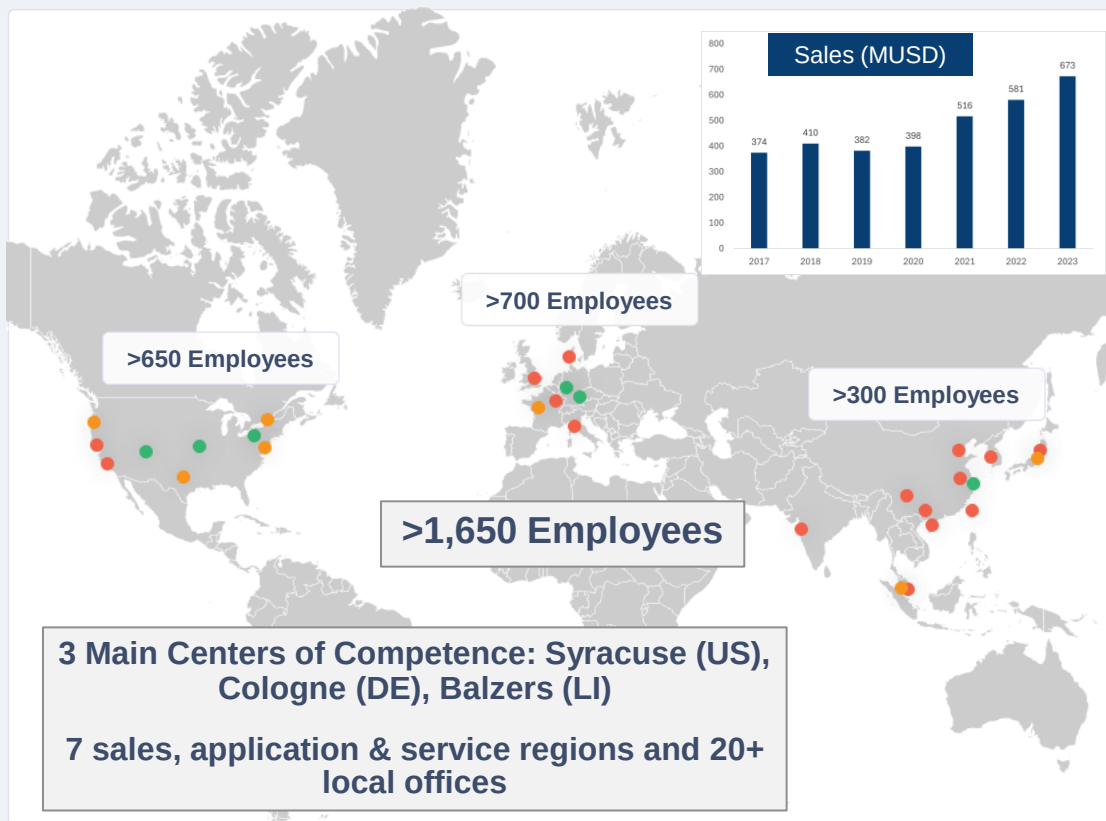


From Insight to Action: Elevating Employee Efficiency with Smart Detection and Targeted Data Delivery

