



AVEVAWORLD
PARIS

AI – Another Digital Twin?

The benefit of merging two technologies ...

October 2024 | M. Blumöhr, M. Resch



Source: Adobe Stock



Source: Evonik - <https://youtu.be/3owf4PUdxao>

That's specialty chemicals. And that's where we're among the best in class.

€15.3 billion

sales*

€1.66 billion

adjusted EBITDA*

€1.17

dividend per share**

10.8 %

adjusted EBITDA margin*

€443 million

expenditure on research & development

€793 million

investments in tangible assets

~ 33,000

employees

109

nationalities

0.79 €

adjusted earnings per share*

* Fiscal 2023, ongoing activities

** Proposal to the Annual General Meeting in 2024

LEADING BEYOND CHEMISTRY
to improve life, today and tomorrow.

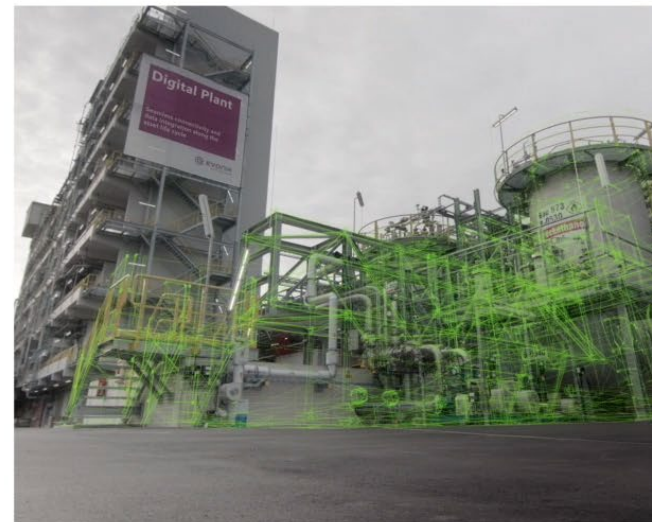
A **digital twin** is a virtual representation of an object or system designed to **reflect a physical object accurately.**

