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Digital Twins – Are they worth it?

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wood.

AVEVA

**“We know what information is required to
get an asset ready for
operations and to maintain through its life –
Wood know the ‘how’, the ‘when’ and the ‘why’,
not just the ‘what’...”**

Areas of expertise:



**Sustainable
Infrastructure**



**Energy
Transition**



**Digital
& Technology**

World leading consulting, engineering and construction company across energy and the built environment.

160+

year history

45,000

people

60+

countries

400

offices

~\$10bn

annual revenue

ENR #1

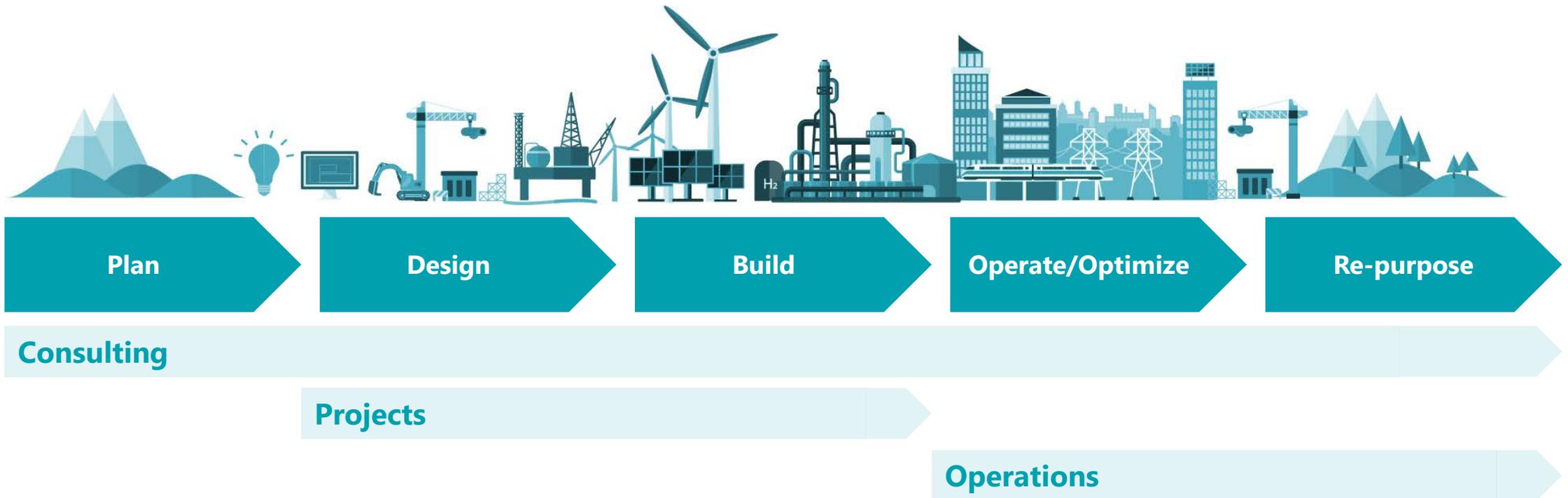
International Design Firm

Connected by our shared values of **care**, **commitment** and **courage**

wood. | **AVEVA**

Wood delivers a lifecycle proposition

Wood's business follows a **lifecycle of solutions** leveraging our expertise in designing, planning and optimizing any facility, asset or infrastructure through to our rich experience in building, operating and re-purposing.



Digital twin – full asset lifecycle

Unlock an asset's data to improve decision making to improve productivity & lower lifecycle costs.



Capital projects



Operating assets



Lifecycle info mgmt



Digital Capture

Core competencies



Domain knowledge



Technology expertise



Information management



Systems integration

Capital Projects

Right-to-left Thinking

Our advisory, strategy and implementation offerings:



