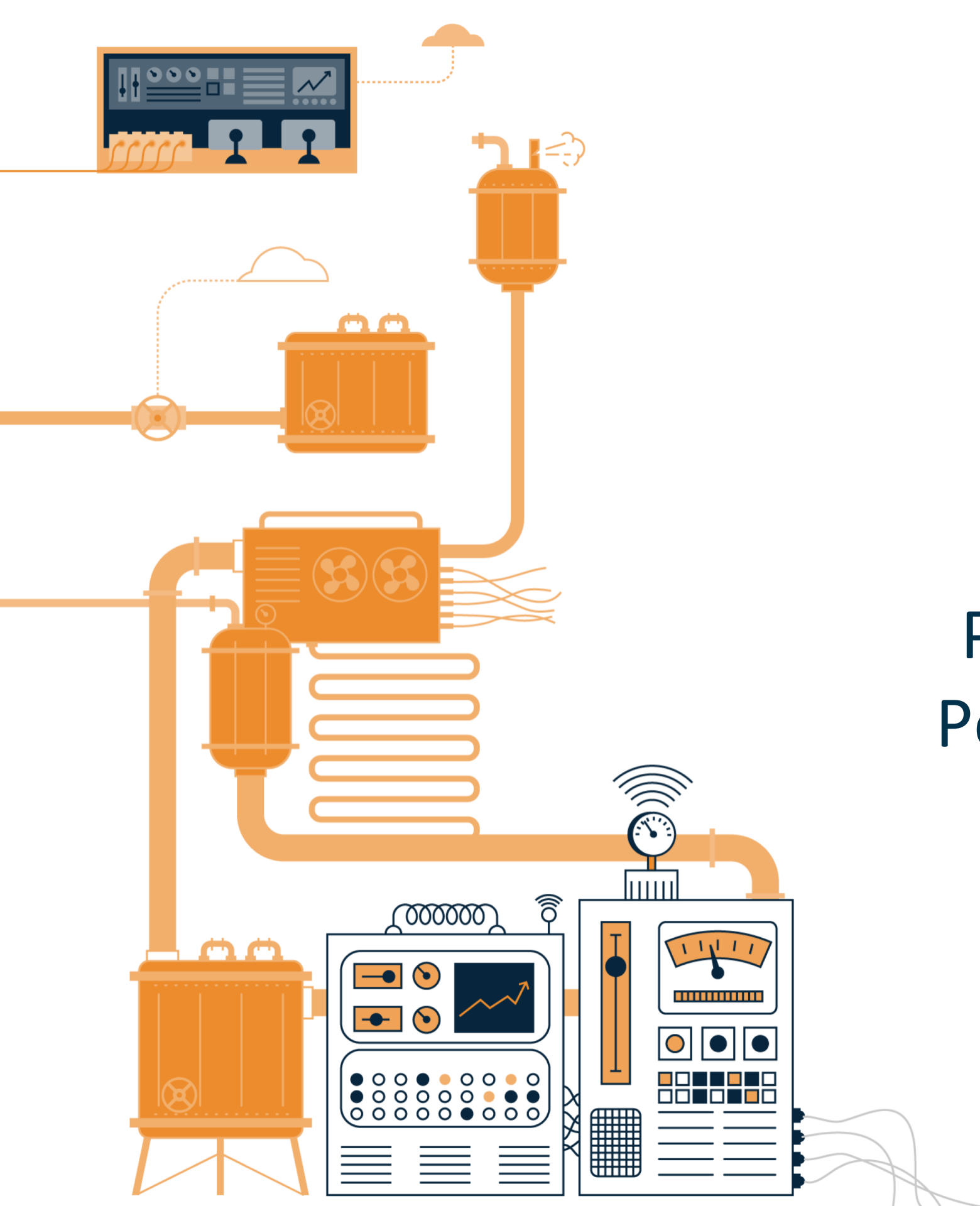




Process Optimization Software Powered by Actionable Machine Learning

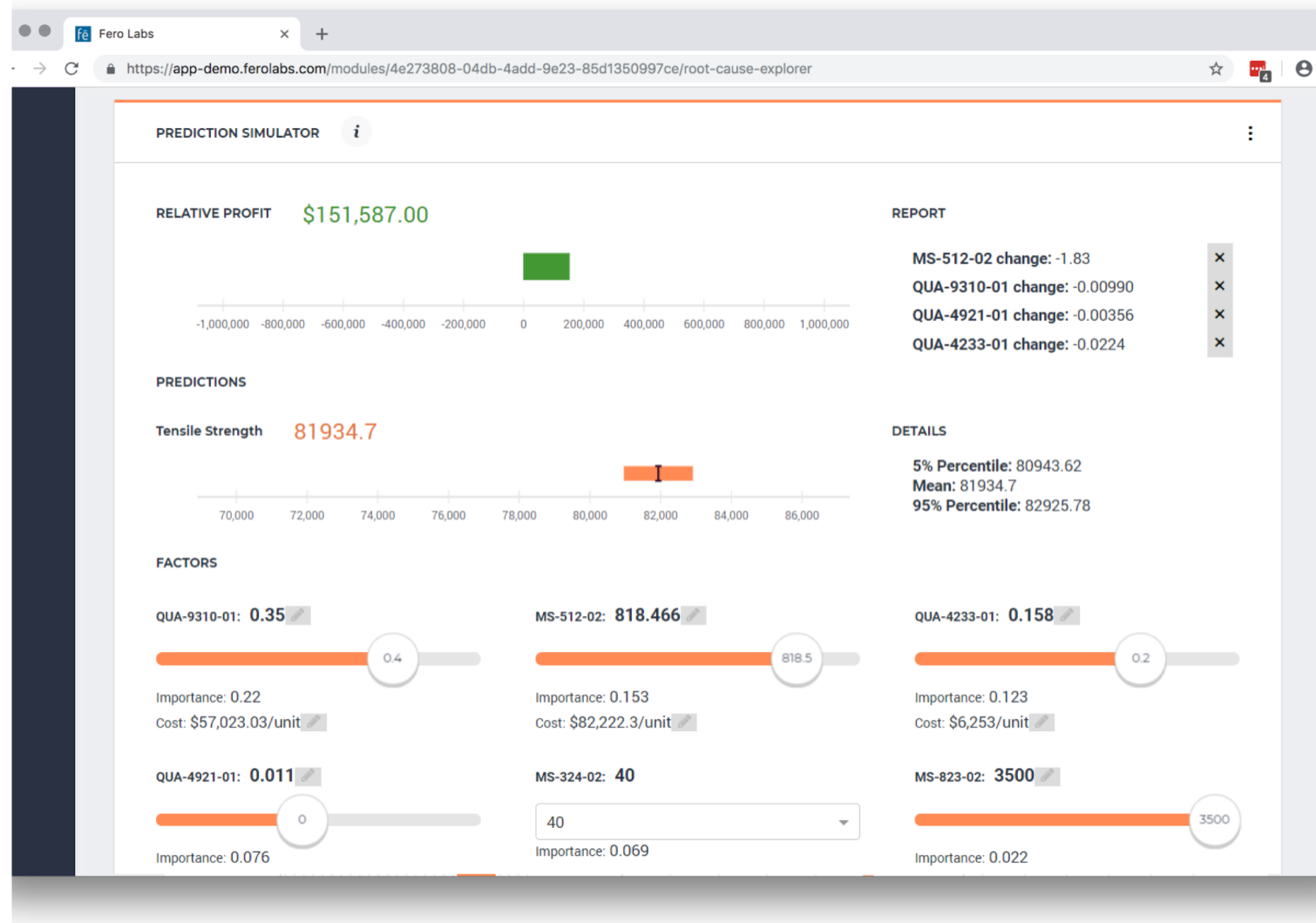
New York
USA

Düsseldorf
Germany

Fero's software optimizes factories with actionable ML

Fero is used by metals, chemicals, energy and automotive firms to:

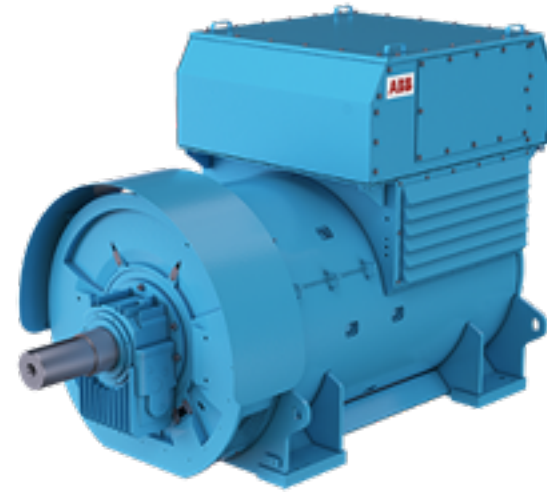
- **Gain new insights** to maximize the efficiency of complex processes
- **Identify root-causes** of quality issues or yield reductions
- **Simulate new operational regimes** to reduce costs while maintaining quality standards
- **Optimize processes** continually to reduce scrap rates and emissions



