AI-Driven Product Cost Reduction

April 2026

Tero Hämeenaho

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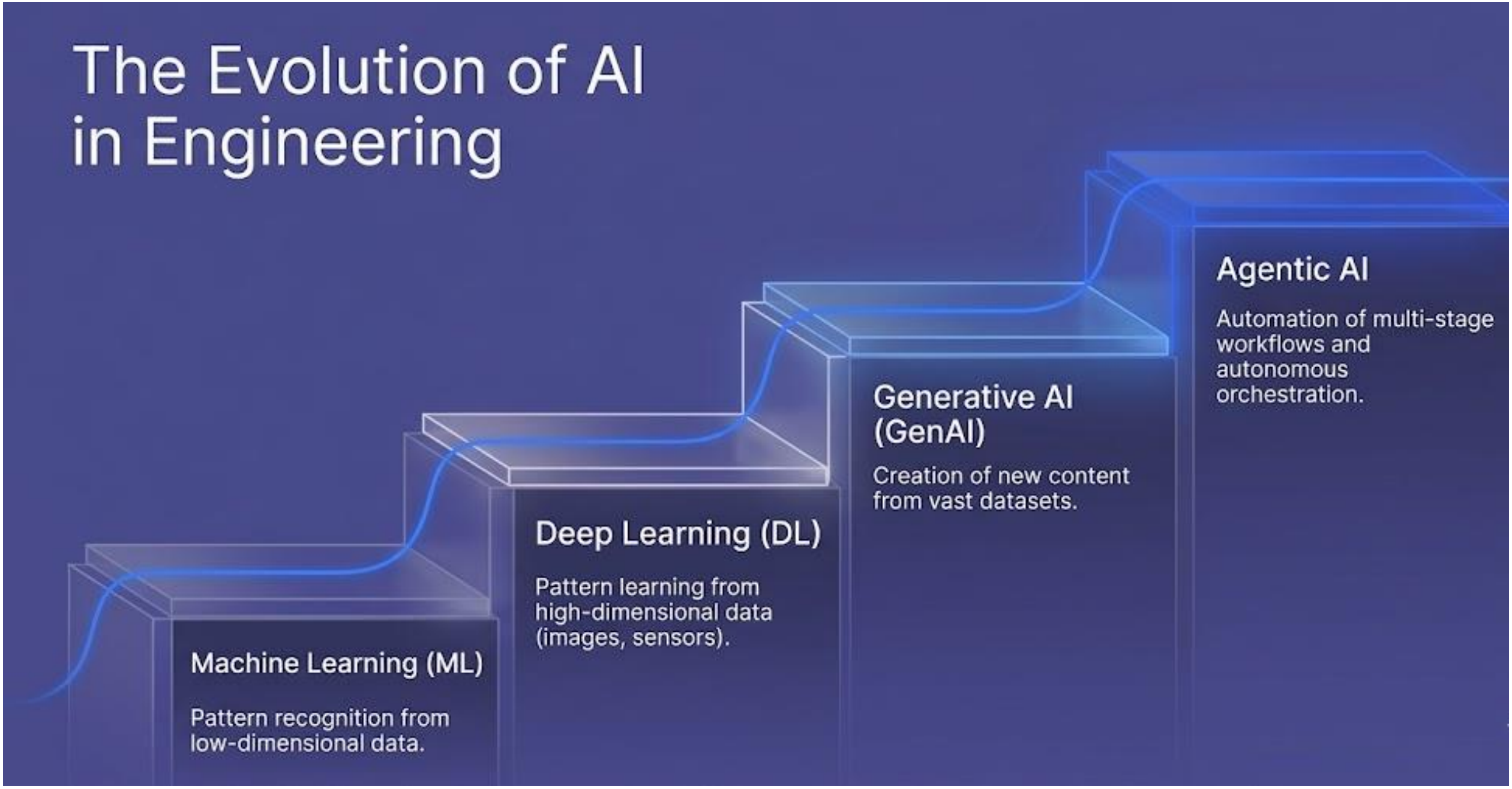
The Evolution of AI in Engineering



Etteplan

TECHNOLOGY SERVICE COMPANY WITH A PURPOSE OF BRINGING PEOPLE AND TECHNOLOGY TOGETHER TO CHANGE THINGS FOR THE BETTER

- **ENGINEERING SOLUTIONS**
- **SOFTWARE AND EMBEDDED SOLUTIONS**
- **ASSET & TECHNICAL PRODUCT INFORMATION SOLUTIONS**

OUR CUSTOMERS ARE GLOBAL MACHINE AND EQUIPMENT MANUFACTURERS

2025 REVENUE 361M€ EMPLOYEES +4000

Founded 1983 | Nasdaq Helsinki Ltd

Tero Hämeenaho

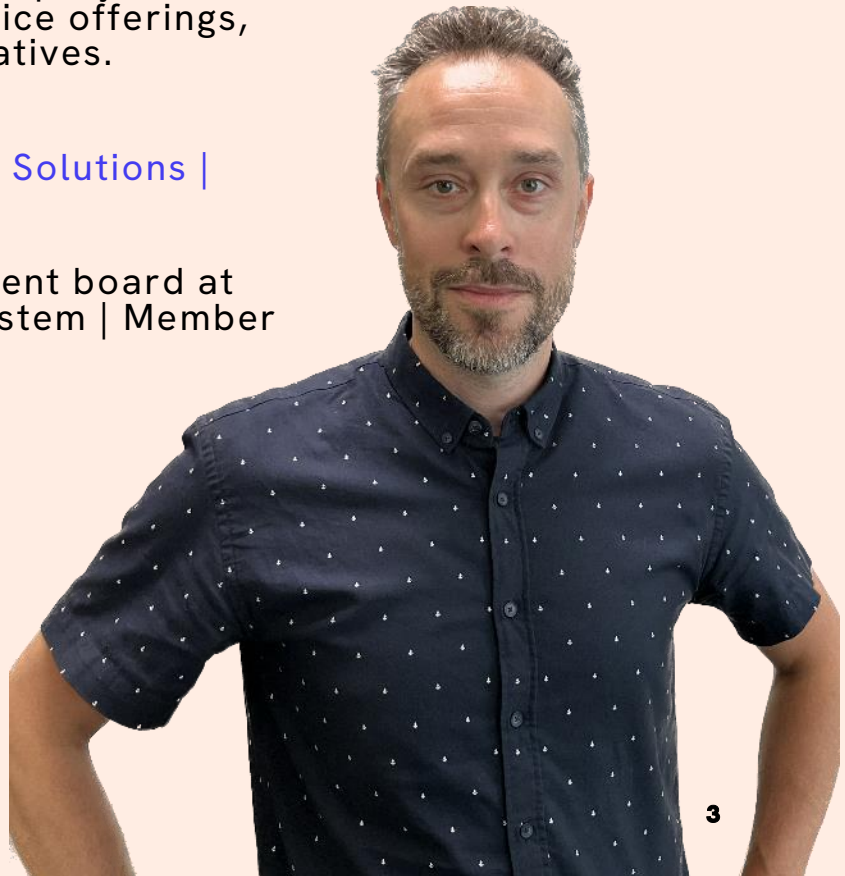
About Me:

My expertise encompasses business & competencies development, engineering services, client relationship management, and ecosystem leadership.

