

Extending Quality in the Digital Age

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BOSCON 2019

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THEME OF THIS CONFERENCE

NEW QUALITY IN A NEW WORLD: INNOVATING QUALITY IN
A DIGITAL ERA

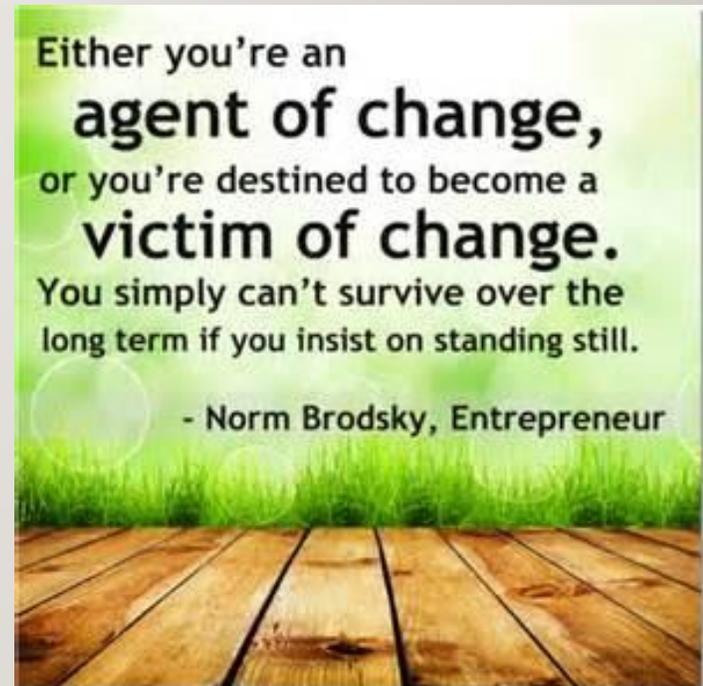
QUALITY MANAGEMENT SYSTEMS SUPPORT CHANGE

Change agents:

- Internal
- External

Roles of change agents:

- Coach top management
- Provide support and advice
- Manage a specific project
- Guide the development of a network
- Guide the assessment of results of change



DISAPPOINTING.....

That so many global organizations view quality from the traditional product-related perspective.



