

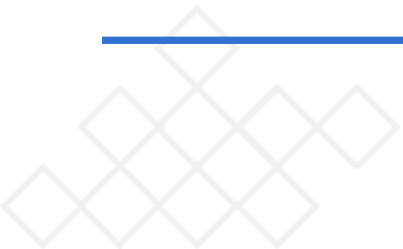


it's about time

# Kx IIoT Solutions

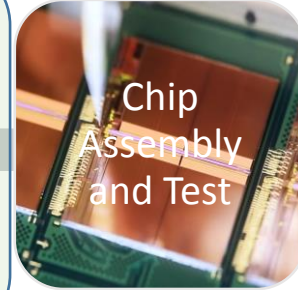
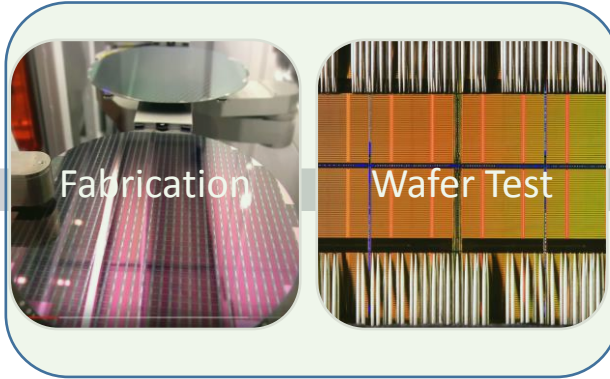
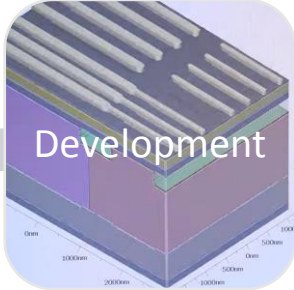
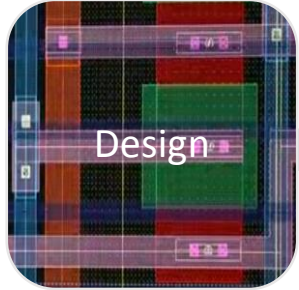
## Semiconductor Manufacturing

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- Ingesting **increasing volume and velocity** of fab data.
- Managing disparate data types and sources.
- Creating **critical KPI's** from complex and numerous data signals.
- Enabling real-time visualizations and analytics for **decision making**.
- Characterization of **real-time data signals** with respect to historical signatures.
- Identifying **root causes** for poor tool performance, process variation, defects and yield loss; especially spatially and temporally.
- Actively **minimizing yield loss and improving tool/process** health using corrective actions.

# Semiconductor Production Lifecycle



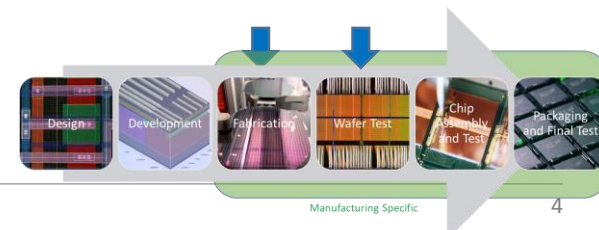
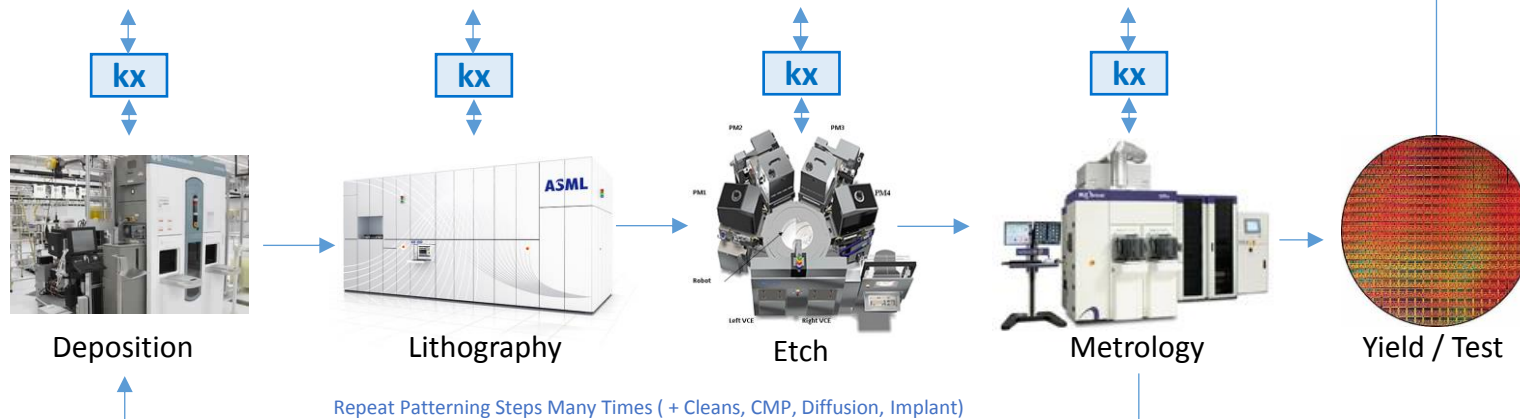
**Manufacturing Specific focus of  
Kx IIoT Solutions**