<https://www.ibm.com/topics/what-is-a-digital-twin>

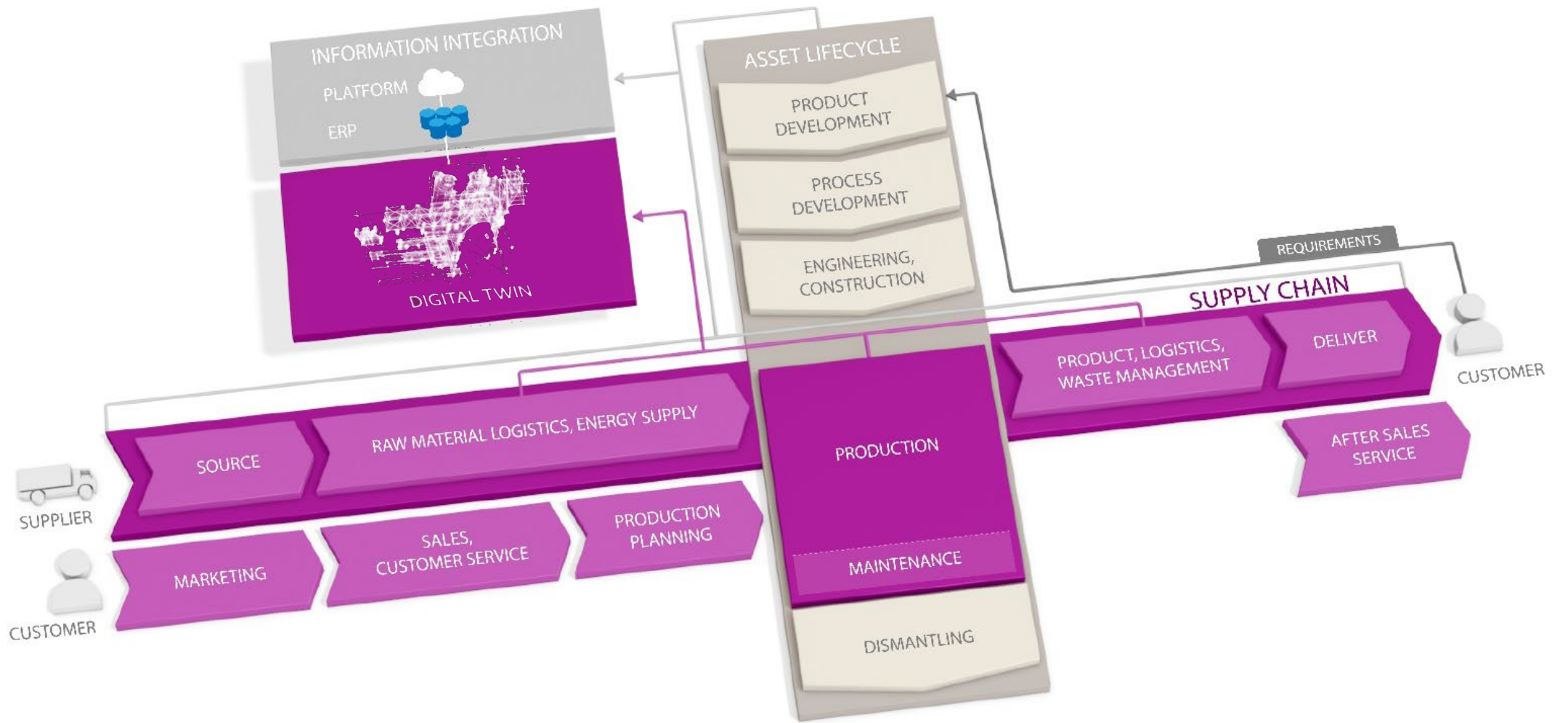
2019



Digital Plant

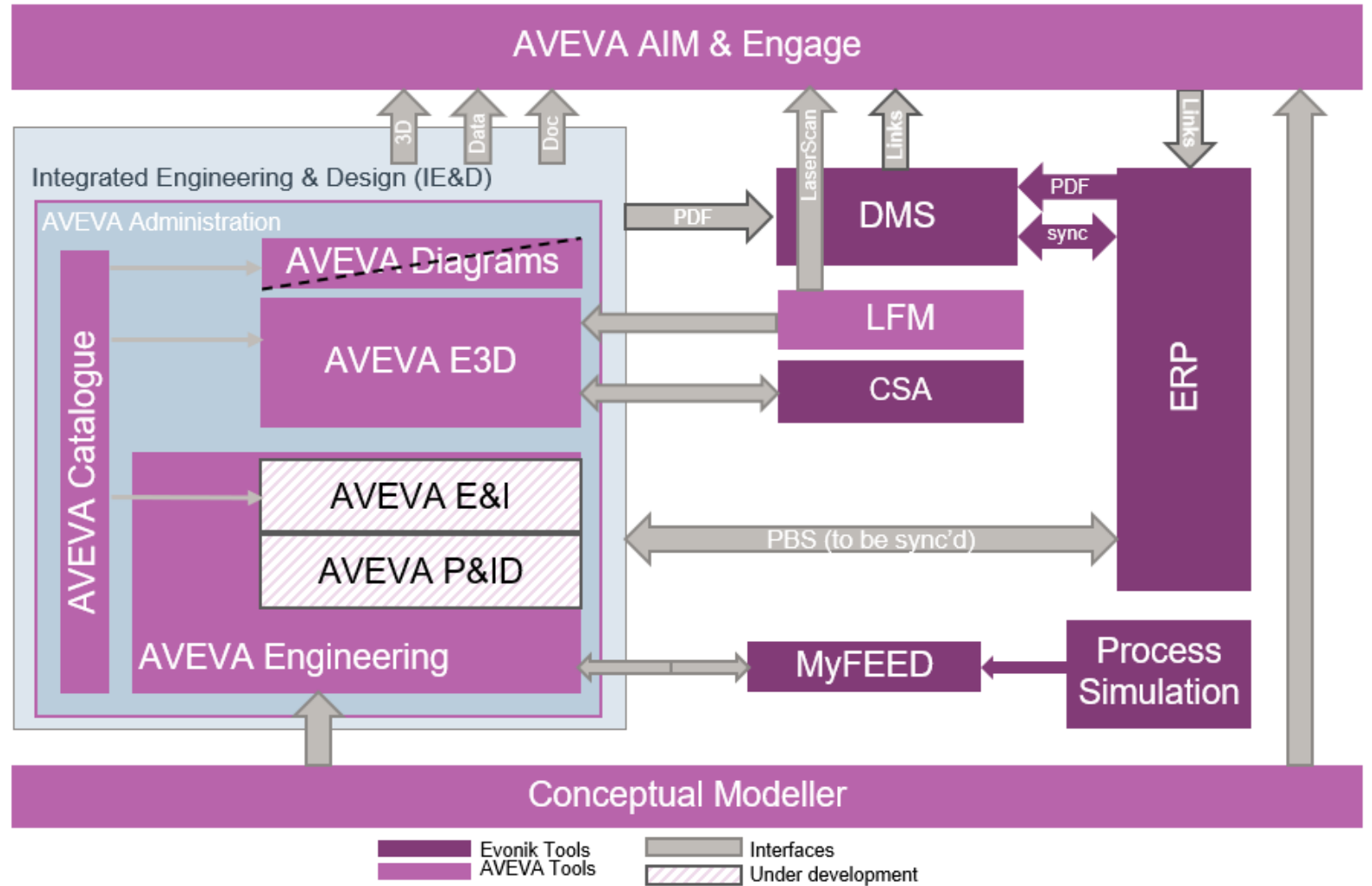


Source:Evonik – Full video: [youtube.de „Evonik Digital Plant“](https://youtube.de/„Evonik Digital Plant“)



Our Digital Twin...

- **Harmonized Data Model**
- Utilization of **AVEVA IE&D**:
 - AVEVA Engineering
 - AVEVA Diagrams
 - AVEVA E3D & LFM
 - *AVEVA E&I / NG P&ID*
- Integration of key applications
 - MyFEED
 - Civil, Structural & Architectural
 - DMS & ERP
- **AVEVA Asset Information Manager**



The “Document Cousin”

