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## Enabling agility and innovation with a comprehensive Digital Twin

Presentation for the AVEVA World Summit 2022 San Francisco

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# Cautionary Note

The companies in which Shell plc directly and indirectly owns investments are separate legal entities. In this Presentation called Enabling agility and innovation with a comprehensive Digital Twin “Shell”, “Shell Group” and “Group” are sometimes used for convenience where references are made to Shell plc and its subsidiaries in general. Likewise, the words “we”, “us” and “our” are also used to refer to Shell plc and its subsidiaries in general or to those who work for them. These terms are also used where no useful purpose is served by identifying the particular entity or entities. “Subsidiaries”, “Shell subsidiaries” and “Shell companies” as used in this Presentation called Enabling agility and innovation with a comprehensive Digital Twin refer to entities over which Shell plc either directly or indirectly has control. Entities and unincorporated arrangements over which Shell has joint control are generally referred to as “joint ventures” and “joint operations”, respectively. “Joint ventures” and “joint operations” are collectively referred to as “joint arrangements”. Entities over which Shell has significant influence but neither control nor joint control are referred to as “associates”. The term “Shell interest” is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in an entity or unincorporated joint arrangement, after exclusion of all third-party interest.

## **Forward-Looking Statements**

This Presentation called Enabling agility and innovation with a comprehensive Digital Twin contains forward-looking statements (within the meaning of the U.S. Private Securities Litigation Reform Act of 1995) concerning the financial condition, results of operations and businesses of Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management’s current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Shell to market risks and statements expressing management’s expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as “aim”, “ambition”, “anticipate”, “believe”, “could”, “estimate”, “expect”, “goals”, “intend”, “may”, “milestones”, “objectives”, “outlook”, “plan”, “probably”, “project”, “risks”, “schedule”, “seek”, “should”, “target”, “will” and similar terms and phrases. There are a number of factors that could affect the future operations of Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this Presentation called Enabling agility and innovation with a comprehensive Digital Twin, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell’s products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, judicial, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; (m) risks associated with the impact of pandemics, such as the COVID-19 (coronavirus) outbreak; and (n) changes in trading conditions. No assurance is provided that future dividend payments will match or exceed previous dividend payments. All forward-looking statements contained in this Presentation called Enabling agility and innovation with a comprehensive Digital Twin are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Shell plc’s Form 20-F for the year ended December 31, 2021 (available at [www.shell.com/investor](http://www.shell.com/investor) and [www.sec.gov](http://www.sec.gov)). These risk factors also expressly qualify all forward-looking statements contained in this Presentation called Enabling agility and innovation with a comprehensive Digital Twin and should be considered by the reader. Each forward-looking statement speaks only as of the date of this Presentation called Enabling agility and innovation with a comprehensive Digital Twin, 15-11-2022. Neither [Shell](#) plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this Presentation called Enabling agility and innovation with a comprehensive Digital Twin.

## **Shell’s net carbon footprint**

Also, in this Presentation called Enabling agility and innovation with a comprehensive Digital Twin we may refer to Shell’s “Net Carbon Footprint” or “Net Carbon Intensity”, which include Shell’s carbon emissions from the production of our energy products, our suppliers’ carbon emissions in supplying energy for that production and our customers’ carbon emissions associated with their use of the energy products we sell. Shell only controls its own emissions. The use of the term Shell’s “Net Carbon Footprint” or “Net Carbon Intensity” are for convenience only and not intended to suggest these emissions are those of Shell plc or its subsidiaries.

## **Shell’s net-zero Emissions Target**

Shell’s operating plan, outlook and budgets are forecasted for a ten-year period and are updated every year. They reflect the current economic environment and what we can reasonably expect to see over the next ten years. Accordingly, they reflect our Scope 1, Scope 2 and Net Carbon Footprint (NCF) targets over the next ten years. However, Shell’s operating plans cannot reflect our 2050 net-zero emissions target and 2035 NCF target, as these targets are currently outside our planning period. In the future, as society moves towards net-zero emissions, we expect Shell’s operating plans to reflect this movement. However, if society is not net zero in 2050, as of today, there would be significant risk that Shell may not meet this target.