Agenda



selling



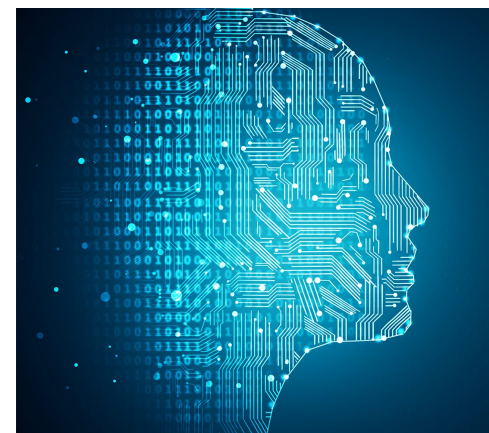
to



VS



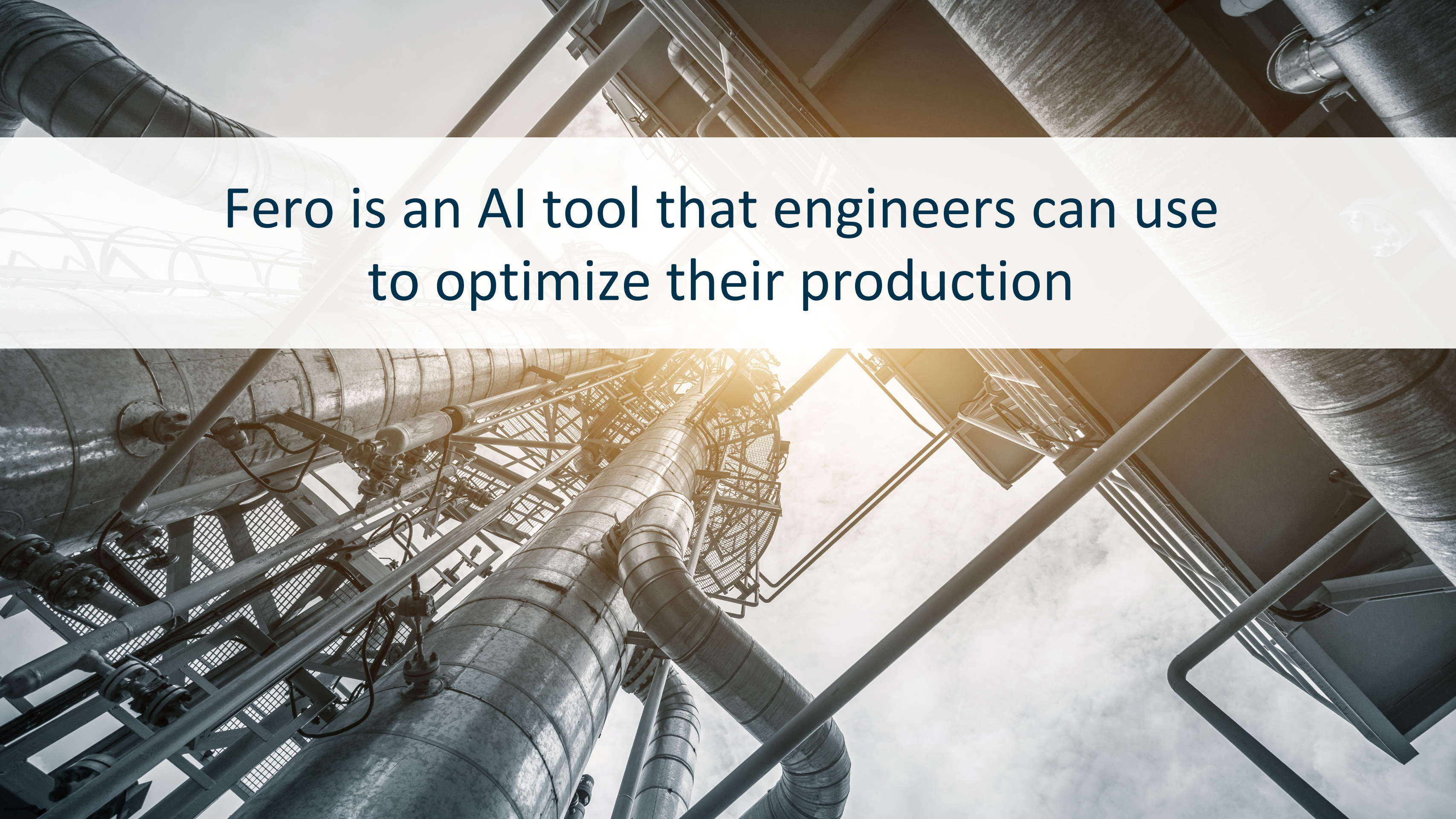
selling



to



(company names used as example)

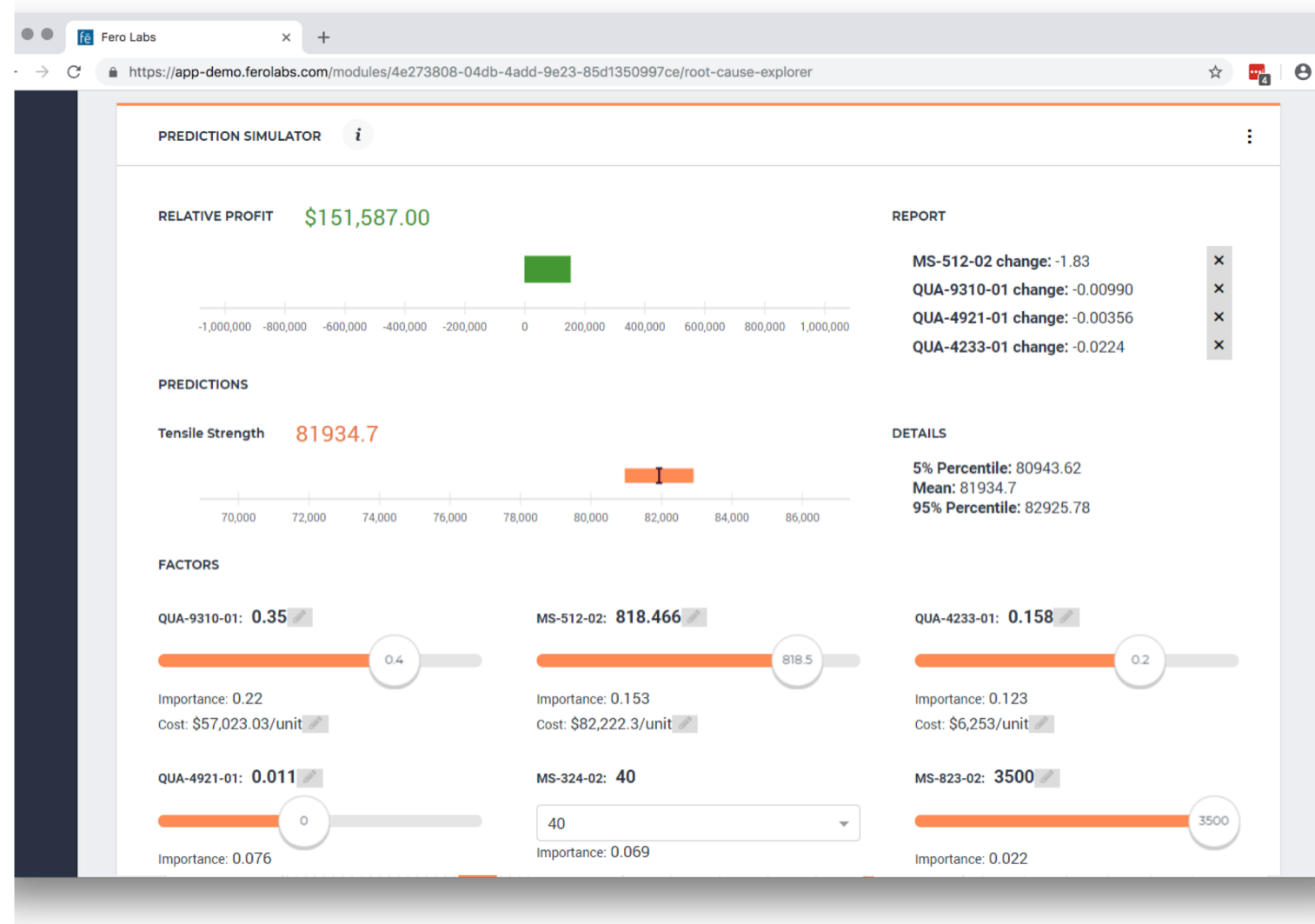
A low-angle, upward-looking photograph of a complex industrial facility. Large, dark, cylindrical pipes and structural beams dominate the foreground and middle ground, creating a sense of height and scale. The background is a bright, hazy sky with a warm, golden light source, possibly the sun, creating a lens flare effect. The overall color palette is muted, with greys, blues, and a touch of orange from the light.