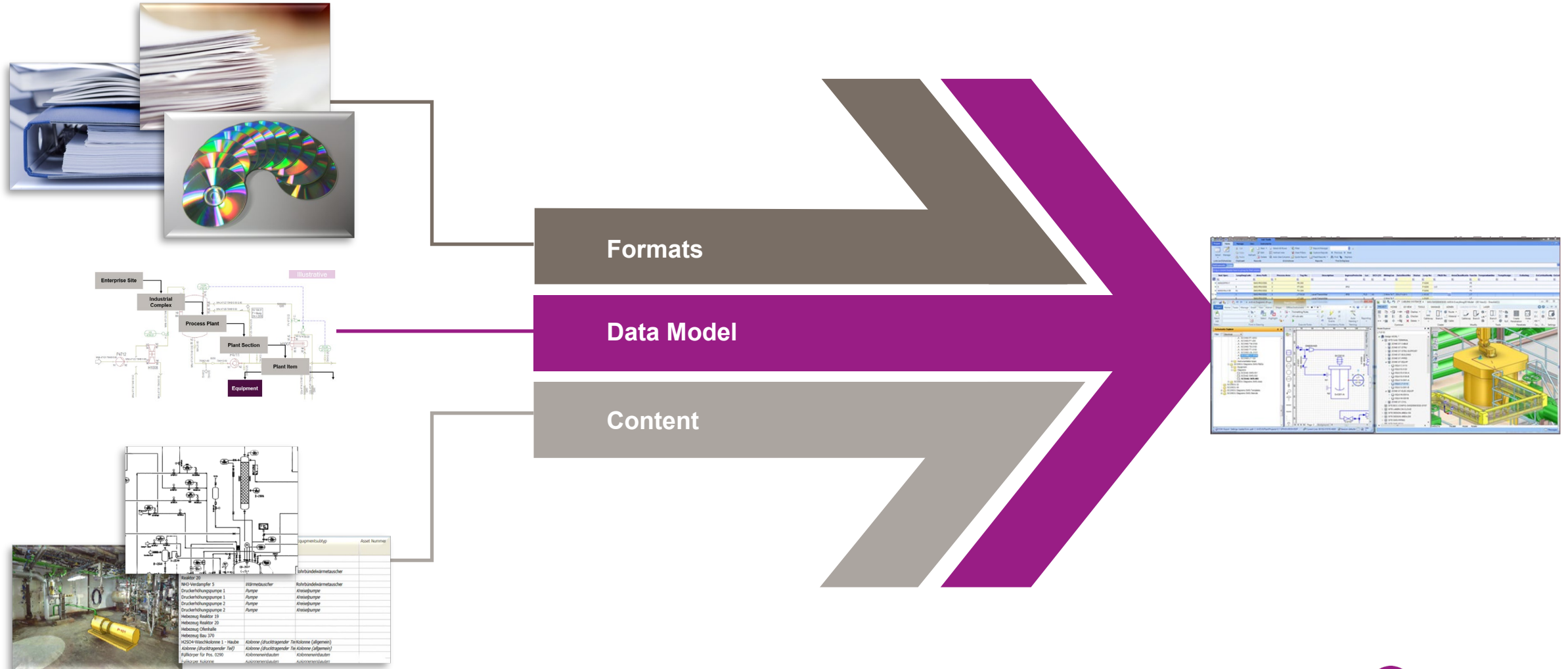


Source: Evonik

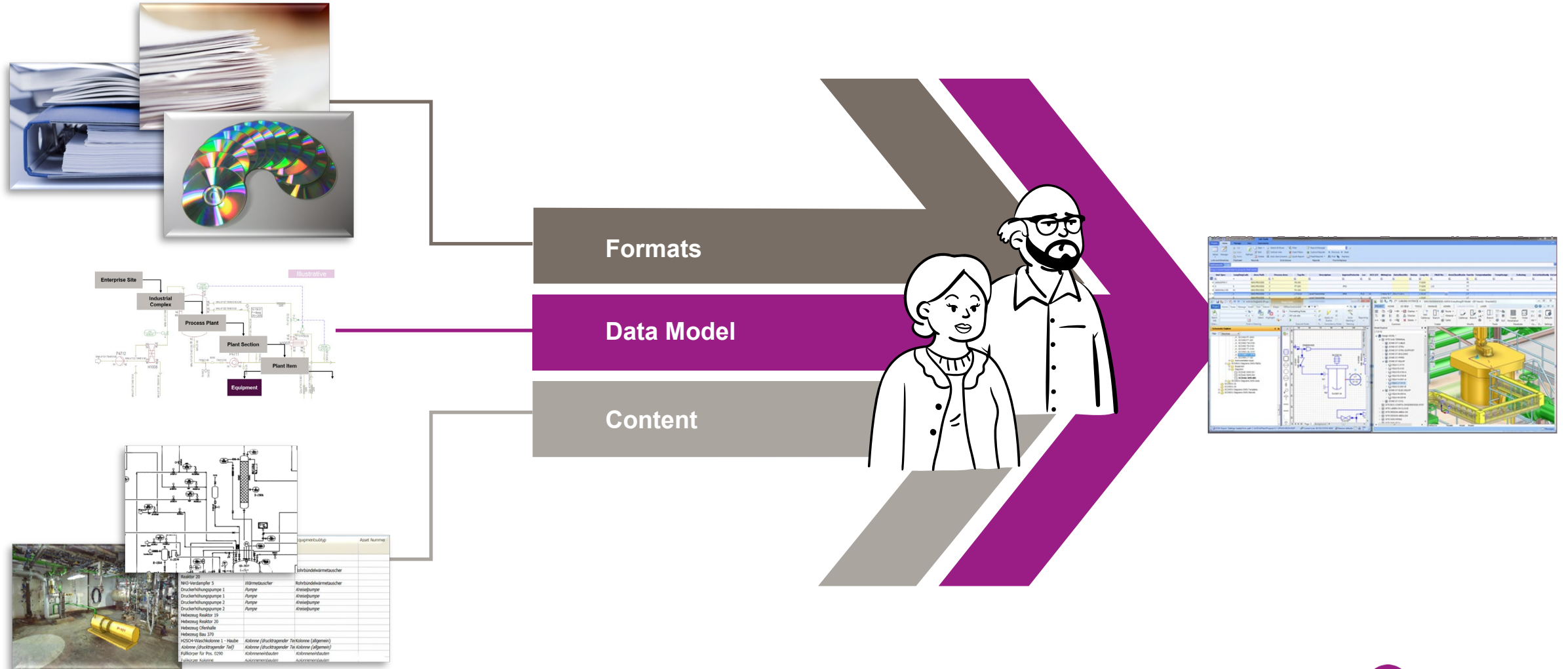


Source: Evonik

Traditional way to migrate documents and data!