I've been at the forefront of innovative projects, setting up operations, expanding service offerings, and actively participating in R&D initiatives.

Current role: Senior Manager Service Solutions | Department Manager

Other roles: Member of the Management board at Finnish Additive Manufacturing Ecosystem | Member of the board 3D Formtech Oy



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Our AI Journey

AI Program running for

>3 years

- Secure, enterprise-grade AI environment in place, clear governance, and a global AI Hub.
- Systematic training and change management to build AI competence across the organization.

Etteplan-developed AI usage target of

35% by 2027

- One division reached 20% AI usage in projects in 2025
- AI embedded in our service solutions through our Industrial AI Suite – rAIse.

AI embedded in our service solutions with

20+ rAIse tools in production

- 40+ rAIse tools in pipeline and 100+ ideas in early ideas phase.
- Partnerships on technologies, AI labs at universities for research, and multiple vendors for upskilling, change management and scaling.

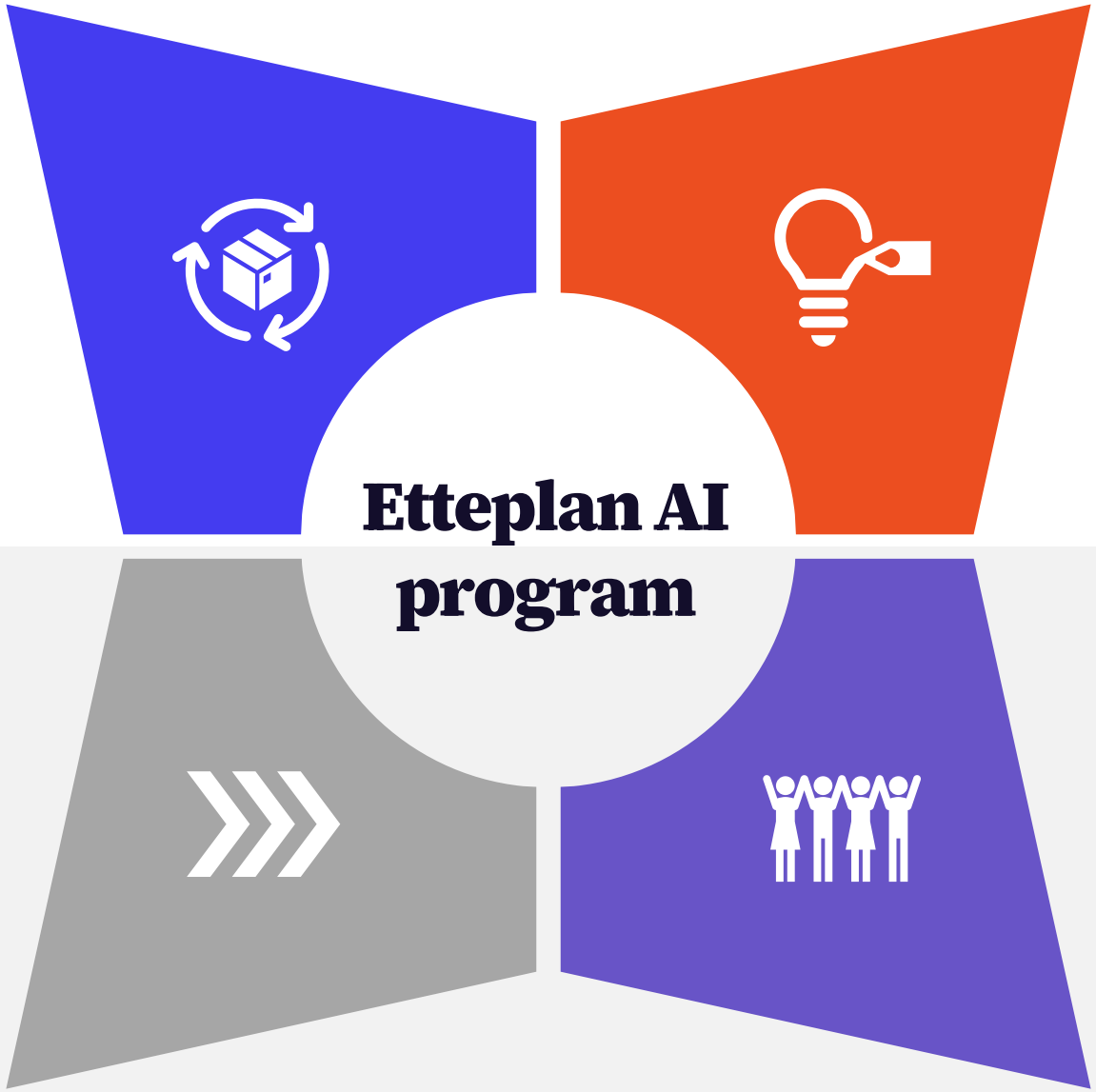
Etteplan AI program

Etteplan developed Industrial AI tools boosting competitiveness in our managed services.

Etteplan projects with Industrial AI focus developing AI solutions for our customers.

Utilize AI in our internal systems and processes to improve internal efficiency.

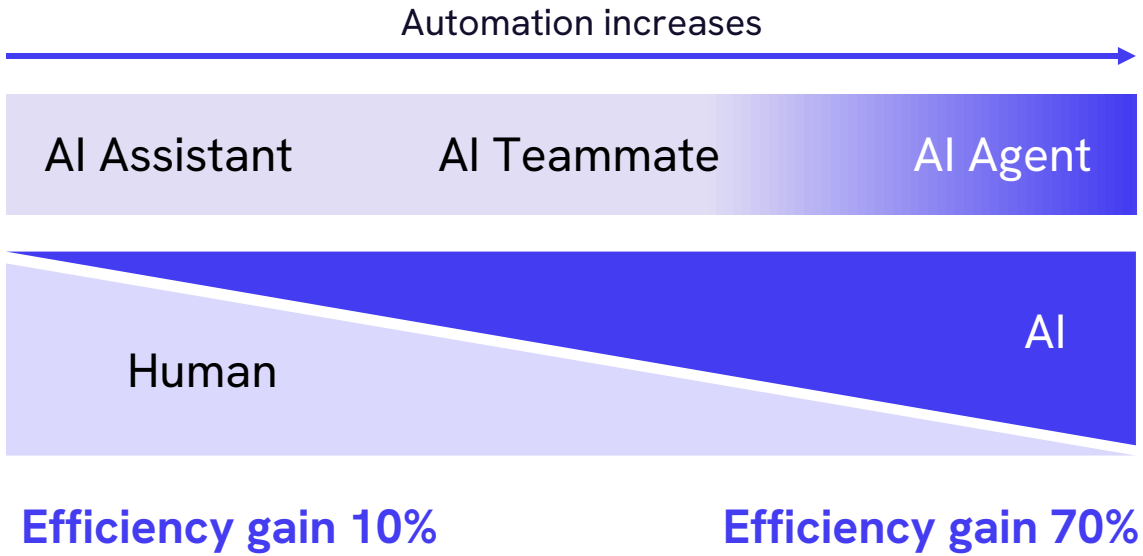
Competence development and take general AI tools into use in our daily work.

