FLUKE® Reliability

The Reliability of Everything™ : From Its Beginning To Current Challenges

RMC

Best Practices Webinar Series

Meet the Speaker

Dr. Klaus M. Blache – PhD, MBA, MSCE, BIE, CPE

Director – Reliability and Maintainability Center
Research Professor – University of Tennessee, College of Engineering

- Over 35 years in industry, managing and implementing continuous improvement in industry. (such as Corp. IE Manager, North America Head of R&M, and Mfg. Engineering Director at General Motors). Past 2-year Chair of SMRP
- Current focus is helping industry and academia transition to Industry 4.0 and creating opportunities for industry to improve ROI
- RMC does R&M training, facility assessments, applied company specific research, proof of concepts, student internships and more
- Lectures globally and has written over 200 articles on related topics

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Today's Discussion

1. Evolution of Asset Management and Reliability

2. Observed Operational Challenges and Opportunities

3. What the Best Companies Do

4. Transitioning to Manufacturing 4.0

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POLL QUESTION No. 1

When was the word Reliability first used ?

(Click only one answer)

- 1816
- 1927
- 1948
- 1955

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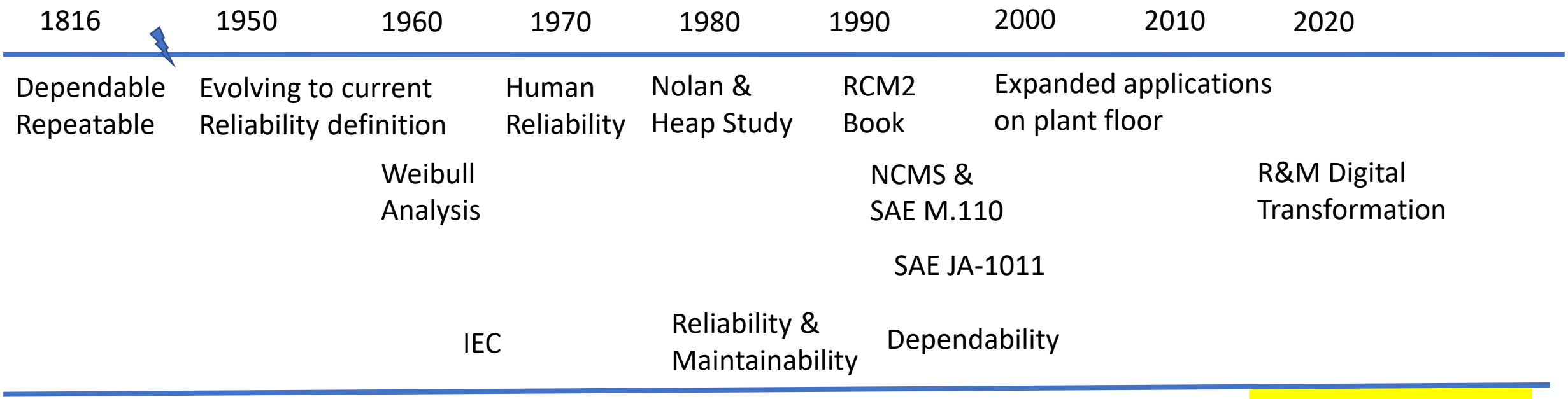
Evolution of Asset Management - Maintenance / Reliability

+ High-Level Overview of Reliability Beginnings



- **Fix it when it's broke**

- **Systems to plan & control work**
- **Large scale maintenance projects**
- **Some computer usage**

- **Design for R&M**
- **Sophisticated CMMS & Expert Systems**
- **FMEA, PMO, RCA, Hazard/Integrity Windows**
- **Multiskilling, Teams**
- **Condition Monitoring, PdM**
- **RCM**

- **Systems Thinking**
- **Real-time data**
- **Learning systems**
- **Wireless**
- **Mobility**
- **Integration**
- **Cloud**

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Adapted from J. Moubray, RCM2

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Operational Challenges & Opportunities

- Need to do more with less (reduce cost /unit)
  - More throughput from existing assets
  - Decrease downtime
  - Improve Return on Investment
  - Life-cycle decisions on assets

