZE CAPITAL PROJECTS SCHEDULE WITH AI

Reference Case

CHALLENGE

Capital project environments are dynamic with **inherent uncertainties and risks** in market, technology, regulations and dependencies. This can **impact project schedules and resource availability**. Today, 98% of capital projects experience unexpected delays and resource constraints

APPROACH

A US solar farm project utilized Alice Technologies' AI model and **discovered the P6 schedule to be unfeasible**, which would have caused a 45-day delay. However, with Alice's resource-loaded schedule considering workforce density limits, the project not only recovered the lost time but also **accelerated by an additional 23 days**

RESULTS

- **Alice Technologies** to simulate scenarios and **optimize project schedules** using AI models
- The schedule optimization could be enabled by **seamless and barrier-free transfer of interoperable schedule data** across the ecosystem

VALUE DRIVERS

$ Reduce capital project cost

$1.2M in reduced costs

$ Increase revenue

19% Reduction in project duration meaning earlier realization of profits[1]

Source: 1. *Alice Technologies*

We know from previous experience that predictive scheduling can improve project turnaround forecasting and reduce TAM duration risk with 10-20%

REFERENCE CASE – TURNAROUND FORECASTING

Reference Case

CHALLENGE

Unnecessary turnaround risks arise from **challenges in identifying unexpected events** and managing high complexity. Lack of updated schedule information and limited utilization capability contribute to **less accurate predictions** of turnaround duration, cost, and resource requirements. Improving event identification and utilizing up-to-date schedule information is essential for mitigating these risks effectively.

APPROACH

A petrochemical and refining business **utilized AI modules to address schedule scenario risks** and conduct risk testing using TAM variables like risk, duration, cost, and resource constraints. These modules **accurately predicted TAM schedule interventions, tracked historical gap closures**, and ultimately resulted in a more realistic, dynamic, and optimized plan with execution assurances.

RESULTS

- Predictive ML models to **process dynamic scheduling data and discover** the hidden insights
- **Seamless and barrier-free transfer of interoperable schedule data** across the ecosystem is a requirement to provide sufficient schedule data to AI models

VALUE DRIVERS

$ Reduced project Risk

10-20% Reduction in TAM duration risk[1]

$ Reduced project Risk

Reduce risk due to improved focus on planning quality and impacts of resource/ schedule logic

Source: 1. *Previous Accenture Project*

3 Advanced Project Control & Analytics

CHALLENGE

- Projects often lack regular evaluation against past and current events
- Neglecting to assess projects' progress can lead to significant knock-on impacts
- Lack of knowledge transfer from previous projects to subsequent ones

Accurately identify possible schedule slippages, cost overruns and project risks

IMPLEMENTATION

It is assumed that the ILAP standard and Data Exchange has been previously adapted and installed for capital project planning.

- Combine schedule data with other project data such as document control, risk and HSE data, 3D models and engineering data, etc
- Implement an ecosystem project control partner, e.g., Hexagon, Control Tower

DATA SOURCES

- Schedule data located in planning software (e.g., Primavera, Safran) from owner operators and contractors
- Document data in Document control system (e.g., ProArch)
- Risk and HSE data (e.g., Omega360)
- 3D system and engineering data (e.g., E3D)

REALIZATION COMPLEXITY (HIGH)

Data: Required integrations with a large amount of data sources with various degree of standardization

Integrational: Integrating potential project control partner

Organizational: Transforming work process and organizational setups are needed to realize full benefits

Scalability: There exist project control partners present across several industries facilitates scaling to new industries

Stakeholder: Required large change commitment

Time & Resources: Large implementation team for technical work, change management etc.

Technical & Functional: Requiring lots of new functions

360° VALUE (HIGH)

Financial: Major optimization of resource use during the different project phases will have large positive financial effects

Sustainability: Improving resource utilization due to optimized schedules reduces emissions

Bringing to life advanced project control and analytics via potential applications identified throughout the assessment of ILAP use cases

3 ADVANCED PROJECT CONTROL AND ANALYTICS

Enabled by the **seamless exchange of schedule data** ILAP

	Analysis of Project Performance Across All Disciplines	4D Digital Twin	Standardize Project KPIs
Solution	A $5B Greenfield project proved that enhanced schedule data exchange increased the project analytics and overall efficiency	Feeding schedule data to 4D digital twins can help identifying logical gaps in schedules and to train workers before they enter the field	Schedule data together with advanced analytics can enhance benchmarking and help identify the most value adding KPIs
Value Drivers	$ ***$4.3M OPEX*** *savings annually* $ *Realized **35% savings** in logistics costs* $ *Realized **75% reduction in lead times***	$ *Less personnel on platform* ✚ *Less personnel on platform, enabled proactive training of activity*	$ *Enhance proactive risk mitigation* $ *Less time needed to set up metrics for projects*
	Source: Accenture credential	*Source*: Operator Interview	*Source*: Operator Interview