Capital projects

Objectives, baselines
& targets

1

Identify, quantify
& prioritise

2

People, processes,
technology – and data

3

Strategic Partner

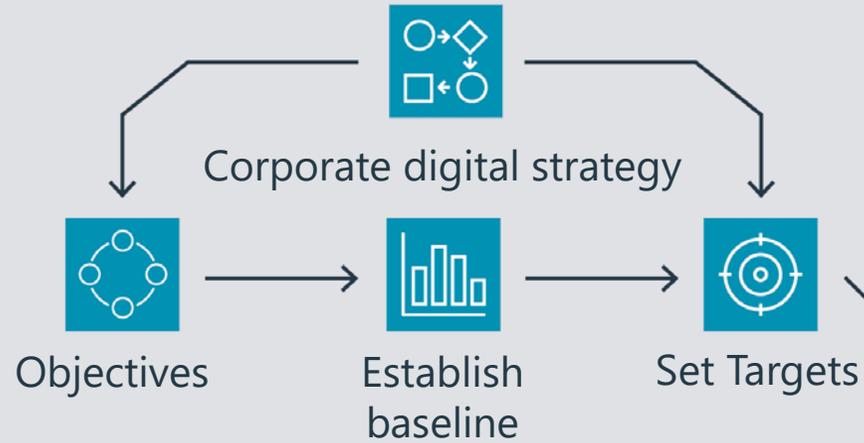
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Digital strategy

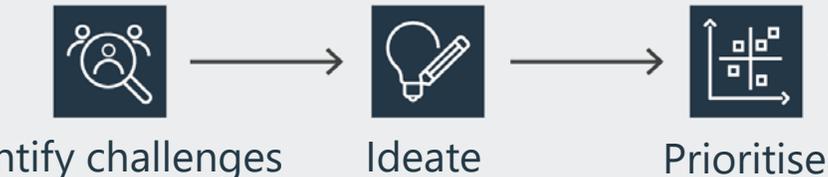
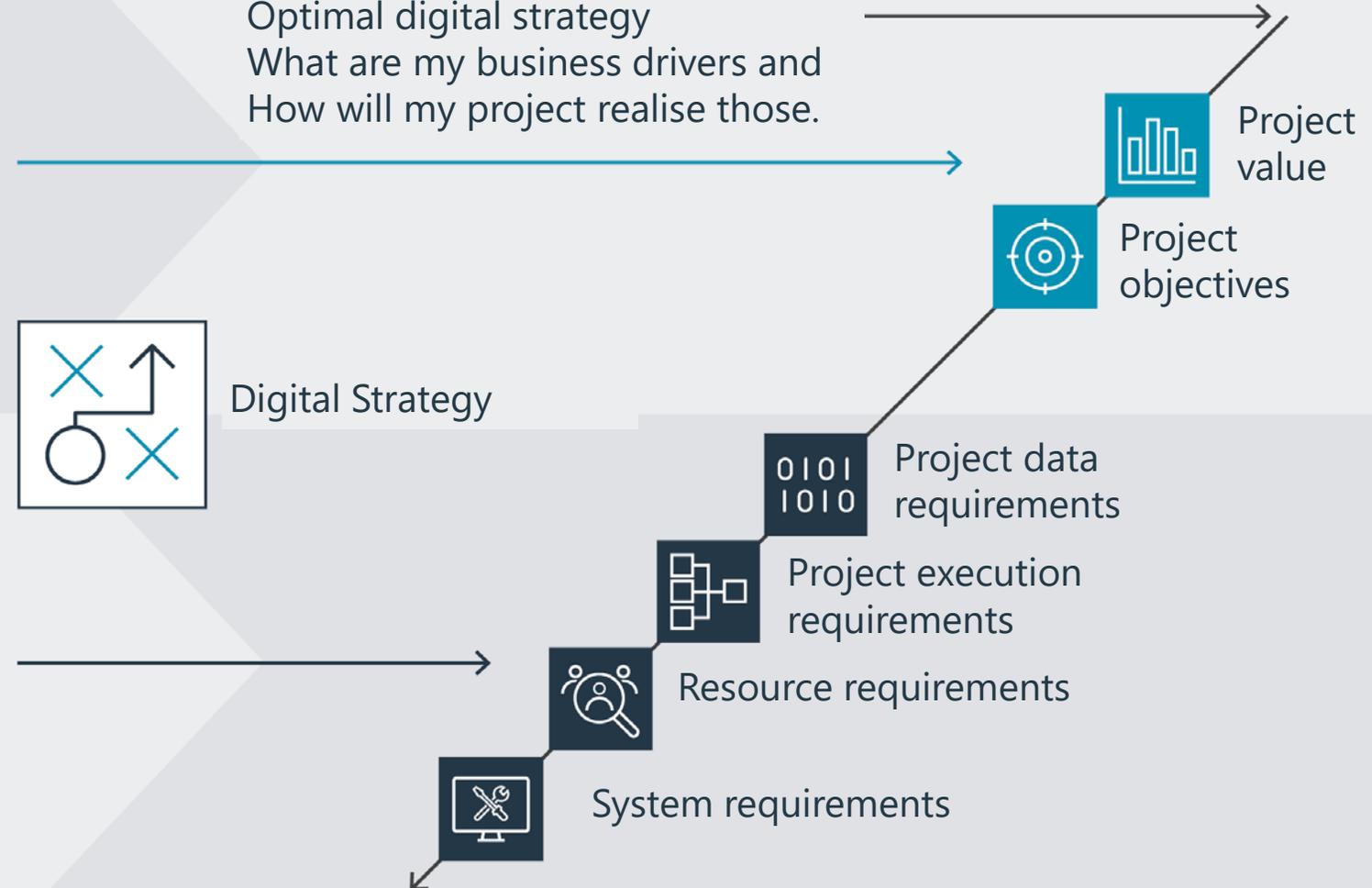
Right to left thinking, combine clients' goals with future-focussed impact & value.