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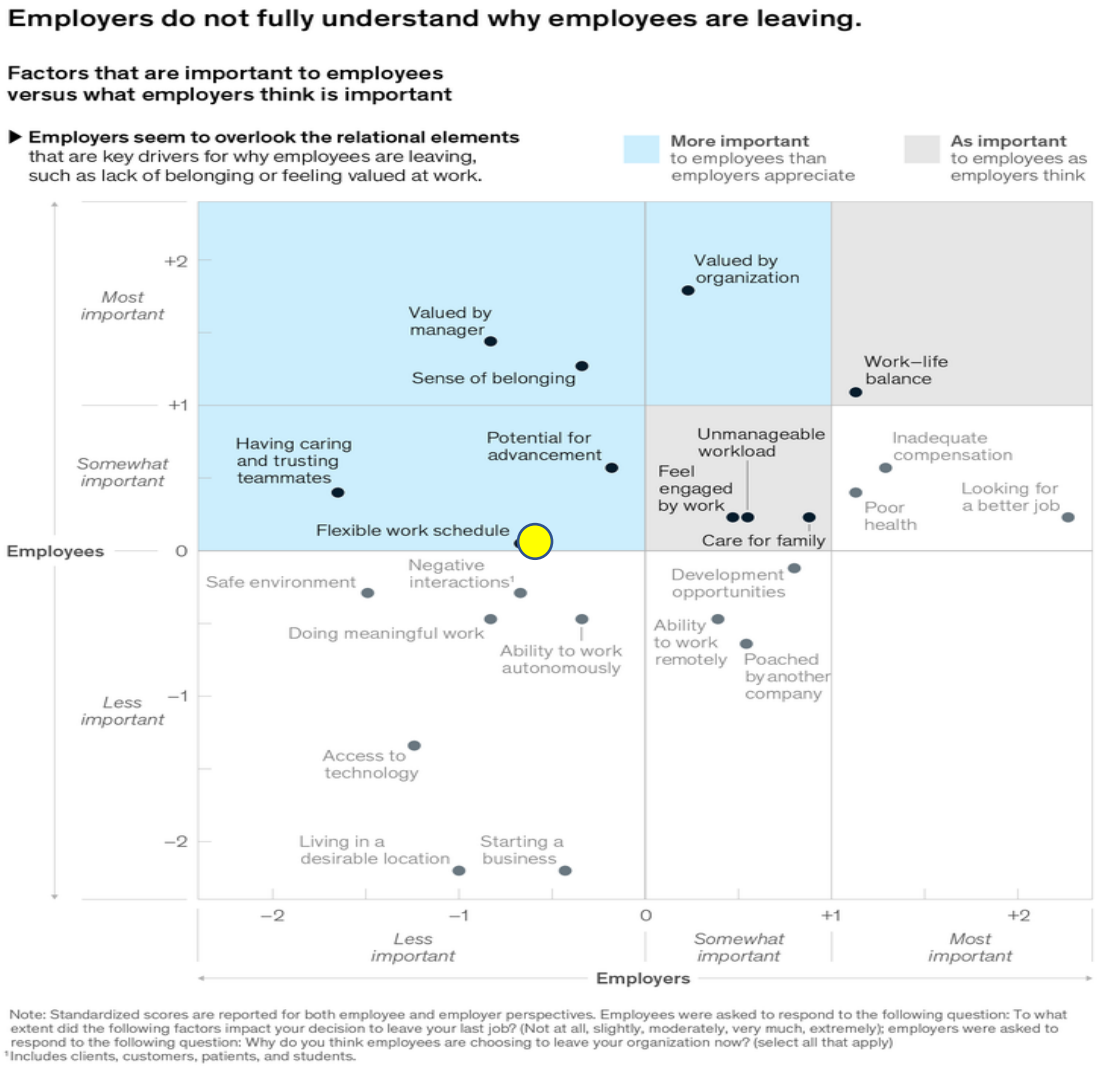
Operational Challenges & Opportunities



Note: Standardized scores are reported for both employee and employer perspectives. Employees were asked to respond to the following question: To what extent did the following factors impact your decision to leave your last job? (Not at all, slightly, moderately, very much, extremely); employers were asked to respond to the following question: Why do you think employees are choosing to leave your organization now? (select all that apply)
¹Includes clients, customers, patients, and students.

McKinsey & Company

[How companies can turn the Great Resignation into the Great Attraction | McKinsey]

More important to employees than employers expectations

Flexible Work Schedule

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Operational Challenges & Opportunities

- Workforce availability / loss of skills
  - There is a growing number of older workers
  - When they leave, critical skills go out the door
  - Most of your workforce will be Millennials
  - People have changed their expectations on remote work