Dr. Holland Smith
Director of Data Science, INFICON IMS

Thomas Gimmig
Director, Industry 4.0, ST Microelectronics

Global & Semi Smart Manufacturing Presence



● IMS Software Offices
 ● Sales and Offices
 ● Manufacturing Site



Global partnerships
delivering Smart
Manufacturing solutions

FPS

FabGuard

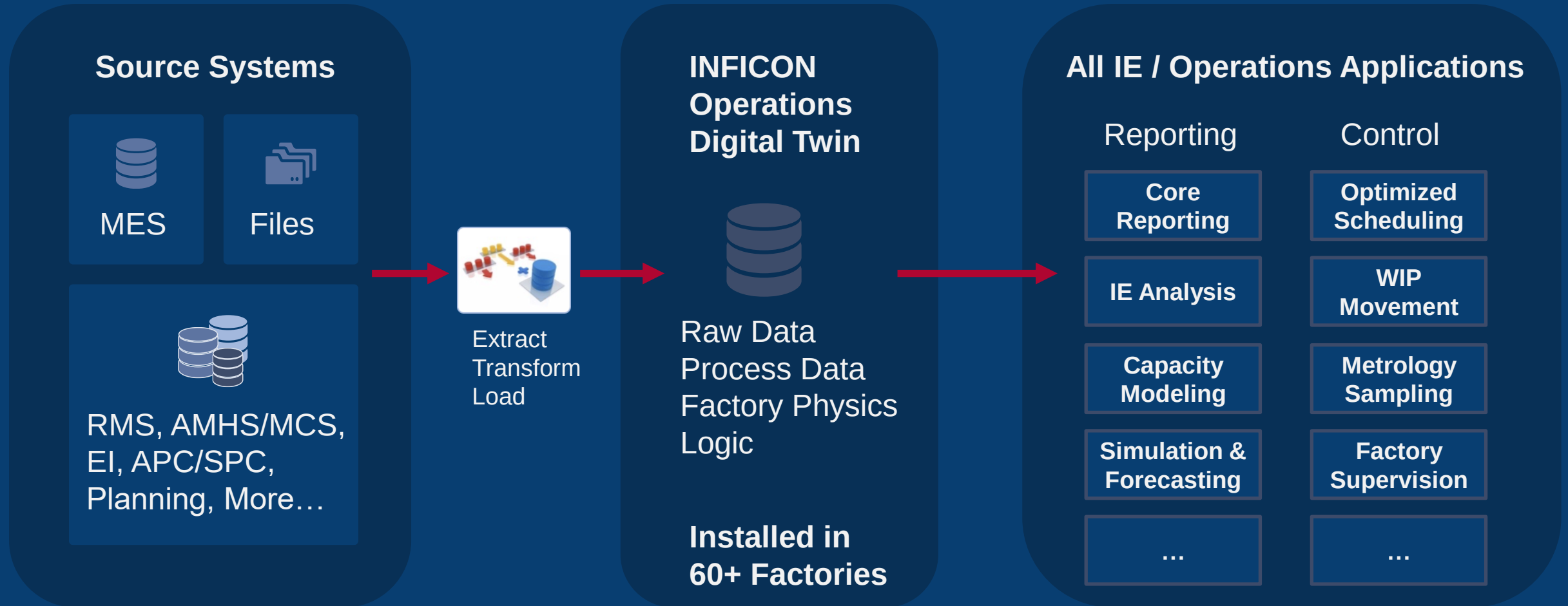
FabTime

60+ Fabs (7 Backend)

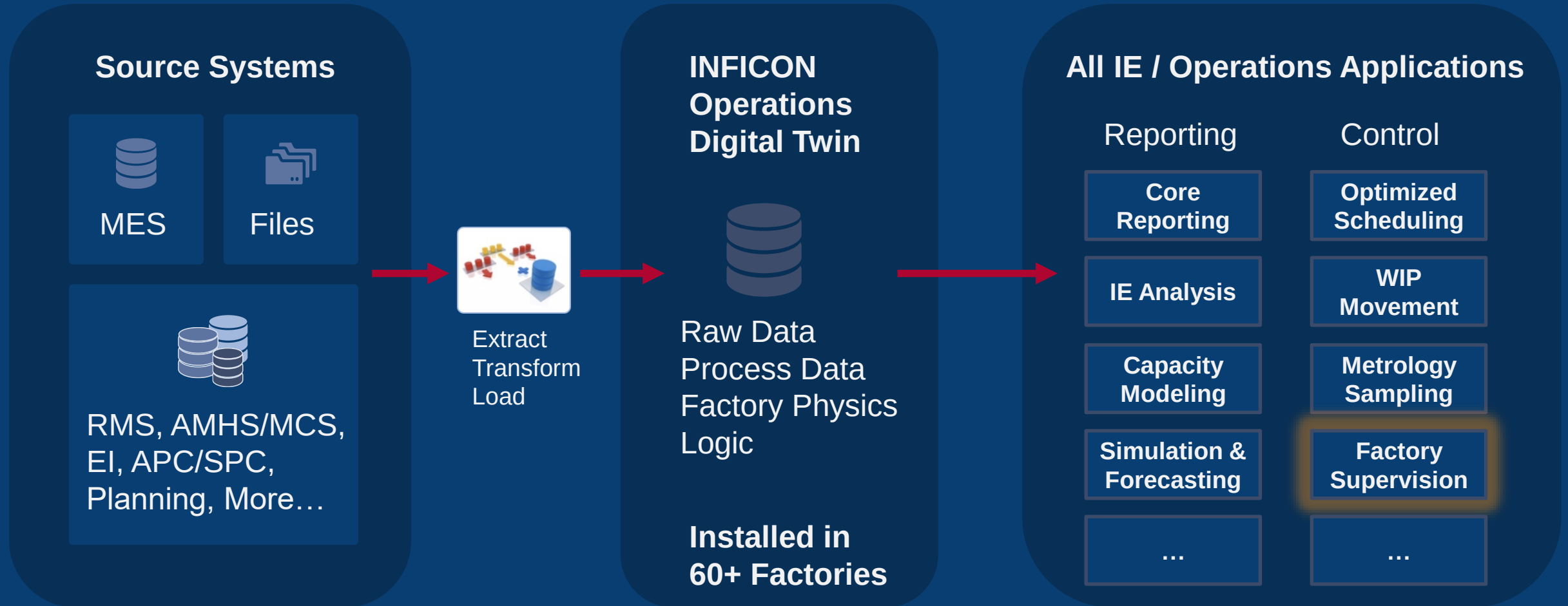
50+ Fabs (5 Backend)