Fero is an AI tool that engineers can use
to optimize their production

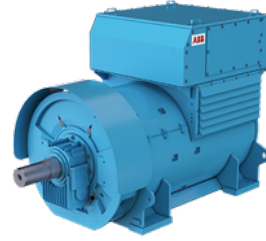
Fero's software empowers factories with explainable ML

Fero is used by chemicals, oil & gas, metals, and automotive firms to:

- **Simulate new recipes** to reduce material costs while maintaining quality standards
- **Gain new insights** to maximize the yield of complex processes
- **Identify unknown causes** of quality issues
- **Optimize processes** to reduce scrap rates and emissions



Innovation: **ABB** and

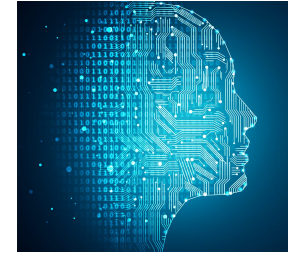


- ABB has been manufacturing motors for a long time
 - They are very good at it!
- As a startup, the barrier to entry is high
 - Requires investment in R&D, manufacturing, inventory, distribution
- Commercializing a new technology would likely be around licensing
 - e.g., specialty chemicals

Innovation:

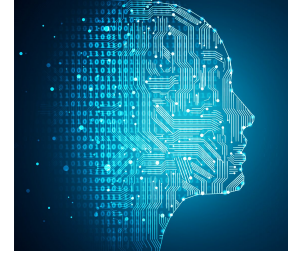


and



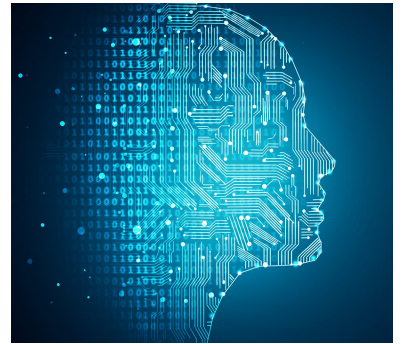
- Innovation in startups is mostly about people
 - In our case, strong ties with academia (DARPA project on explainable AI)
- Deployment, distribution is virtually free thanks to cloud services
 - We don't need hardware

Can't **ABB** develop



?

- Or Microsoft, SAP, AspenTech, PTC, Software AG?
- Large companies have certain strengths
 - It's hard (but possible!) to innovate in new areas
- We can iterate quickly with a focused team
- Don't have same access to talent
 - Financial reasons, locations
- Easier/cheaper for large co to acquire startup

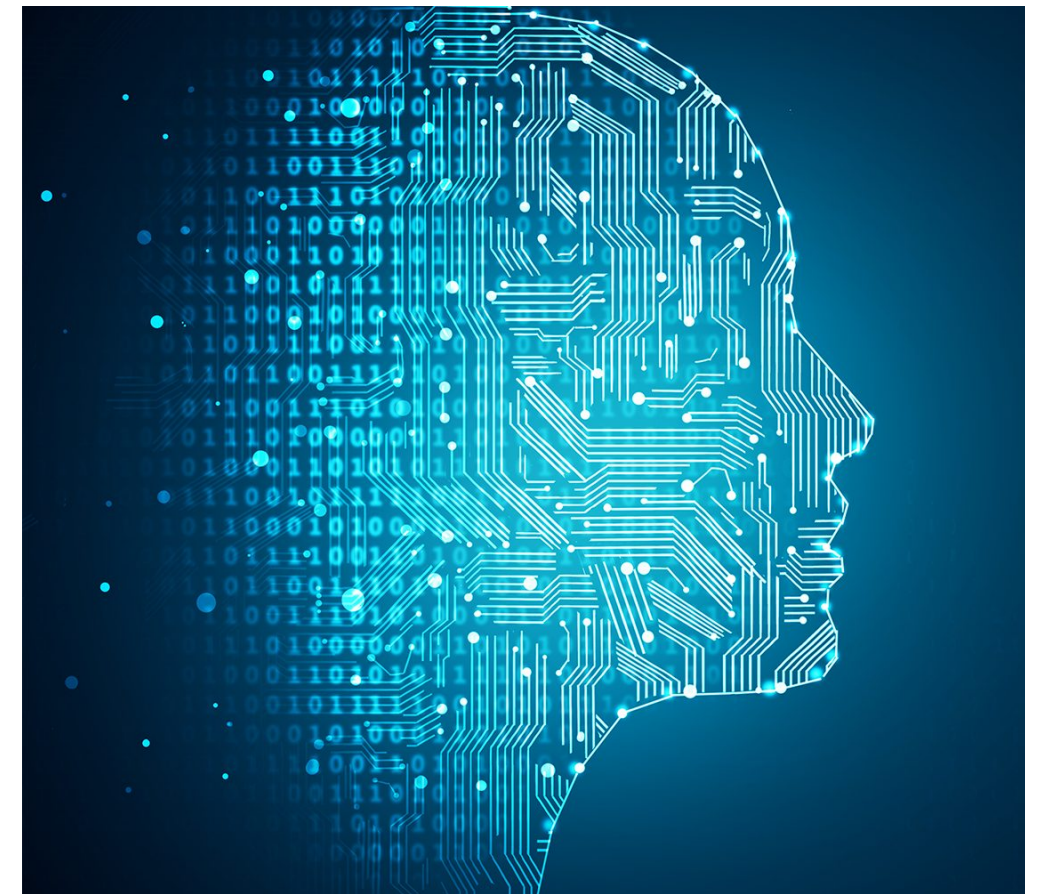


Detour

Let's talk about AI/ML

What is “Artificial Intelligence”?

A computer system that can perform tasks that normally require human intelligence



What is Machine Learning?