Additional Potential Applications from Interviews:

- Project portfolio schedule analytics
- Schedule Baselining
- Integrate schedule risk and cost risk models
- Standardize project financial and contract data

Integrated project management & controls for a $5B Greenfield Oil Refinery Project to monitor project and manage risk

REFERENCE CASE – ANALYSIS OF PROJECT PERFORMANCE ACROSS ALL DISCIPLINES

Reference Case

CHALLENGE

The client was having **difficulty in measuring project performance** across operator, EPC contractors, sub-contractors and suppliers due to inadequate standardization**, information sharing** and project controls mechanism. The result was a that they had only a limited view on schedule, cost and risk analytics **across disciplines.**

APPROACH

Accenture was tasked to tackled the challenge. They implemented advanced project control and analytics based on schedule data from across their network of capital project. The controlling mechanisms and tools reshaped project management and enhanced the information exchange across project, however the information exchange was limited.

RESULTS

- The project enabled insightful analysis like project progress trend, completion projections, engineering deliverable analysis, procurement schedule analysis
- Advanced project control and analytics could have been further enabled by **seamless and barrier-free transfer of interoperable schedule data** across the ecosystem

Potential use case application for ILAP

VALUE DRIVERS[1]

$ Reduce operational & maintenance costs

$4.3M OPEX savings annually

$ Reduced capital project cost

35% Savings in logistics cost

$ Reduced operational & maintenance costs

75% Reduction in Procurement lead time

Source: 1. *Previous Accenture Project*

4 Dynamic Project Reporting

CHALLENGE

- Decision making is often slow
- Commonly multiple versions of truth for project schedules
- Reporting is restricted to machines (e.g., desktops in offices)
- Safety tracking is reactive and unsystematic

Ensure all stakeholders are provided with needed information to promote effective collaboration

IMPLEMENTATION

It is assumed that the ILAP standard and Data Exchange has been previously adapted and installed for capital project planning.

- Implement third party solutions such as AVEVA to enable connected worker and efficient sharing and digestion of project information
- Develop new tools and features, that makes input/ output of schedule data possible for connected workers, visualized in self service portals

DATA SOURCES

- Schedule data located in planning software (e.g., Primavera, Safran) from owner operators and contractors
- Data located in connected worker tools

REALIZATION COMPLEXITY (High)

Data: Utilization of existing data sources

Integrational: New integration with connected worker tools, existing and new information portals

Organizational: Changing how schedule data is consumed across the organization, requiring process and organizational changes to get full effect of the improvement

Scalability: New features should easily scale within the organization, across companies and even across industries

Stakeholder: Requiring large change and financial commitment across several organizations

Time & Resources: Including a sizeable development team, and training workers outside the planning and scheduling domain, increase the complexity of this use case

Technical & Functional: Developing new features, by software suppliers or by ILAP itself, increasing the complexity of this use case

360° VALUE (Medium)

Financial: Faster reporting, and lower threshold to view and understand schedule data will make better plans. Lower amount of manual work needed to create and distribute reports

Bringing to life dynamic reporting via potential applications identified throughout the assessment of ILAP use cases

4 DYNAMIC REPORTING

Enabled by the **seamless exchange of schedule data** ILAP

	Schedule data available for "connected workers"	Dynamic Reporting Dashboards	Self Service Portal for Reporting
Solution	Connect workers with devices to interact with dynamic schedule enables alignment of who is doing what, where and when	Go from reading 300 pages long PDF reports to find what you use in a couple of clicks using dynamically updated dashboards	Utilizing report generation tools to effortlessly extract up-to-date information required, eliminating the need for manual intervention
Value Drivers	$ *Reduced nonproductive labor hours* *Enhanced risk mitigation with data of higher quality*	$ *Reduced Non-Productive Labor Hours due to faster consumption of reports* $ *Reduce Project Schedule Risk due to earlier better visibility in where the shoe pinches*	$ *Reduced Non-Productive Labor Hours due less waiting time on reports* *Reduce Project Schedule Risk due to more up-to-date reporting*
	Source: Operator Interview	*Source*: Operator Interview	*Source*: Operator Interview

Additional Potential Applications from Interviews:

- Include GPS data in schedules

OFFSHORE NORGE

CONCLUSION & RECOMMENDATIONS

ILAP provide strategic & technical value to the energy industry now and in the future - Offshore Norge should continue to pursue its development

CONCLUSION

Use cases enabled by ILAP and its potential ecosystem:


Efficient Exchange of Schedule Data


Integrated Activity Planning


Predictive Scheduling


Advanced Project Control & Analytics


Dynamic Project Reporting

Assessment key takeaways:

1. ILAP is **solving the widely experienced challenge** of inefficient schedule data exchange across the NCS, both between and within organization, both in traditional capital projects, but also for operation and maintenance, modifications, turnarounds and drilling and well interventions.
2. ILAP is **unique in that there exist no overlapping scheduling initiatives globally** across not only oil and gas but the capital projects space as verified by Accenture's global network, however ILAP could consider pursing strategic partnerships with trusted initiatives in this space.
3. ILAP **adheres to global leading strategic digitalization roadmaps** of the WEF, Industrie 4.0 and Konkraft, however ILAPs business model must take into consideration the challenges presented in "platforms and ecosystem" digitalization blueprint.
4. ILAP's **need is overwhelmingly well recognized in both the planning domain and the project management domain** at the largest organization the NCS in which they have good interest and are eager to implement, however effort should also be directed to increase interest beyond Norway.
5. ILAP is **applicable and scalable beyond oil and gas** and outside the NCS, globally and across capital projects, however it should be considered that scope expansion beyond the NCS is outside Offshore Norge's area of focus.
6. ILAP well positioned for a pilot, meeting strategic objectives, however both further operational and technical **work is necessary to ensure readiness for production and scaling.**
7. ILAP has invested in developing a technical tool that fits with global strategic initiatives, however **key components required for implementation have not been prioritized** e.g., change processes, training, contracting.

ILAP provides strategic and technical value by resolving pressing challenges and advancing digitalization on the Norwegian Continental Shelf and Offshore Norge should continue to invest in ILAP's advancement

There are many operational and tactical choices that need to be defined for ILAP to succeed

KEY SUCCESS FACTORS

BUSINESS MODEL

ex: Organization type (for-profit or not-for-profit), organization structure (board membership, business direction and priorities), scope of the customer base (global, oil & gas, energy industry or all capital projects) and project focus (construction phase or O&M)?

COMMERCIAL MODEL

ex: Service offerings, pricing, will software be open source, what about transfer agreements?

FOUNDATIONAL ARCHITECTURE

ex: What is the core interoperability architecture, information flows and security?

SERVICE DEFINITIONS

ex: What are the core services and what are add-on services? How do value-added-service providers interact with the service? What are the core service API definitions?

TRUST MODEL

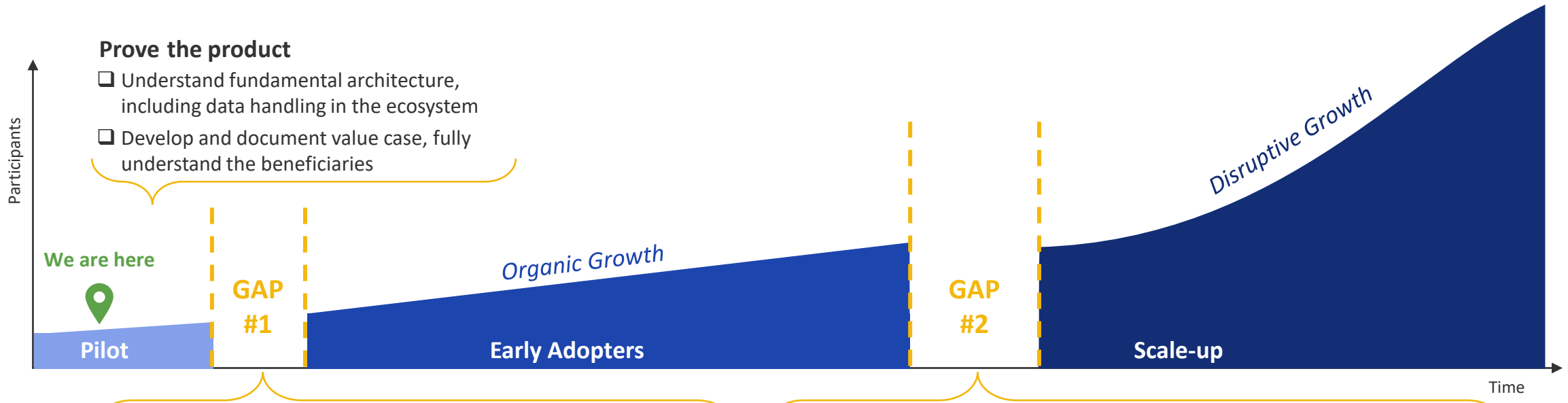
ex: How is trust established and maintained on the security, reliability, cost and performance of the services?

PARTNERSHIP MODEL

ex: How does ILAP work with value-added-service providers and other partnership arrangements?