# Semiconductor Manufacturing with Kx

Cleanroom Systems SW

Analytical Utilities (In-House, Equipment Vendor, 3<sup>rd</sup> Party) ; Analysis, SPC +

Manufacturing Execution System / Factory Automation ; Data Management and APC +



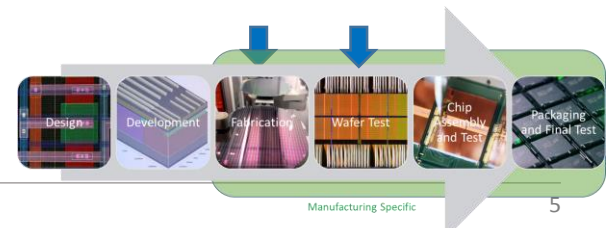
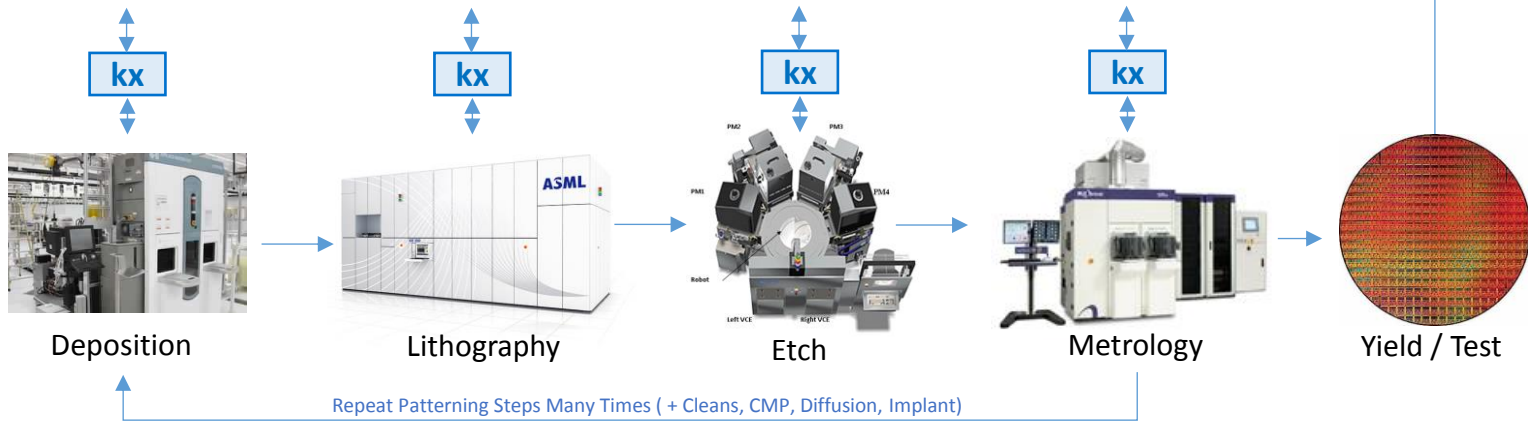
# Semiconductor Manufacturing with Kx

- Solutions**
- Advanced Visuals and Models →
  - Integrate and Augment →
  - Edge Tool Computing →