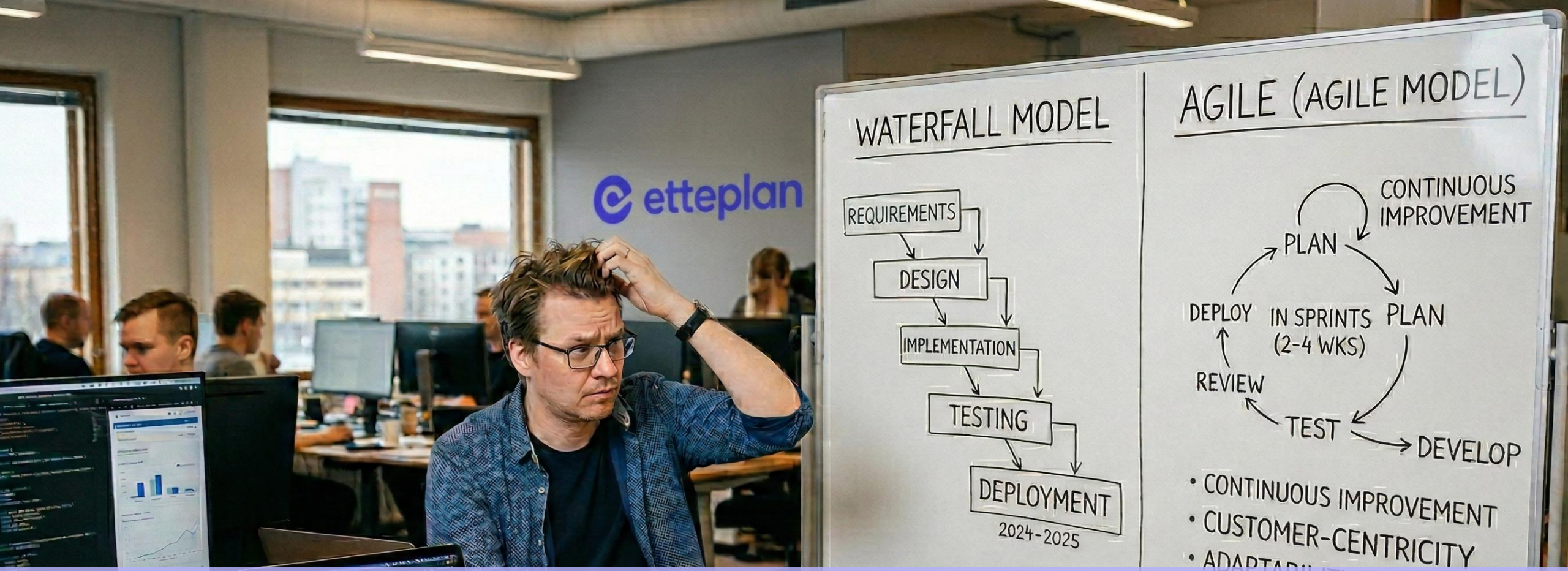


AI as a Virtual Engineer and Teammate

AI will become a **Virtual Engineer**: an active **teammate** that thinks and executes tasks with you, rather than just providing information as an assistant

The Virtual Engineer also **continuously learns** from team members' comments and feedback





Hardware in Agile: Trying to force hardware into a pure Agile cycle breaks the budget. Physical molds and supply chains don't pivot in a day.

Software in Waterfall: Forcing software into a Waterfall process leads to "legacy at launch." The product is obsolete before the first user logs in.

Critical Differences: SW vs. HW AI Agents

Cost of Iteration

VERSION COST

While SW agents can "fail fast" at near-zero cost, a HW agent's mistake results in expensive physical prototypes and scrapped production runs. Consequently, HW agents prioritize rigorous verification and simulation over rapid trial-and-error.

Multimodality

THE QUALITY OF USING MULTIPLE MODES, METHODS, OR SENSES

HW agents must simultaneously process diverse data types, including 2D schematics, 3D CAD models, PDF datasheets, and physical laws (thermal, EMI, structural) to ensure a viable design.

Ecosystem Integration

PLATFORM & CONNECTIVITY

Unlike the relatively open world of software code, HW agents require deep, native integration into proprietary Cad or simulations environments (e.g., Altium, Catia, Nx, Ansys etc.) to manipulate design files and metadata directly.

Etteplan developed Industrial AI tools (rAIse)

as part of our managed services

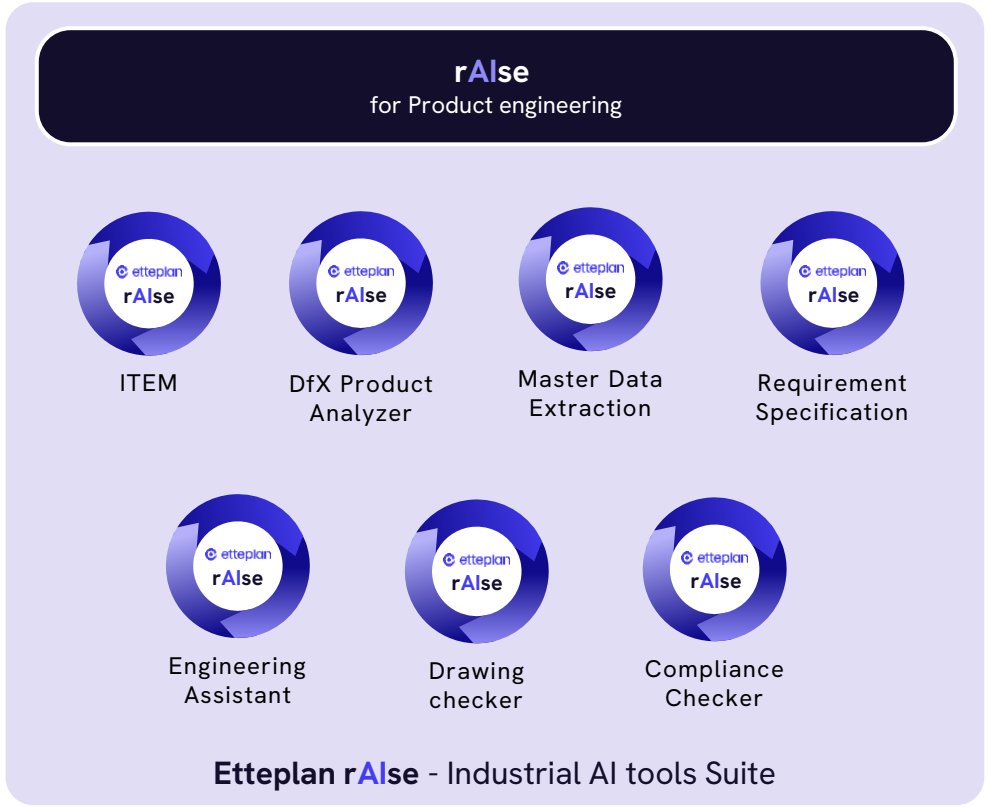
QUALITY TOOLS

PRODUCTIVITY TOOLS

Our rAIse AI tool suite for Product Development

Challenges in Product Development

- Long lead times
- High engineering and product costs
- Difficult to optimize designs
- Challenges to use AI effectively