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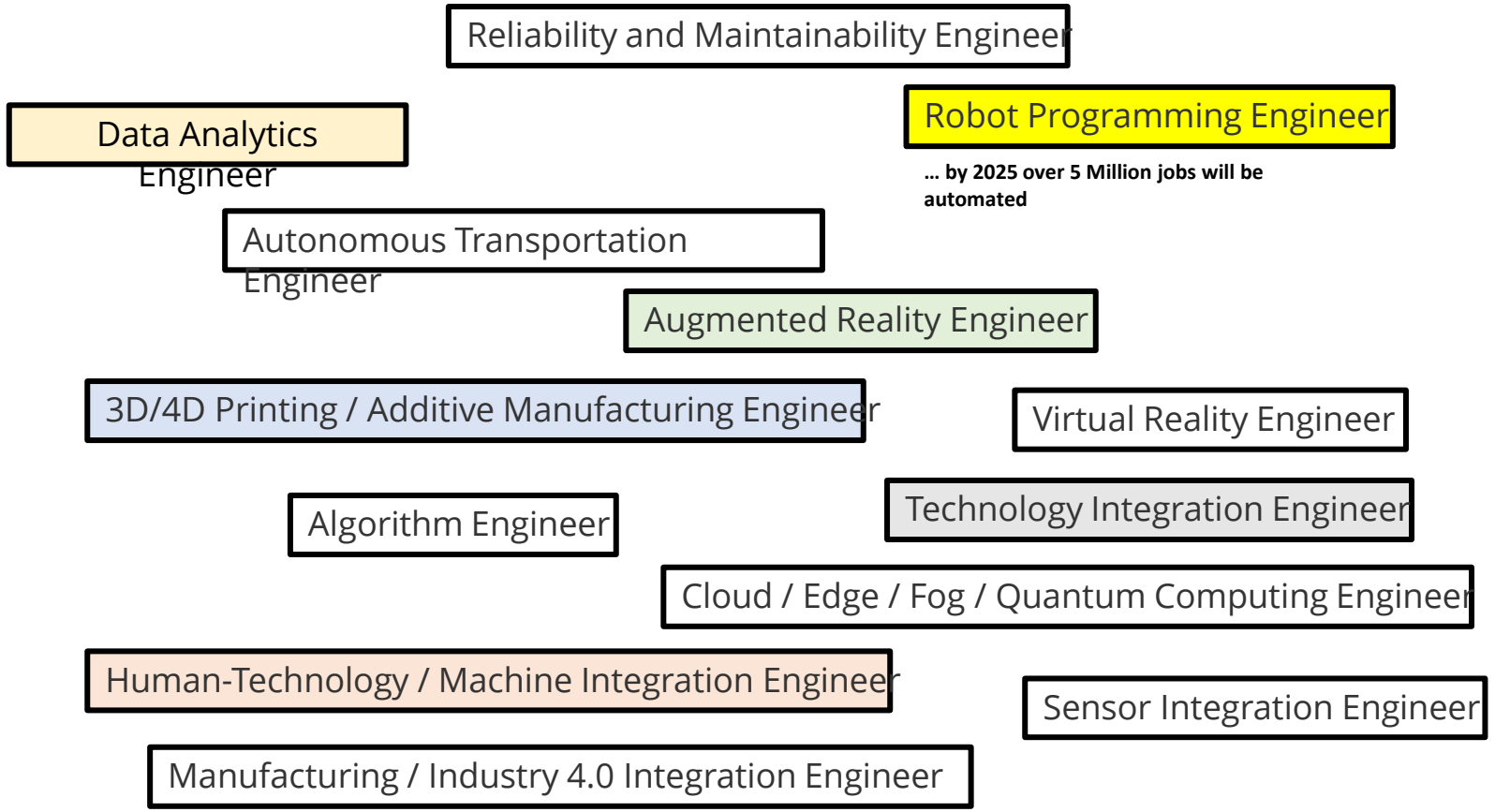
What is changing in R&M in the next 10 years



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Operational Challenges & Opportunities

- Insufficient understanding / compliance / KPI alignment on what matters
  - Lack of a Reliability & Maintainability Roadmap Linked to Corporate Strategy
  - What are the levers that will give you the greatest ROI ?
  - Understand the informal processes and hidden costs
  - Are your KPI's aligned properly ("line-of-sight" from top of organization to plant floor) to enable results

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POLL QUESTION No. 2

What percent of your maintenance hours are Reactive ?

(Click only one answer)

- Less than 10%
- > 10% to 25%
- >25% to 50%
- Over 50%

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Operational Challenges & Opportunities

Over half of the facilities / factories in North America still rely on too much Reactive Maintenance as a major part of their daily maintenance activity.

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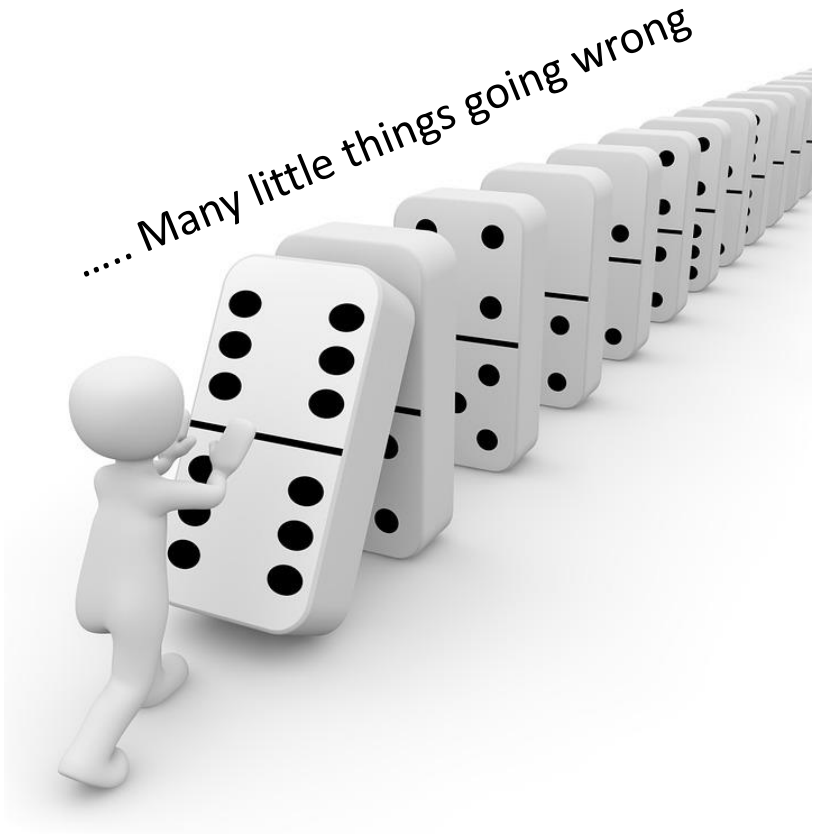
Operational Challenges & Opportunities



Cumulatively, ignoring so many things (that individually don't seem that significant) makes your R&M process dysfunctional.

