QUALITY 4.0: Critical to Industrial Transformation (IX) Success

HAVE REMAINED **AMENTALLY UNCHANGED** for decades. Siloed quality organizations, ineffective technology, and weak data consistently stifle improvement efforts.

CHALLENGES TO ACHIEVING QUALITY OBJECTIVES (n=1882)

Disparate quality systems and data sources Quality metrics not measured effectively Quality is "department" not a "responsibility" No formal process to manage risk ····· Lack of visibility into supplier quality No formal process for continuous improvement Ad hoc audit and compliance management ···· No formal process to capture non-conformance ···· Lack of executive support ···· Engineering lacks feedback on quality

2016		2017
37%		37%
	37%	37%
3	6%	35%
	24%	18%
	23%	16%
	22%	17%
	16%	14%
	16%	10%
	16%	20%
- (15%	8%

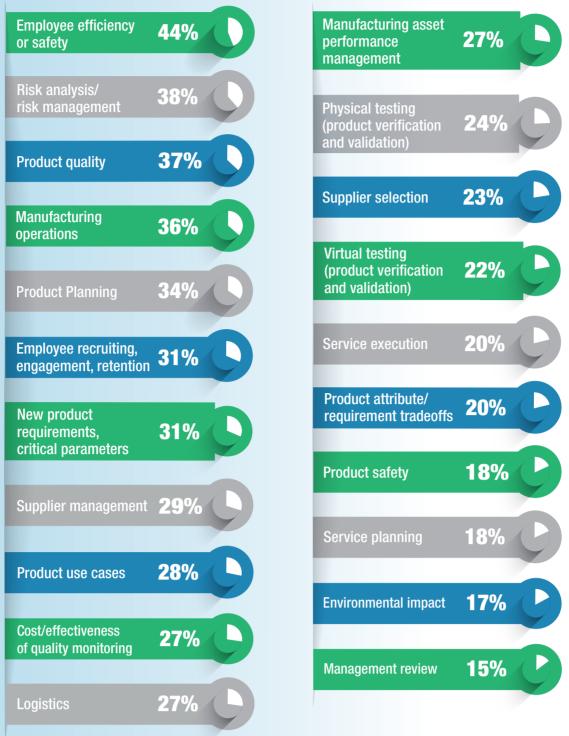
A COMPANY'S INDUSTRIAL TRANSFORMATION INITIATIVE HOLDS THE KEY TO UNLOCK QUALITY PERFORMANCE.

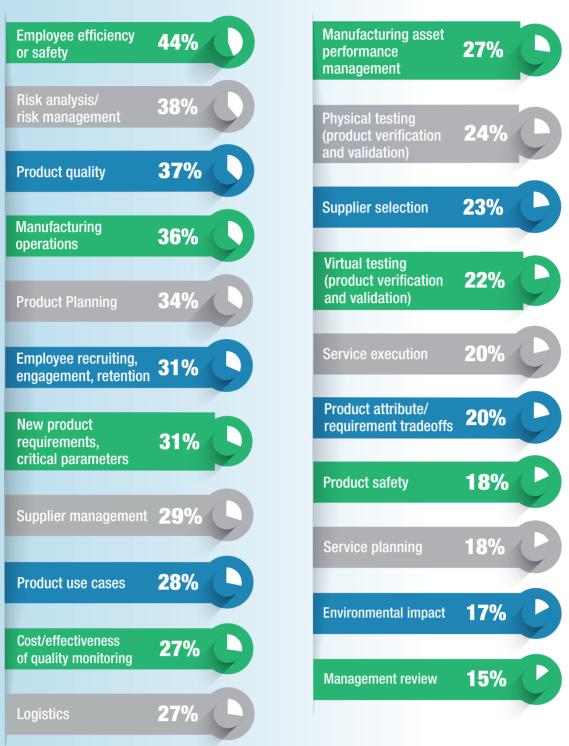
QUALITY is the **LOW HANGING FRUIT** of Industrial

Transformation (IX). Early adopters of IX have demonstrated that industrial organizations must prioritize quality, engage quality teams in transformation initiatives, and focus throughout the value chain.

