

The background features a dark blue color scheme with various data visualization elements. On the left, there is a bar chart with a vertical axis ranging from 0 to 500. In the center, a network diagram with interconnected nodes is visible. On the right, there is a line graph with several data points and a bar chart. At the bottom right, an ECG-style waveform is present. The overall aesthetic is technical and data-driven.

IoT e Inteligência Artificial no aumento do rendimento da sua fabrica

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Agenda

Objectivo da sessão:

Como implementar um caso de análise da causa principal de defeitos de fabrico

- Algumas definições: AI, ML, Dados, Processo,...
- Desafio colocado
- Conclusões

Simulate Any Intellectual Task



Learning



Search & Planning



Reasoning /
Knowledge
representation



Ability to move
and manipulate
objects



Natural Language Processing



Perception

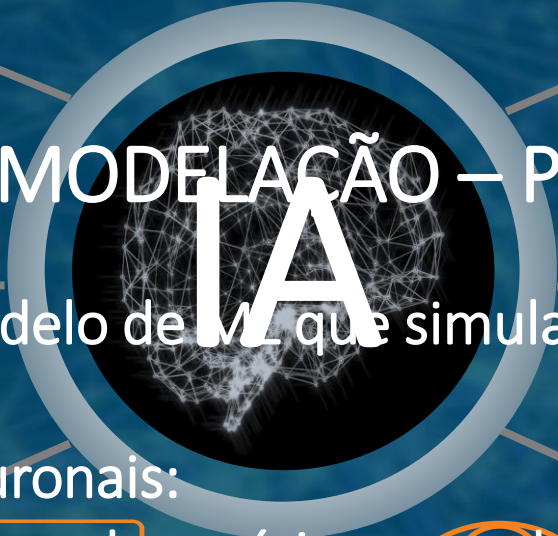
Machine Learning Simulate Any Intellectual Task

Learning



DADOS – MODELAÇÃO – PREVISÃO

Search & Planning



IA

Redes neuronais: modelo de ML que simula o cérebro humano

Reasoning /
Knowledge



Ability to move
and manipulate
objects

Dentro das redes neuronais:

- Deep neural networks – várias camadas
- Recurrent neural networks - linguagem
- Convolutional networks – imagem