The goals are:

Reduce product costs

Improve engineering efficiency

Reduce lead times*

***development, manufacturing, assembly**

Other goals:

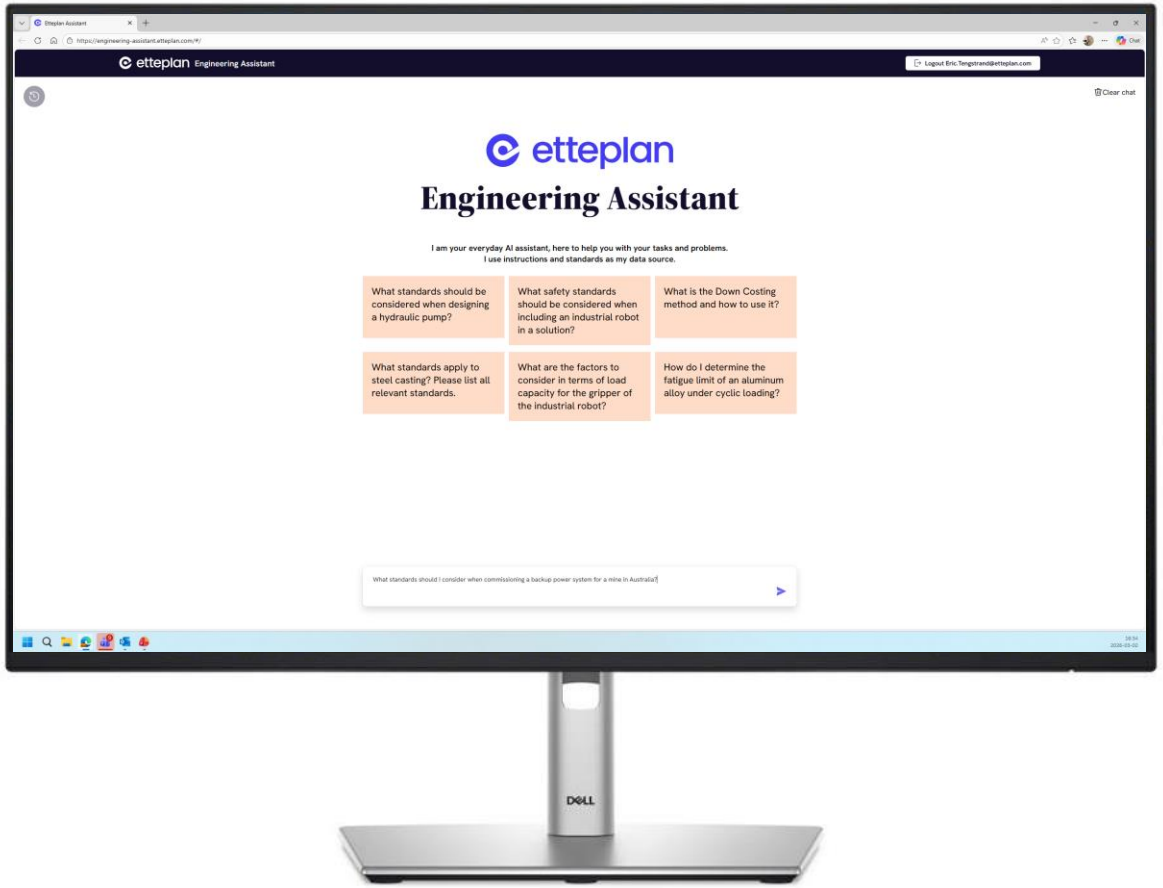
Improve engineering competence

Improve product quality

AI used inside requirements & compliance interpretation

Growing regulatory and compliance workload

Leveraging on rAIse with Etteplan's 40+ years of engineering instructions, ISO/EN Standards and customer related instructions



Values we realized

- Reduced risk
- Improved delivery reliability
- Reduced project cost
- Limited rework after review – Increased efficiency

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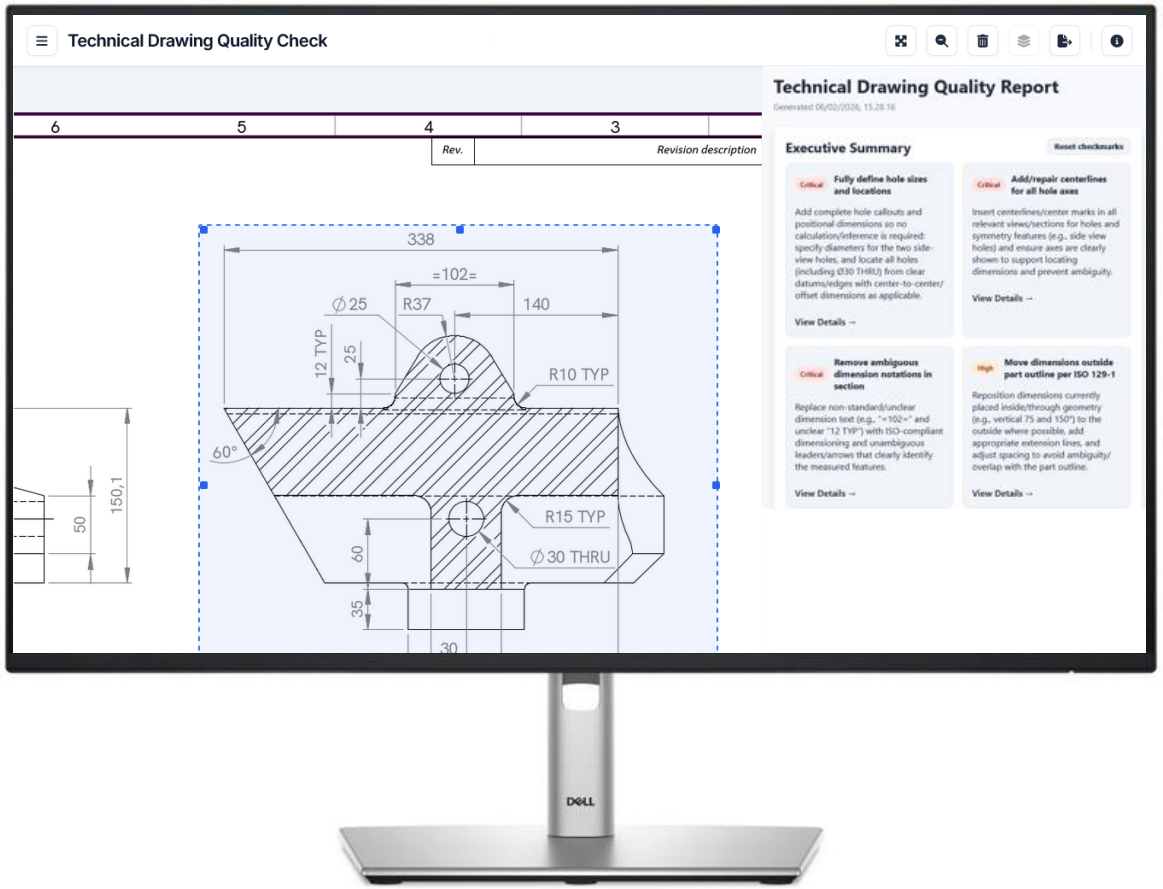
AI used inside drawing, model, and document verification

Pressure to improve (R&D) productivity and lead-times without adding headcount

Embedding rAIse in our Order-to-Delivery Service Solution and remove long queues and decrease dependency of senior individuals.



