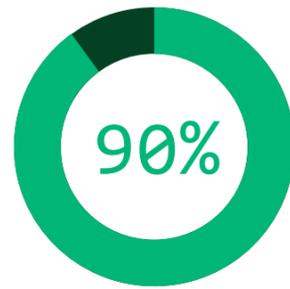
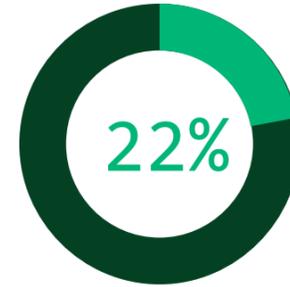


# Analytics for Transportation

# Automotive Innovation Reliability Challenge



Car innovations and new features are driven by electronics<sup>1</sup>



Warranty costs related to electronics and semiconductors<sup>2</sup>



Car recall increase from 2014-2016 due to electronics<sup>3</sup>



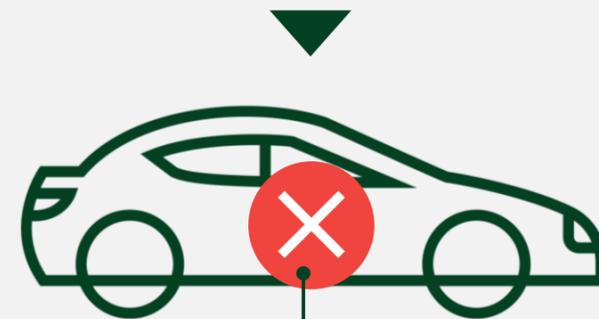
Ignition switch failure  
Failure to park  
Takata airbag recall



15x Drive per day<sup>4</sup>:  
1.5hr traditional car vs.  
22.5hr autonomous car

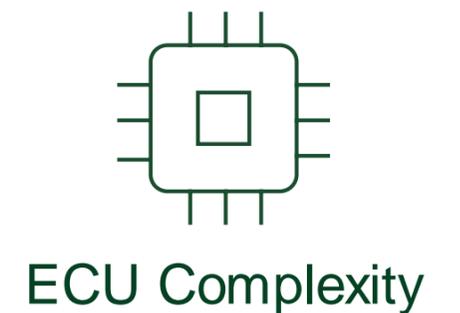
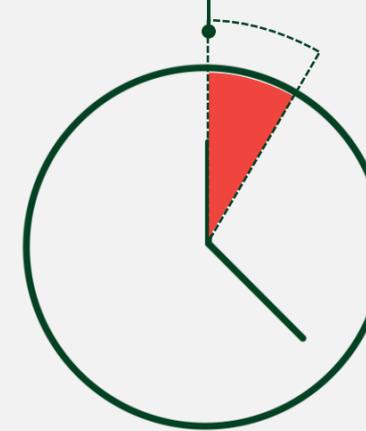
<sup>1</sup> Automotive change drivers for the next Decade, EY, 2016  
<sup>2</sup> BMW - AEC Automotive electronics reliability workshop, 2017  
<sup>3</sup> NHTSA Recall Data  
<sup>4</sup> Audi, DVCon Munich, 2017

AUDI SAYS



1 CAR FAILURE

EVERY HOUR<sup>4</sup>





# Our Vision

## Lifecycle Analytics Through Product-Centric Approach

DESIGN AND ENG.