More focus should be placed on designing the business and maturing the operating model in the near term to position for long term success

ACCENTURE'S ILAP ROADMAP



Should be completed before moving on to the next phase

Operationalization

- ❑ Finalize the ILAP concept
- ❑ Finalize the service model
- ❑ Communication strategy
- ❑ Service delivery model
- ❑ Necessary maturing of technical solution

Position to scale

- ❑ Market Study and Business Plan
- ❑ Pitch deck and funding strategy
- ❑ Partnership strategy (Implementation, Standard initiatives, Value added services)
- ❑ Develop fully scalable technical solution

Accenture recommends continuous ILAP focus, on proving the product in and the operationalization of ILAP

NEXT STEPS

1

Ensure ILAP's current capabilities are tested and validated in Pilot

A. Prove the Product

- Understand fundamental architecture, including data handling, in different ecosystems
- Develop and document value case, fully understand the beneficiaries

2

Based on Pilot learnings; ensure ILAP's continuation in the short to medium term

B. Finalize he ILAP Concept

- Determine ILAPs core services
- Finalize fundamental architecture
- Assess organizational type, structure, and affiliation with Offshore Norge

C. Finalize the Service Model

- Evaluate competitive landscape and define value proposition
- Determine pricing and revenue model
- Develop communication strategy
- Develop service delivery model / processes

D. Mature Product

- Necessary maturation of the architecture and operating model
- Establish and structure product roadmap
- Establish integration strategy and procedure

3

Turn attention to position for long term growth of ILAP

E. Define Service and Partner Strategy

- Service partners vs. own development
- Partnership with other standardization initiatives
- Implementation partner

F. Secure Funding

- Conduct market study and develop business plan
- Craft business case/pitch deck and determine funding strategy

G. Further Mature Product

- Develop fully scalable architecture and operating model
- Standardize the requirements to the users of ILAP, e.g., processes, contracts

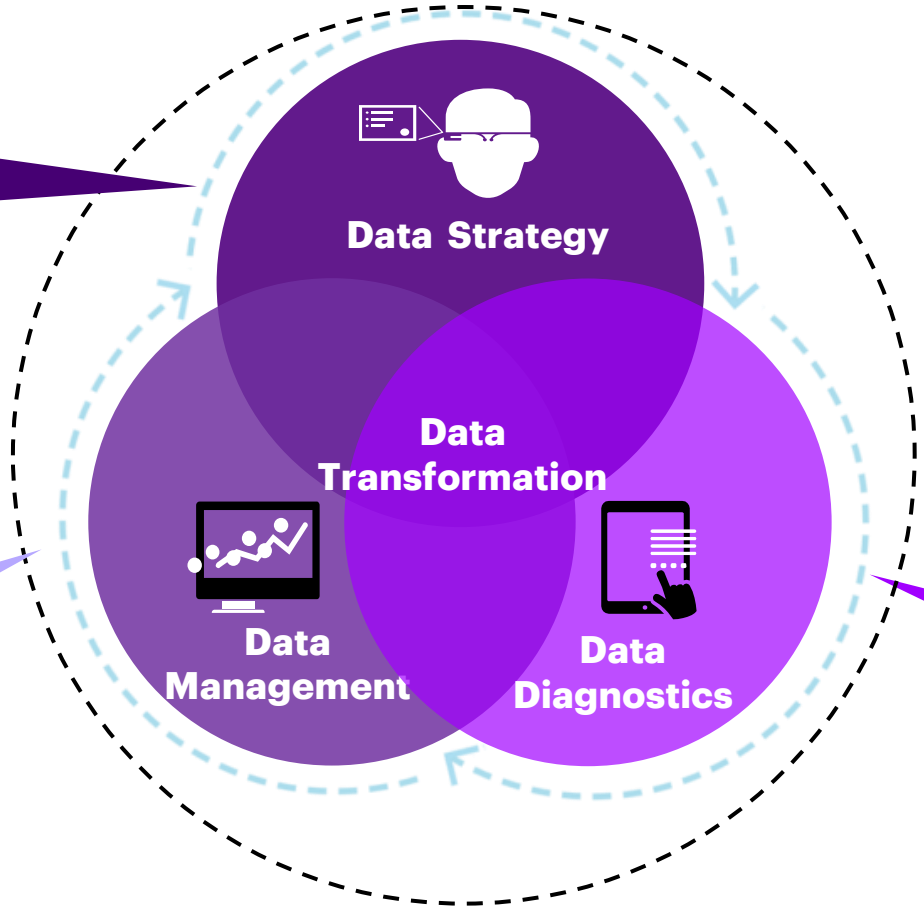
OFFSHORE NORGE

HOW ACCENTURE CAN HELP

Assist in piloting, integrating into existing architectures, documenting value, and advancing ILAP's business development.

ACCENTURE'S STANDARD FRAMEWORK FOR DATA TRANSFORMATION PIVOTED ON MASTER DATA GOVERNANCE...

