

Rethinking Automation Culture

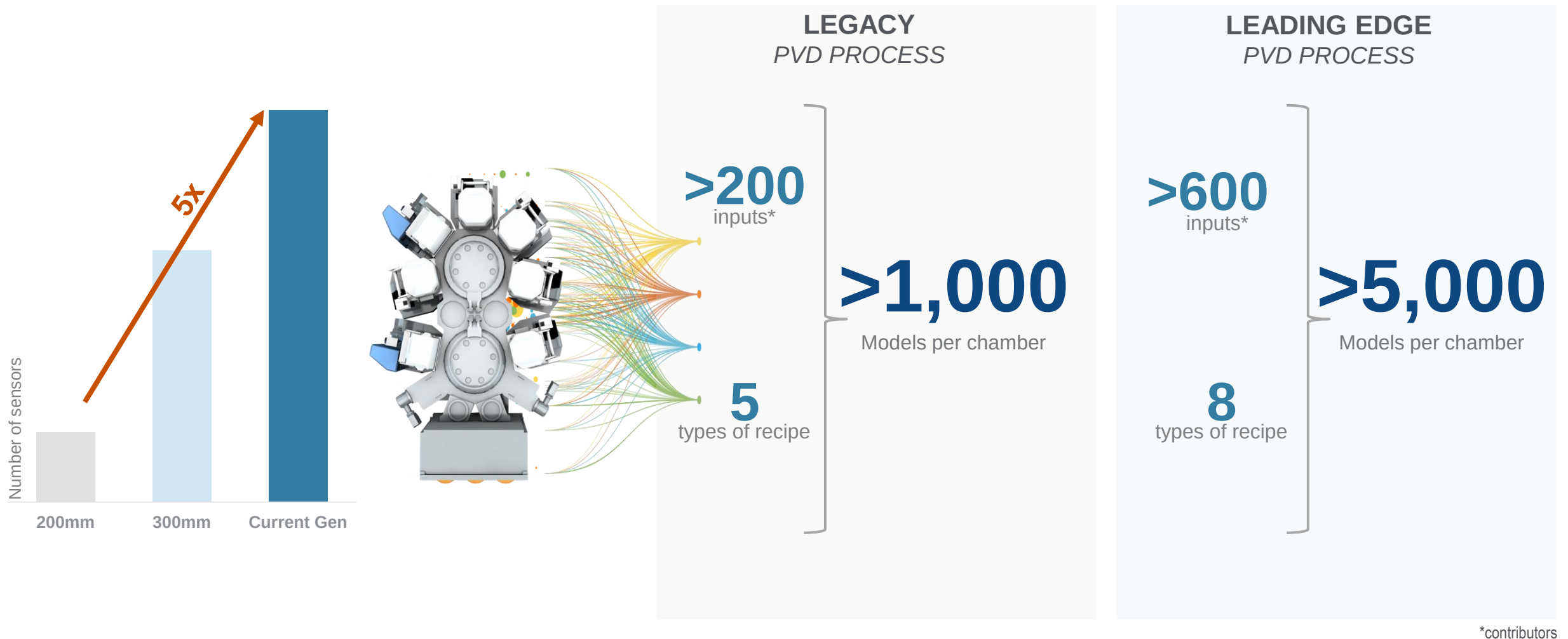
Chris Reeves

Global Product Manager – E3 | Automation Products Group

Semicon Europa. November 15th, 2023

External Use | Semicon Europa 2023

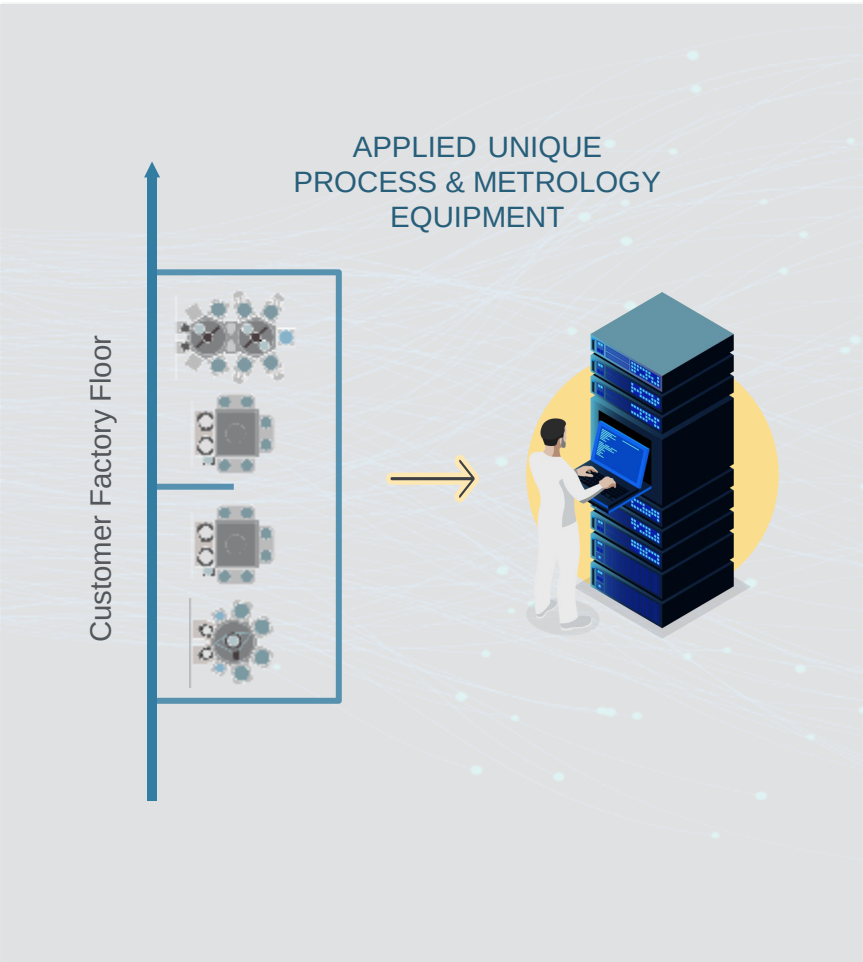
More complex tools, more sensors: More effort to maintain



Exponential Growth in Models to Manage

Extending Beyond Equipment Capabilities

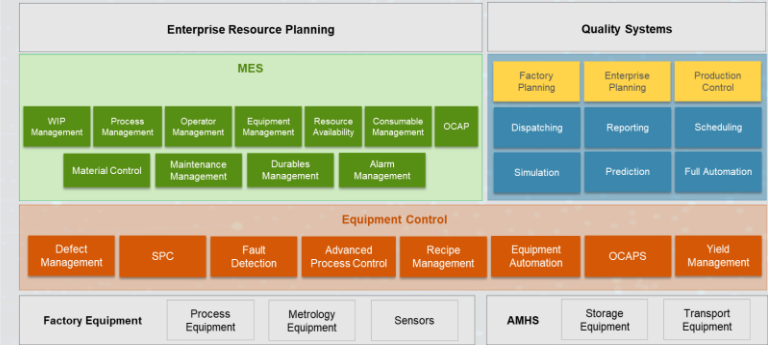
Intelligent Equipment