Planning phase



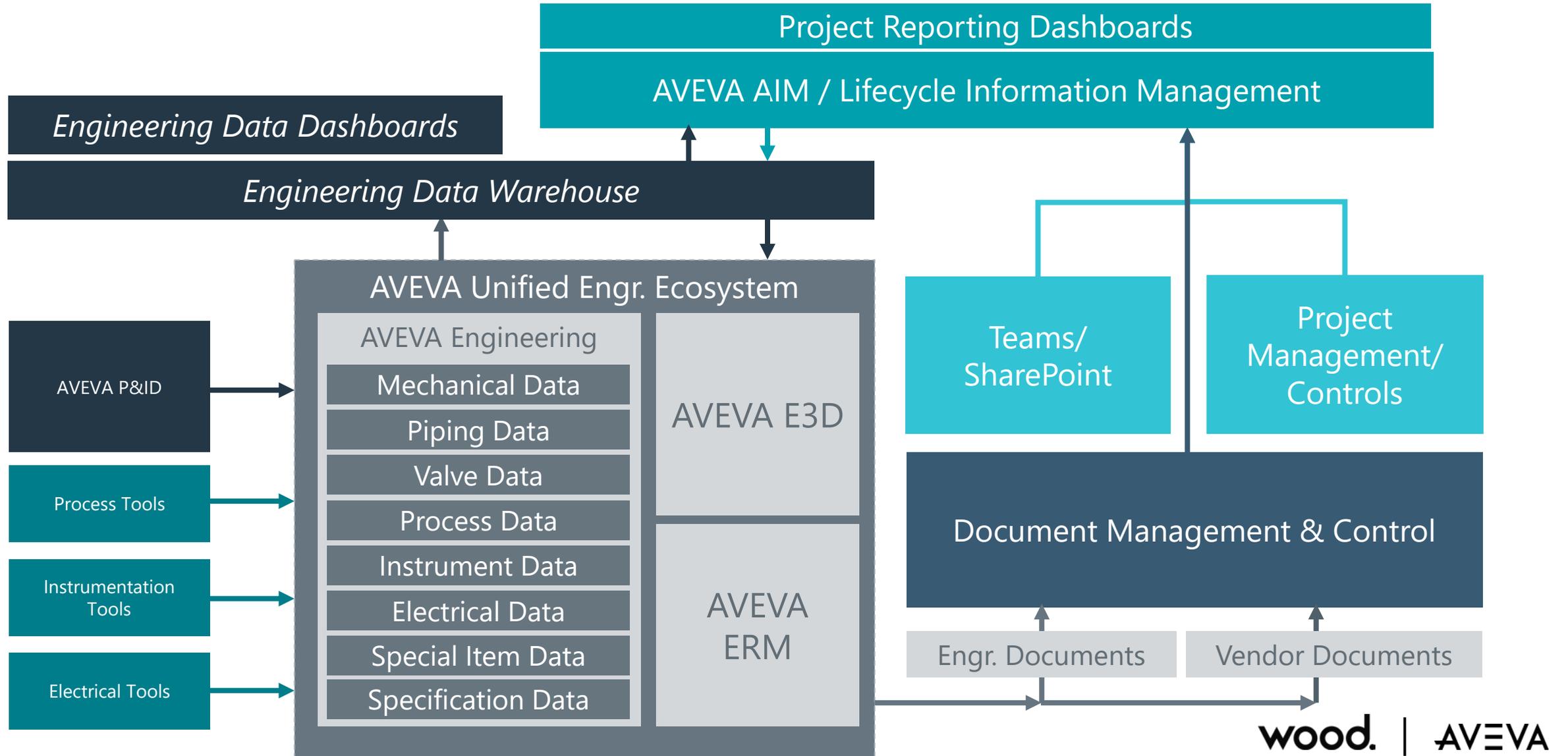
Implementation phase

Optimal digital strategy
What are my business drivers and
How will my project realise those.



CoLab co-creation workshops

Capital Projects - Integrated System Map



Digital twin for capital projects

Balance CAPEX & OPEX according to clients' needs.



Improved strategy means improved efficiency

5%

Up to 5% shorter info. search time

15%

15% reduction of MTBF for equipment

70%

Up to 70% improvement in asset reliability

35%

35% reduction of manual input

Operating Assets

Stay Competitive

Our advisory, strategy and implementation offerings:



Operating Assets

Objectives, baselines
& targets

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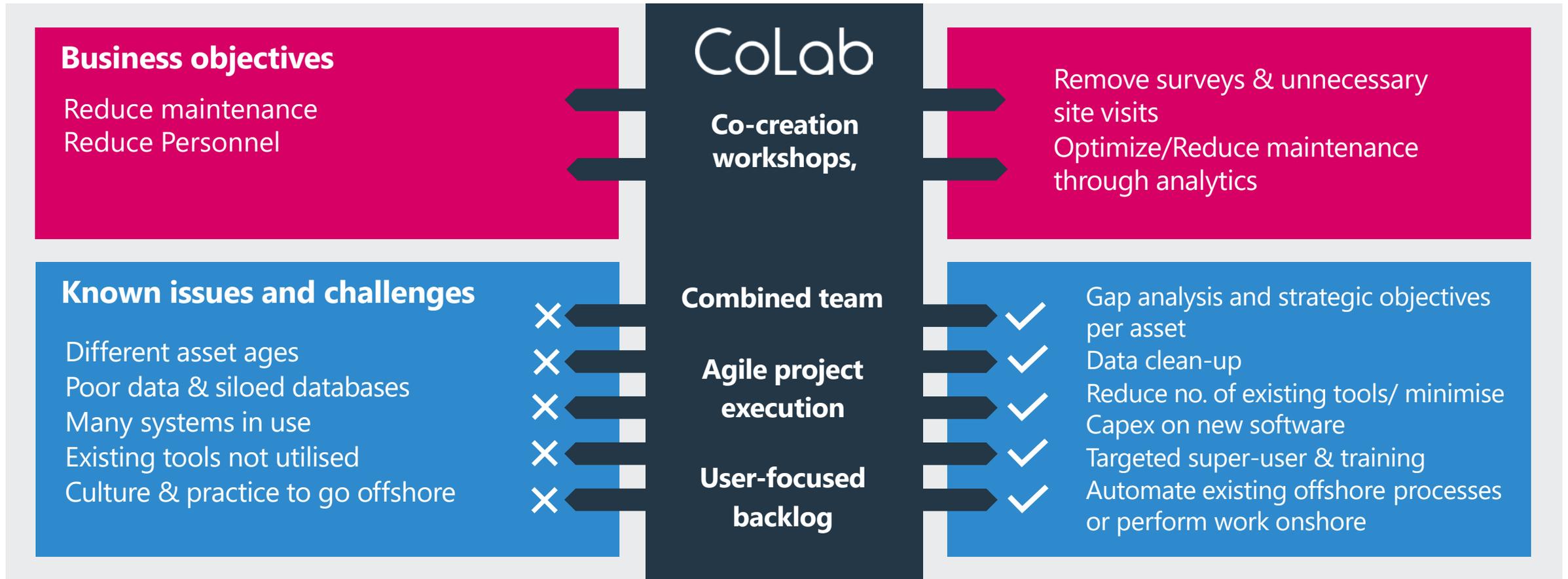
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