- Data Standards
- Data Stewardship
- Data Ownership
- Data Certification
- Data Policies
- RACI
- Issue Management



- Build
- Data architecture
- Data Flow
- Data Enrichment
- Data Quality
- New Data Registration

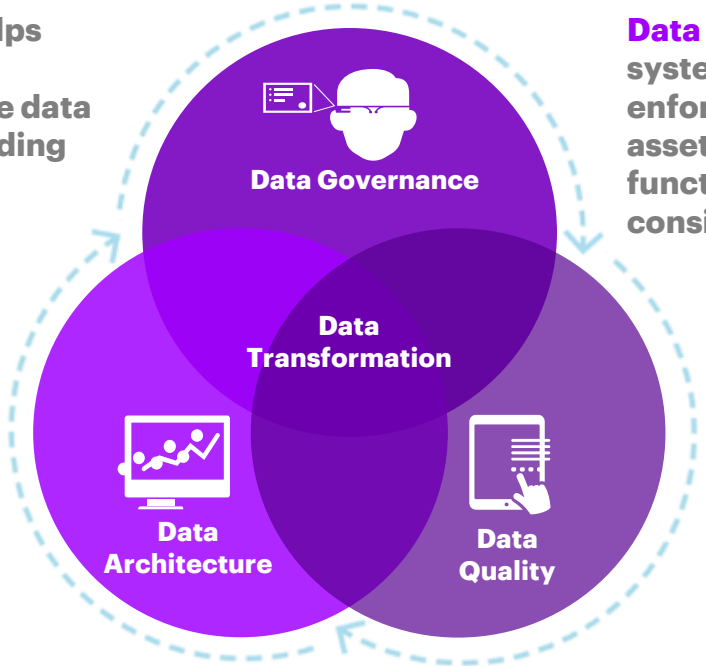
- Rule based Data Quality Diagnostics
- Key Performance Indicator Analysis
- Leading Practices Benchmarking
- Holistic Reporting
- Logical Data Models

Master Data Governance

MASTER DATA MANAGEMENT (MDM) SERVICES

Offerings

Data Transformation helps define a standardized approach to homogenize data and transform as per leading industry practices

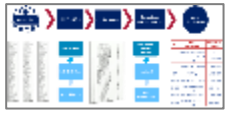


Data Governance establishes a formal system of accountability designed to enforce proper management of data assets and the performance of data functions to ensure data is consistently defined and used

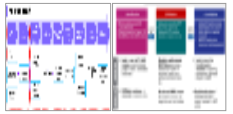
Data management strategy & architecture enables a company to treat data as a corporate data through proper Master Data and Metadata Management

Data quality diagnostic is performed to assess the quality of data based on defined rulesets as per industry leading practices to support business, system and technical requirement of organization

Key Assets

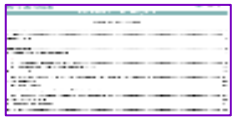


Asset Hierarchy Manager Tool



Data Standard Templates

Data Doctor (Asset Data Diagnostic) Tool



Data Management Playbook

PoV: Master Data Management in Industry X.0

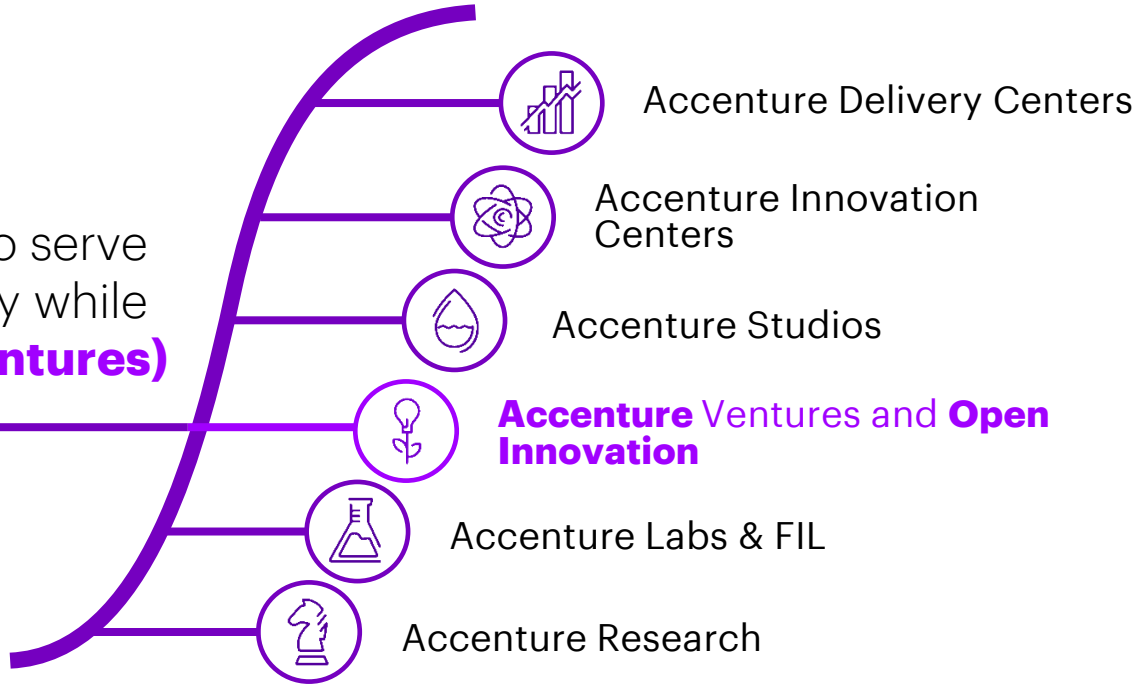
Outcomes

Ever.