30+ Fabs (2 Backend)

Industry's Most Widely Used Factory-Level Digital Twin



Industry's Most Widely Used Factory-Level Digital Twin



The Reporting Challenge: Make Data Actionable



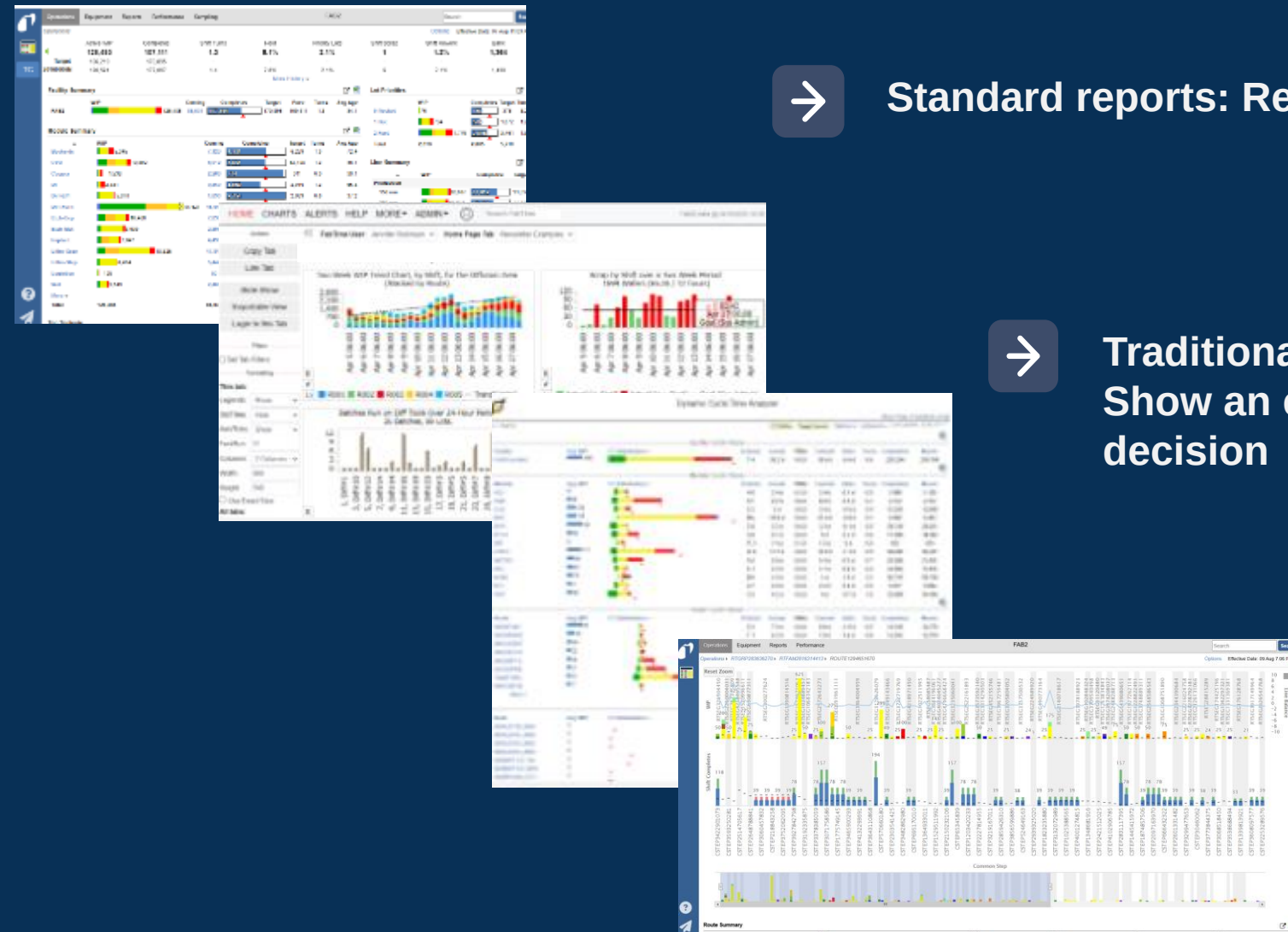
Standard reports: Required but not enough