Software that can “learn” without being explicitly programmed



What is Machine Learning?





and



-
- Long-standing, trusted vendor relationship
 - Dedicated account team that have been working for years
 - Sourcing is easy
 - There are a handful of large suppliers, and they are all well-known
 - Evaluation is easy
 - The large suppliers have already been selected by the market
 - However, things can change quickly
 - “Nobody ever got fired for buying IBM” not as true anymore



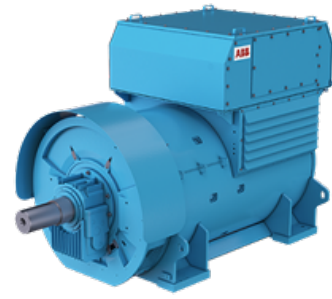
and



-
- Sourcing is a challenge (scouting)
 - We meet large companies through various outlets
 - Trade shows and conferences
 - Innovation groups and Corporate VC
 - Startplatz/ digihub/...
 - Evaluation is also a challenge
 - Need to dive deeper into the technology
 - Procurement needs to be aware
 - In our case, references within a sector help a lot



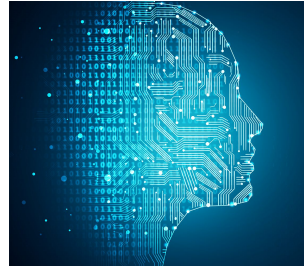
using



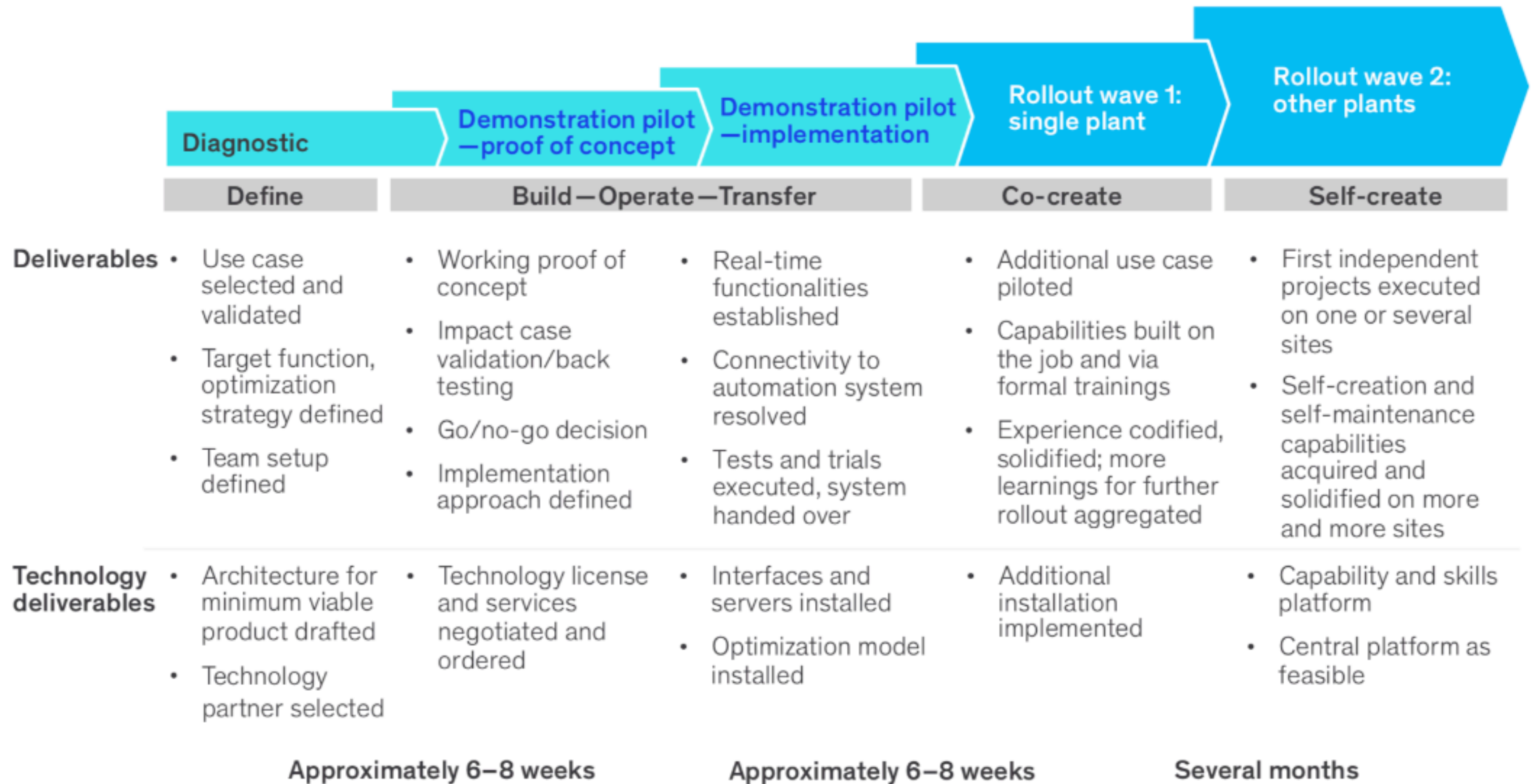
-
- Standard trial procedures for running “pilots”
 - The ROI is somewhat easier to compute
 - Results of pilot are the same as in the specs
 - You get what you expect



