



Industry Trends

Connected Equipment

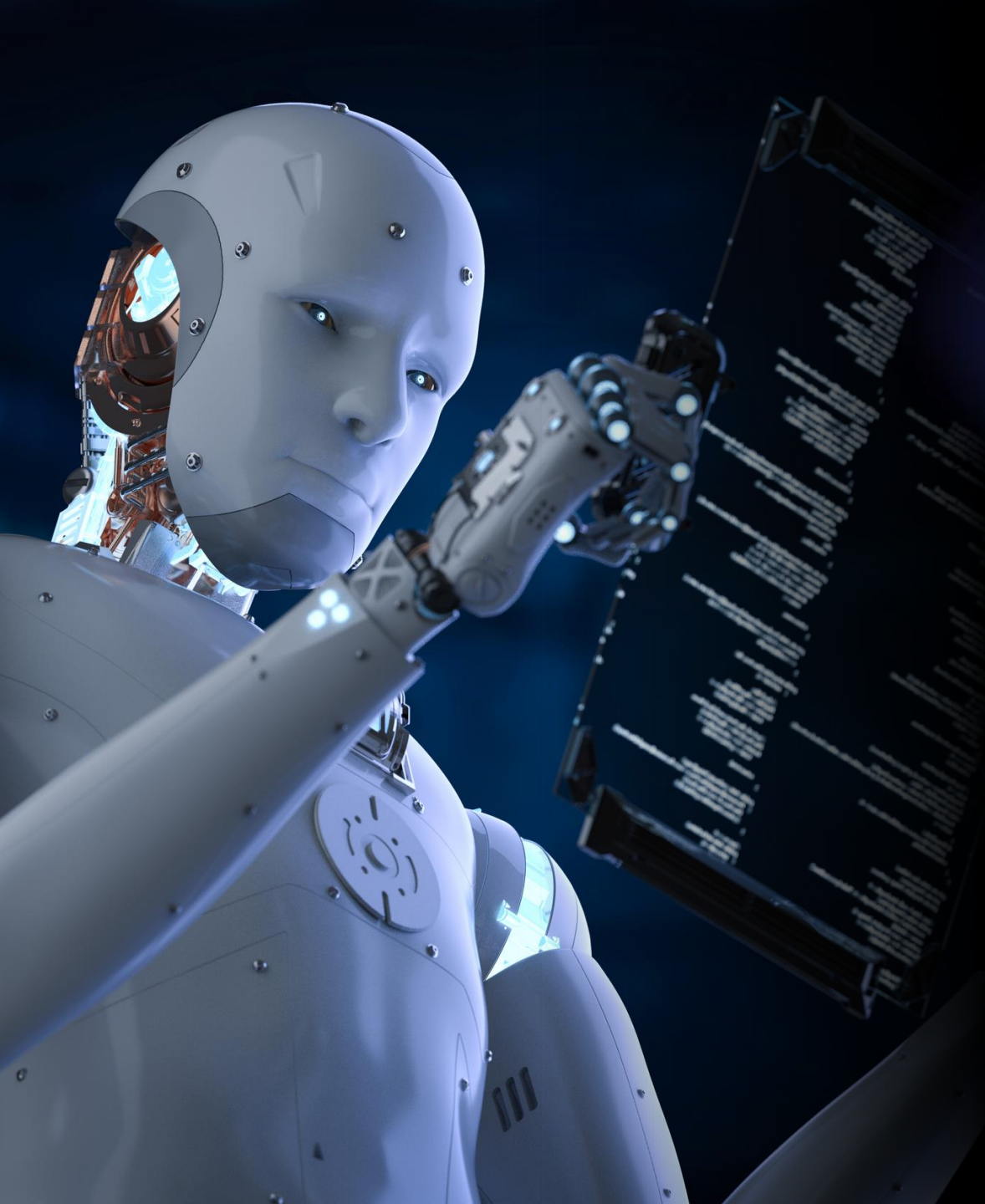
Version 6

08/15/2025

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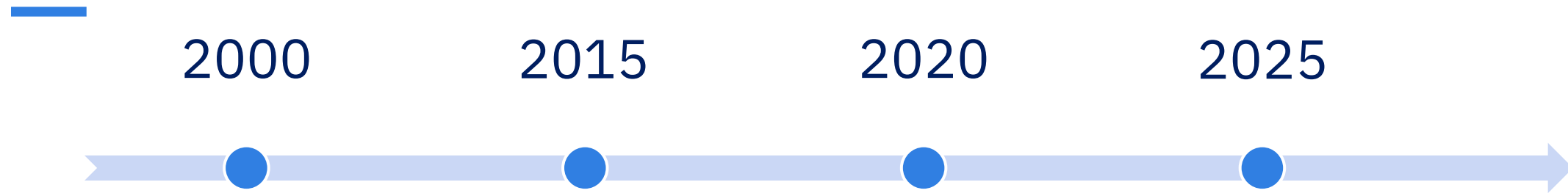


AI-DRIVEN COLLABORATION

NEW REALITY

- **Real-time data sharing** across value chain
- **Complex, multi-party** orchestration
- **Ongoing**, automated by **AI**, operational **collaboration**

Industry Trends for Semiconductor Equipment Software



01

Transition to 300mm

- Factory Automation Connectivity becomes a Requirement
- Biggest problem in the Wafer Fab was quality and reliability of equipment software

Equipment Software Product Portfolio

Product Family		Product/Platform	Interface(s)
 Equipment	Connectivity	CIMConnect	GEM
		CIM300	GEM 300
		CIMPortal Plus	EDA (Equipment Data Acquisition)
		EquipmentConnect	GEM, GEM300, EDA, Other
		EquipmentTest, EDATester, ECCE Plus	GEM, GEM 300, EDA
	Control	CIMControlFramework (CCF)	GEM, GEM 300, EDA