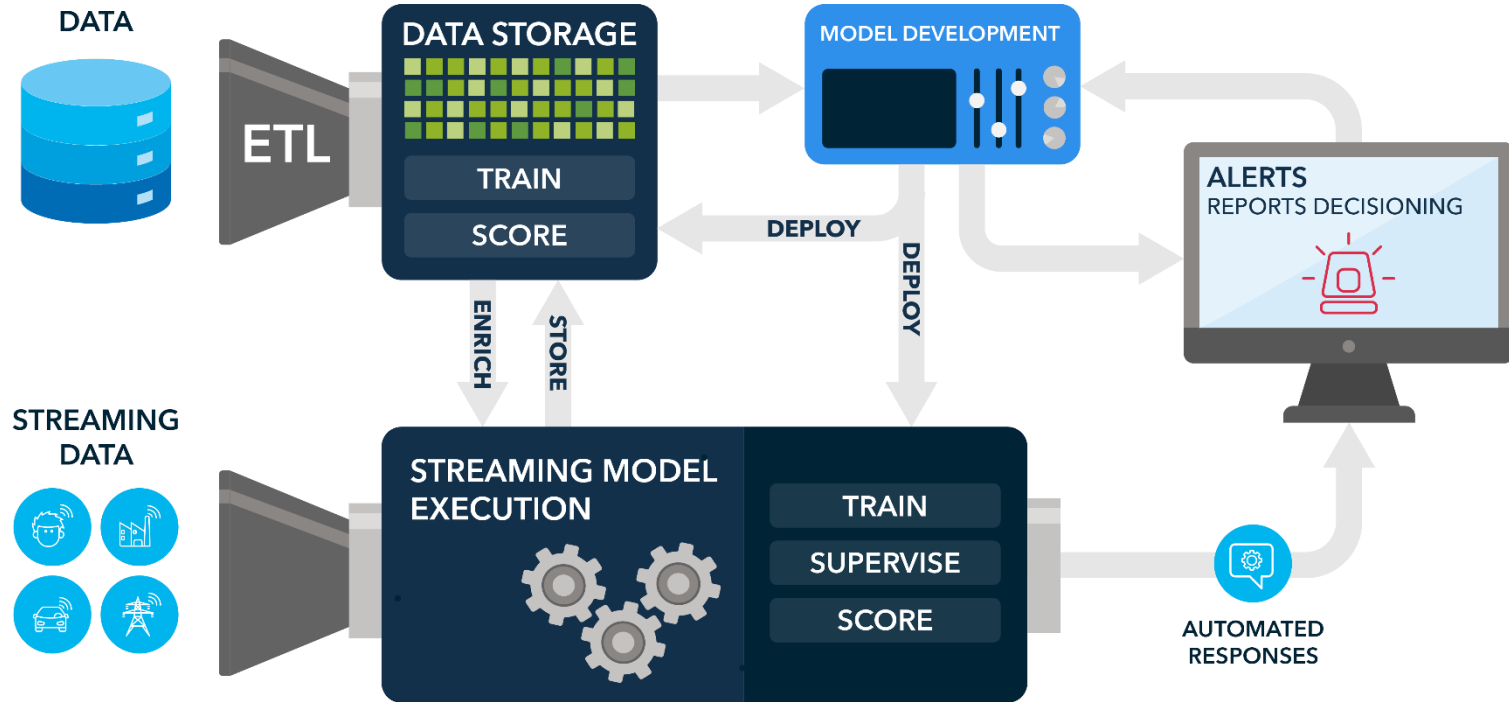
Natural Language Processing



Perception

IoT Analytics Lifecycle

Stream – Understand – Act



Data Sources

Holistic View

Descriptive

Diagnostic

Predictive

&

Prescriptive

F0

F1

F2

F3

F4

360 Vision of Production Quality



Preventive Alerts

WHY? ANALYZE
ROOT CAUSES

RT IDENTIFICATION

Predictive Alerts

COULD IT BE
PREDICTED?
 $f(\cdot)$

Prescriptive Alerts

CAN IT BE
AUTO-TUNED?
 $f(\cdot)$

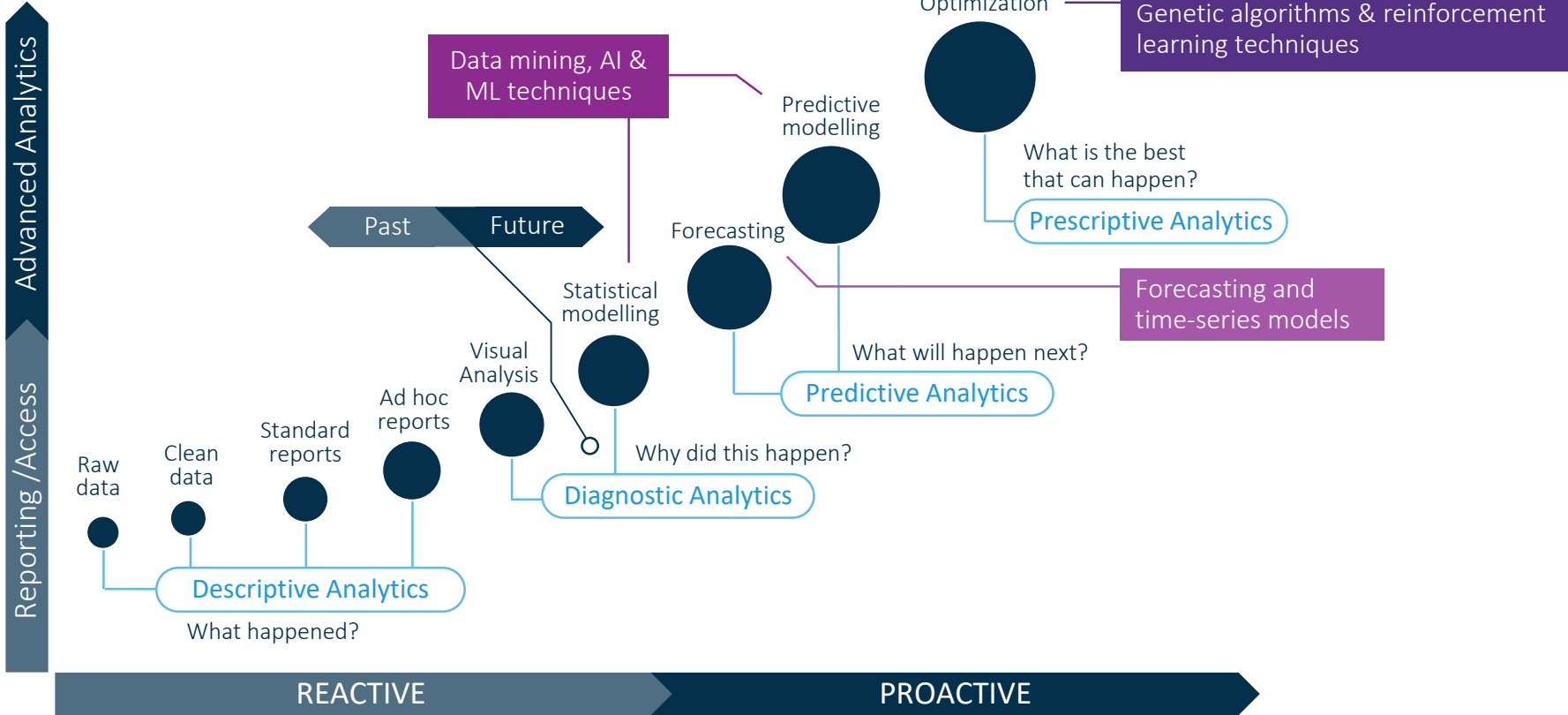
Accelerate Continuous improvement Methodologies