- Increased Compliance
- Improved Enterprise Data Quality
- Improved Reporting Efficiency
- Improved efficiency of Operations planning
- Reduced Material Costs

ACCENTURE VENTURES AND OPEN INNOVATION
AN ESSENTIAL LINK OF THE INNOVATION ARCHITECTURE

Focused on **growth stage vendors (OI)** ready to serve our clients and bring the best-in-class technology while keeping an eye on **early-stage revolutions (Ventures)**



Experiment

Build & Develop

Connect & Orchestrate Ecosystem

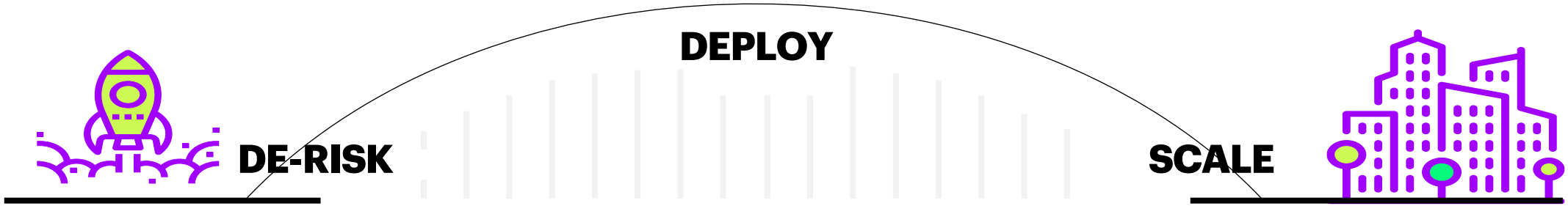
Partner & Invest

ACCESS TO THE GLOBAL INNOVATION ECOSYSTEM AND PROVEN METHODOLOGY

Accenture Open Innovation is creating the **bridge** into the startup ecosystem to accelerate innovation and drive growth for our clients through **disciplined startup partnerships** and **strategic minority investments**

START-UPS

GLOBAL 2000 COMPANIES



WHAT DO WE PRODUCE

Startup Ecosystem Scan & Market Overview

Holistic assessment of the startup landscape, tailored to specific business/ product/ service objective.

Startup Capability Assessment

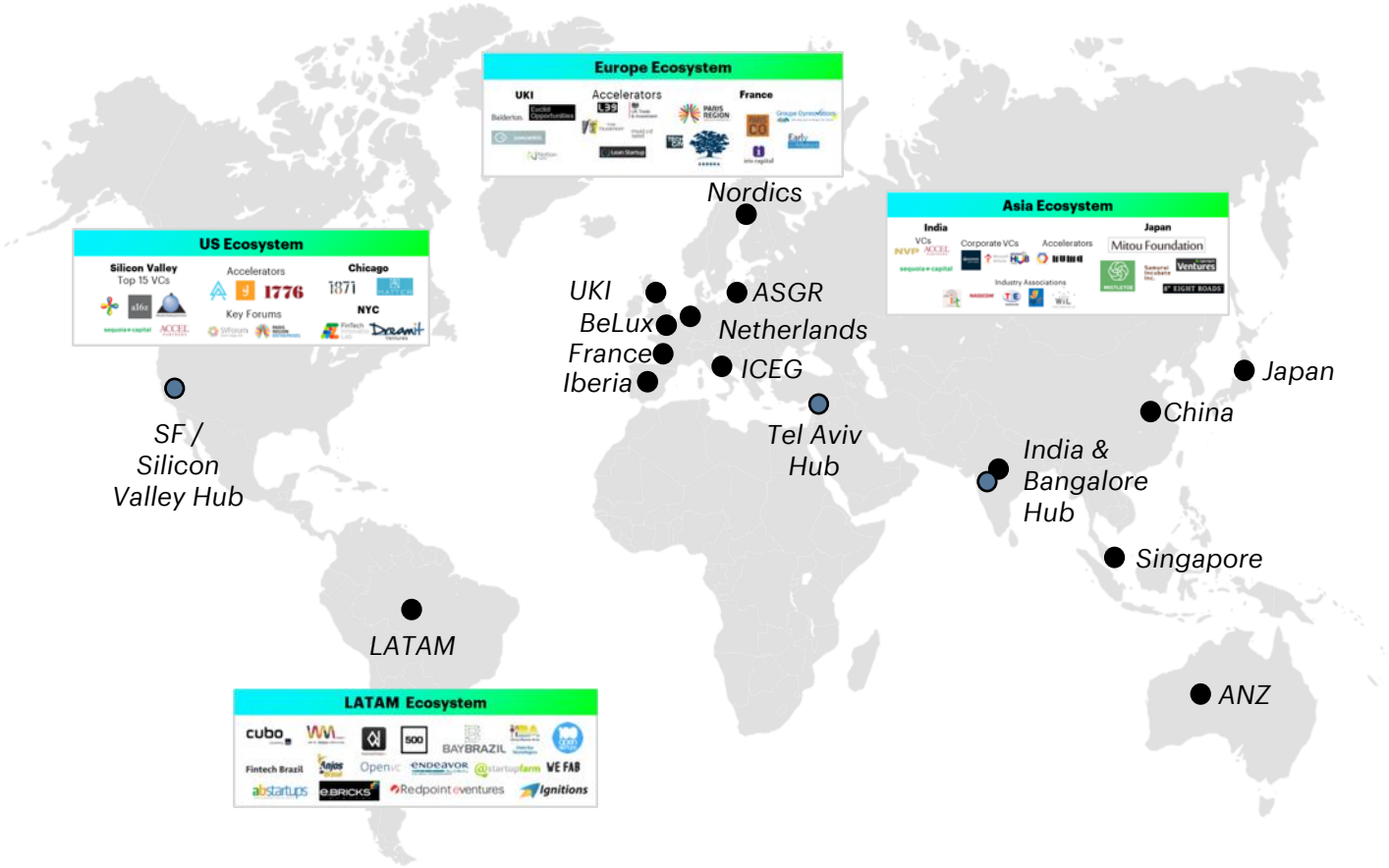
In-depth assessment of start-up articulating its capabilities, use cases and benefits.