Standards Leadership - Your Trusted Advisor



Brian Rubow

Director, Solutions Engineering

- Vice-Chair of SEMI NA RSC (Regional Standards Committee) Organization
- Co-Chair of SEMI NA Information and Control Global Technical Committee Leader of SEMI DDA and GEM300 Task Forces
- Leader of SEMI HB-LED Equipment Communications Interface Task Force
- Co-Leader Advanced Factory Backend Integration



Ranjan Chatterjee

VP of Cimetrix Connectivity Group – Smart Factory

- iNEMI Board of Directors
- Founding member SEMI Smart Manufacturing Advisory Council
- Task Group Leader of IPC Connected Factory Initiative Subcommittee
- Co-Chair of the Smart Manufacturing Technical Working Group of iNEMI



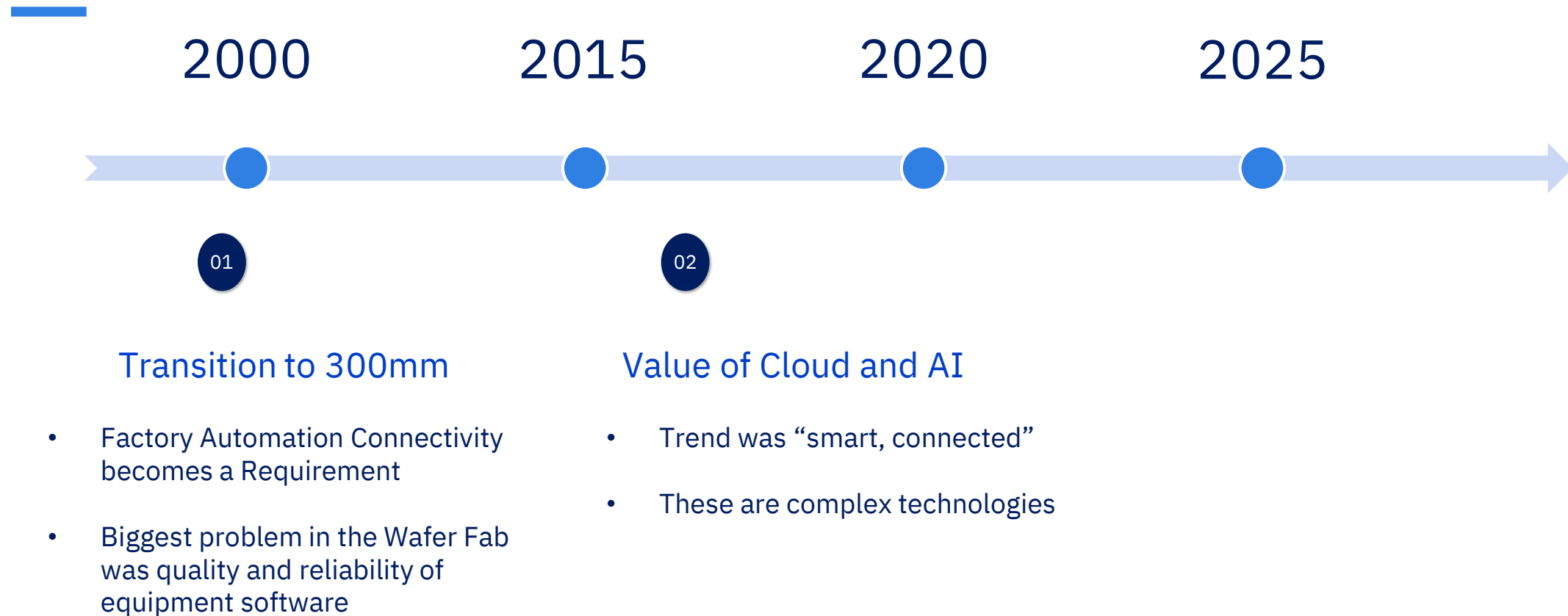
Alan Weber

VP, New Product Innovations

- Equipment and factory control system architectures
- Advanced Process Control (APC) and other key manufacturing applications
- SEMI Information and Control standards, especially EDA/Interface A
- Semiconductor manufacturing system technologies