MANUFACTURING

CUSTOMER

DESIGN

CHIP

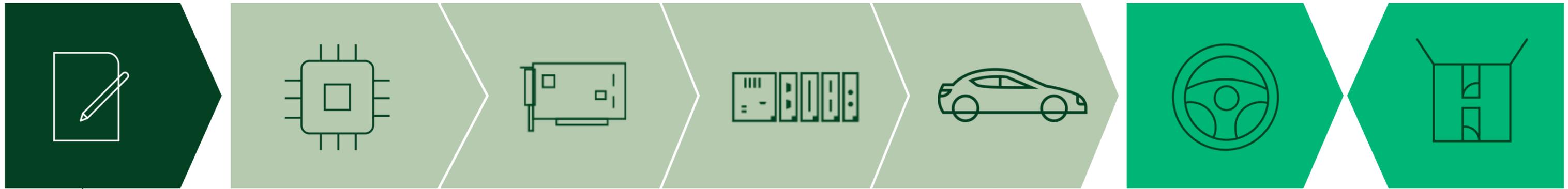
BOARD

MODULE

PRODUCT

IN USE

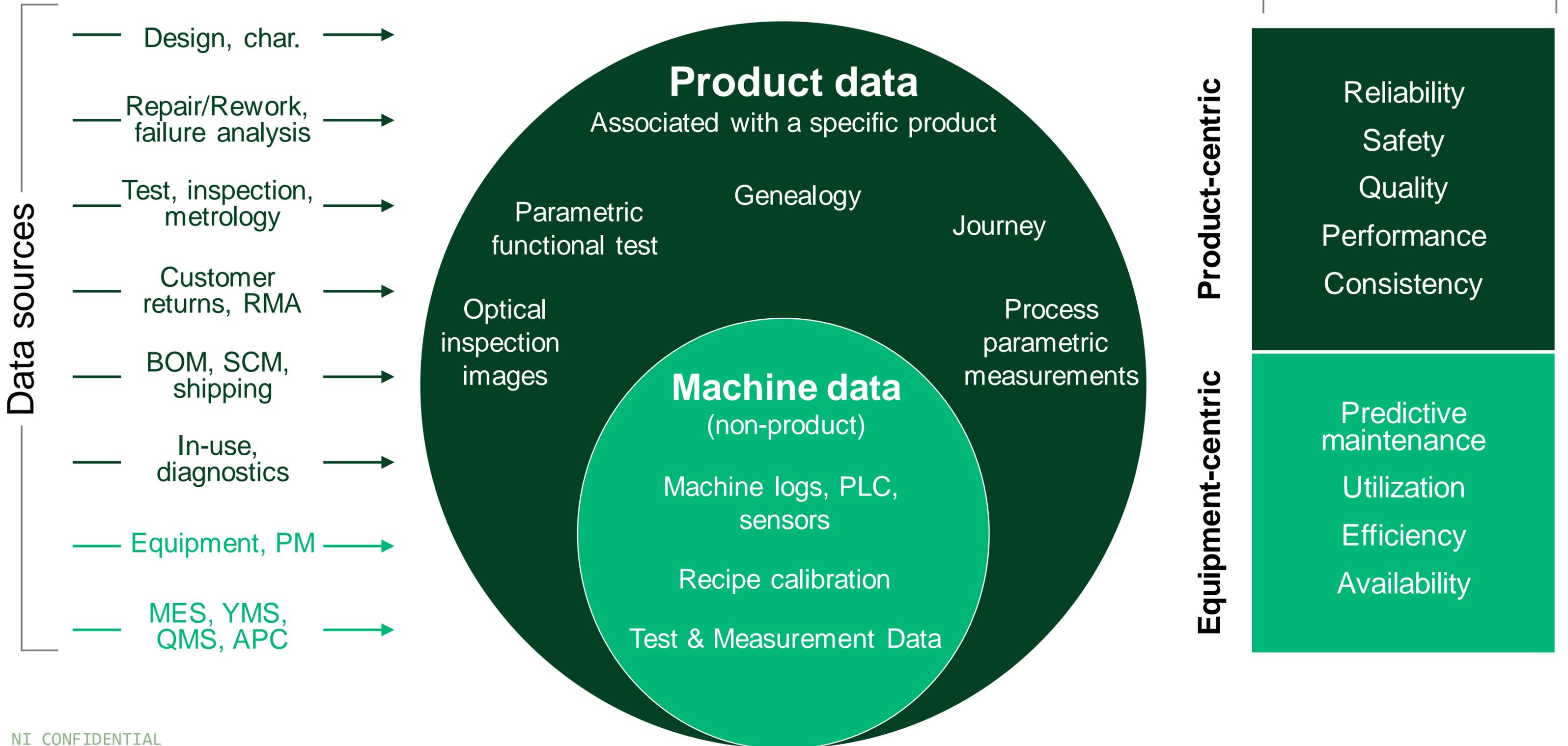
RETURNS



Design Spec • Machine • Process • Metrology • Test • Rework • Genealogy • Performance • Reliability • Usage • Warranty