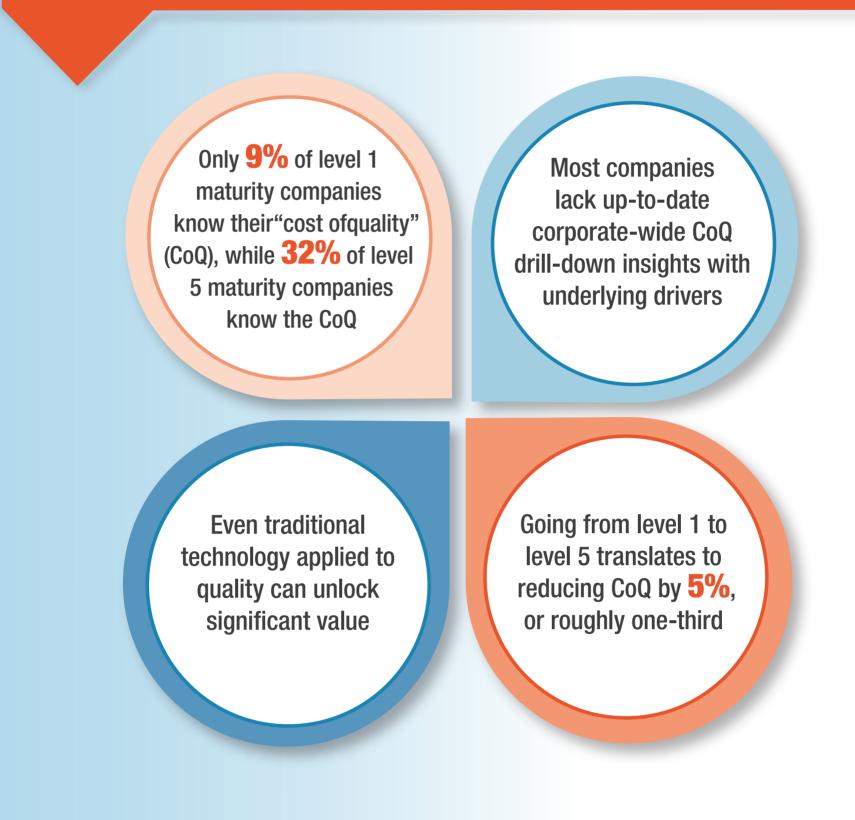
QUALITY 4.0 might be a standalone initiative, but most of the time it **OVERLAYS OTHER DIGITAL** N INITIATIVES across the value chain. TRANSFORMATIO