Discover Key Factors

Discover potential improvements

Optimization of Cost Input Mix

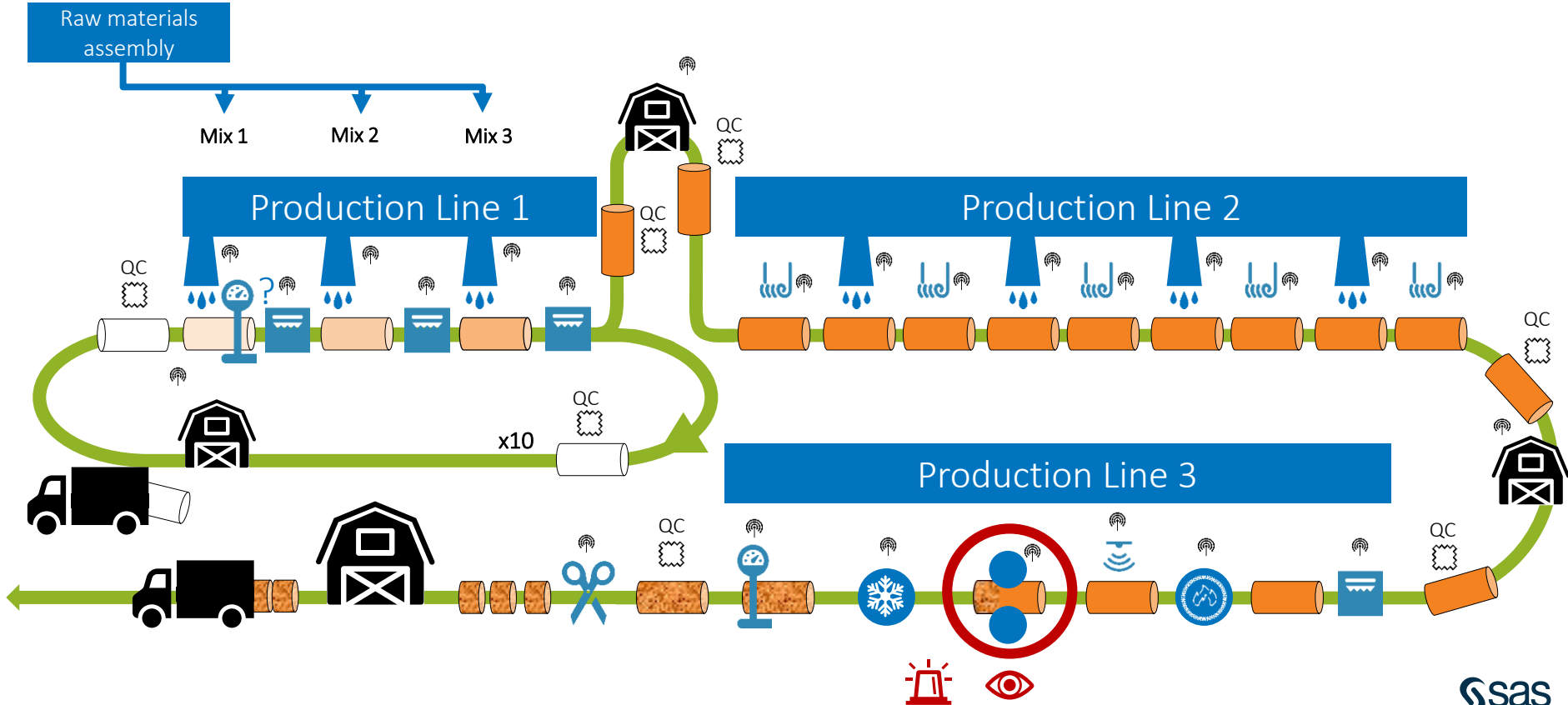
The Analytics Equation – The Insight



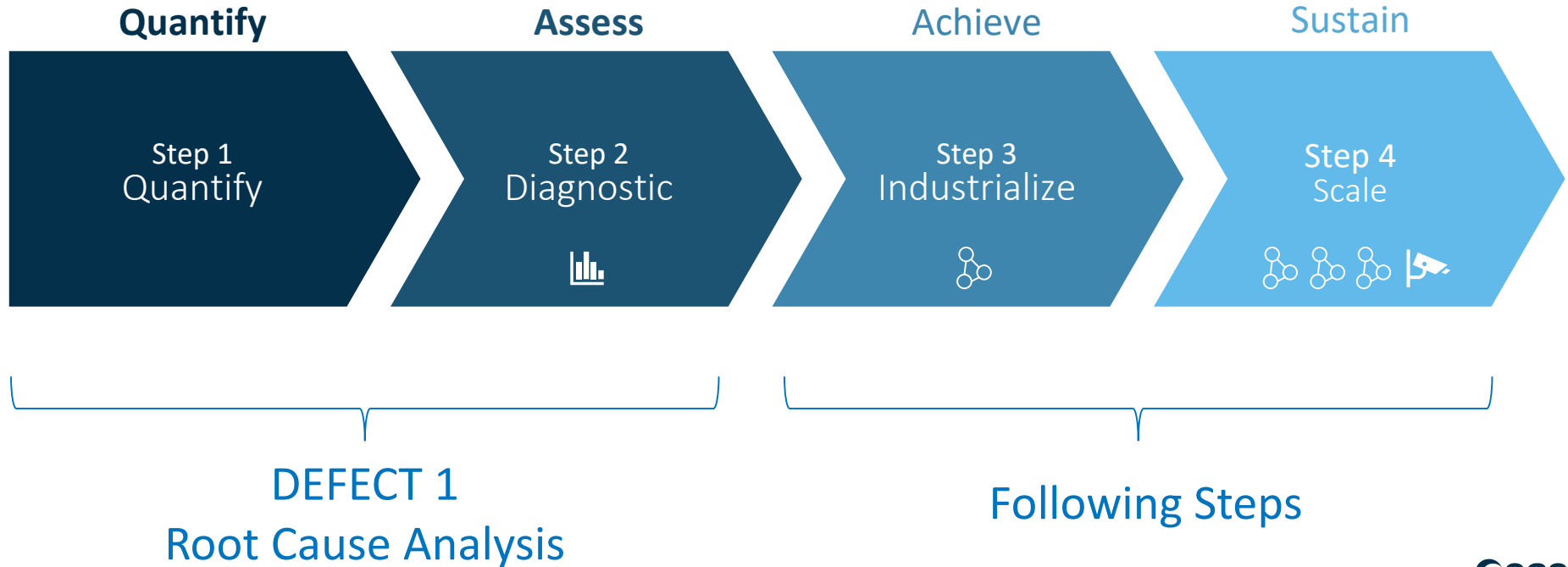
Desafio Colocado!