Traditional design philosophy:
Show an expert everything needed to make a
decision



New Goal:
Automate analysis and show
only what you need to do job



INFICON's SMART Approach: Joint Success with Strategic Partners

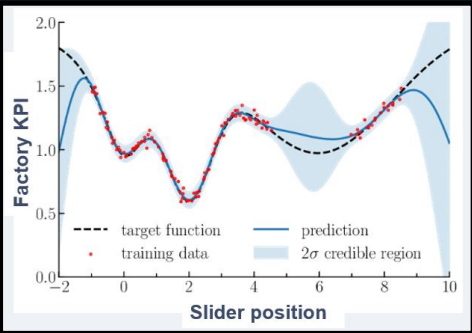
Metrology Sampling Optimization (2019)



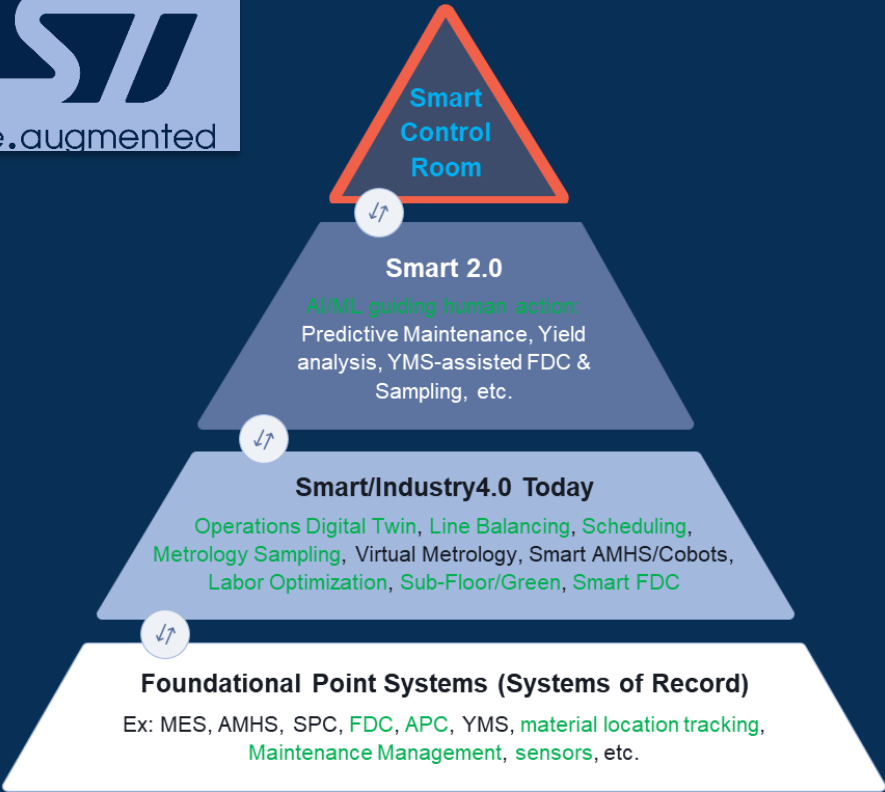
SchedExplorer: Multi-Objective Opt. Tuning (2023)



+ Large 200 mm Foundry



Fab Supervision (2024)