Traditional way to a Digital Twin!

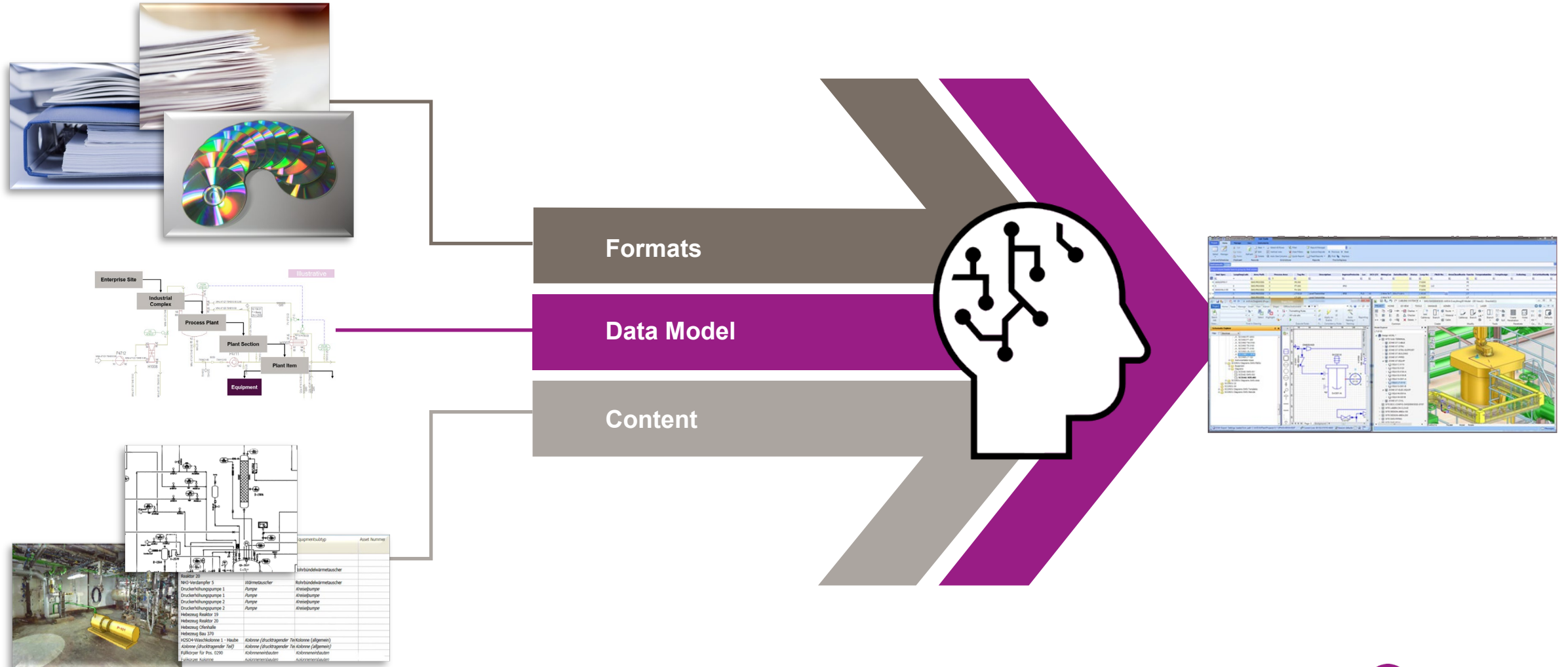


Can Artificial Intelligence be another Digital Twin?

Artificial intelligence, or AI, is technology that enables computers and machines to **simulate** human intelligence and problem-solving capabilities.