using

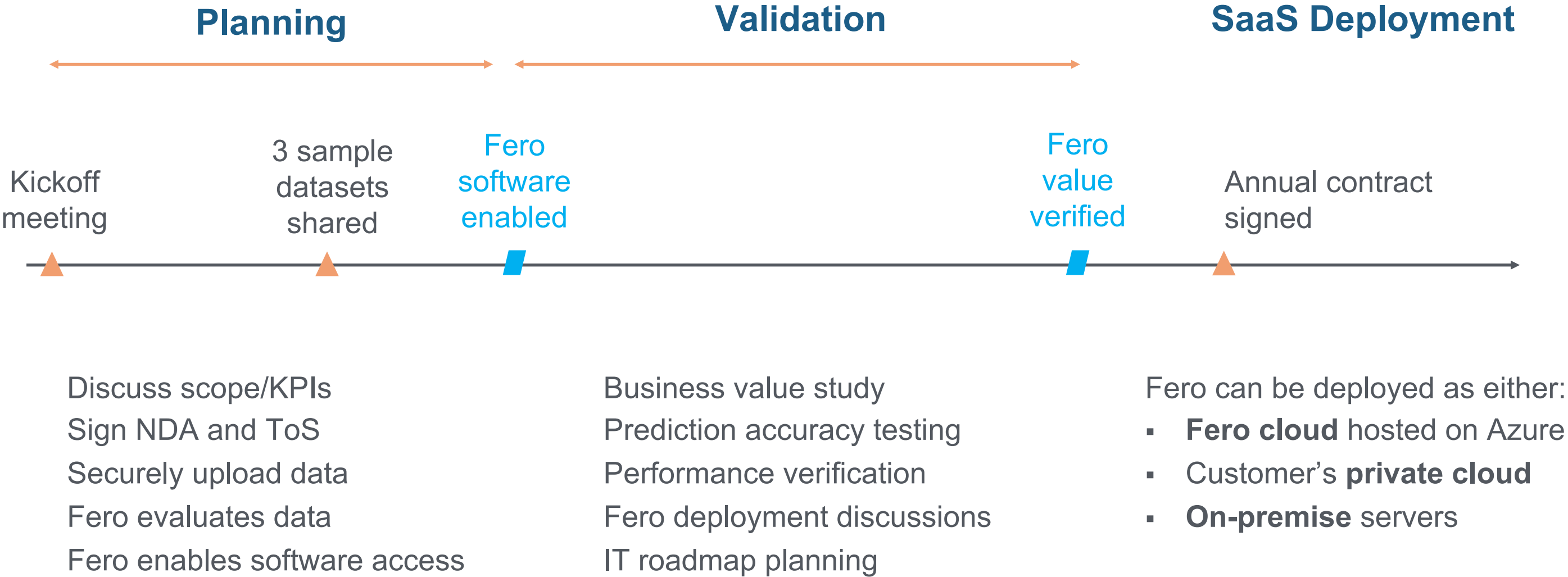


-
- Digital projects are harder to run, because results depend on data
 - Typically, no established process or precedent



Proof of Value Process

Typical timeline: 2 to 3 months



Challenges specific to AI/ML projects

- “Garbage in, garbage out”
 - Address several use cases at once
- Finding the right use case
 - Need to combat novelty factor
 - “Let’s see what we can get out of this dataset?”
- Building the right ROI case

Challenges specific to AI/ML projects

- Finding the right users
 - Who owns digitization? Operations, R&D, or IT?
 - In our case, it's operations
- Tackling complexity of software use
 - Fine-tune training and onboarding
- **Goal: de-risk as much as possible for the corporation**
 - Do not integrate with IT/production systems