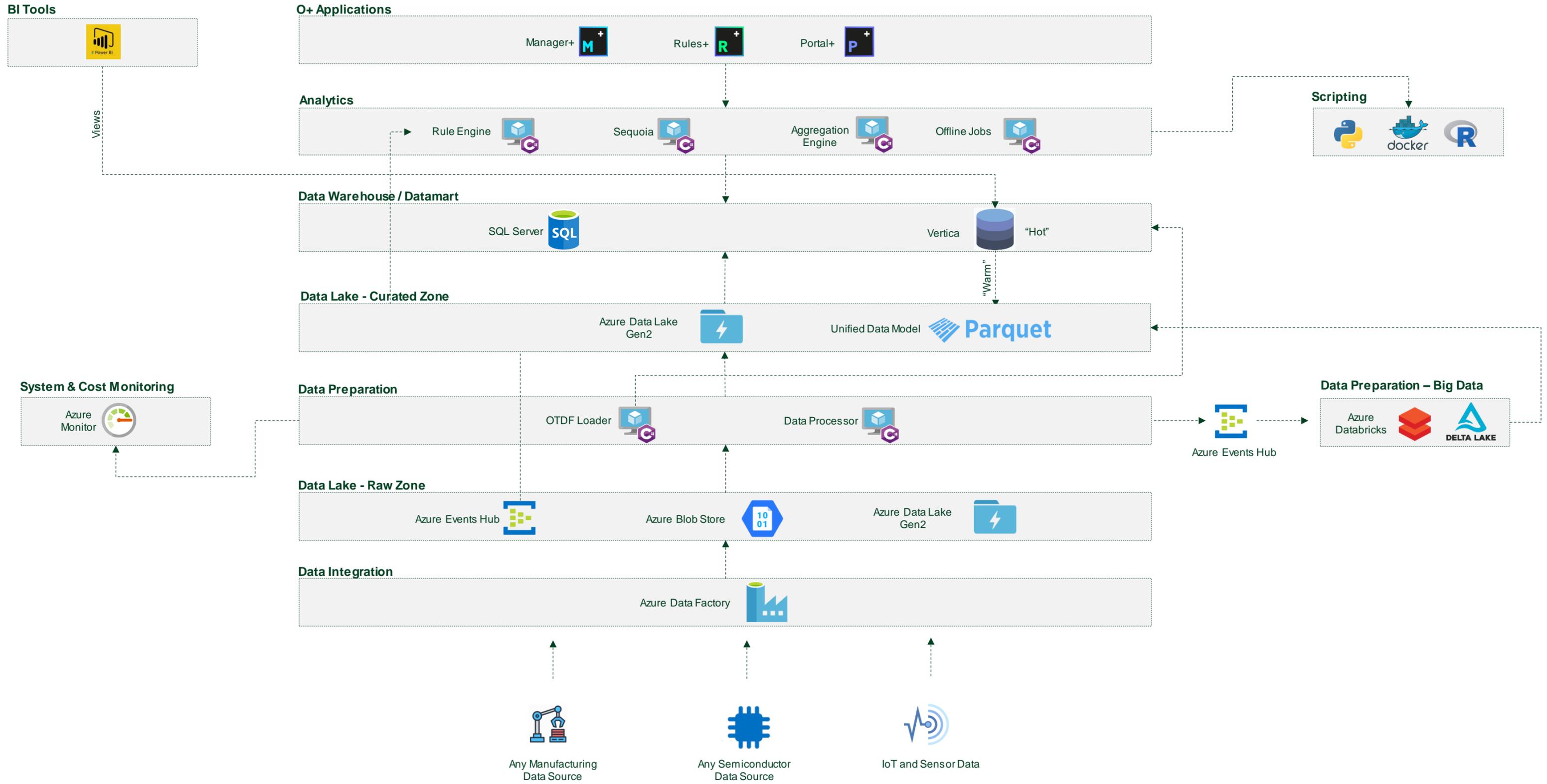


# Product-Centric Approach to Advanced Analytics





# Detailed Architecture



# NI Analytics for Transportation on Microsoft Azure

Run NI's industry-leading analytics solutions for the Transportation industry on Microsoft Azure and benefit from tight integration with your other Azure-based investments and lower cloud costs.

## Transportation Solutions

Drive better efficiency, reliability and quality in manufacturing with the Product Lifecycle Analytics solution

## Analytics for YOUR Business

Embed powerful analytics, designed specifically for the automotive industry, into your manufacturing operations

## Self-service Analytics using Power BI

Use Microsoft's PowerBI self-service analytics to visualize data and insights created by the NI solutions

# Trusted By Leading Brands

## Customers



## Supply Chain



# ZF: Auto Camera Manufacturing Optimization

## Deployment Summary

- Factory health instant visibility
- Early scrap detection – Shift Left
- Adaptive Manufacturing – improved efficiency and scrap
- Closed the loop – customized alerts & MES integration