Values we're targeting to realize

- Faster reviews – Improved efficiency
- Harmonization – Same rules for everyone
- Increased quality – Fewer human errors
- Saves senior expert's time

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Cost reduction powered by AI

DfX

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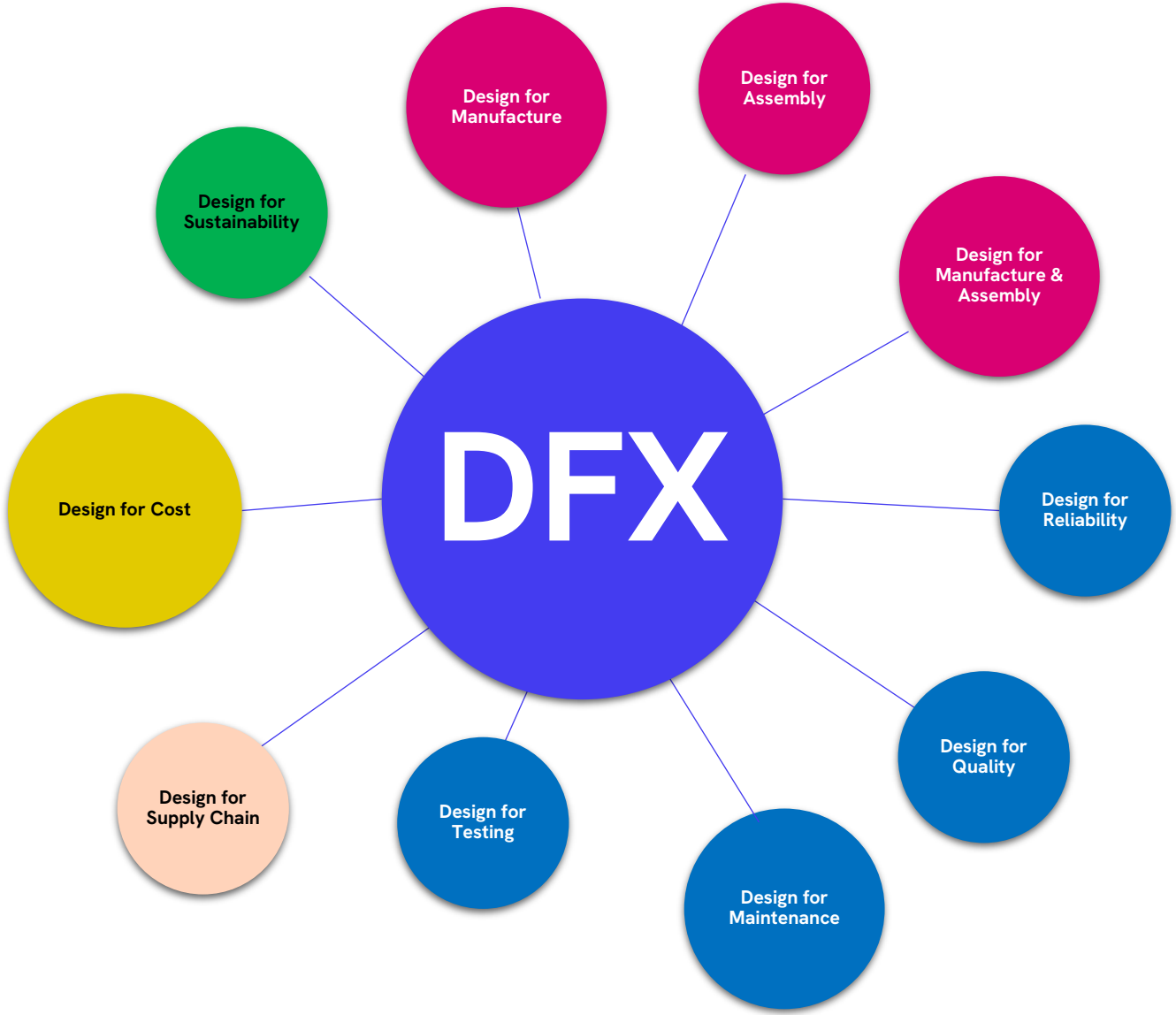
Integrated design principles

DfX Design For Excellence



We have existing competence

Method – skills - tools

Etteplan's DfX (Design for Excellence) method includes tools and field-proven practices gathered and continuously developed over the last 15+ years

This method typically provides 10–50% product cost reduction results through the whole lifecycle