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Operational Challenges & Opportunities

- **People not being held accountable for not following the plant processes**

1. Do you have standardized work processes ?

2. Do you have an individual/small team continuous improvement process ?

3. Do you have a methodology to improve and sustain the thinking process to one of ongoing improvement ?

…… and how well are they working for you ?

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POLL QUESTION No. 3

How much of a roadblock is culture change - moving to proactive maintenance, moving to the digitalization of R&M, implementing new technologies, etc. ?

(Click only one answer)

- Minimal Issue
- Moderate Issue
- Significant Issue
- Largest Issue

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Operational Challenges & Opportunities

- Over 70% of companies point to culture as the main roadblock to R&M best practices
- Difficulty in changing from a Reactive to Proactive Maintenance mindset
  - Historical dysfunctional process and engrained culture that supports old processes
  - Many organizations think that they are better than they are
  - How it's all related and the impact on operational excellence is not fully understood, so there is a lack of support from other plant functions

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"All companies have a culture,
some companies have discipline,
but few companies have a *culture of discipline*.

- When you have disciplined people, you don't need hierarchy.
- When you have disciplined thought, you don't need bureaucracy.
- When you have disciplined action, you don't need excessive controls."

With a culture of discipline, where people know what to do and are capable of and willing to do it, great performance is a natural outcome.

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Source: Jim Collins, Good to Great (Harper Business, New York, 2001)

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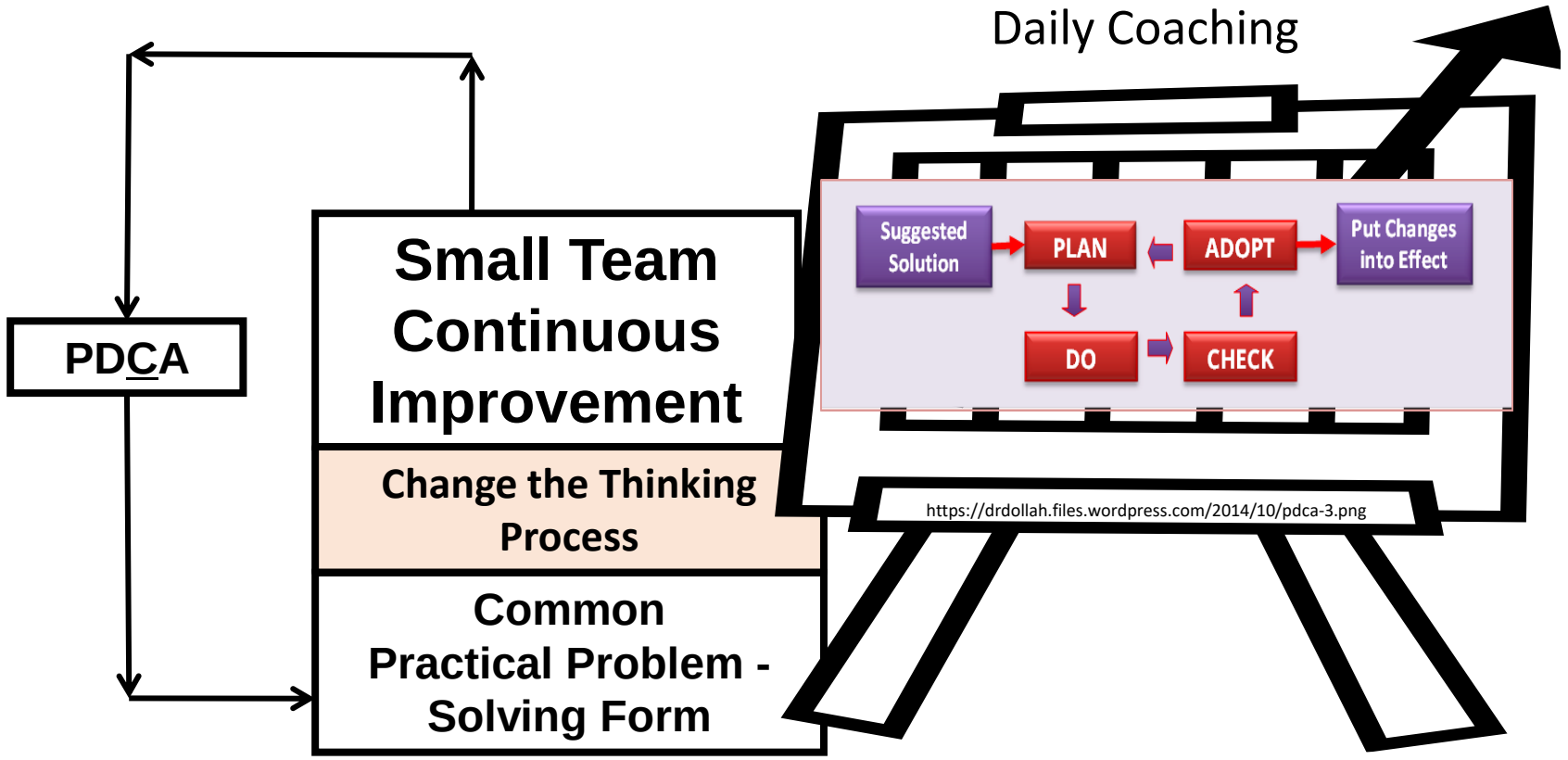
What the Best-of-the-Best Do Better