GOALS DRIVING QUALITY 4.0

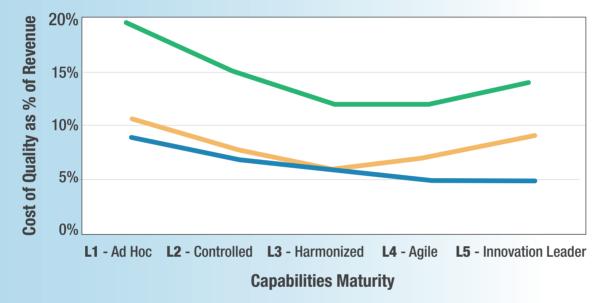




THE VALUE IS REAL: IMPROVING QUALITY MATURITY **CAN REDUCE CoQ BY 5% OF TOTAL REVENUE.**



COST OF QUALITY IN CONTEXT OF CAPABILITIES MATURITY



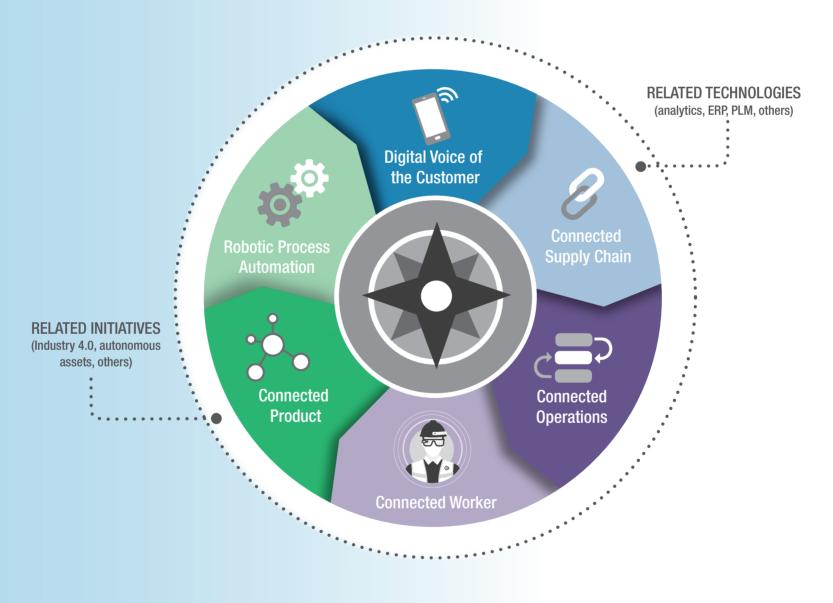
Cost of poor quality (CoPQ) Cost of good quality (CoGQ) Total cost of quality (TCoQ)

LEARN FROM INNOVATORS



Innovators have addressed Quality 4.0 across 33 potential use cases in six categories across the value chain. Manufacturers should prioritize use cases by quantifying the value, and understanding implementation effort and impact on business objectives. There's no silver bullet: each company should focus on those use cases that drive improvement in its specific industry and organization.

Leaders have demonstrated that engaging widely across the use cases can drive significant quality, manufacturing, and new product introduction improvement.

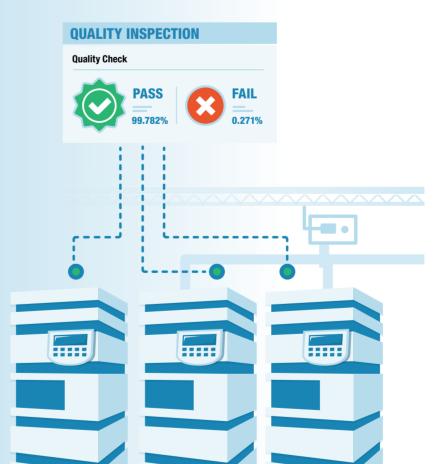


QUALITY 4.0 USE CASE NAVIGATOR

STRATEGIES TO LEVERAGE THE OPPORTUNITY: PREDICTIVE QUALITY AS AN EXAMPLE.

Many companies use "sampling plans" to inspect quality – they randomly select pieces to inspect in each lot. Sampling plans take place in-process at defined checkpoints and at final assembly. It's an accepted good practice in most industries, since 100% inspection is expensive and time consuming.

INNOVATIVE MANUFACTURERS APPLY ANALYTICS to data from connected equipment, in-line and off-line quality inspections, and product – they PHYSICALLY AND VIRTUALLY INSPECT 100% OF PRODUCT and at many more points throughout the manufacturing process.



3 COMPANIES, 3 PATHS TO PREDICTIVE QUALITY



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PHARMA COMPANY

- New chief digital officer (CDO) role
- Launched factory of the future initiative
- Quality as #1 use case of the initiative

ELECTRONICS MANUFACTURER

- Assess efficacy of screening procedures
- Eliminate any that don't impact quality
- Improve by focusing only on select variables

CONSUMER DURABLE GOODS MAKER

- Correlate operational, warranty, and online marketplace data
- Identify in-process variables that improve outcomes for customers, lower warranty costs, increase marketplace ratings

THE FUTURE IS TODAY: TRANSFORM QUALITY THROUGH **INDUSTRIAL TRANSFORMATION INITIATIVE.**

QUALITY 4.0 IS NOT A STANDALONE

INITIATIVE, but it does permeate and overlay the value chain. Take inspiration from innovators and LOOK TO THE SIX **CATEGORIES OF QUALITY 4.0 USE CASES TO KNOCK DOWN SILOS** and improve performance. Ultimately, strive to lead the company to include quality across all initiatives to achieve results unlike any with traditional quality approaches.



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