Reduce

Simplify

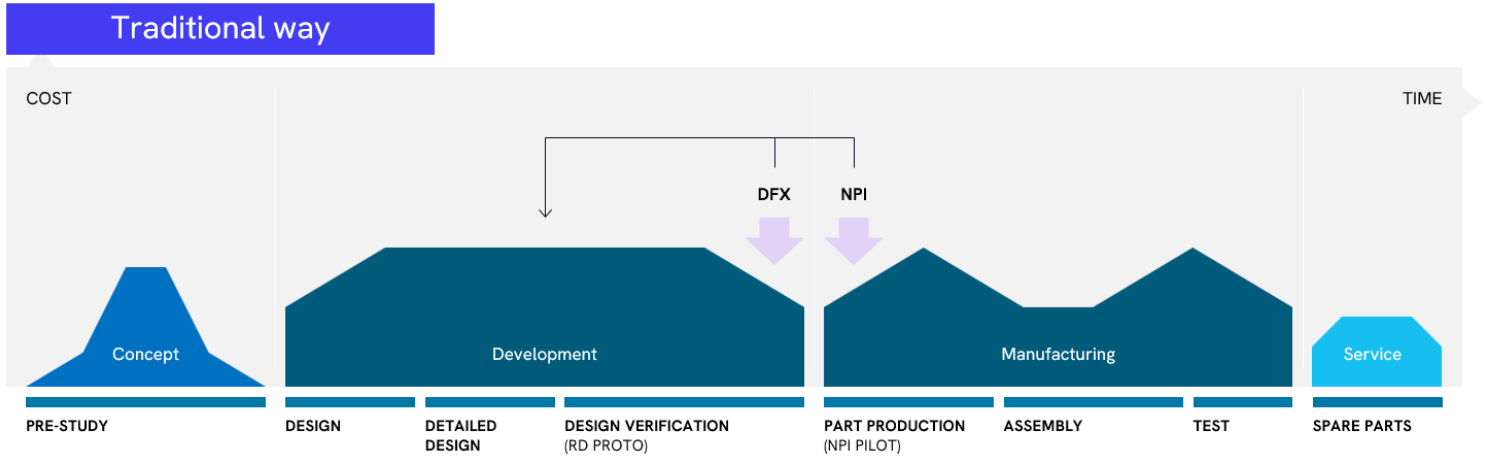
Combine

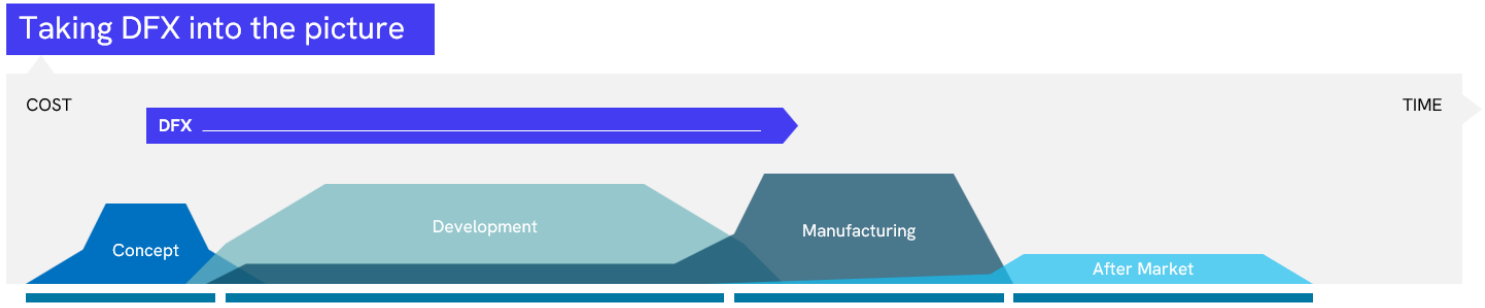
Remove

Other?

Cost reduction vision

method | collaboration | tools





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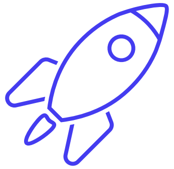
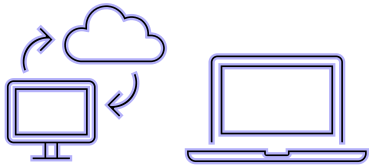
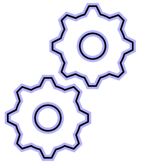
Holistic product development

DfX framework



Preliminary Engineering → Conceptual Design → Detail Design & Follow-up → Continuous Cost Reduction





HOW AI CAN HELP US IN HERE ?

Etteplan focus in DfX

AI used inside early design decisions

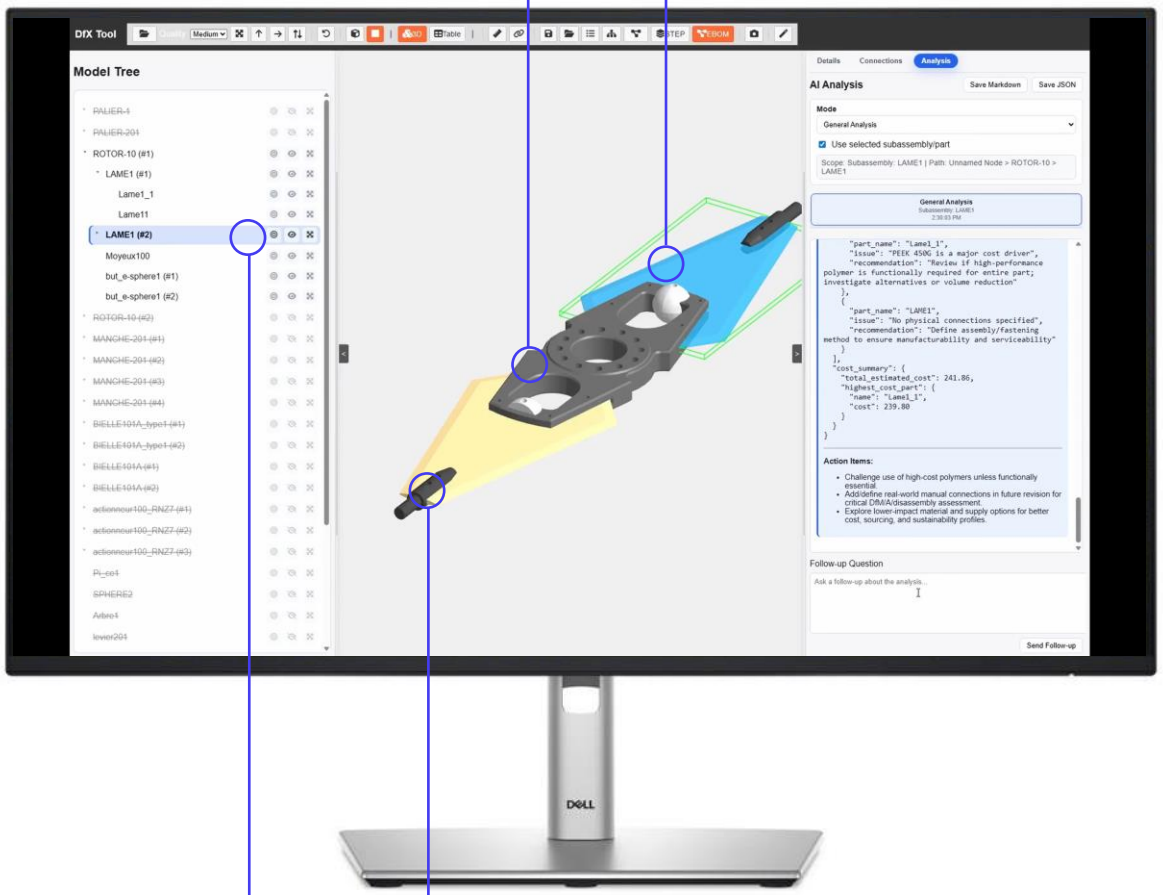
Pressure to improve (R&D) productivity and lead-times without adding headcount

Values we're targeting to realize

- Improved R&D efficiency
- Reduced product costs
- Reduced lead times
- Improved product quality

Exploration of lower-impact materials and supply options for better cost, sourcing and sustainability

Challenge use of high-cost materials unless functionally essential.



Automated item attribute extraction and population

Challenge use of new or low volume parts to optimize supply chain and parts & service business