Mainstream Improvement Process
(Best Plants)

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Strategy for success

Successful R&M Implementation is a
Socio-technical Process

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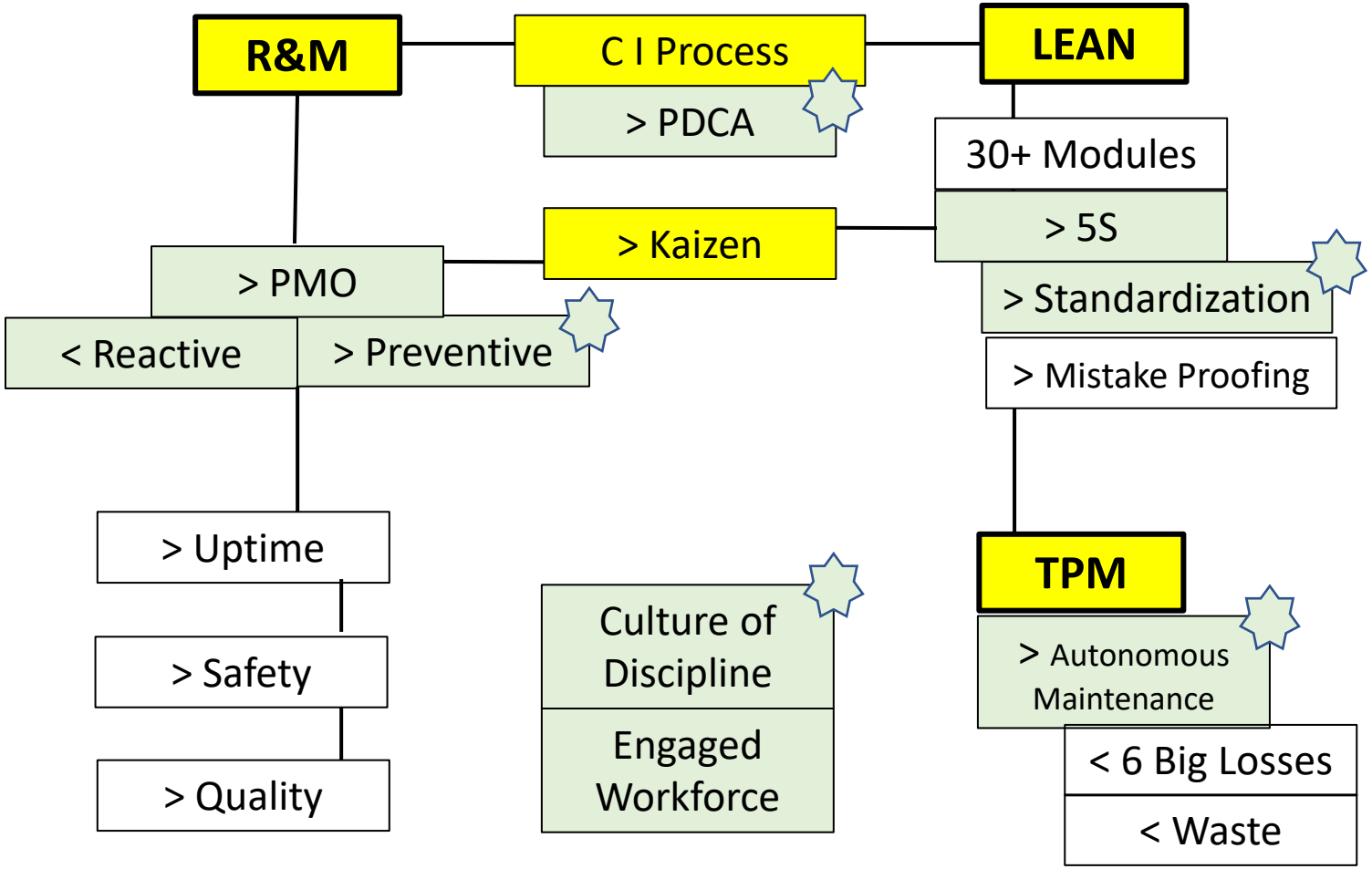

An engaged workforce, with a culture of discipline is what's missing in most situations.