## **Forward Looking Non-GAAP measures**

This Presentation called Enabling agility and innovation with a comprehensive Digital Twin may contain certain forward-looking non-GAAP measures such as Digital Twin Implementations. We are unable to provide a reconciliation of these forward-looking Non-GAAP measures to the most comparable GAAP financial measures because certain information needed to reconcile those Non-GAAP measures to the most comparable GAAP financial measures is dependent on future events some of which are outside the control of Shell, such as oil and gas prices, interest rates and exchange rates. Moreover, estimating such GAAP measures with the required precision necessary to provide a meaningful reconciliation is extremely difficult and could not be accomplished without unreasonable effort. Non-GAAP measures in respect of future periods which cannot be reconciled to the most comparable GAAP financial measure are calculated in a manner which is consistent with the accounting policies applied in Shell plc’s consolidated financial statements.

# Welcome to AVEVA World



Bart-Jan Ruules

Product Line Manager Engineering & Maintenance

Career overview:

Mechanical engineer

Quality Assurance & Quality Control

Fabrication of Large Process Equipment & Skids and Piping

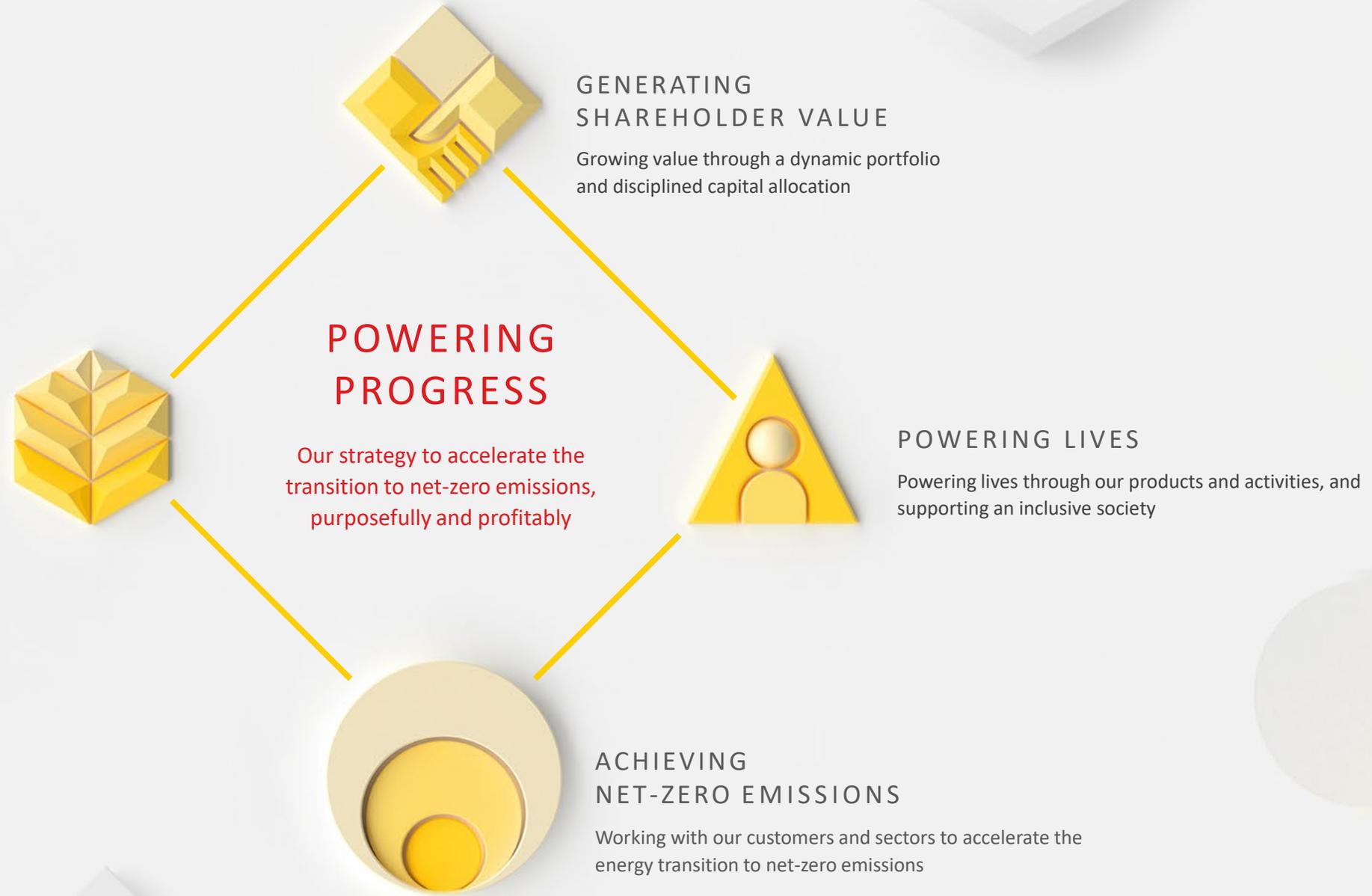
Project Management support and Controls Management