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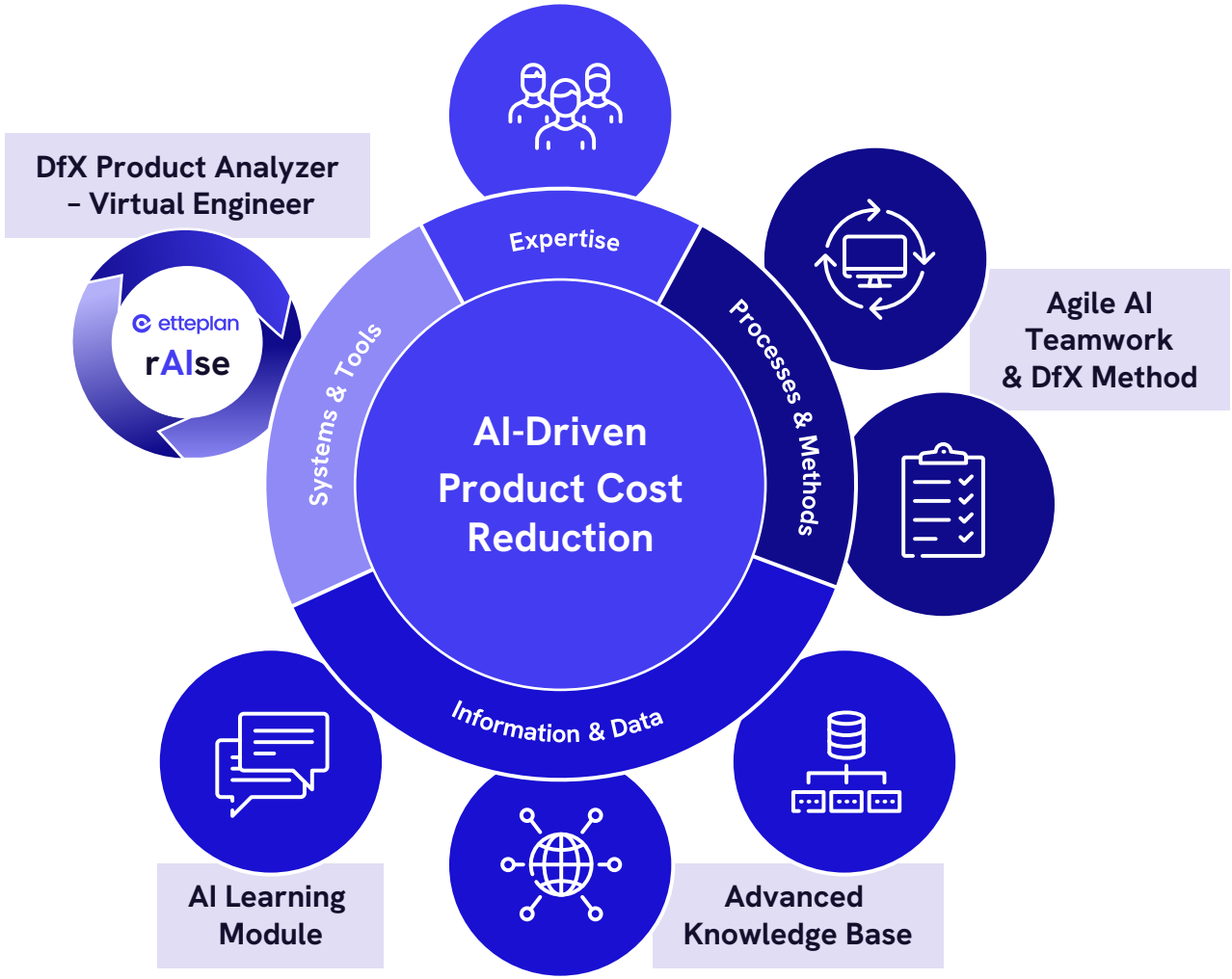
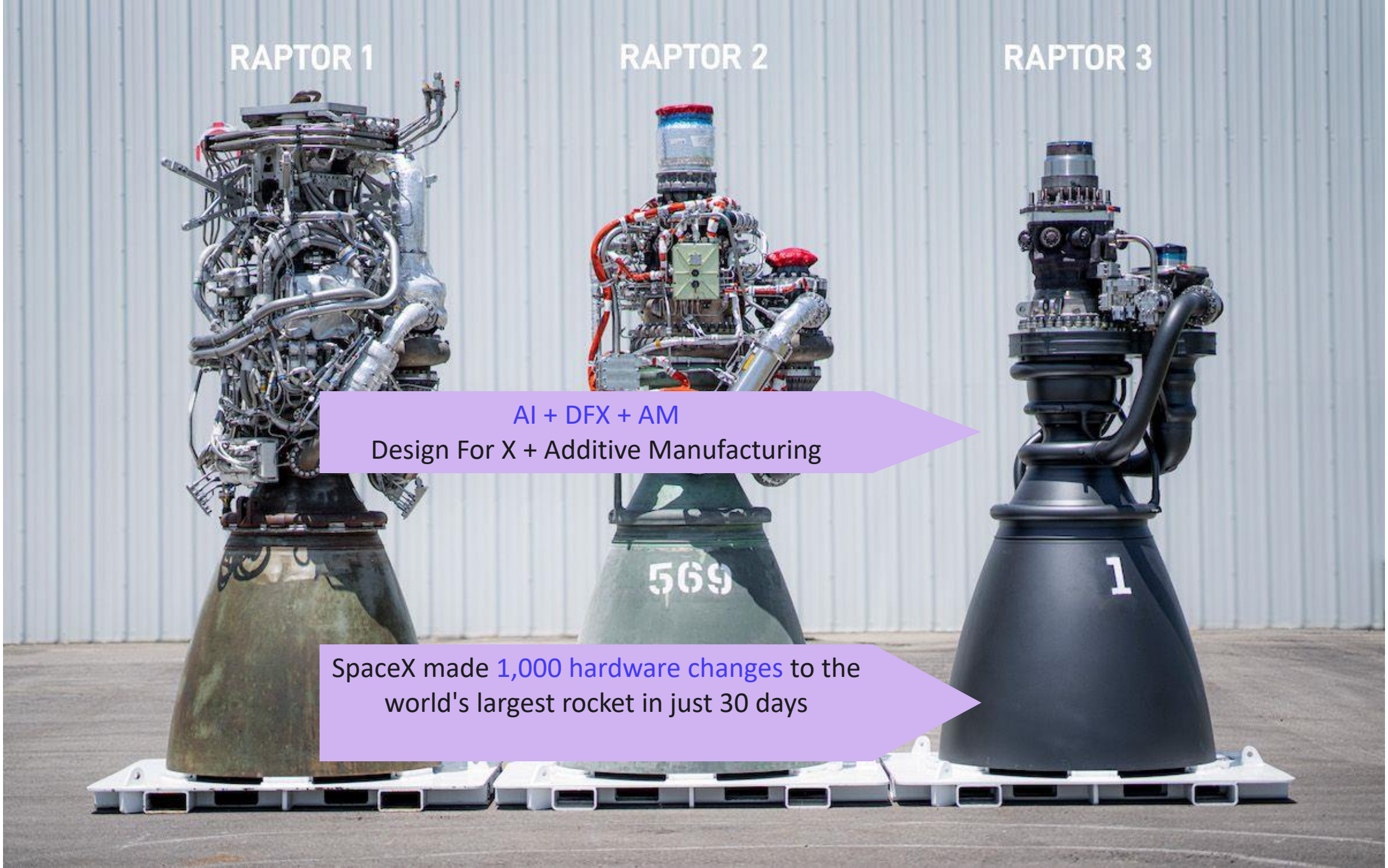
AI-Driven Product Cost Reduction

Combining strong engineering expertise and field-proven practices with advanced AI-tools and data solutions




Elon Musk says SpaceX has 'the most advanced 3D metal printing technology in the world.'
So does the simplified design of its Raptor 3 engine