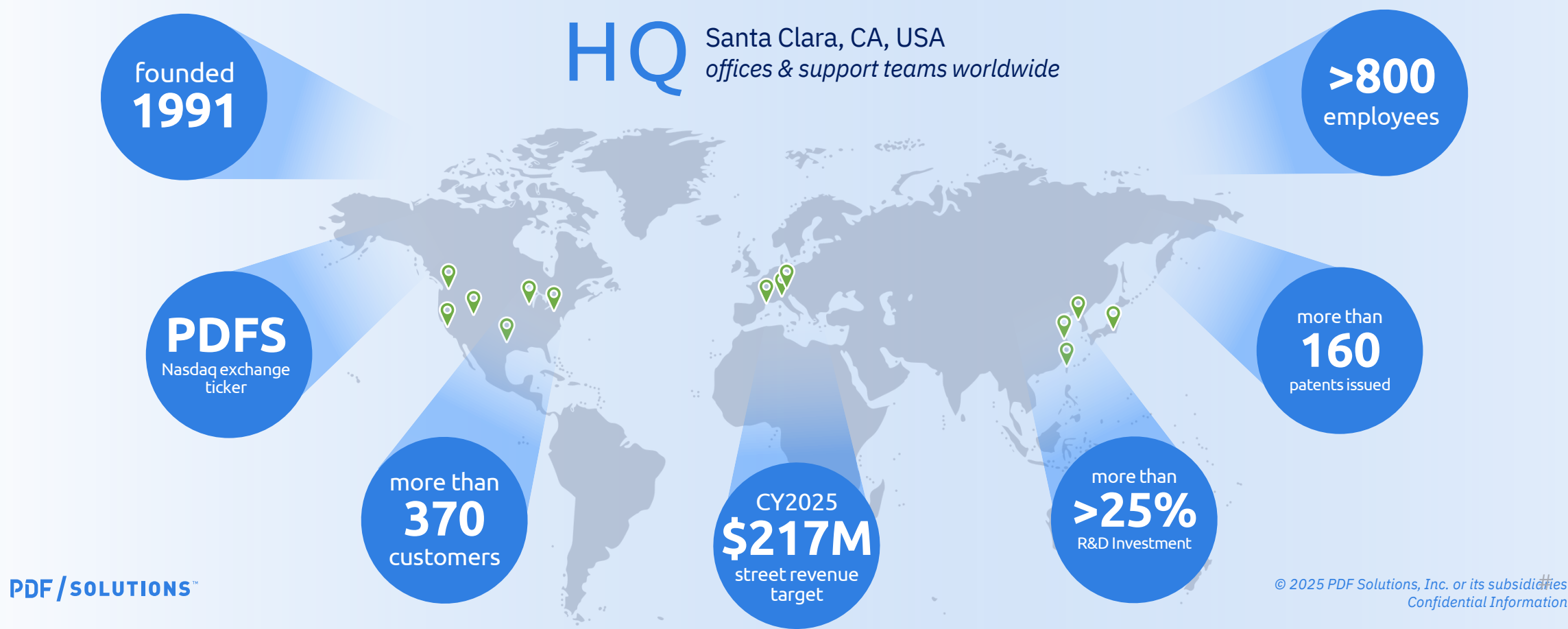


Industry Trends for Semiconductor Equipment Software



PDF Solutions: Enabling the Digital Transformation of Semiconductor Manufacturing

We **generate and integrate** data across the supply chain, and using **AI** we drive fast improvements in **yield, quality, and efficiency**.