Future State Vision & Roadmap

Roadmap illustrating the business/ product/service vision, opportunities that align with that vision and capabilities required to make it a reality.

BENEFIT FROM OUR GLOBAL NETWORK OF CONTACTS AND PARTNERSHIPS

Leveraging our **GLOBAL FOOTPRINT** ...



A **global network** of local ecosystems and innovation centers, **80+** partnerships

A **go-to-market** to "push" and "pull" best-in-class enterprise startups and solutions

Close partnerships with top tier VC and CVC firms

... to become the **INNOVATION PARTNER OF CHOICE**

Global network of skilled professionals

26k+ professionals in Industry X, working together to bring innovation to our clients every day

Platform Expertise

1600+ aws

850+ DASSAULT SYSTEMES

875+ Google

2,000+ Microsoft

900+ ptc

950+ SAP

600+ SIEMENS

Practice Expertise

2,200+ Product Innovation

1,800+ Product Design

1,800+ Product Lifecycle Management

1,700+ Hardware Engineering

2,500+ Software Engineering

1,000+ Internet of Things

900+ Capital Project Management

500+ Manufacturing Operations

2,500+ Manufacturing Execution Systems

600+ Service Operations

8,000+ Cybersecurity

Specialized Acquisition Expertise

130+ APM
T.A. Cook

100+ EAM
Advoco

4,000+ Engineering, Manufacturing
umlaut

70+ PLM, ALM
Di Square

100+ Manufacturing, OT Services
Electro 80

290+ Robotics
Pollux

150+ Digital Manufacturing
Myrtle Consulting

500+ Manufacturing, Cloud-based IoT
SALT Solutions

160+ Digital Manufacturing
Callisto Integration

130+ Embedded Software
ESR Labs

90+ Product Design and Innovation
Vanberlo

50+ Manufacturing & Supply Chain Processes
Silveo

250+ Product Innovation
Nytec

300+ Auto Tech
FutureMove Automotive

150+ IT Architecture
Zielpuls

200+ Manufacturing Execution Sys
ESP

100+ Digital Transformation
Enaxis Consulting

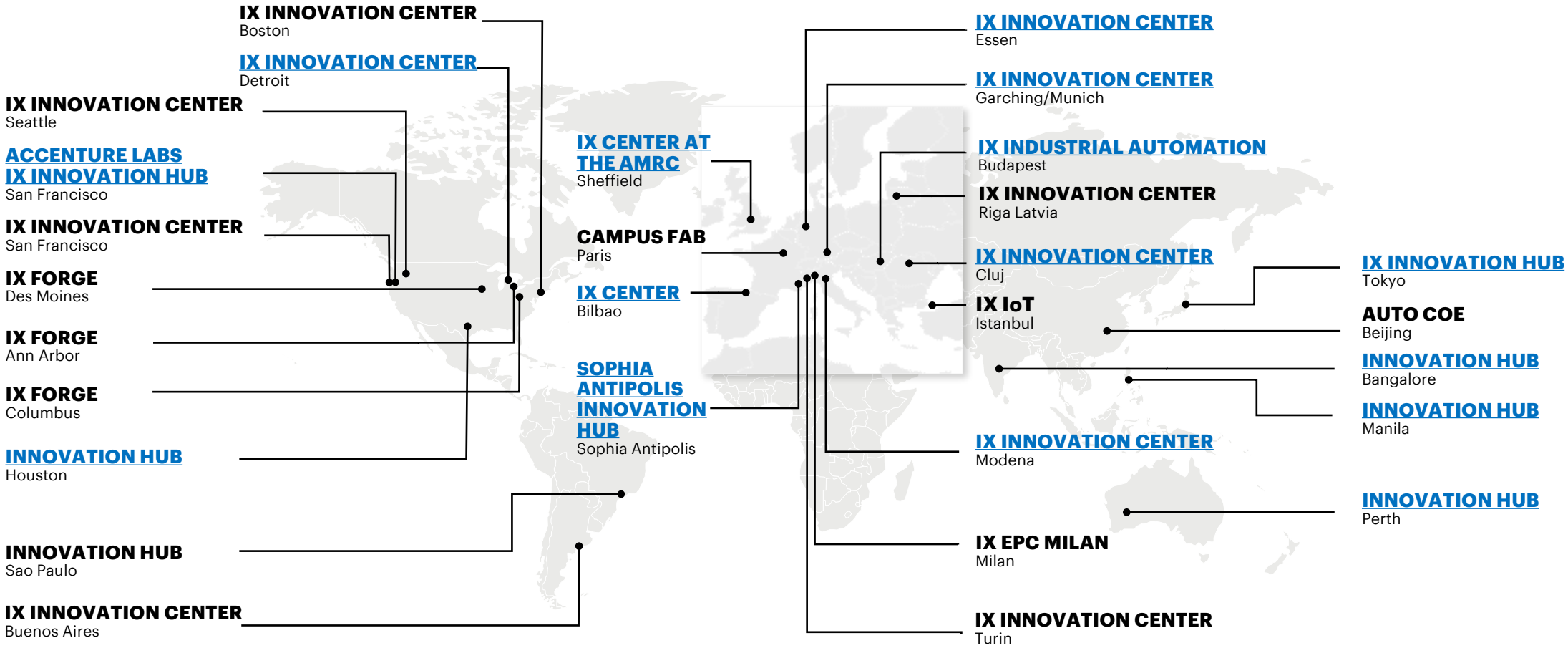
300+ Information Tech & Services
Pillar Technology

40+ Mechanical / Industrial Engineering
mindtribe

100+ Design
designaffairs

50+ Design
Altitude

Our Global Innovation Network supports our Capital Projects agenda