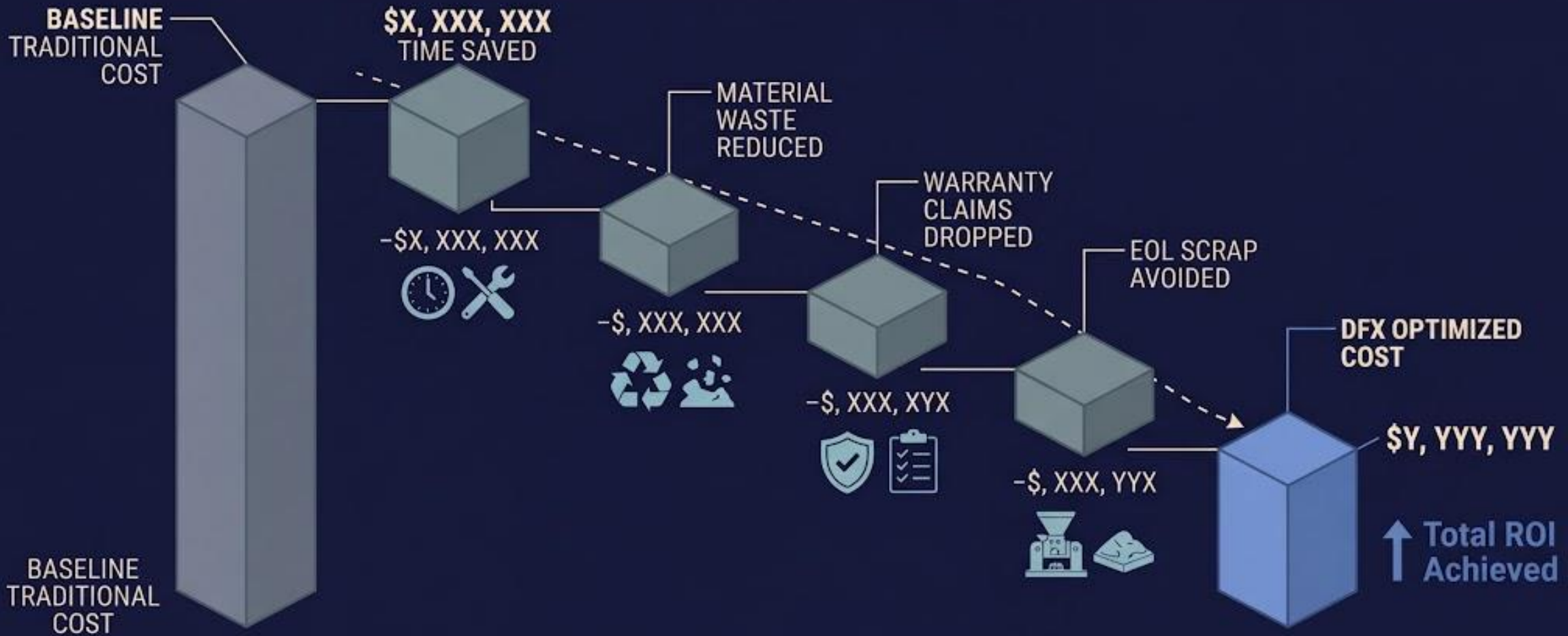


AI + DFX + AM
Design For X + Additive Manufacturing

SpaceX made 1,000 hardware changes to the world's largest rocket in just 30 days

THE ULTIMATE VALUE: TOTAL ROI

DfX saves actual manufacturing pennies per unit (yielding massive margins at scale) while erasing millions in hidden lifecycle costs. Target costing becomes a mathematical certainty.



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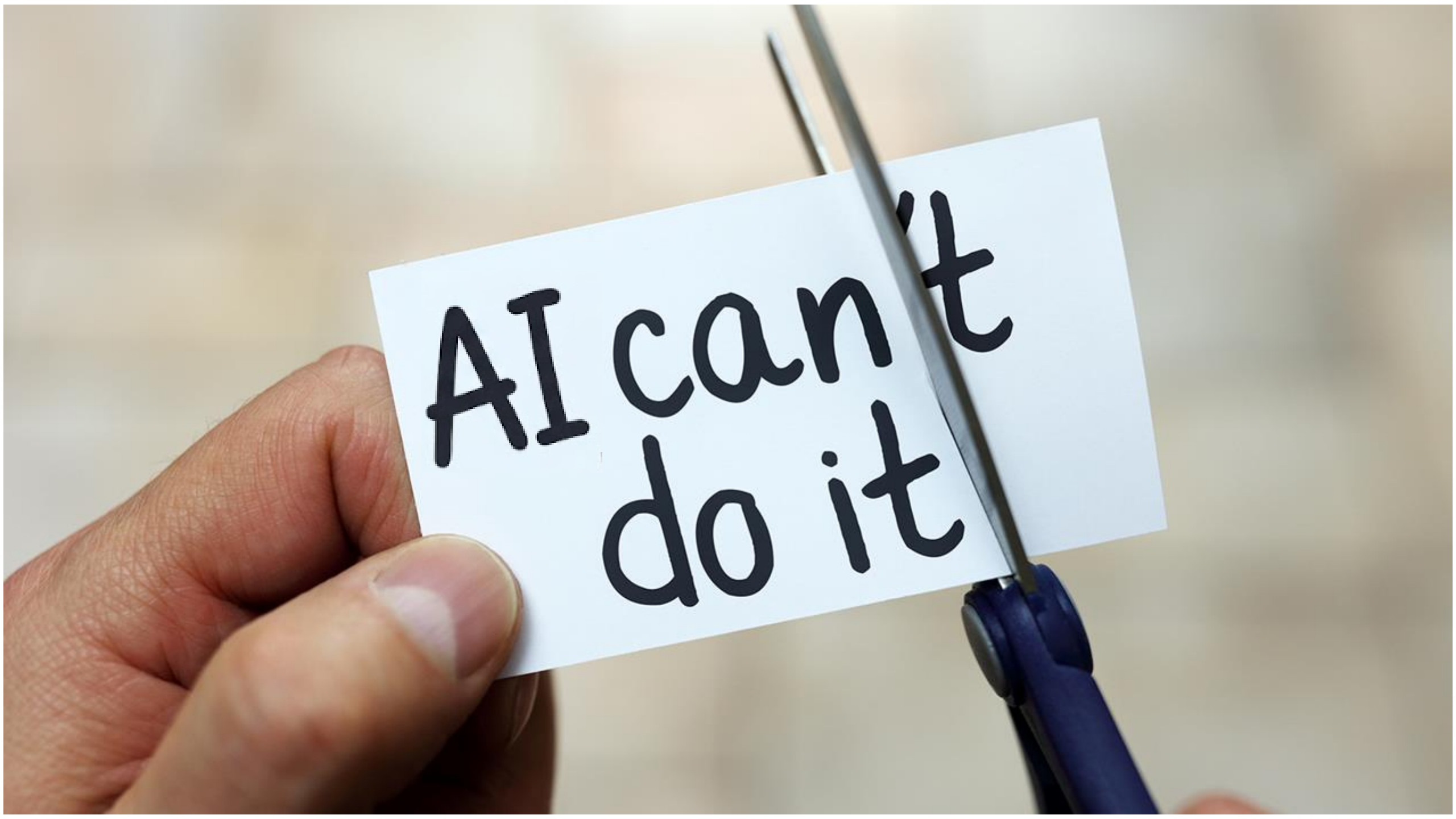
AI can't
do it

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Kiitos !