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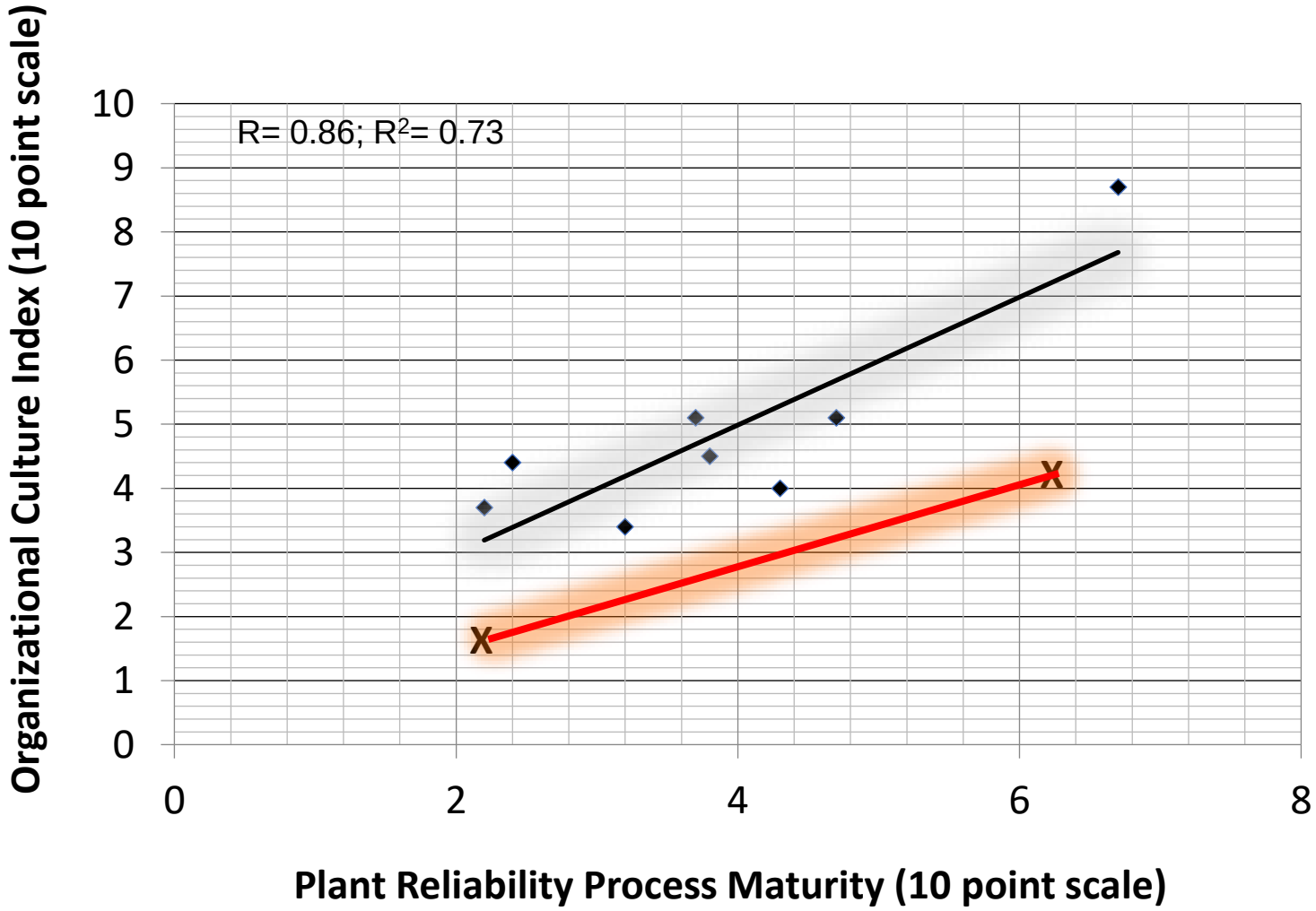
Organizational culture and reliability process maturity



Source: Book: *The Relativity of Continuous Improvement*, Dr. Klaus Blache, Dec., 2015