PDF Solutions Products and Solutions

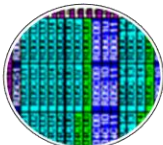
Lab to Fab Differentiated Data

Design genetics
inc. layout family

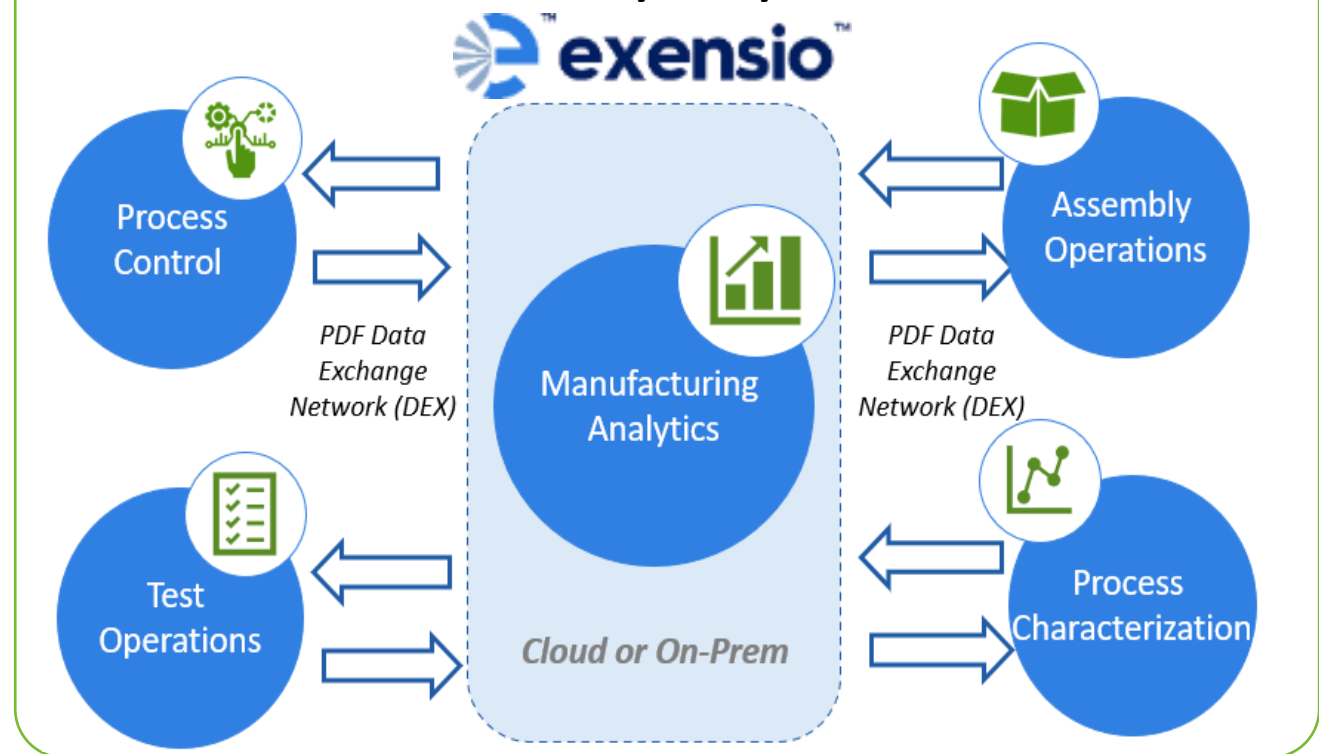
 

DFI e-beam
characterization

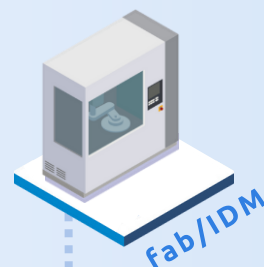
  

CV probed
characterization

Fab, Test, & Assembly Analytics and Control