- Quais foram as perguntas mais importantes?
 - Sabemos quais são os defeitos com maior impacto na minha fabrica?
 - Desperdicio?
 - Custos de Imagem?
 - Risco de penlidades?
 - Sabemos quanto estão a custar esses defeitos?
- Queremos então saber quais as condições em que esses efeitos ocorrem!

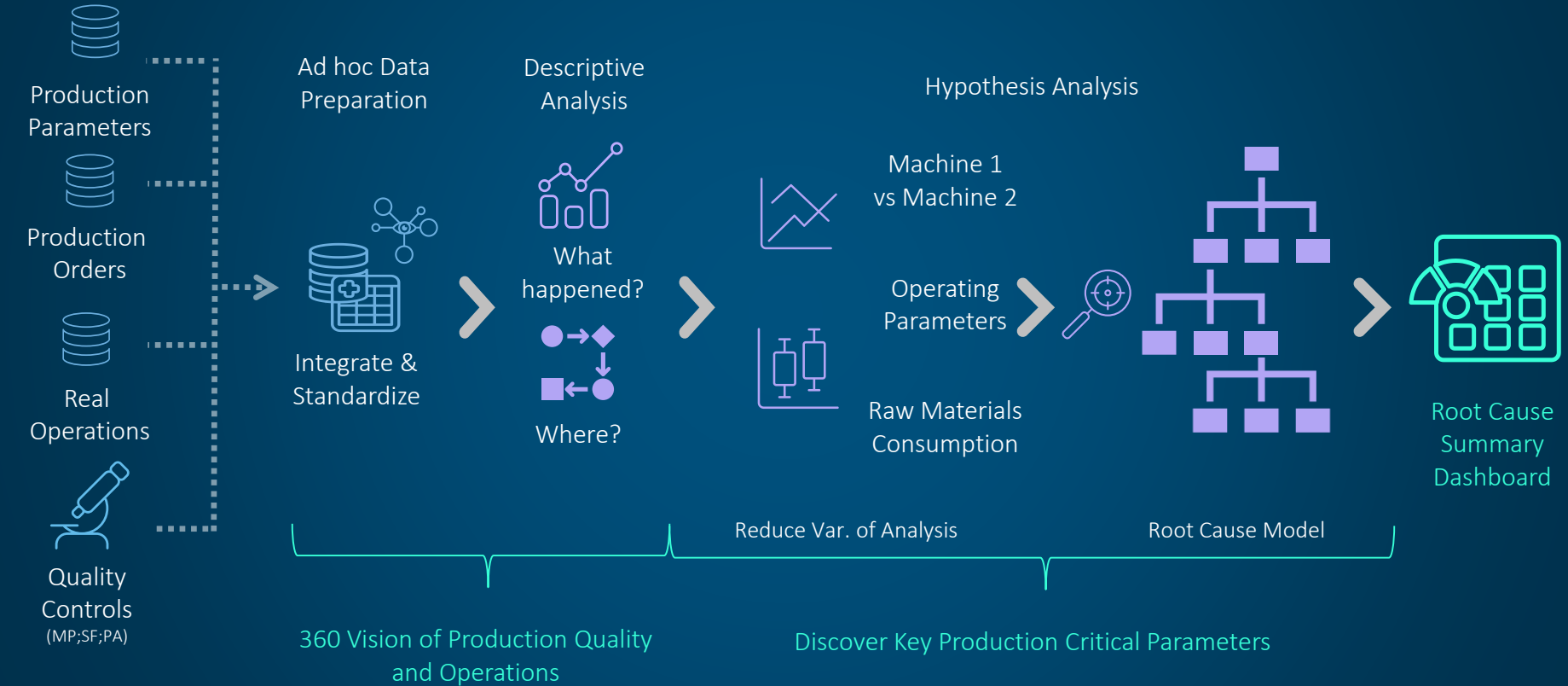
Customer Factory



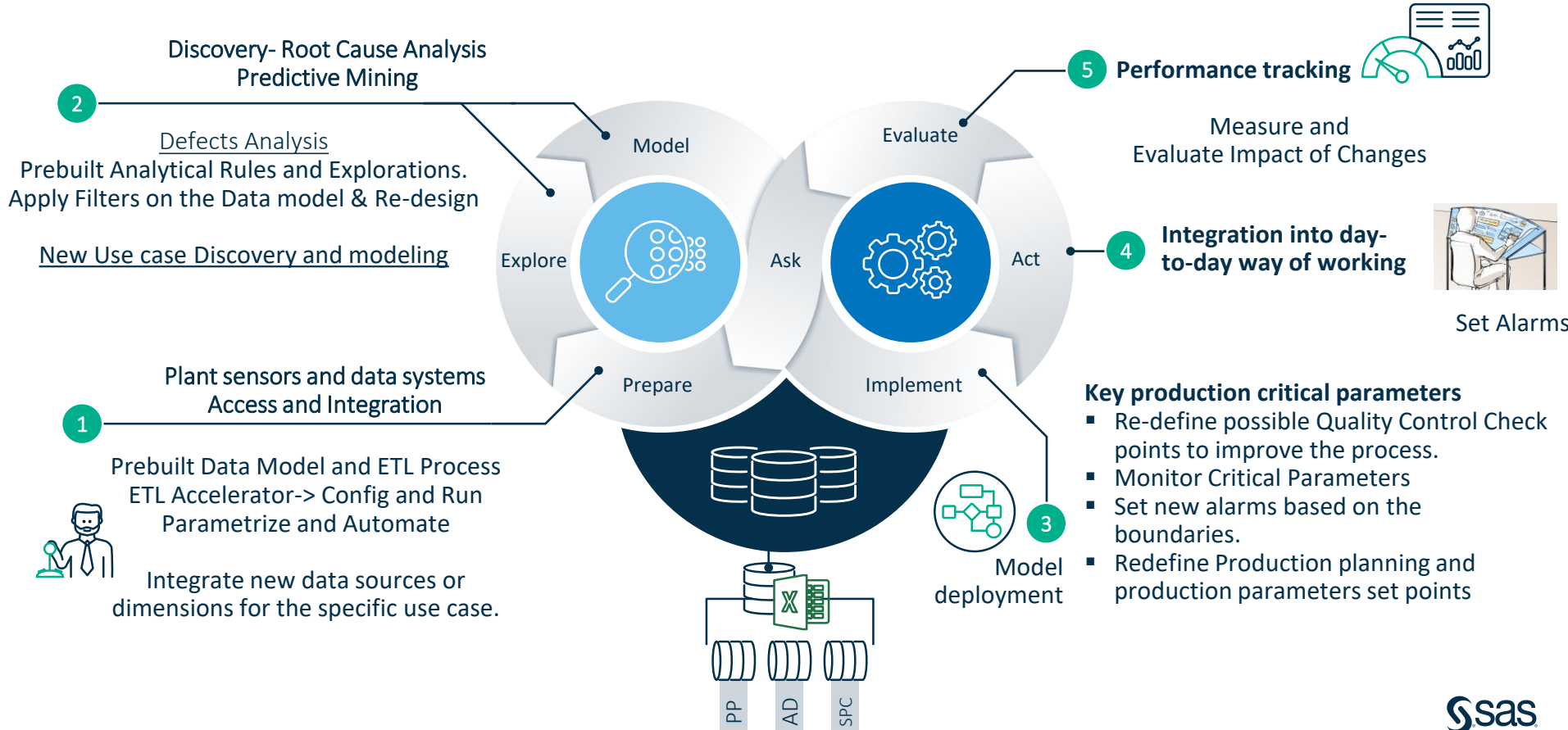