## Pilot Improvement Opportunity

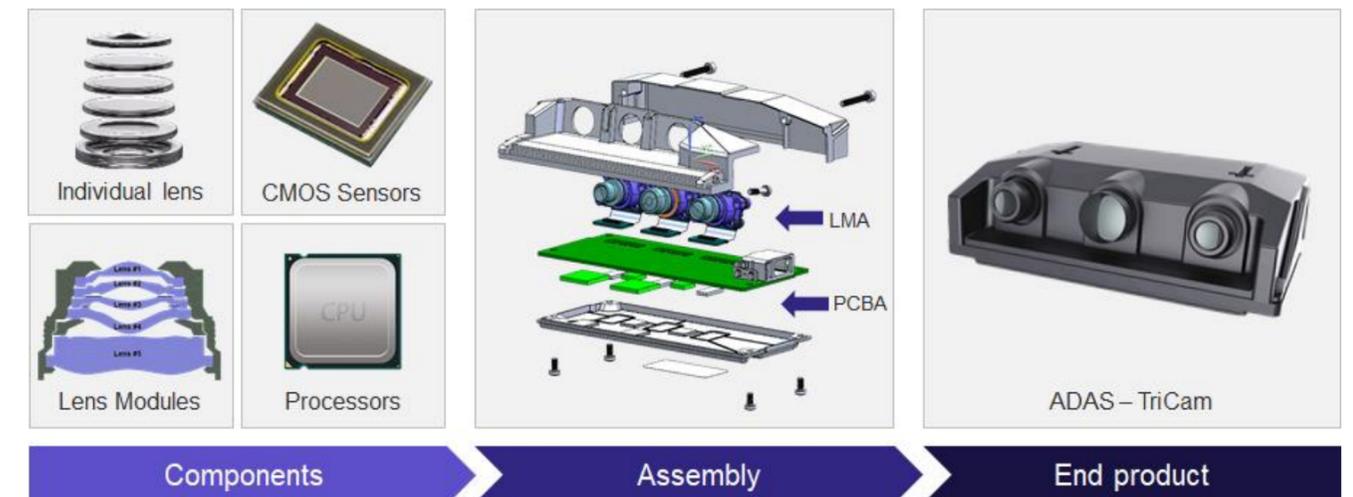
- Scrap reduction during camera assembly - CMAT
- Long NPI ramp
- No structured feedback methodology
- Data silos prevented visibility of overall factory and process health