Information Management for Capital Projects, Assets and Digital Twins



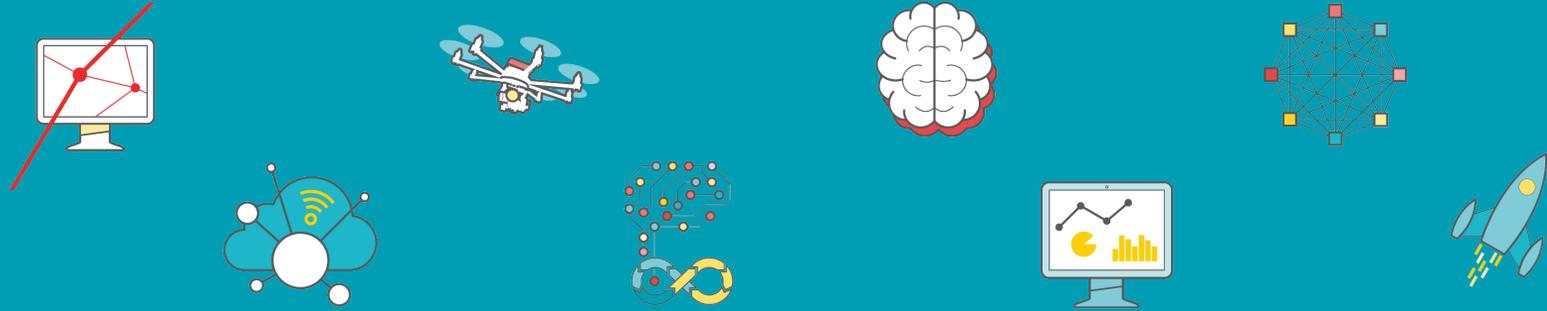
## OUR PURPOSE

To power progress together by providing more and cleaner energy solutions



UNDERPINNED BY OUR CORE VALUES AND OUR FOCUS ON SAFETY

## Inspired by Technology

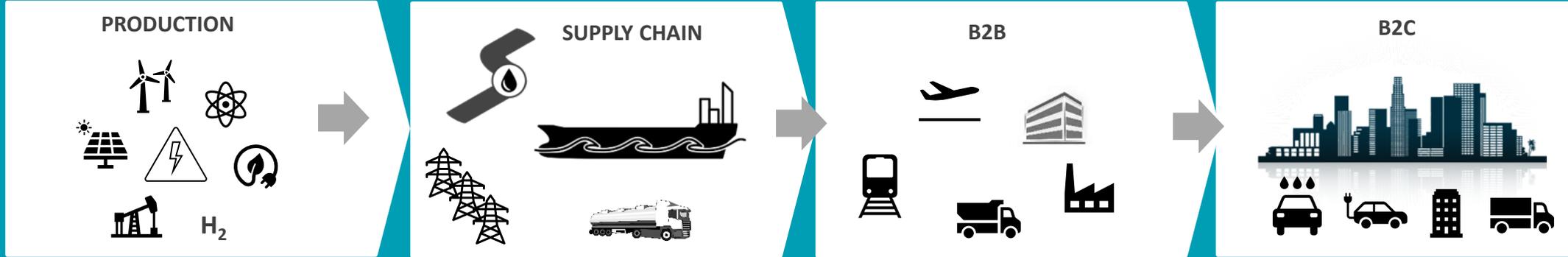


- **Digitalization**
- **Contextualization**
- **Data centricity**
- **Artificial Intelligence**
- **Machine Monitoring**
- **Advanced Machine Monitoring**
- **Blockchain**
- **Dev-ops**