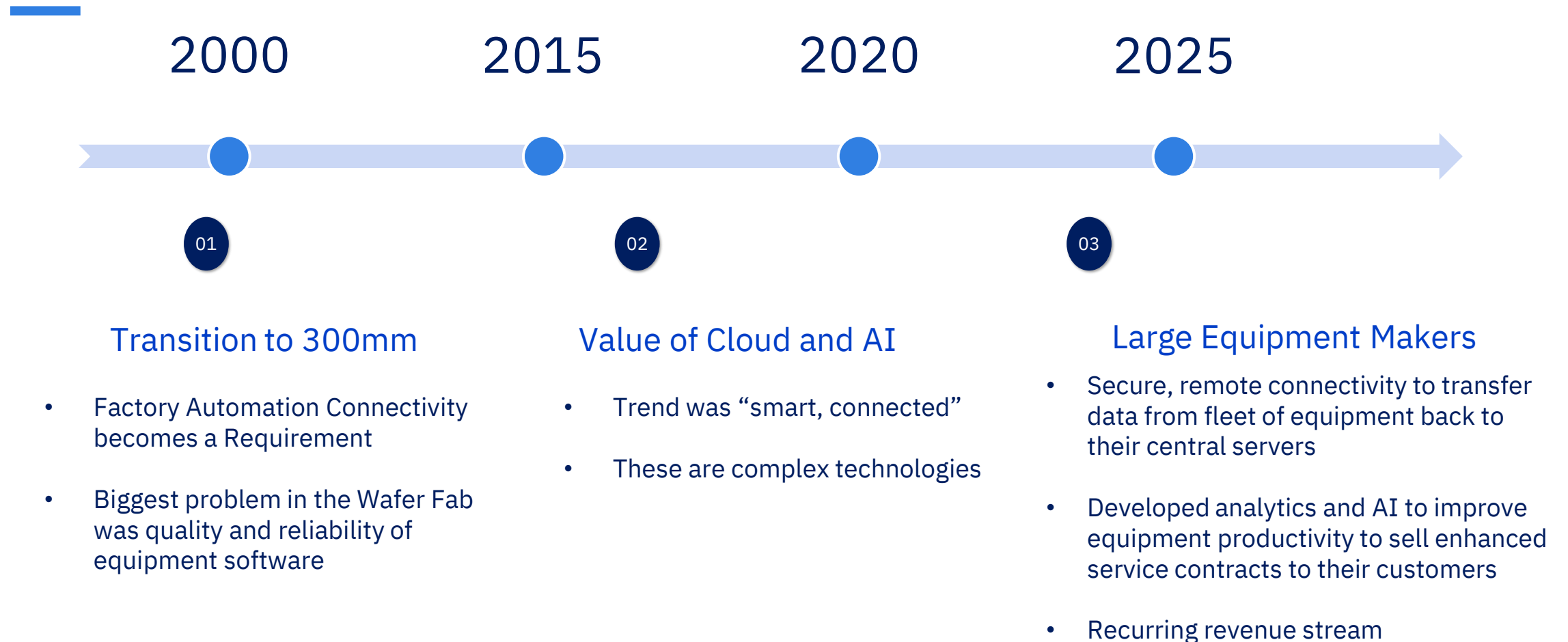


Working across the entire semiconductor ecosystem



Representative companies, not intended to disclose customers

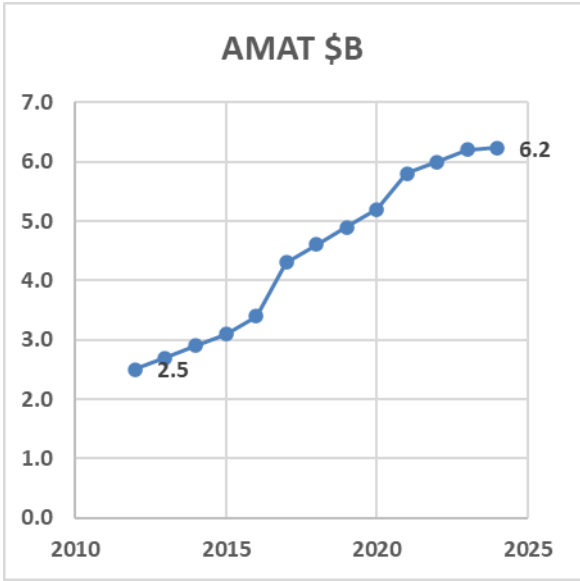
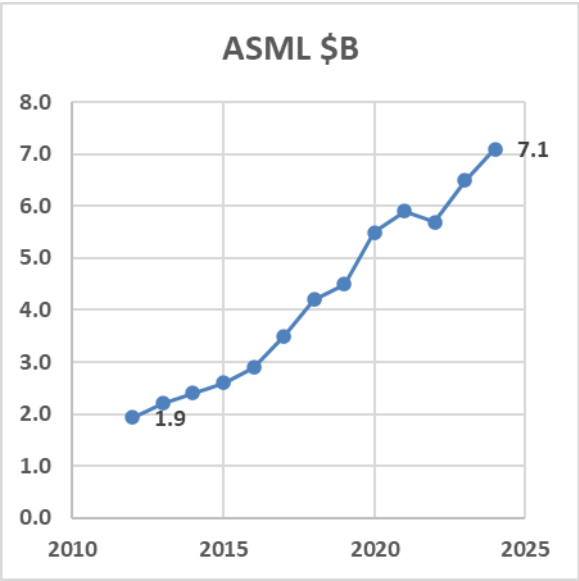
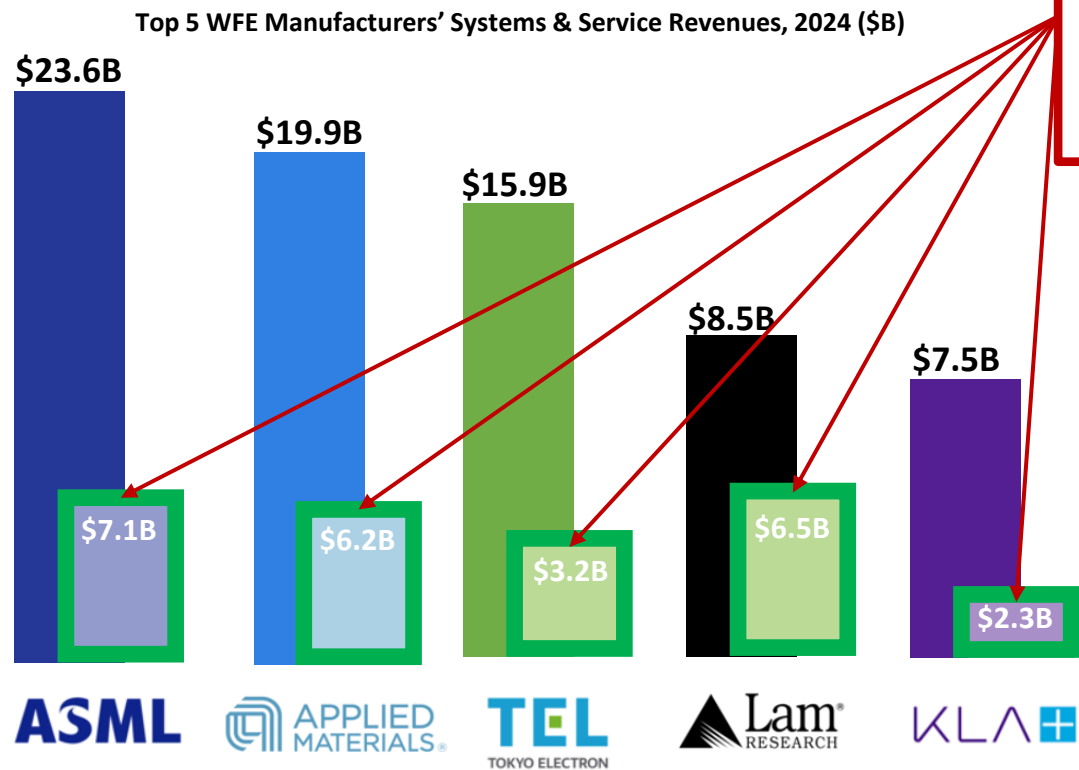
Industry Trends for Semiconductor Equipment Software