Abordagem Da Visão ao Valor



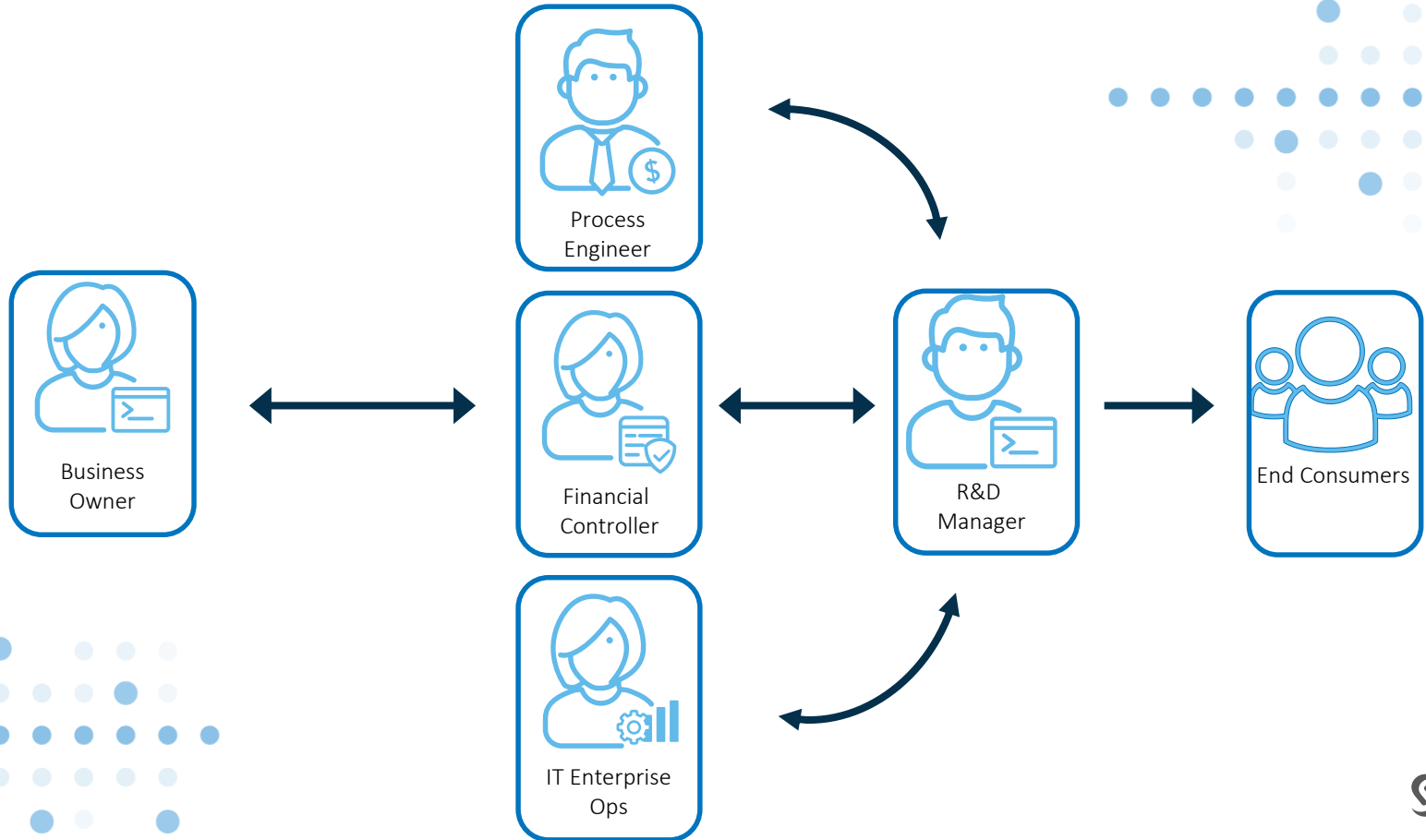
POV Approach



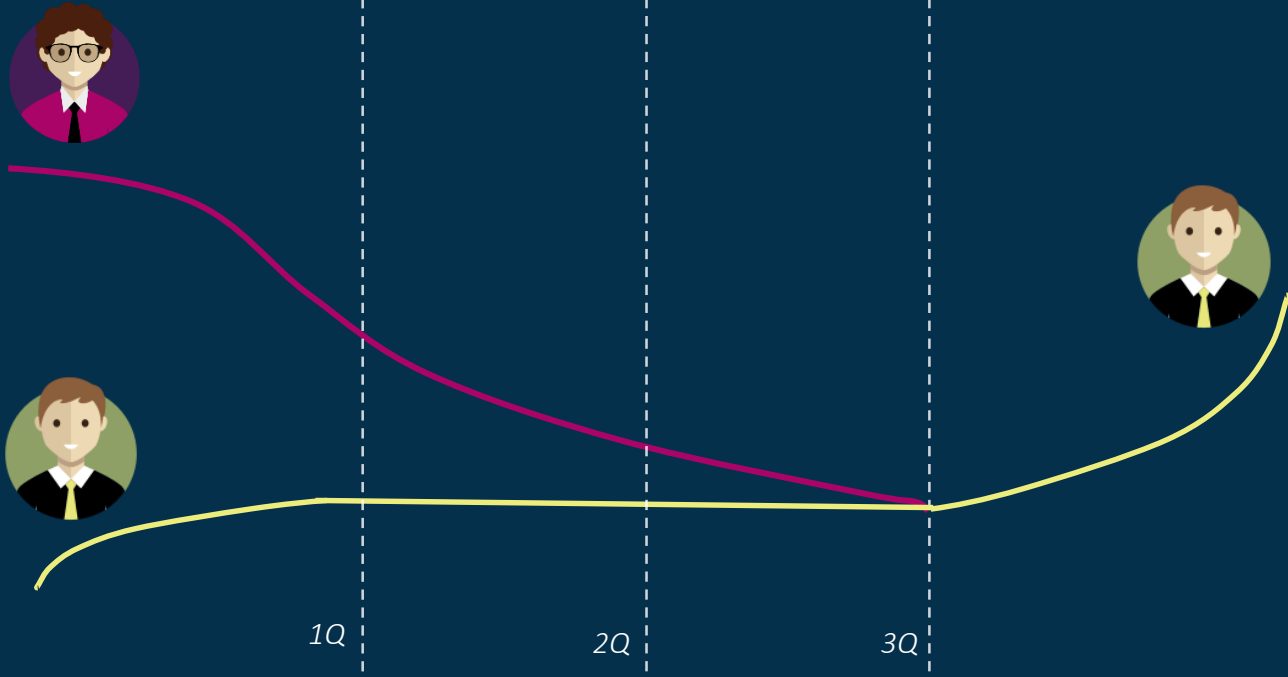
Industrialização



Recursos: Equipa Nuclear Indústria 4.0

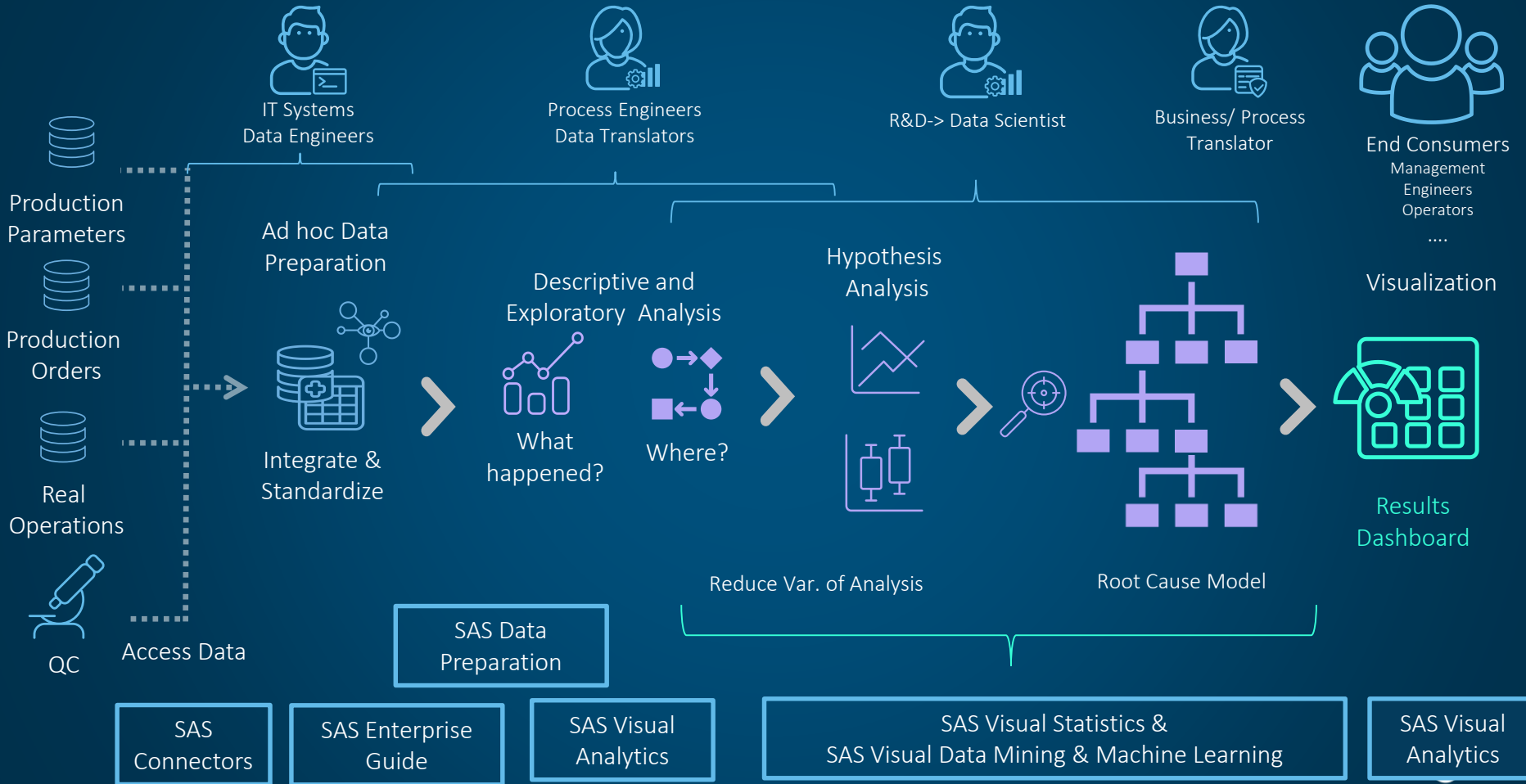