Advanced Services



Factory-wide Integration Solutions



Manufacturing Quality Extends Beyond Equipment Capabilities

Industry Challenges to Automation Design

People

Worldwide Fab Expansions

Growth with CHIPS ACT

Chip industry needs 1m more employees by 2030

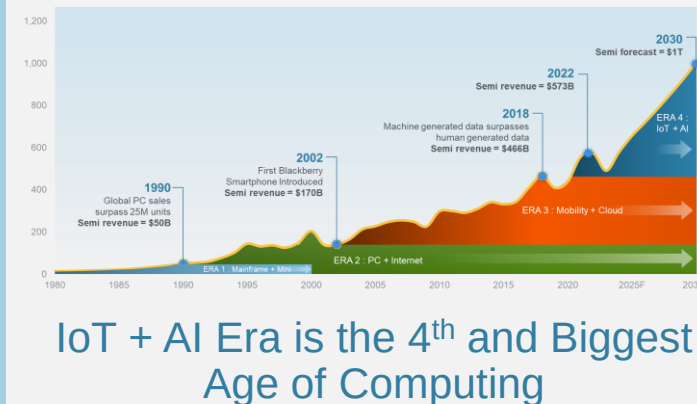
Employment in the semiconductor industry will have to rise from 2 million today to 3 million by 2030, according to [Deloitte's 2023 semiconductor industry outlook](#).