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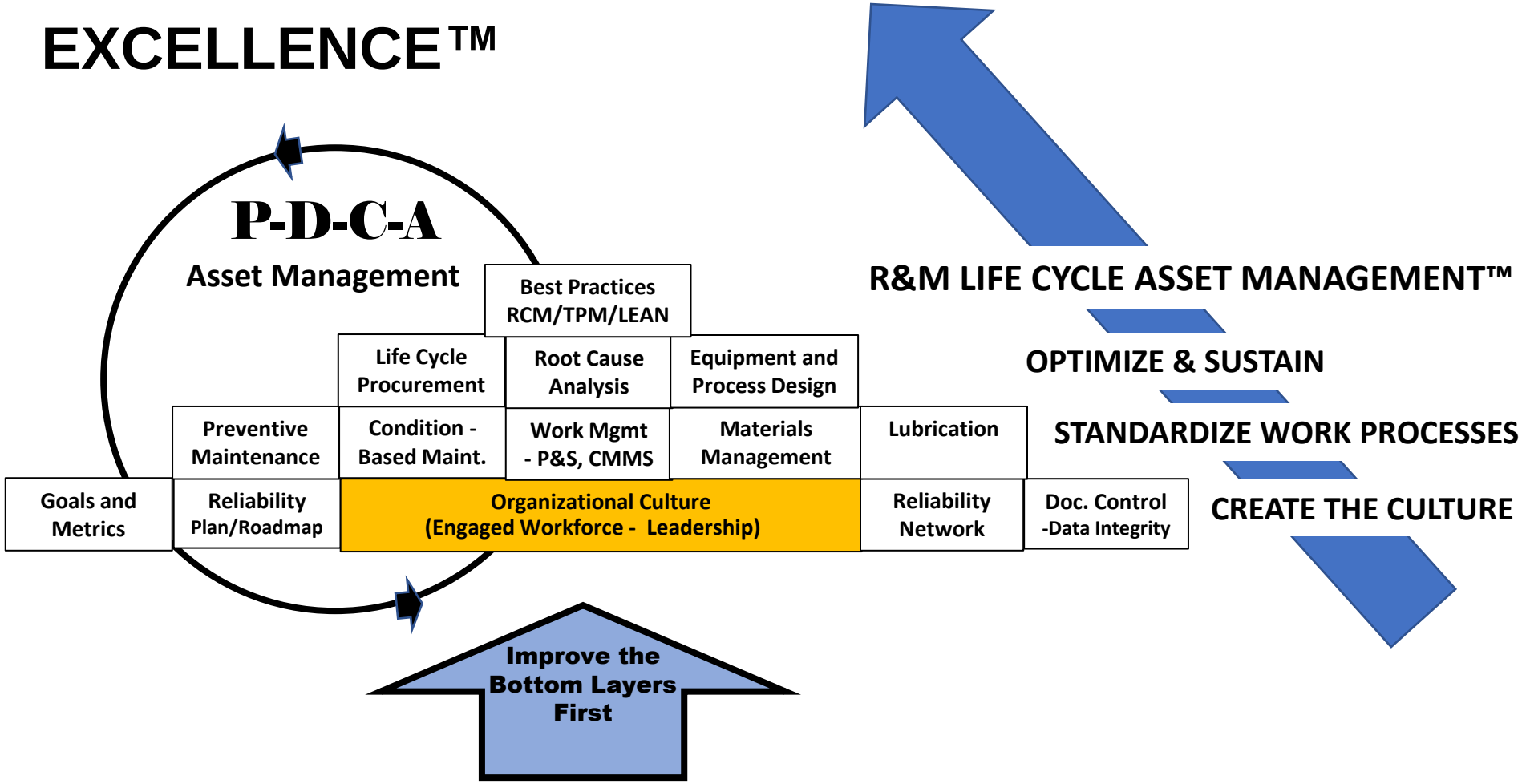
R&M COMPETITIVE EXCELLENCE™



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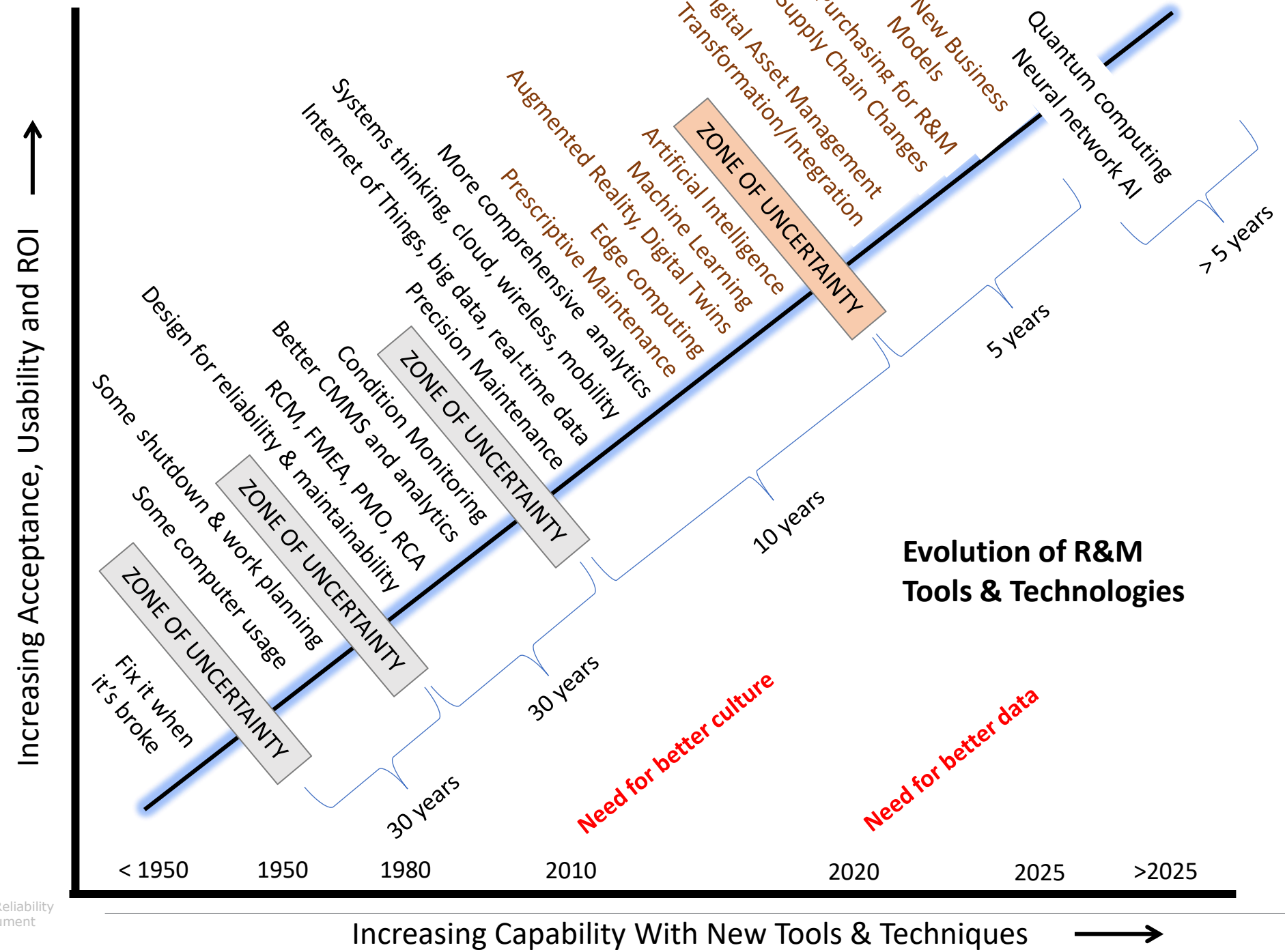