Example

Building trust in machine learning

Most AI systems are black-boxes

NETFLIX

Favorite
Movies

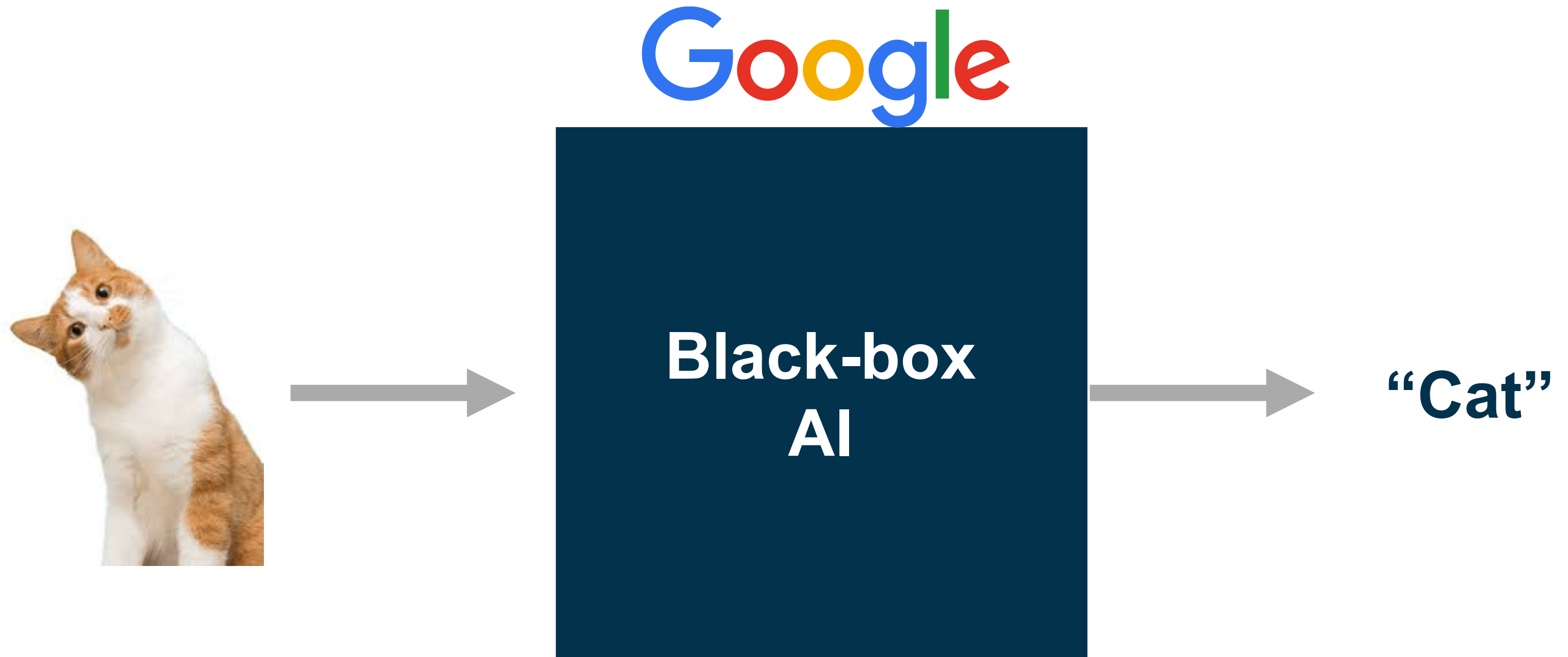


**Black-box
AI**



Movie
Suggestion