Innovation centers in cooperation with our ecosystem partners (list non-exhaustive)

We continue to strengthen the Industry X family

Key talent, assets and client stories that we infuse in our Industry X narrative

2017	2018	2019	2020	2021	2022
Procurian	**Pillar** Software Engineering (USA)	**FutureMove Automotive** Digital and Mobility Services (China)	**ESR Labs** Embedded Software, Automotive (Germany)	**Pollux** Robotics (Brazil)	**Trancom ITS** Engineering and OT (Japan)
Altitude Product Design & Innovation (USA)°	**designaffairs** Product Design & Innovation (Germany)	**Silveo** Manufacturing & Supply Chain Processes (France)	**Vanberlo** Product Design & Innovation (Netherlands)	**Electro 80** Manufacturing, OT services (Australia)	
Cimation	**mindtribe** Mechanical / Industrial Engineering (USA)	**Nytec** Product Innovation, Hardware Engineering (USA)	**Callisto Integration** Digital Manufacturing (Canada)	**Di Square** PLM and ALM (Japan)	
	Mackevision	**Zielpuls** Engineering, Digital Product (Germany)	**PLM Systems** Product Data in Engineering, Manufacturing (Italy)	**umlaut** Engineering (Germany)	
		ESP Manufacturing Operations, Life Sciences (Ireland)	**SALT Solutions** Manufacturing, Cloud-based IoT (Germany)	**Advoco** Enterprise Asset Management (USA)	
		ENAXIS	**Myrtle Consulting** Digital Manufacturing (USA)	**T.A. Cook** Asset Performance Management (Germany)	
			Arca		

About Accenture

Accenture is a global professional services company with leading capabilities in digital, cloud and security. Combining unmatched experience and specialized skills across more than 40 industries, we offer Strategy and Consulting, Interactive, Technology and Operations services — all powered by the world's largest network of Advanced Technology and Intelligent Operations centers. Our 699,000 people deliver on the promise of technology and human ingenuity every day, serving clients in more than 120 countries. We embrace the power of change to create value and shared success for our clients, people, shareholders, partners and communities.

Visit us at **https://www.accenture.com/us-en/services/industry-x-index**