Semiconductor Market Size - 2024

- Total Global semiconductor market - \$627.6B
- WFE Market - \$117B

- Service Growth Exponentially Increasing
- Recurring Service Revenue from Top 5 Equipment Manufacturers - \$25.3B



01

SECURE DATA INFRASTRUCTURE



Secure remote connectivity for the semiconductor industry

01 End-to-end secure access
across private networks

02 Virus scan for secure equipment
software updates

03 Granular user permission for
remote control & optimization



OEM BENEFIT

**INCREASE SERVICE
REVENUE WITH AI**

**SECURE SOFTWARE
UPGRADES FOR EQUIPMENT**



FAB BENEFIT

INCREASE FAB UPTIME

**OPERATIONAL
EFFICIENCY**

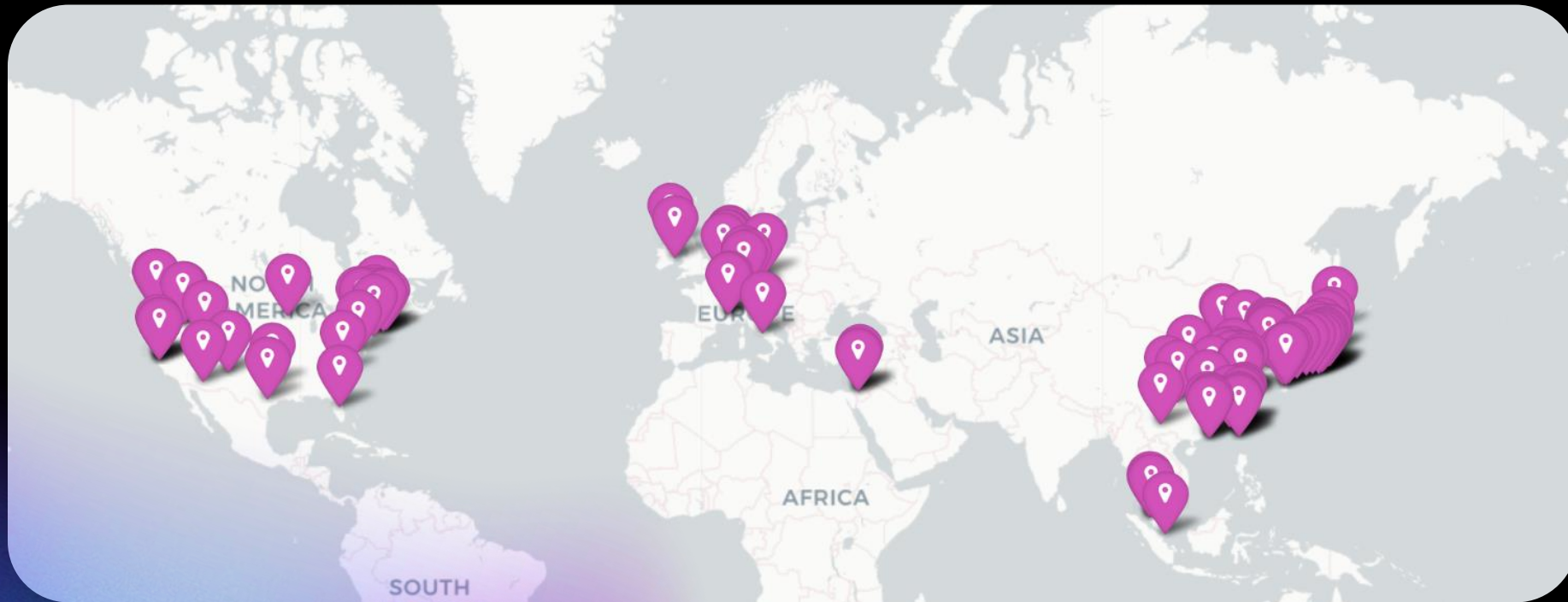
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01