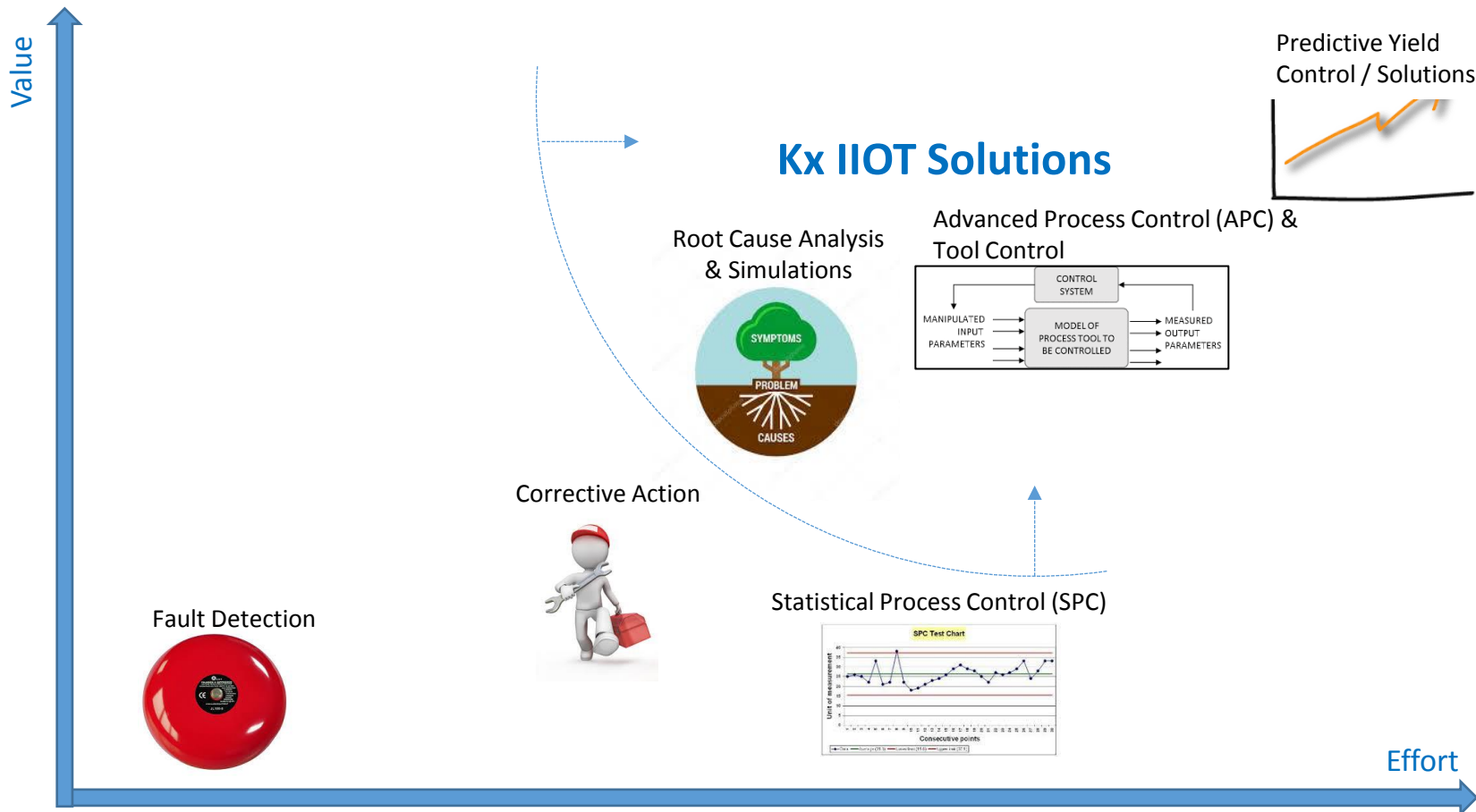
- Use Cases**
- Yield Solutions
  - Root Cause Control
  - Matching Simulation
  - Experiment Maintenance
  - Fault Detect

Analytical Utilities (In-House, Equipment Vendor, 3<sup>rd</sup> Party) ; Analysis, SPC +

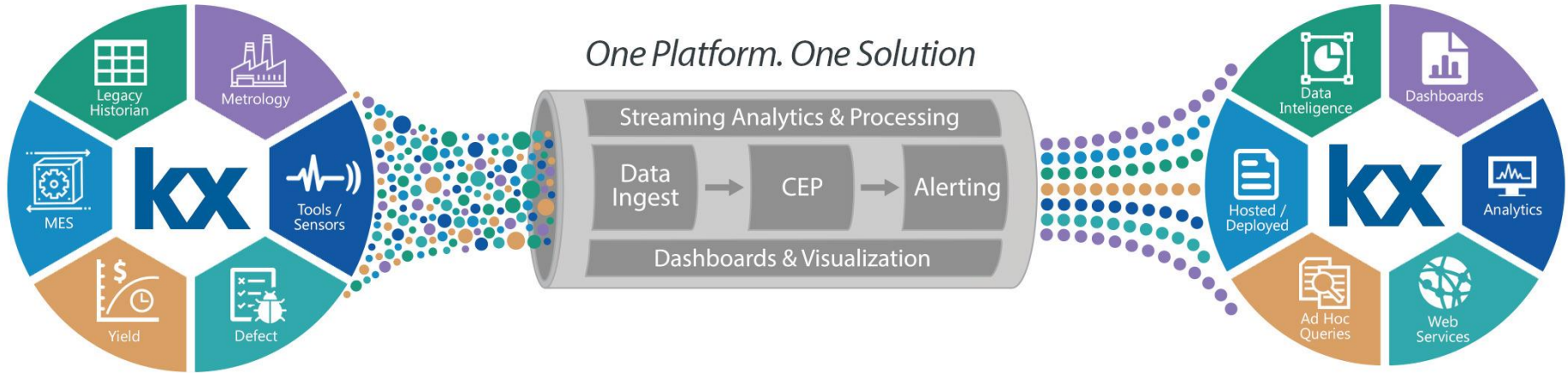
Manufacturing Execution System / Factory Automation ; Data Management and APC +



# Semiconductor Fabrication Valued Use Cases



# Kx for Sensors: Manufacturing



- Ingestion, processing, analysis, and storage
- Make data and analytics available to Manufacturing Execution Systems (MES) and asset management systems
- Assess the performance of entire plants and machines in real-time and feed data into predictive and machine learning models
- Analyze data from machines and entire plants to identify faults, predict potential failures, plan maintenance to maximize up-time and throughput