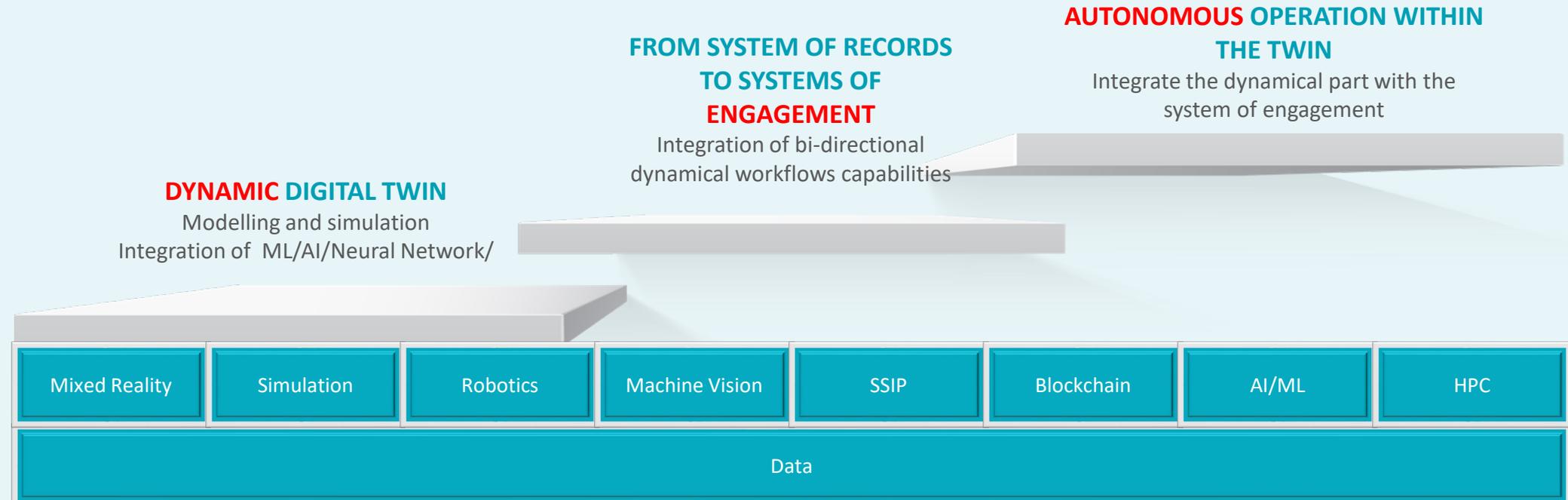
- **Big Data**
- **Machine Learning**
- **UX**
- **Gamification**
- **IoT**
- **Wearables**
- **Remote operations**
- **Autonomous**

# Open Innovation Focus Across Value Chain

Value Chain

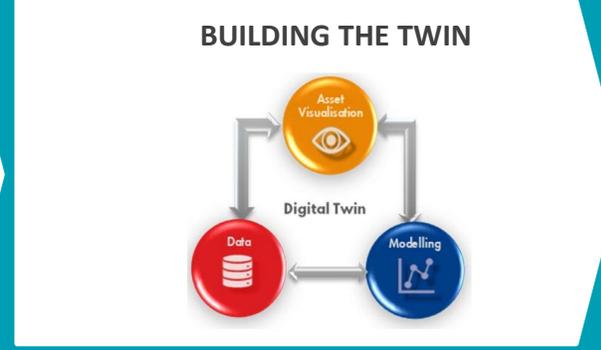
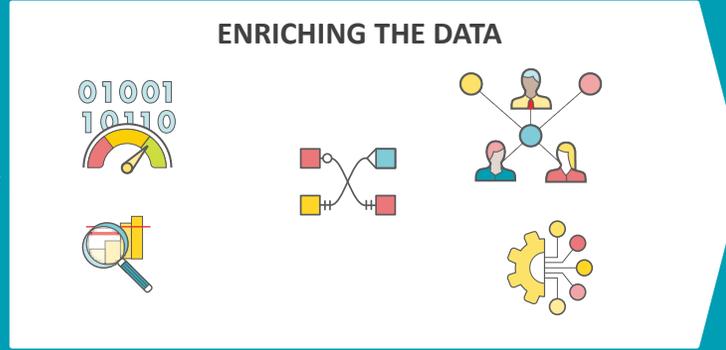
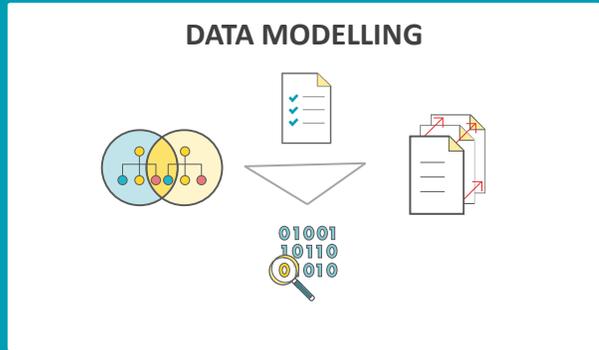