Most AI systems are black-boxes



Most AI systems are black-boxes

Google

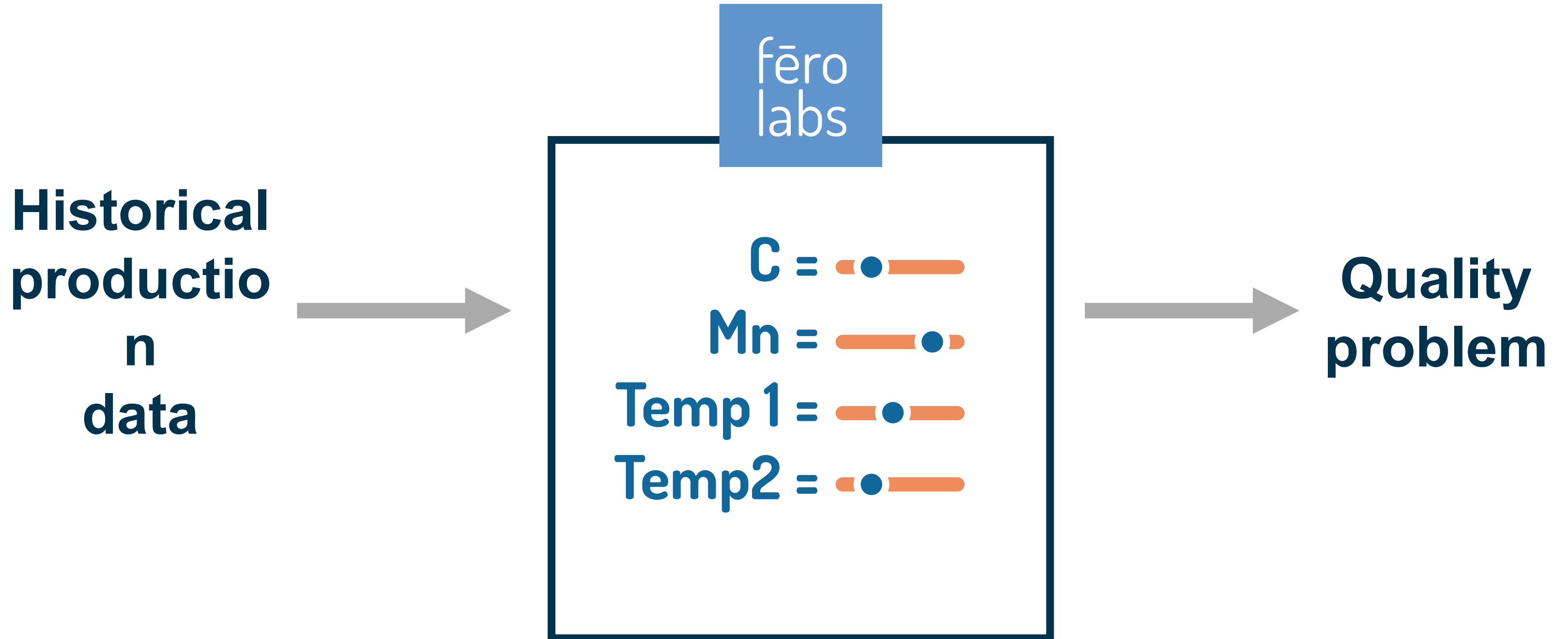


**Black-box
AI**

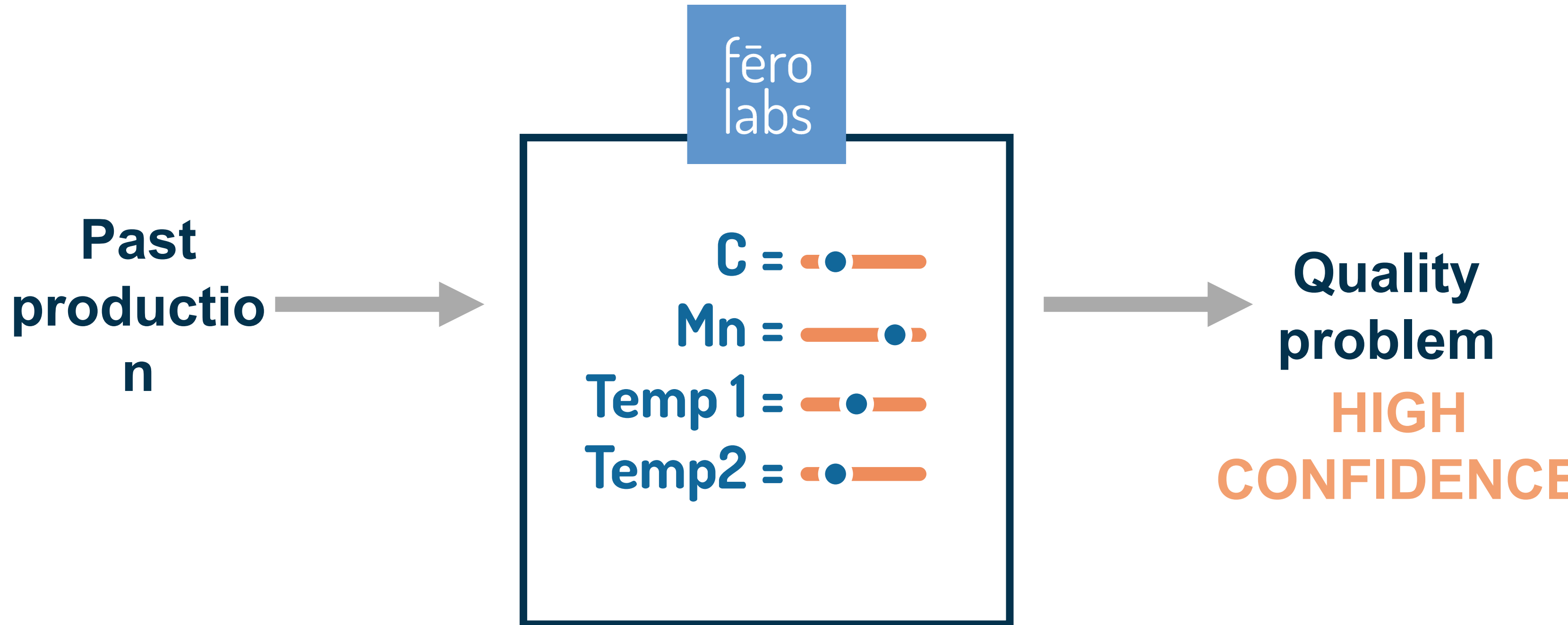


“Yacht”?!