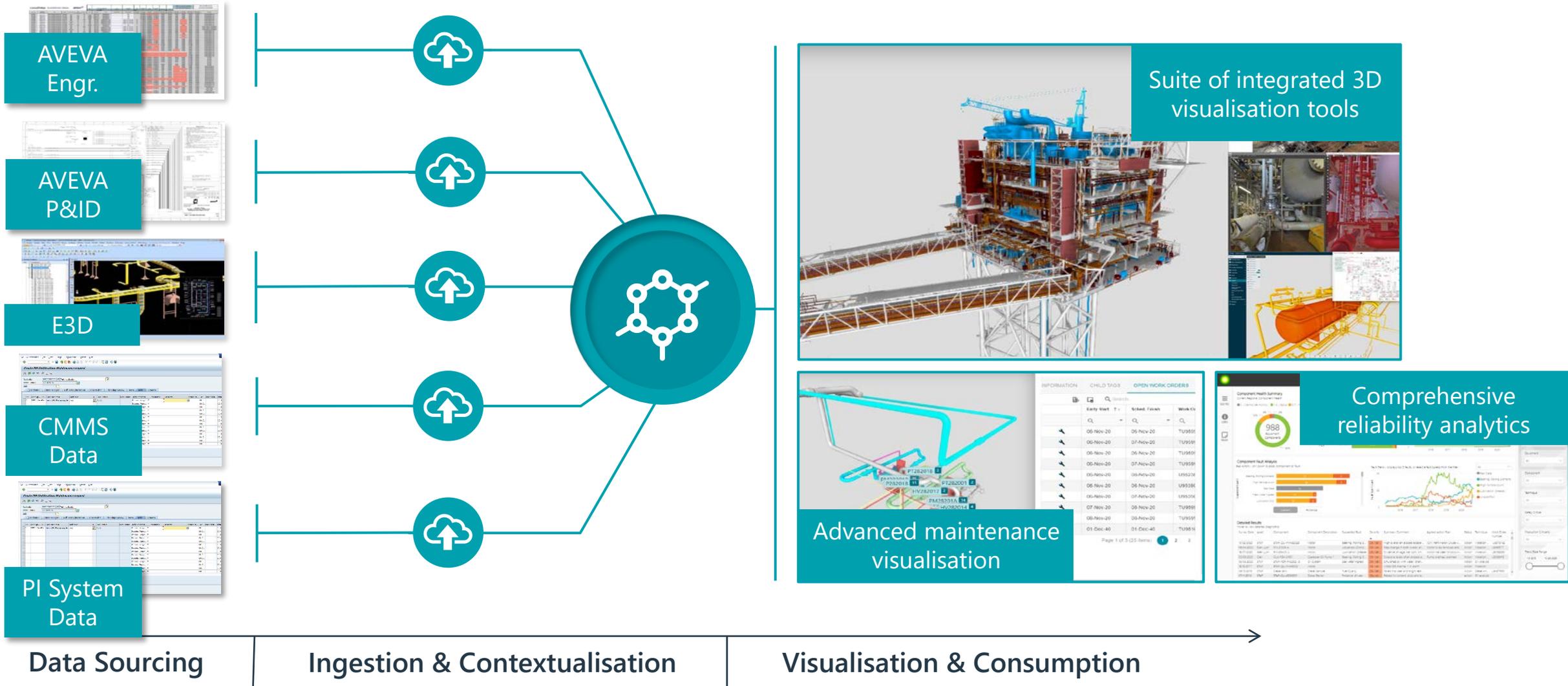
Strategic Partner

Operating Assets: Case study offshore digital twin

Limited ops budgets with reluctance means must prove value early before scaling out.