Future of Digital Twin

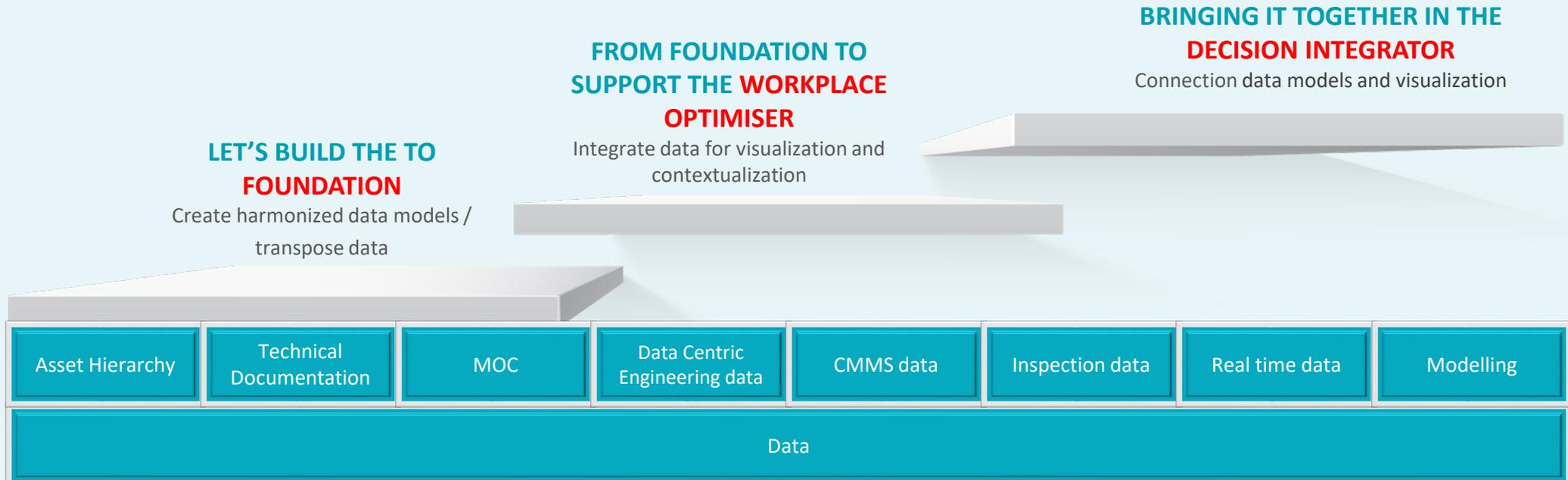


# Building the comprehensive Twin

Value Chain



Digital Twin



## Challenges on the Journey



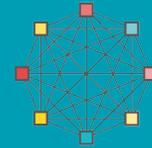
**Non-Standard data Models**

**Maintenance of Digital Engineering Asset Data**

**Transposing Operational Data Silos into data flows**

**Document Centric ways of working vs Data Centric