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STMicroelectronics Company presentation

We are creators and makers of technology



One of the world's largest semiconductor companies



Over **50,000** employees
of which **9,500+** in R&D



\$17.3 billion revenues
in 2023



Over **80** sales & marketing
offices serving over **200,000**
customers across the globe



14 main manufacturing
sites



Signatory of the United Nations Global Compact (UNGC)
Member of the Responsible Business Alliance (RBA)

We offer quality, flexibility, and supply security



Sweden
Norrköping

France
Crolles
Rousset
Tours
Rennes

Italy
Agrate
Catania
Marcianise

Morocco
Bouskoura

Malta
Kirkop

China
Shenzhen

Philippines
Calamba

Malaysia
Muar

Singapore

- Front-End (Wafer fabrication)
- Back-End (Assembly & Test)

QMT Finance and Business Operations

Industry 4.0





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Control Room & FabSupervision

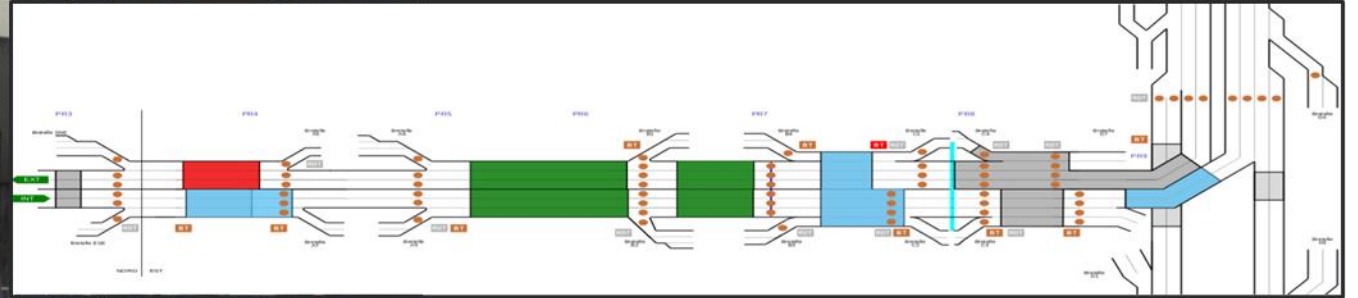
Paris 2024 Main Operation Center

Whenever we need to manage real-time complex operations, control rooms are success enablers.



Highway control center

Critical mission, supported by smart information system



Main figures:

- 220km of road & saturated city tunnel
- 400 cameras + traffic sensors
- 160,000 vehicles per days
- Avg 1 alert every 3min
- Min. 1 operator 24/7



Critical needs:

- Anomalies detection & classification
- Fast impact assessment
- Support for action plan
- Execution follow up



Control room in ST

A unique place to operate Fab activities

MISSIONS:

- 24/7 problem solving
- Anomalies real time detection
- Fast decision-making

EXPECTATIONS:

- Fab cleanroom densification
- Fab size and HC decoupling
- Equipment and people productivity

UNCAPPED HORIZONS:

- Robotized process autom. (RPA)
- AI-assisted Fab management
- Lights Off model



Impact Manager

Choosing INFICON as partner

Selection criteria	Supplier 1	INFICON	Supplier 3	Supplier 4
UIX design				
Digital Twin				
KPI dashboard				
Automatic KPI deviation classification				
Supervision of anomalies dashboard				
Automatic anomalies ranking				
Integration in ST manufacturing system				
Semiconductor experience				
Program structure (ST effort)				
Risk level				
Cost				

Impact Manager: Current Status

Note:

The live Semicon Europa presentation included screenshots of the application showing:

- Application features and filtering options
- Examples of anomaly detection (>100 anomaly types covered)
- Workflow assignment – who owns the task, and what is the status?

Screenshots removed for distribution

“Level 1” and “Level 2” Anomalies

→ Level 1 Anomalies

Known to be a problem right now.

Example: Down tool

Today's Focus

Primary *novel* system benefits:

- Centralized supervision
- Workflow tracking

→ Level 2 Anomalies

Will be a problem in the future if you don't make a change now.

Example: Line balance

Tomorrow's Focus

Primary *novel* system benefits:

- Automatic detection
- Impact assessment

Lessons Learned So Far

→ **Work closely with end users**

- They know what they need and how the business processes work

→ **Learn from previous applications**

- How do existing systems handle pieces of the envisioned functionality?