Abordagem em termos de recursos

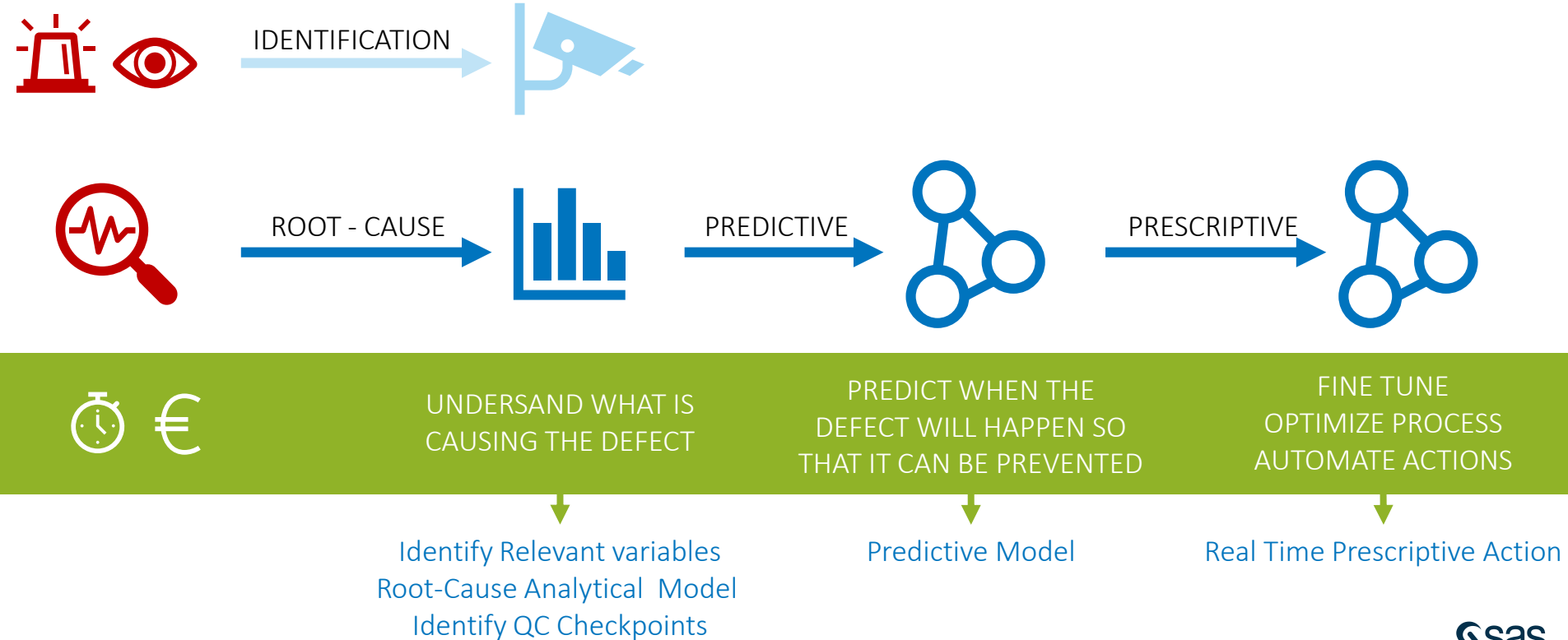


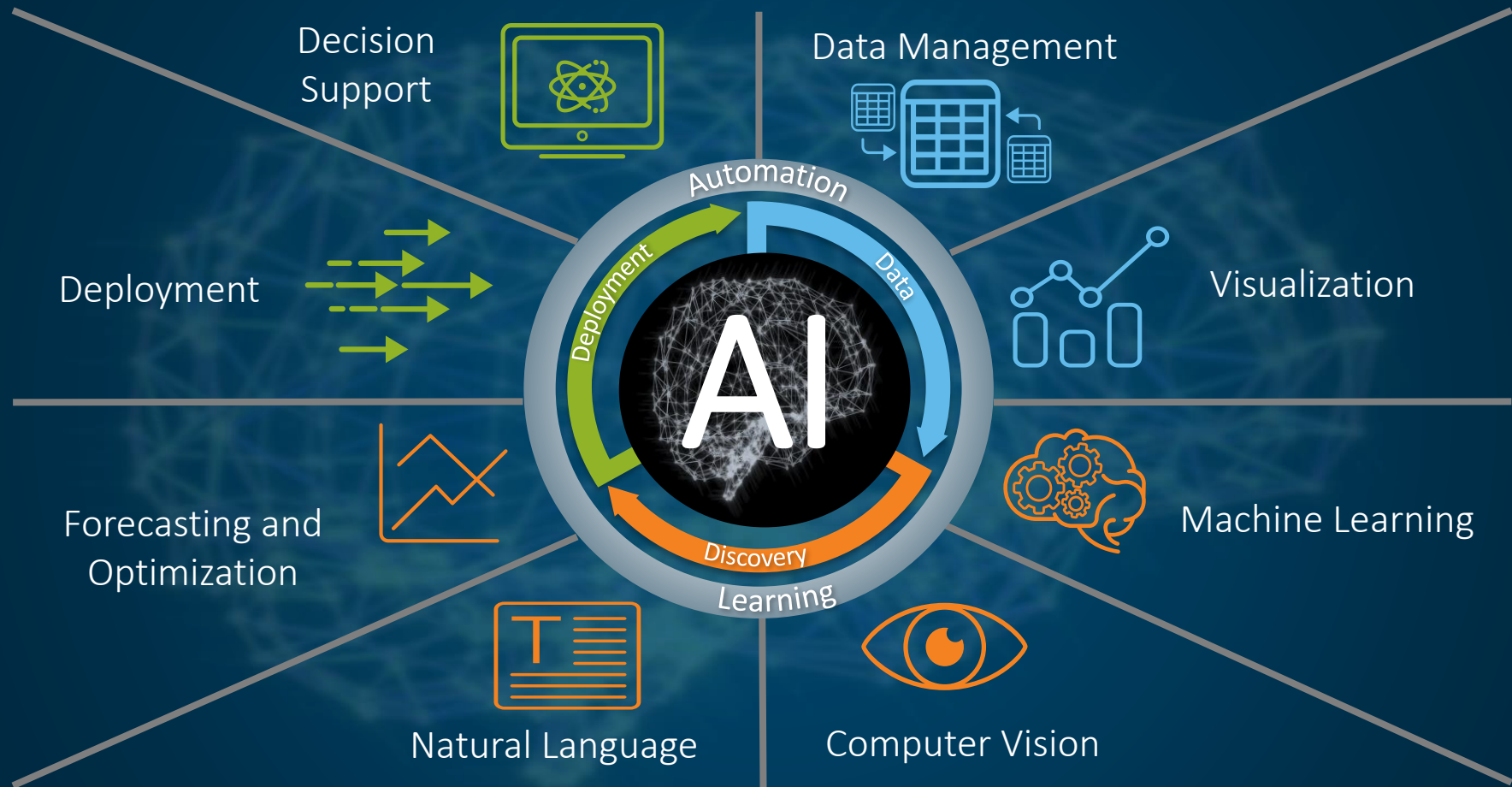
Learning evolution

Personas



Potential improvements identified





Key take aways!



**É UM PROCESSO,
NÃO É UMA
SOLUÇÃO**

**PEQUENOS
PASSOS,
MELHORE,
FALHE-CORRIJA**



**KNOW-HOW
INTERNO**



Transforming a world of data
into a world of intelligence



THE POWER TO KNOW®