Fero's AI explains itself



Fero's AI provides confidence



Focus on quick win & replicable value

1. Identify a real pain point and define value

- Ideally 3 different use cases
- PoV, not PoC or PoT

2. Start small and iterate fast

- Don't wait for "big data"

3. Engage and empower end-user

- Quality engineer, process improvement engineer, production manager

4. Scale

- Replicate success across other factories

Other examples of Fero use cases

Predict coke build-up to
optimize spalling schedule in
oil refinery

Reduce production scrap rates
at tier 1 auto supplier

Detect root-cause of corrosion
problems at auto
manufacturer

Increase chemical product
quality by reducing sulfate
content

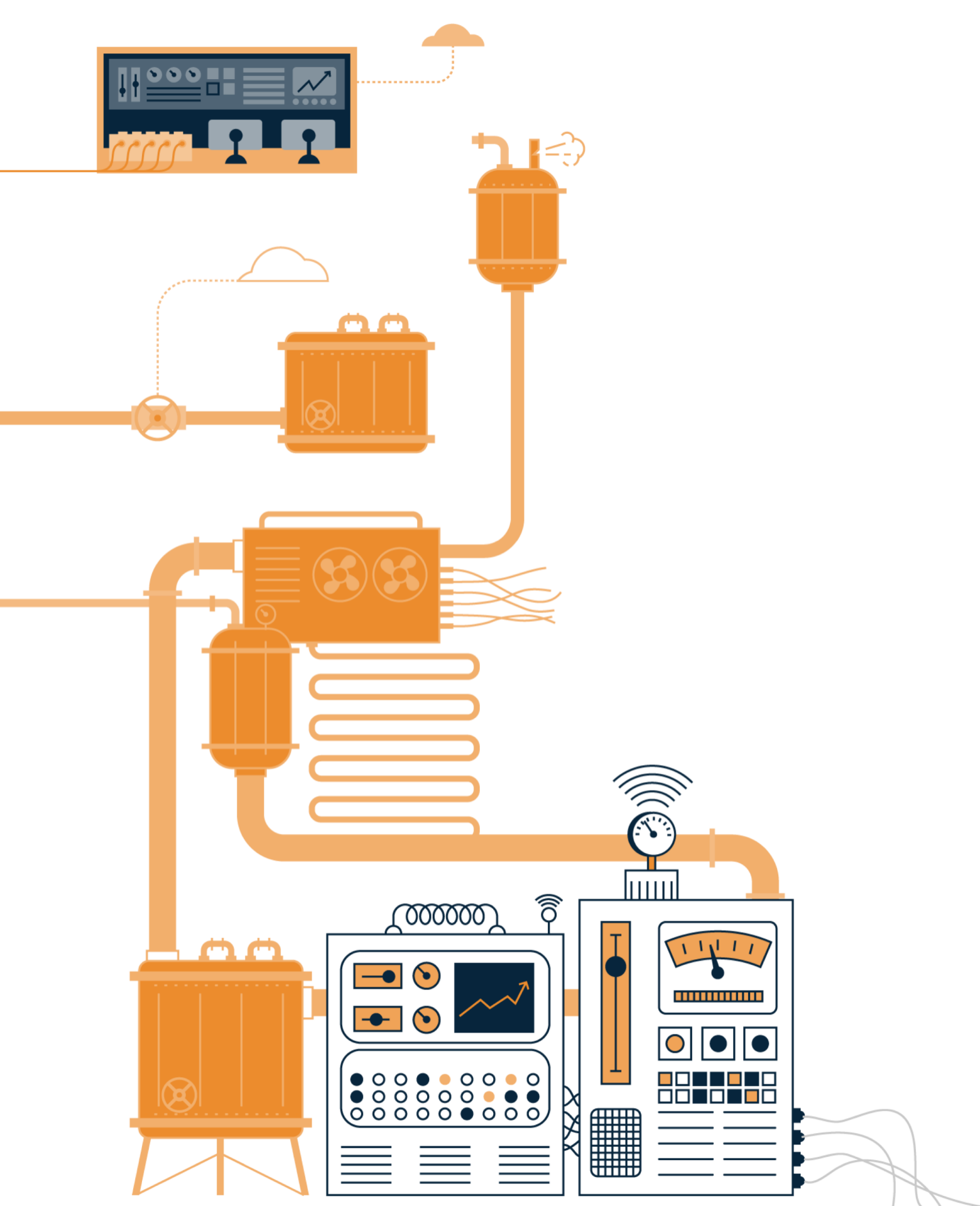


EVONIK
INDUSTRIES



SIEMENS





Tim Eschert

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Appendix



Industrial companies
are facing **new**
challenges in the 21st
century.

Global markets are highly competitive and demand continuous innovation.

Sustainability and emission requirements are becoming more and more stringent.

Innovative new products and services need to get to market faster than ever.



In reality,
**AI is not a magic
bullet** but a very
powerful tool.

At Fero Labs, we believe that

- democratizing machine learning *across the organization* is one of the keys to success in digitization,
- data-driven organizations *want to* build their own domain expertise, and
- machine learning should empower industrial personnel to make better decisions
- the focus should be on generating quick bottom-line returns

Steel mill optimizes raw
material costs and CO2
emissions



A large industrial chemical plant at dusk. The scene is dominated by a tall, white distillation column with red horizontal bands and a red top, illuminated by warm lights. A complex network of white pipes and metal scaffolding surrounds the column. The background shows a dark, cloudy sky. The overall atmosphere is industrial and dramatic.

Chemicals plant **increases**
yield and efficiency



Power plant
reduces
emissions,
optimizes
startups



**Auto plant
improves
paint quality**