Feb 2023 Report

People with the background to understand the domain

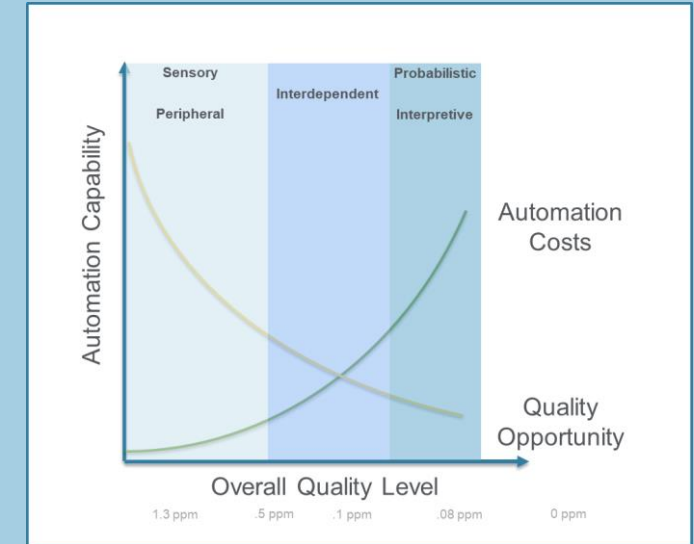
Economics

Semiconductor Industry Growing to \$1 Trillion by 2030*



Automation cost vs Quality cost

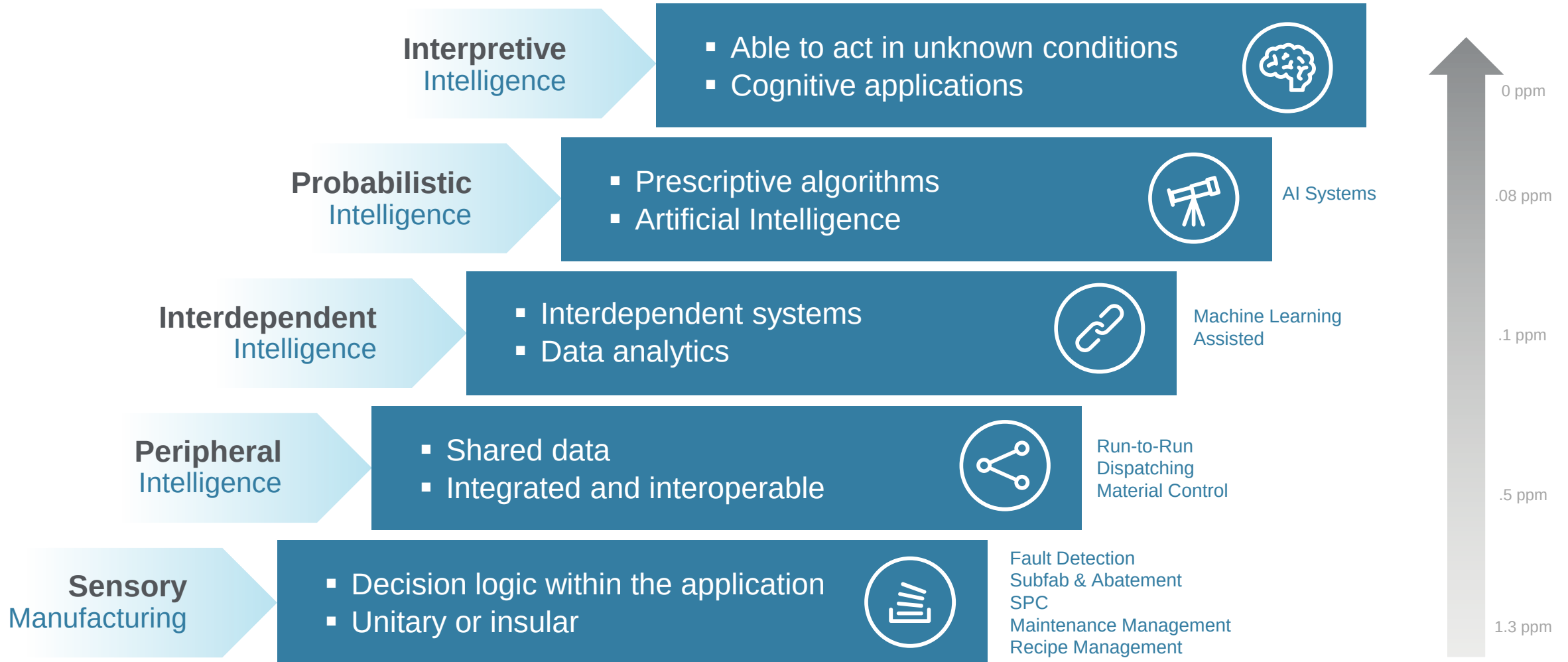
Technology



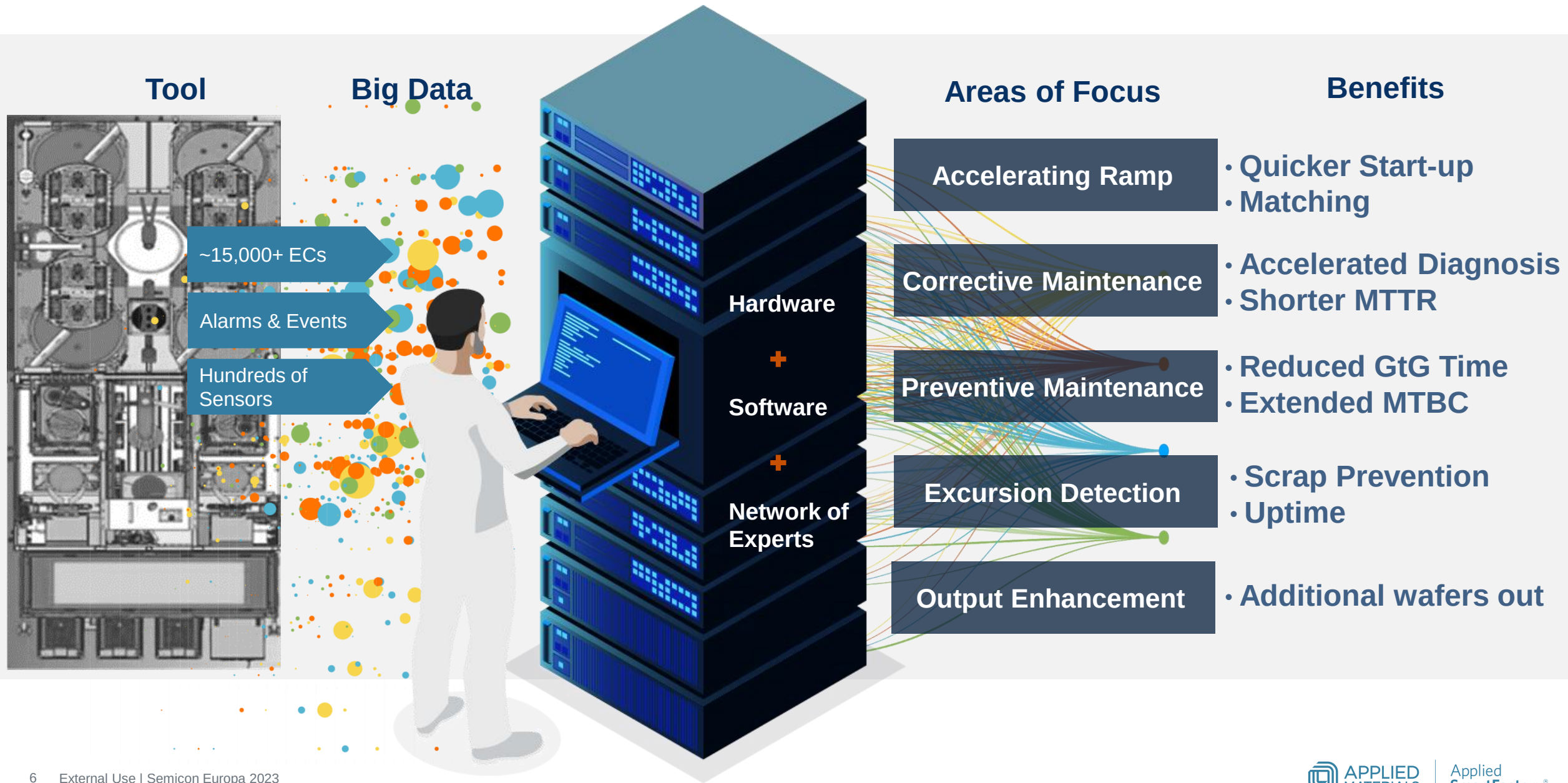
Foundation of technology to advance Automation

*Source: SIA, Applied Materials - SMI; 2030 Forecasts: TechInsights: \$1.0T; McKinsey & Company: \$1.1T; SEMI: \$1.3T

Automation Intelligence Maturity



Advanced Analytics to Deliver Value



Factory Integration For Greater Opportunity

Manufacturing Opportunity

Factory-wide Integration Solutions

WIP Management	Process Management	Operator Management	Factory Planning	Enterprise Planning	Production Control
Equipment Management	Maintenance Management	Resource Availability	Dispatching	Reporting	Scheduling
Durables Management	Consumable Management	OCAP	Simulation	Prediction	Full Automation
Material Control	Fault Detection	Recipe Management	SPC	Advanced Process Control	Equipment Automation

Advanced Services


Excursion Detection


Predictive Algorithms


PM Planning


Prescription

Intelligent Equipment

Process Equipment

Metrology Equipment

Sensors

Material Handling

Enabling:

- Wafer-level Control
- Anomaly Detection
- Predictive
- AI /ML

The Value of Unifying Automation Culture

ECONOMICS OF DETECTION

Early Detection



- Avg Detection below cost margin
- Prescriptive replacing reactive

COST OF INTELLIGENCE



Decision Quality

- Intelligent Automation
- Effective Decision

LOGISTICAL COST OF CONTAINMENT



Cost Per Event

- Risk Mitigated Automation
- Material Managed

AUTOMATION LEVEL



Rapid Reaction

- Speed of Decision
- Minimize exposed Material





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and



A



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