## Camera A (High Volume Production)

- Retest/Rework reduction
- Throughput increase
- Reduced Scrap

## Camera B (New Product Introduction)

- Reached entitlement yields faster
- Throughput increase
- Reduced scrap



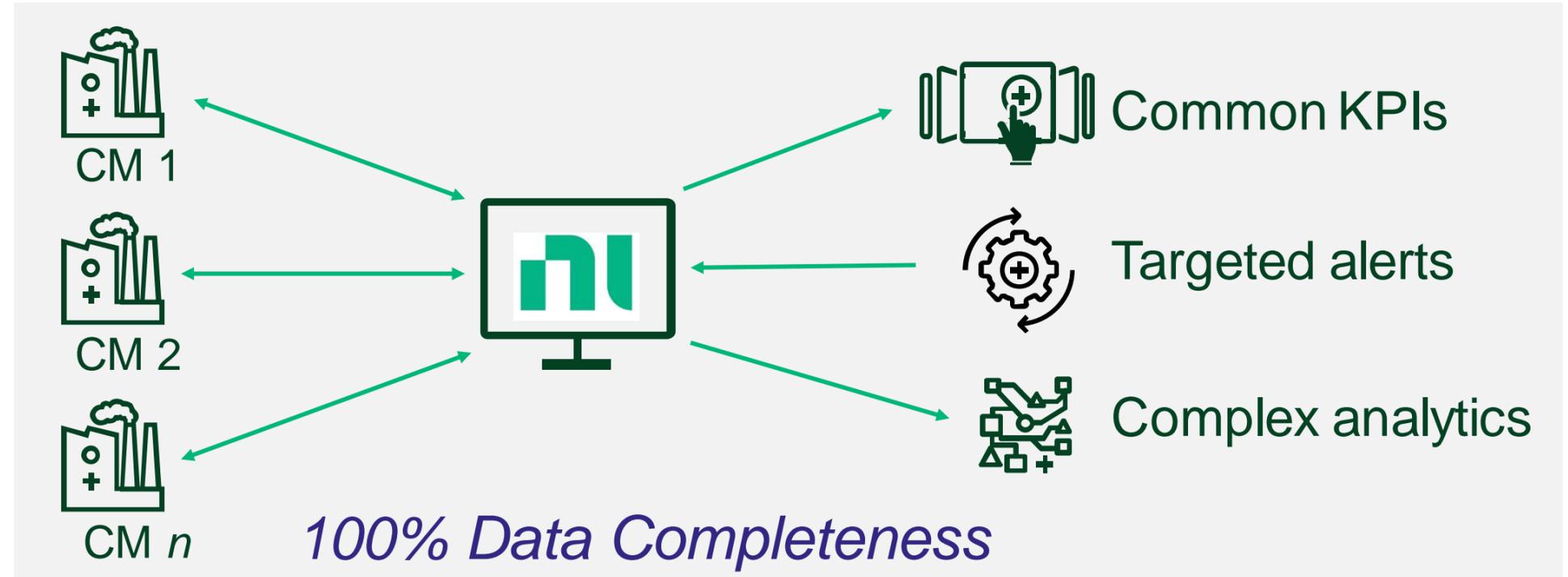
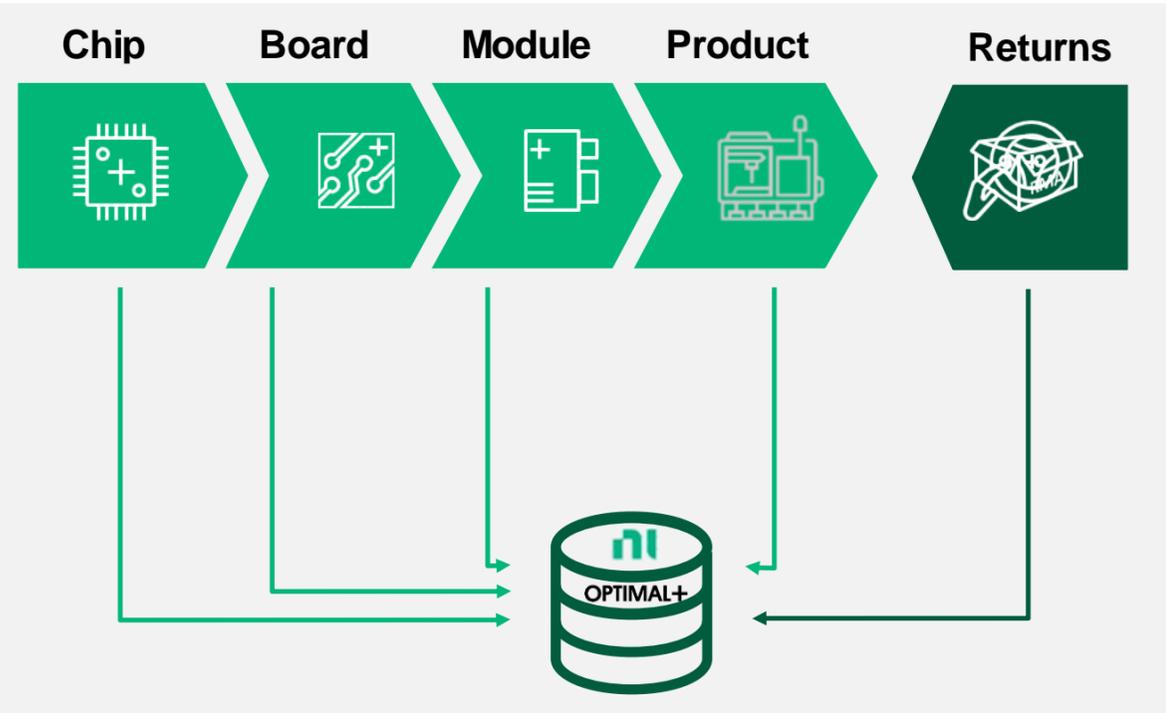
# NVidia: Complex Supply Chain Management

## Deployment Summary

- Common, aligned visibility and KPIs across multiple contract manufacturers (CMs) for SMT through EOL test
- Deployed “crisis management” analysis to identify issues and contain affected population
- Deployed Machine Learning for failure analysis
- Targeted rules for both product and process to identify most impactful issues

## Benefits

- Common KPIs and visibility across CMs
- Improved supply chain visibility
- Reduced resources needed to manage CMs
- Full traceability from board through system



## Contact NI to learn how Optimal + Azure can help:

Get a free trial: [yourhyperlinkedtrialURL.com]

Call for more information: [555-555-5555]

Ask a question via email: [email@site.com]

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Link to your Microsoft Commercial Marketplace offer