SECURE DATA INFRASTRUCTURE

THE SECURED DATA ACQUISITION NETWORK IS ALREADY IN PLACE

+300 manufacturing locations



OVER **100** OEMS
CONNECTED

ISO: **27001**

0 SECURITY BREACH
IN OVER **20** YEARS

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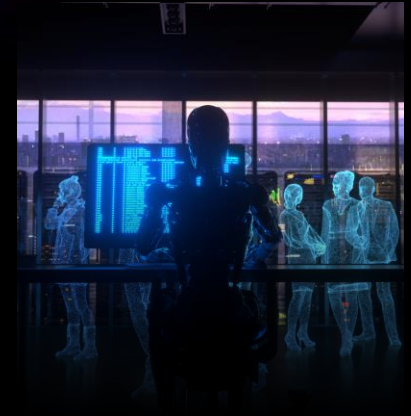
FOUNDATION FOR AI-DRIVEN COLLABORATION



01 Secure data
infrastructure

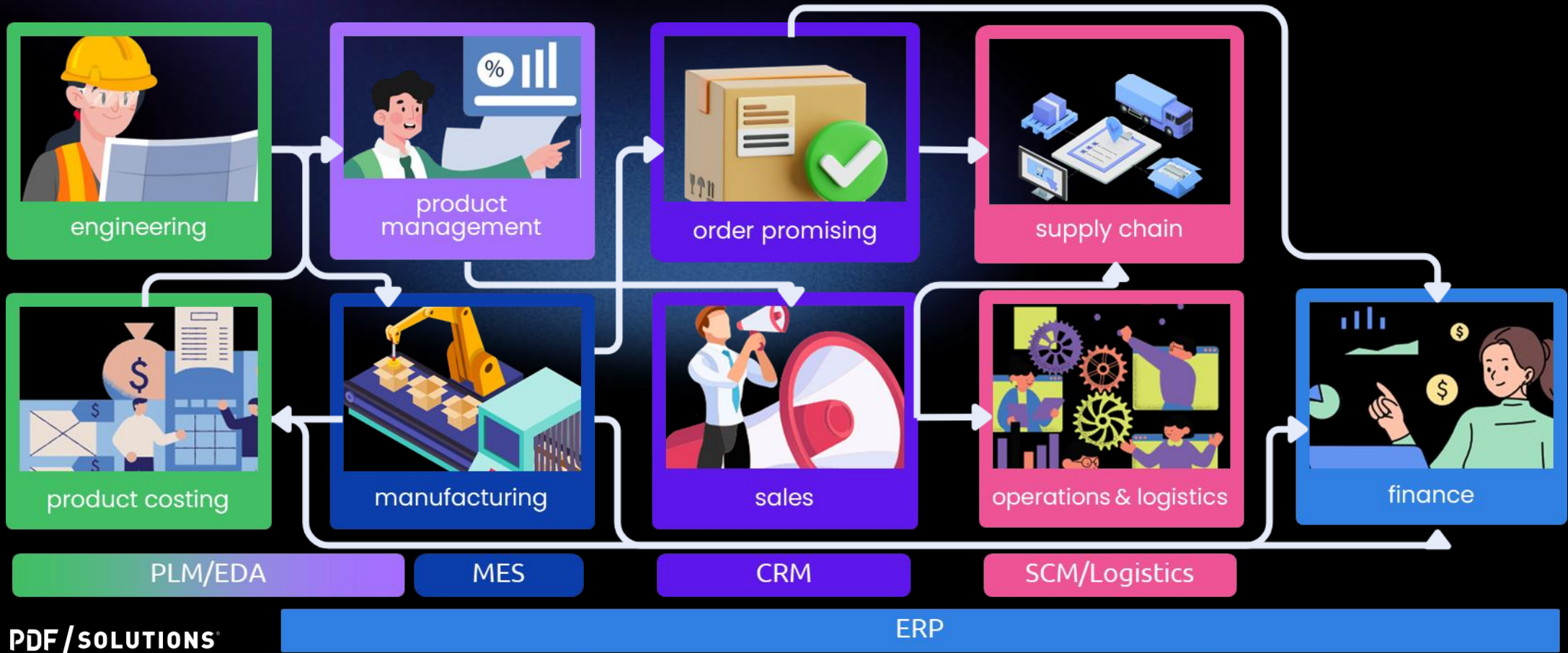


02 Automated
orchestration

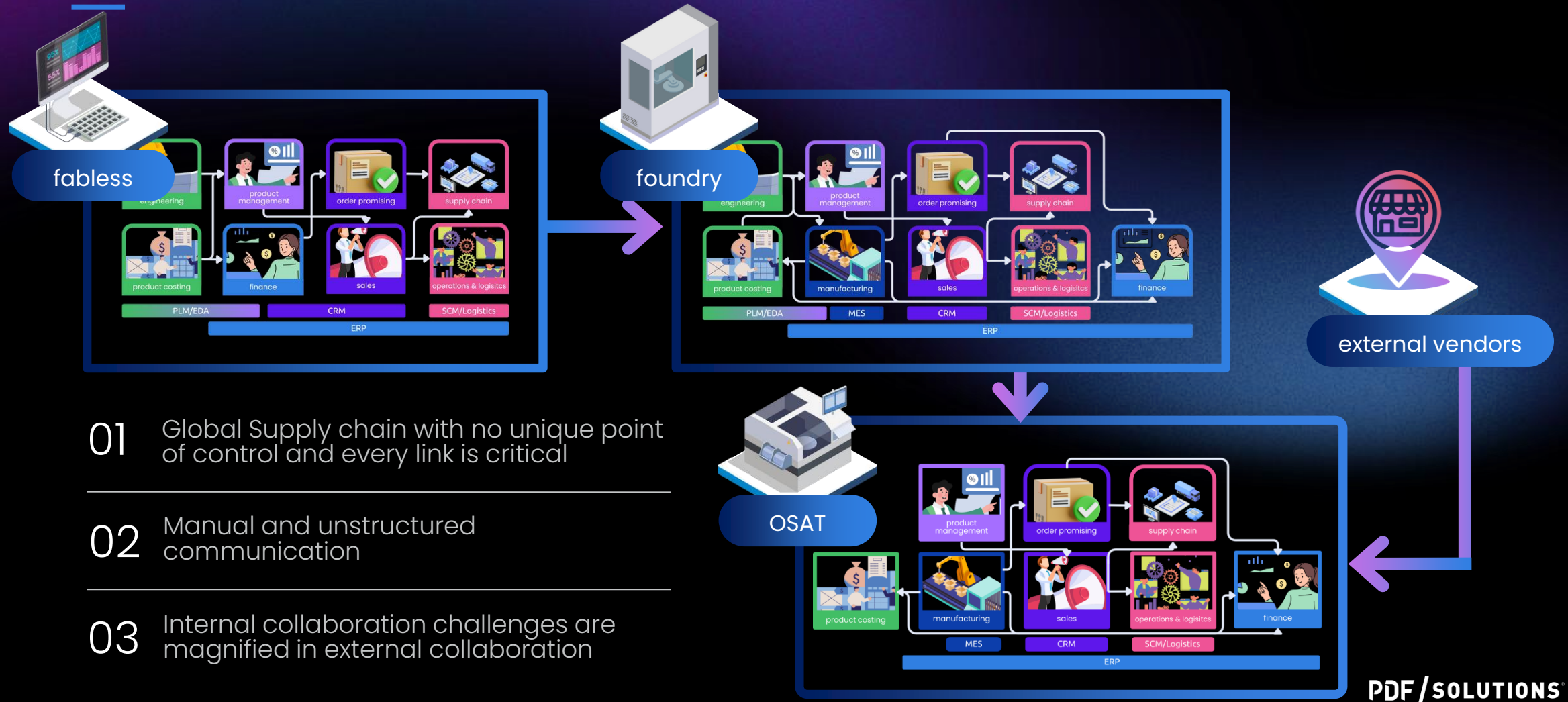


03 AI agents

COLLABORATION WITHIN THE ENTERPRISE

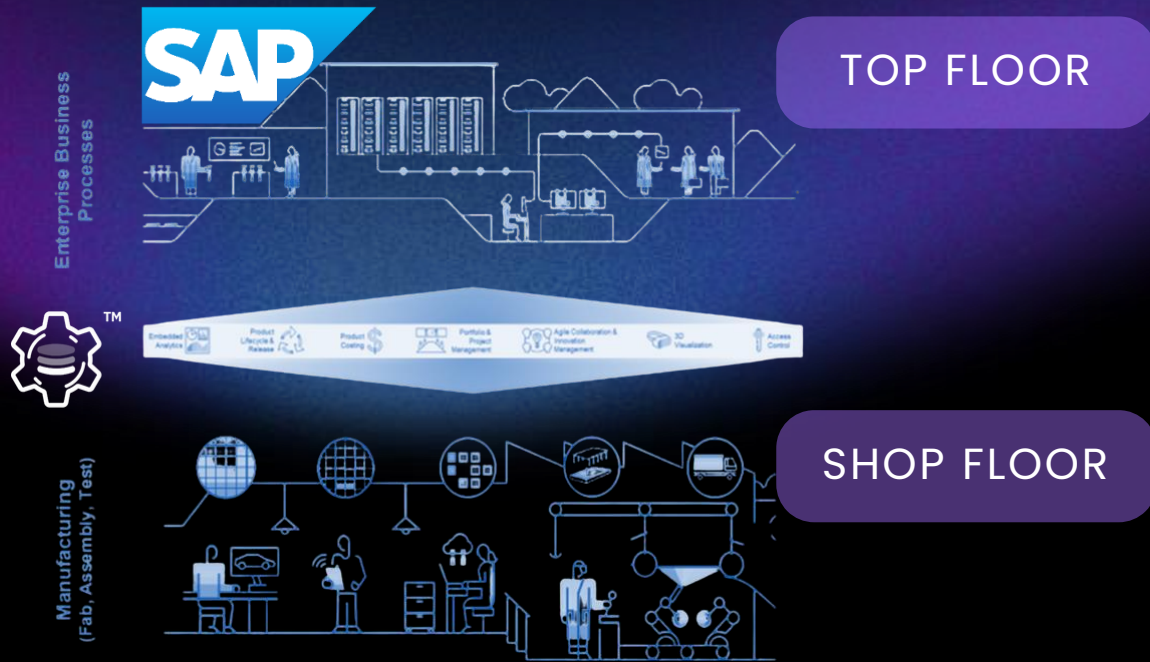


COLLABORATION ACROSS THE SUPPLY CHAIN



AUTOMATED ORCHESTRATION

DRIVE ENTERPRISE PROCESSES WITH MANUFACTURING DATA



- 01 A common data & logical model for Products / Assets
- 02 Extend business processes, logic, and data to the manufacturing edge
- 03 Derive business Insights directly from manufacturing
- 04 Connect, transform, manage, & orchestrate MES & Manufacturing data
- 05 AI-ready manufacturing data repository to accelerate decision making