<https://www.ibm.com/topics/artificial-intelligence>

The future way to harvest existing documents and data

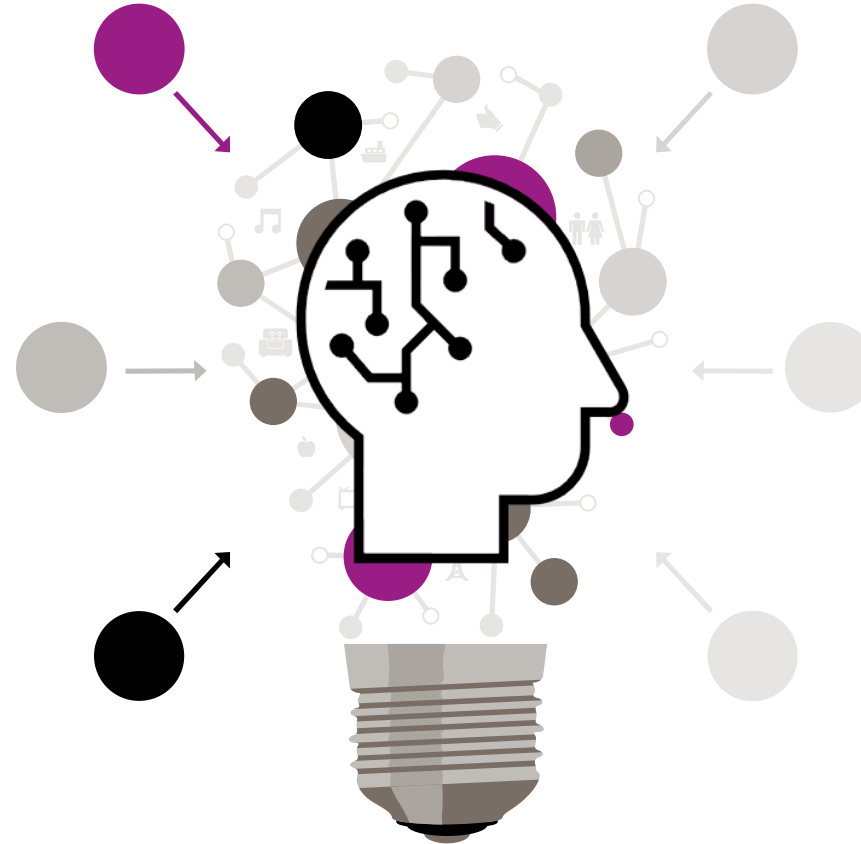


AI based knowledge as significant resource for future applications!

Future migrations can rely on automated processes implemented in AI

Plant modifications may be cross checked and monitored by AI to avoid expensive mistakes

Reduce engineering effort by validation against past decisions and modifications



Generate required (non CAE) documentation for new projects ensuring full consistency

Build training scenarios for operators and maintenance to reflect key plant situations

... and many more ideas in the future.

AI can help build a Digital Twin by learning from the past and help for the future

Advantages of AI



Access...



- Collect existing data and documents from various sources
- Extract information from existing sources

Content...



- Review existing material
- Compare versions
- Validate data points
- Check for potential mistakes

Efficiency...



- ReUse and adopt existing solutions
- Extrapolate and/or scale available content

Sustainability...



- Secure Know-How
- Make information available
- Learn from experience
- Train new employees



**Human engineers
are able to learn
universally, but are
slow.**



**AI is limited to
digital information
and data!**



AI – Another Digital Twin?

Digital Twin + AI!

AI can help to prepare documents and extract data

AI can sort and compare available sources to determine a quality probability

AI can NOT validate against independent sources with non digital information

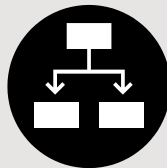
AI can NOT make decisions and be accountable for defined results

3 Steps – to bring Digital Twin and AI together!

Data Model

Build an agnostic Data Model:

- Support Engineering, Maintenance and Operation processes
- Is based on international norms



OneCAE AVEVA Integrated Engineering & Design

Harmonized tool set:

- Use tools which support the independent data model
- Achieve a high level of integration with other tools in the asset lifecycle process



Artificial Intelligence

Build the Digital Twins:

- Collect and convert data
- Compare and identify potential errors
- Conservate knowledge and build new solutions faster



Thank you!



Source: Adobe Stock

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