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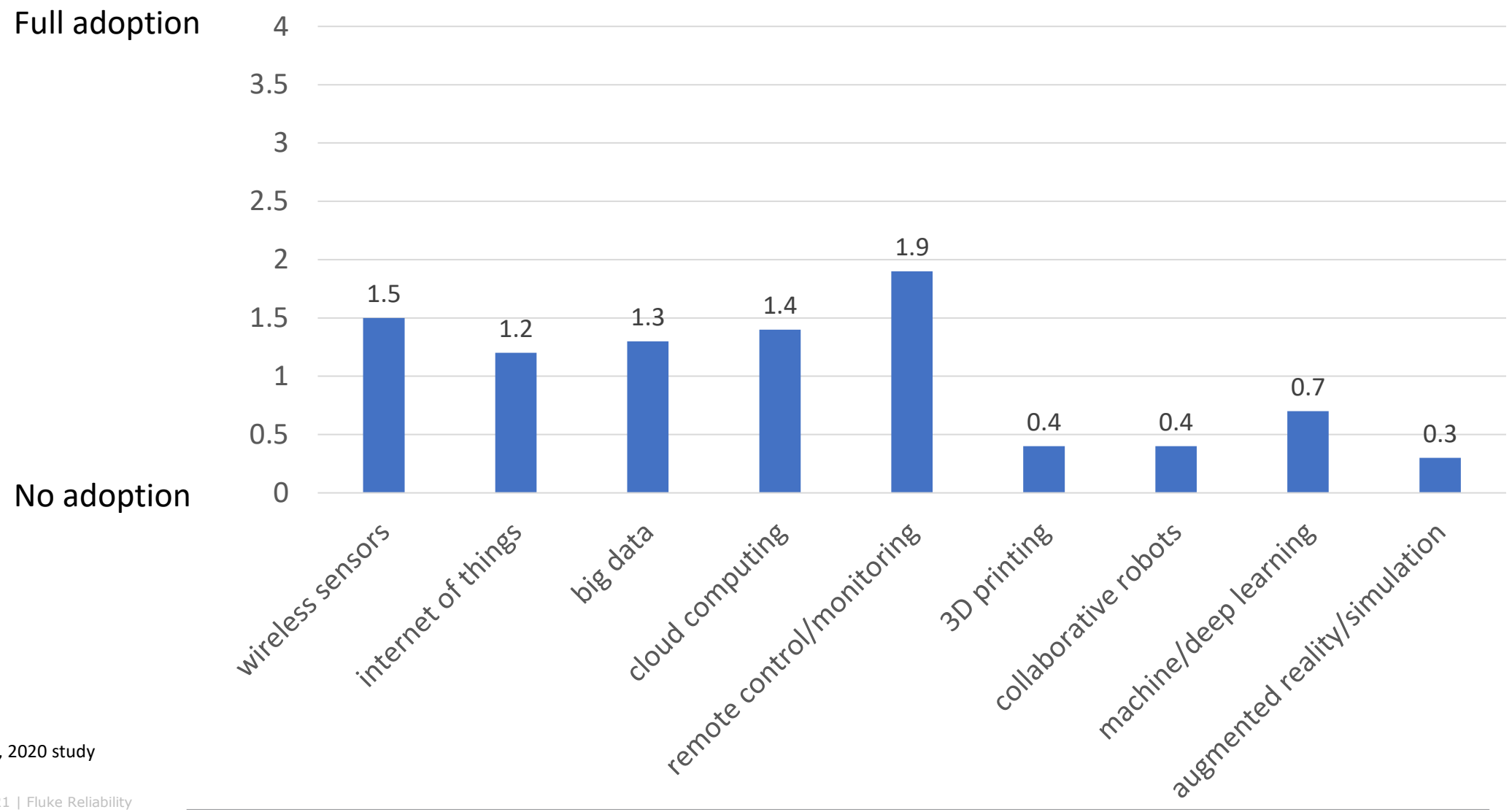
Digital Technology Adoption
North America



Dr. K. Blache, 2020 study

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Today's Climate

Disruptive
Accelerating Pace
Retirees & Millennials
Interconnectivity
Change is Happening

Take Action

Change Your Perspective
Remember Practicable
Align Goals
Get on Board / Get Your Data Ready
Protect Your Base / Stimulate Innovation

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http://internetmarketingblog101.com/wp-content/uploads/2015/05/Setting-Blogging-Goals-is-Very-Important-make-things-happen.jpg

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Questions

QUESTIONS?

Thank you!

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THANK YOU!