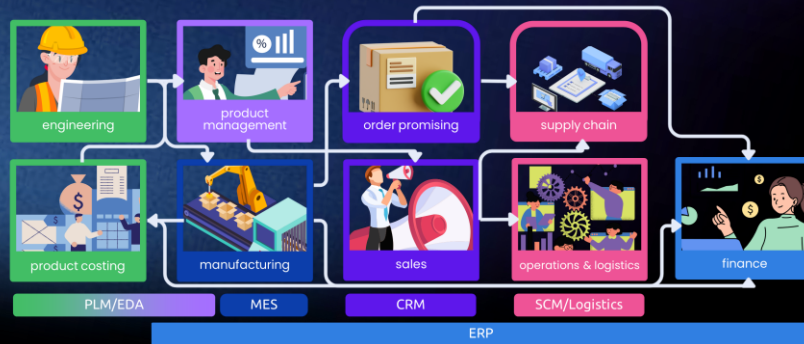
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AUTOMATED ORCHESTRATION

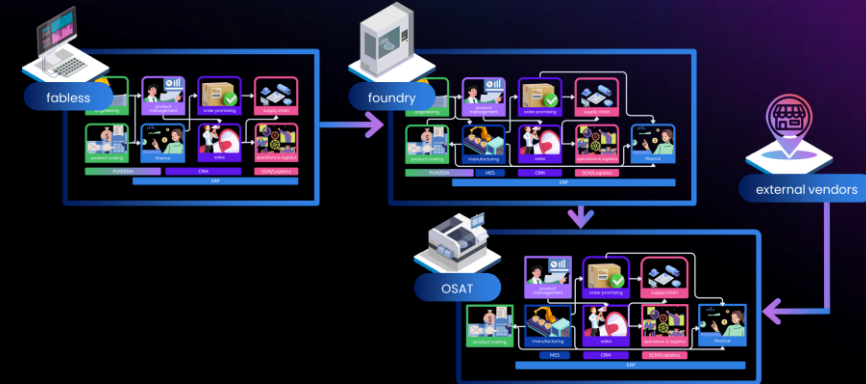
ORCHESTRATIONS

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INTERNAL OPERATIONS



EXTERNAL OPERATIONS / OSAT



01 **Product Costing:** Accurate and up-to-date costing information based on actual resource consumption

02 **Order Status:** Real-time updates on order status and yield

03 **Quality:** Rapid identification and isolation of at-risk materials.

01 **Test Flow:** automate test flow management

02 **Quality:** Streamline & automate quality assurance

03 **WIP:** real time WIP tracking & management



02

AUTOMATED ORCHESTRATION

ALIGN & ABSTRACT DATA TO ACCELERATE DECISIONS

- 01 Use actionable manufacturing data to drive business decisions
- 02 Automate business processes within and across enterprises
- 03 Deploy and orchestrate AI agents to automate and accelerate decisions

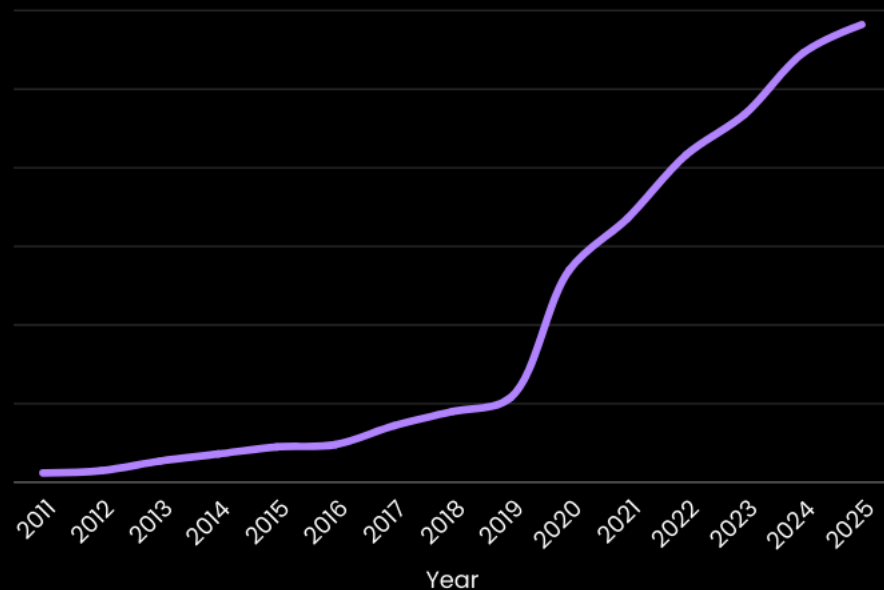
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01

SECURE DATA INFRASTRUCTURE

Exabytes of data exchanged
between **Fabs and OEMs** on the

 **secureWISE**™ network



**Data exchange
across the global
semiconductor
industry is
exploding**

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The Value of Data

“The most valuable asset we have at Tesla is all of the data collected from the fleet of Tesla’s on the road.”

- Elon Musk, 2024 Tesla Shareholder Meeting

Agenda - Morning

Welcome, who is PDF Solutions, why this summit

Bob Reback, PDF Solutions

Keynote - Intel

Wes Sparks, Intel

Secure remote connection to fabs & equipment, secureWISE update

Mike Dempsey, PDF Solutions

Break

Keynote – Solution Strategy for the equipment industry

Patrick Pannese, PDF Solutions

Panel discussion: emerging SEMI security standards

Mike Tanori, Intel

Alan Weber, PDF Solutions

Brian Rubow, PDF Solutions

Gregg Saffell, PDF Solutions

Lunch

Agenda - Afternoon

Equipment connectivity and control solutions

secureWISE product updates and roadmap

Customer presentation - ASML

Break

Customer presentation - eProbe

secureWISE serviceNET update

secureWISE technical support update

EquipmentTwin, Virtual Reality, AI... a Full Demo

Derek Lindsey, PDF Solutions

Gregg Saffell, PDF Solutions

Eduard Gerhardt, ASML

Yoram Schwarz, PDF Solutions

Eric Hutchinson, PDF Solutions

David Barker, PDF Solutions

Patrick Pannese, PDF Solutions

Happy Hour

Thank You

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