ways of working**

# Data Models



## Integration of Standards

### Industry Standards

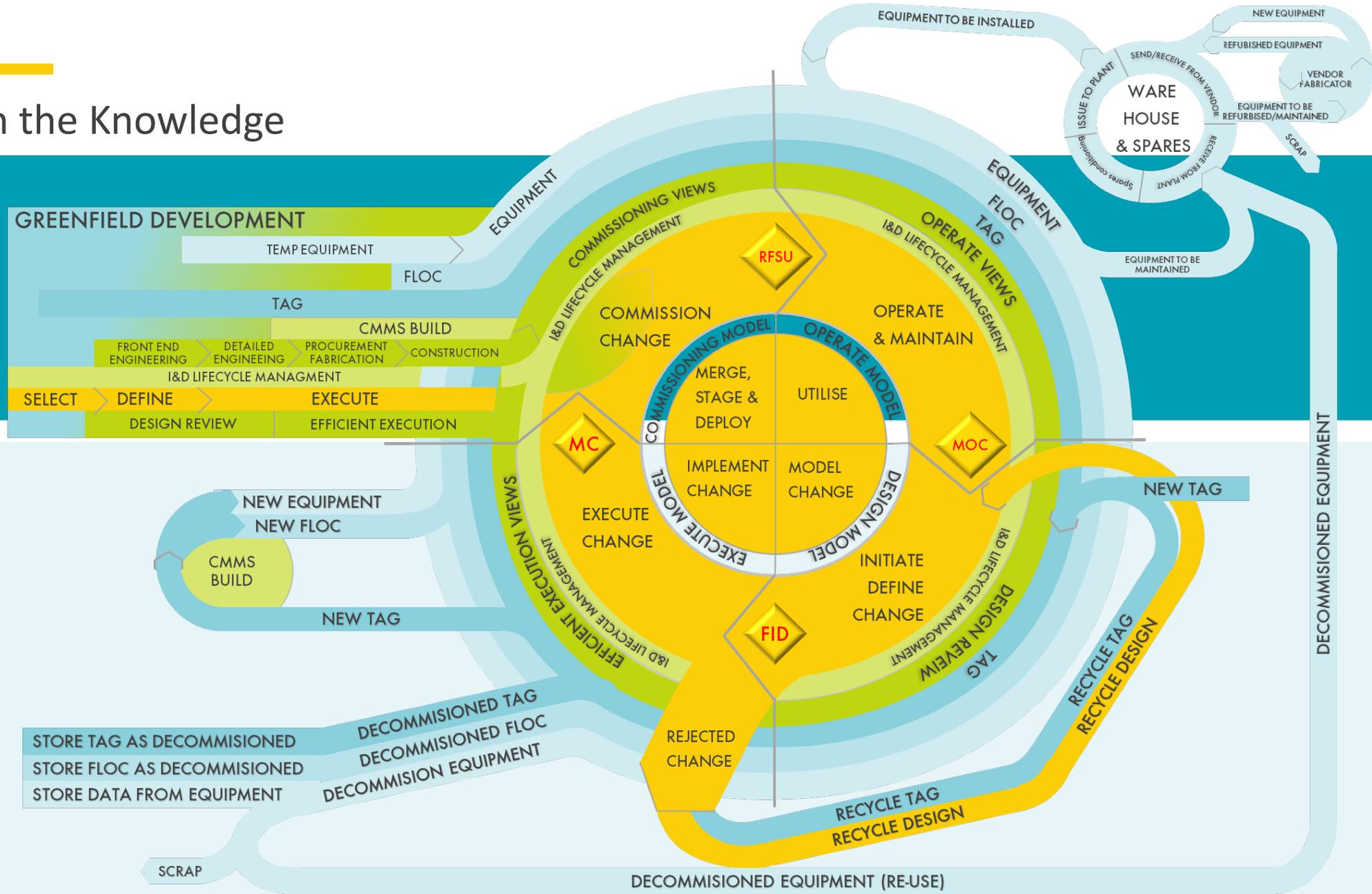
- ISO 15926
- ISO 14224
- CFIHOS

### Corporate Standards

- Design Engineering Practice like Engineer Information Specification



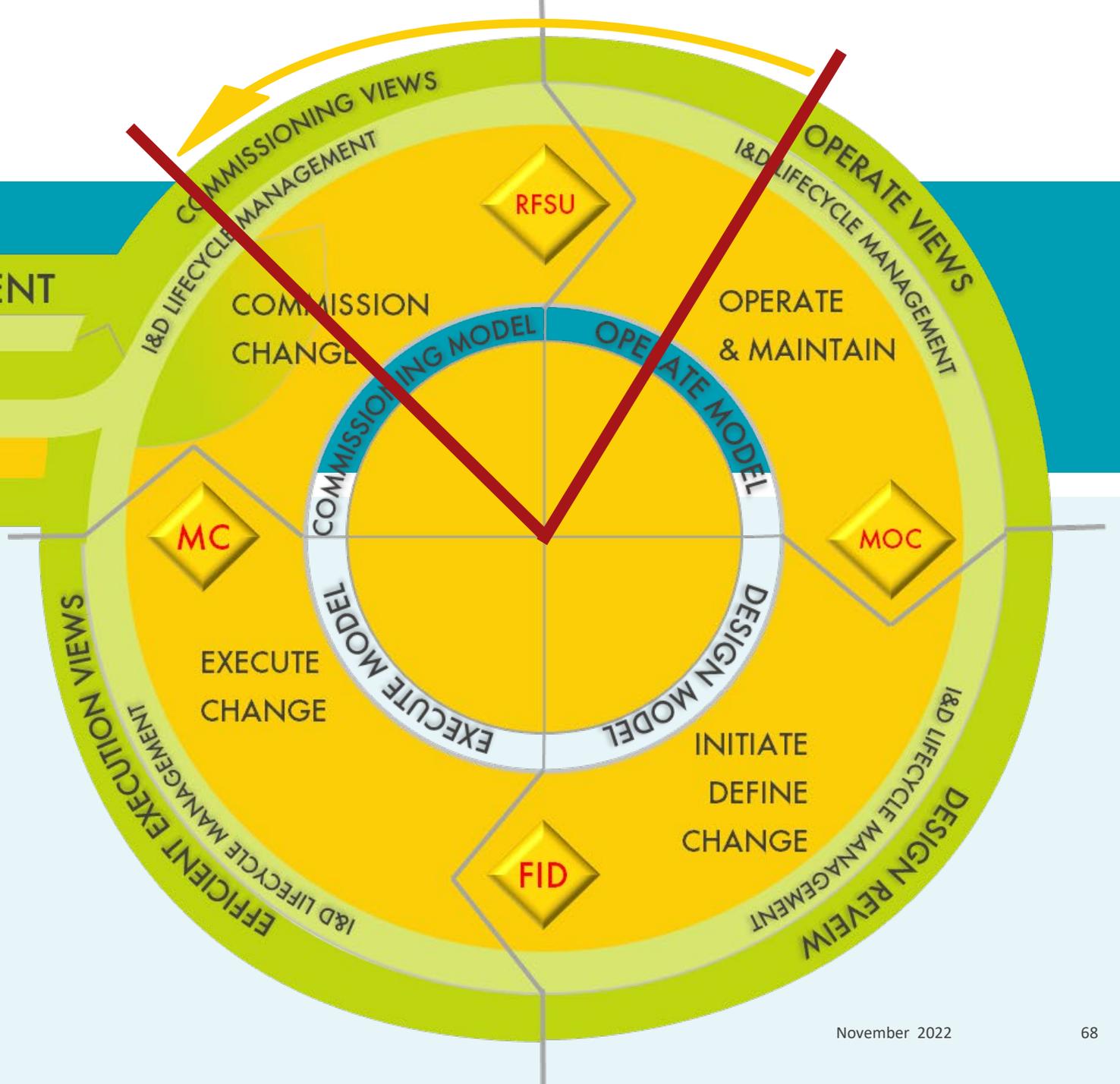
# Deepen the Knowledge



# Data life-cycle simplified



Early data delivery requirements  
Drive integrated end to end thinking



# Powering Progress and Sparking (Y)our Ingenuity



Only our combined intelligence brings us intermediate and long-term solutions

Are you ready to join our end-to-end Journey?

*We have invited AVEVA to participate in our Energy Transition Hub as part of our deeper collaboration*

## Close Out



**ARE YOU READY?**





AVEVA WORLD

SAN FRANCISCO 2022