→ **Balance aspirational vision with practical focus**

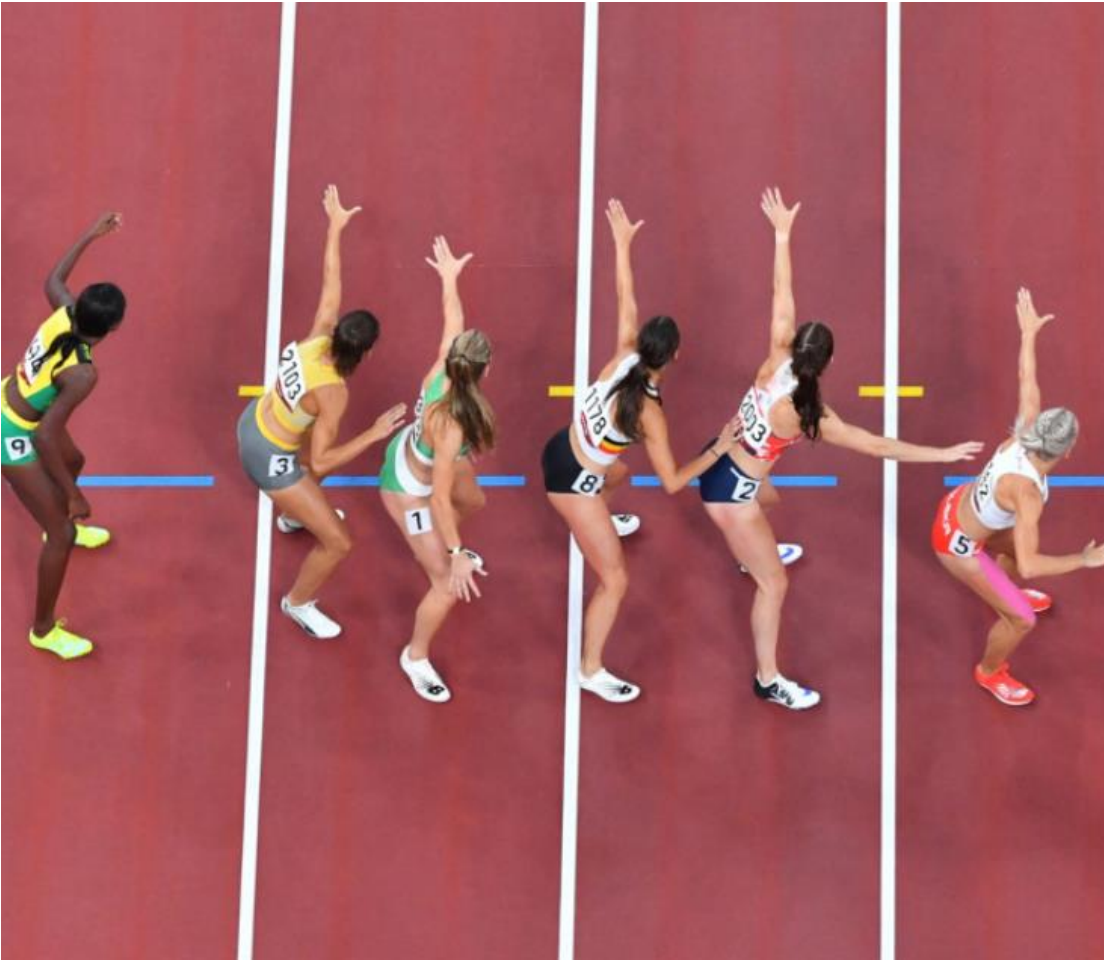
- What can be used immediately in a first version?

→ **Universality and flexibility of design**

- What is general to all fabs versus specific to one?

We are encouraged and excited for efficiency gains judging by early results!

ST Concluding Thoughts



- Ambitious project
- High expectations for Fab efficiency gains
- Young generation empowerment
- Upper-level supervision perspectives

Visit Us at Booth C1726

Other INFICON Presentations

Your Path to Tomorrow's Autonomous Smart Factory

CxO Summit | Nov. 12

J. Behnke

Why Digital Twins Matter

Fab Management Forum | Nov. 13

J. Behnke

Thank You!