Operating Assets – Case Study Data workflow



Case study: Offshore digital twin value delivery

Flexible approach to solve variety of operation issues, including maintenance resourcing.

Problem

Client resource shortage for maintenance plan created a maintenance backlog.

Solution

Reduce offshore mobilisation

- Eliminate all unnecessary mobilisation
- Move planners onshore
- Minimise need for offshore surveys

Fix maintenance backlog

- Perform backlog analytics
- Deliver new maintenance strategy
- Create the Reliability Compass to use performance data

Direct Savings

In-direct value

\$28.5M Total agreed value to client in year 1 & 2

Reduced days offshore
\$4.88M

Survey removal
Remote permitting

Reduced days offshore
\$1.26M

Survey removal
Remote permitting

Reduced engr. & construction hours
\$16.74M

Flowline cost reduction 20%
Flowline schedule reduced 4 weeks
POP Time safely reduced by 50%

Reduced engineering & construction hours
\$2.00M

Flowline cost reduction 20%
Flowline schedule reduced 4 weeks
POP Time safely reduced by 50%

\$2m
Total cost to client

Wood resources
\$1.66M

Software purchase
\$722k

Value created

Client investment

Digital capture

Designed to mould around clients' needs:

1



Strategise

In-depth consultation to determine needs & requirements, identify challenges & set targets.

2



Mobilise

Leverage domain expertise to choose best-fit service & technology provider and coordinate digital capture delivery.

3



Realise

Validating info. collected & integrating into a consolidated output aligned with standards.

Digital Capture - Value delivery

Digital capture provides a spatial, intelligent document & asset data integrated model.

Improving:

- Engineering productivity & accuracy
- Construction & commissioning delivery
- Operations & maintenance execution

10x

cheaper document digitisation using A.I. over conventional methods

50%

faster access to trusted information

Lifecycle Information Management

Flexible Framework

Our advisory, strategy and implementation offerings:



Lifecycle info management



Strategy and advisory



Standards & requirements



Processes & procedures



Data collection & Management



Systems & tech. enablement

Strategic Partner **AVEVA** Strategic Partner

Lifecycle Info. Mgmt. - Value delivery

LIM gives you a stable information foundation for the full asset lifecycle. Eliminates the reinterpretation & translation of data between systems.

- Standardisation & Efficiency
- Elements of certain data delivery scopes reduced by up to 50%.
- Reduce time looking for data results in overall 5% efficiency improvement.

Avoiding 1 day of delay to start-up production on a typical asset can be worth:

\$5m

for an oil asset
(based on 60k bpd)

\$150k

for a wind farm
(based on 150MW capacity)

\$8m

for an iron ore mine
(based on 20mt per year)

Outline of recurring challenges

Digital & tech. potential for clients is growing all the time. It can't solve every challenge, but expertise can help to overcome the common ones, & add value where it counts the most.



Reliance on outdated methods



Fragmented information sources



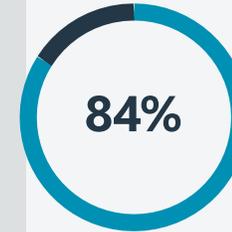
Lack of technology-enhanced processing



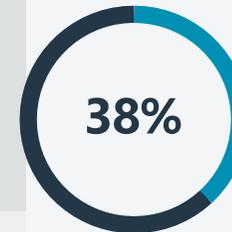
Organisational resistance to change



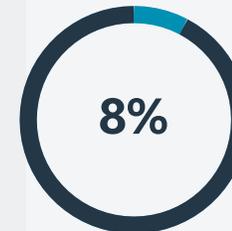
Legacy business models and corporate reluctance



84% of companies fail at digital transformation



Knowledge workers spend up to 38% of time looking for info.



8% current business models will remain economically viable



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 ПАСИБО
 GRAZIE
 МАТУР НУВУН
 ХВАЛА ВАМ
 MULȚUMESC
 PAKMET CIZGE
 GO RAIBH MAITH AGAT
 БЛАГОДАРЯ
 GRACIAS
 МАНАДСАНИД
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 TAK DANKE
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 HATUR NUHUN
 PAKKA PÉR
 PAXMAT CAĠA
 CÁM ƠN BẠN
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 СИПОС

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