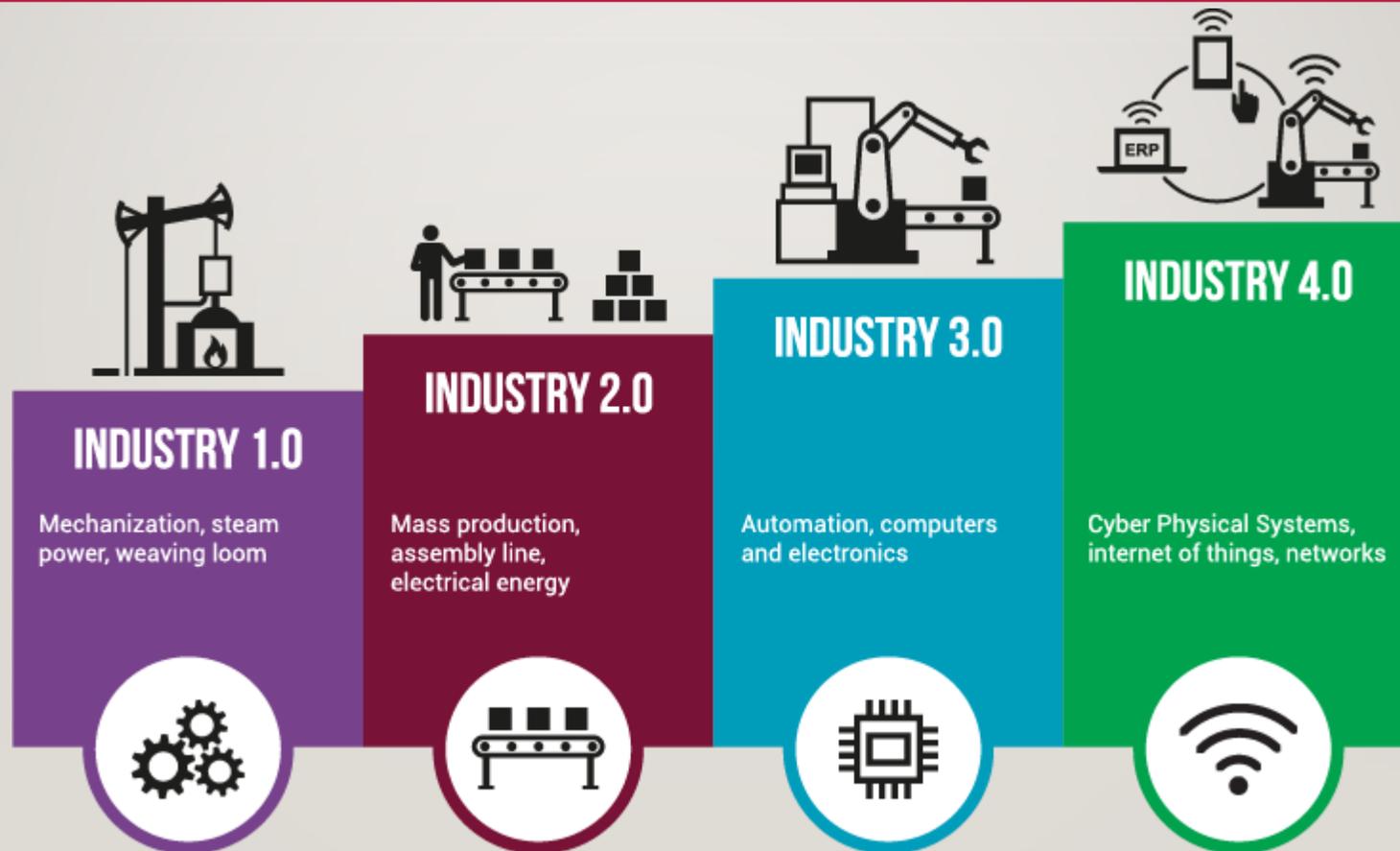
INDUSTRY 4.0

We're in the midst of a significant transformation regarding the way we produce products thanks to the digitization of manufacturing. This transition is so compelling that it is being called Industry 4.0 to represent the fourth revolution that has occurred in manufacturing.

INDUSTRY 4.0

- Industry 4.0 as the next phase in the digitization of the manufacturing sector, driven by four disruptions:
 - the astonishing rise in data volumes, computational power, and connectivity, especially new low-power wide-area networks;
 - the emergence of analytics and business-intelligence capabilities;
 - new forms of human-machine interaction such as touch interfaces and augmented-reality systems;
 - improvements in transferring digital instructions to the physical world, such as advanced robotics and 3-D printing

INDUSTRY 4.0

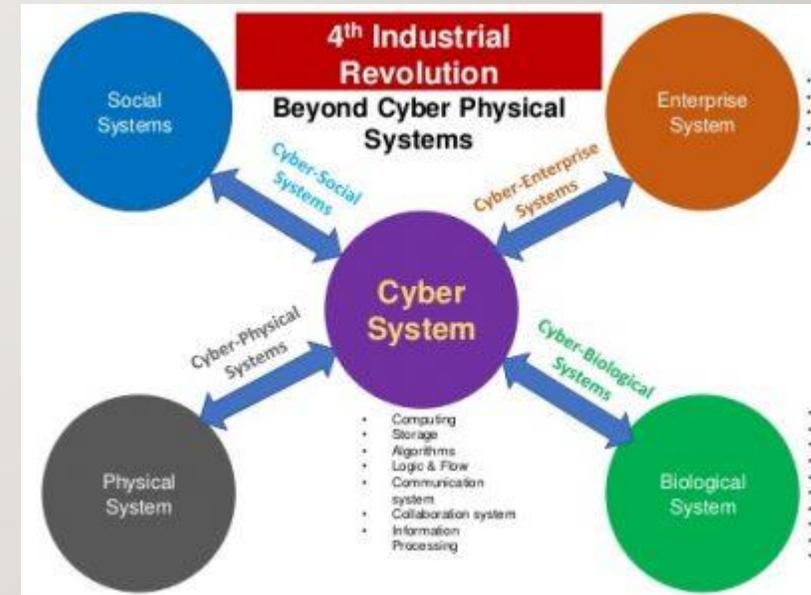


DISRUPTIVE GLOBAL FORCES OUTSIDE OF THE CONTROL OF ANY ONE COMPANY

- Digital technologies – reinventing, secured, and unsecured data
 - Emerging consequences – customer impacts, enterprise impacts, and market impacts
 - Pressing challenges – sustain profitable business, become a customer partner of choice, pivot intelligence based decision making and knowledge
 - Transformational opportunities
 - Take action
- IBM Products Watson Industry 4.0

LET'S GET DIGITAL – QP OCTOBER 2018

- Article by Nicole Radziwill
- Discusses 4th Industrial Revolution
- Introduces Quality 4.0 Tools
 - Artificial Intelligence
 - Big Data
 - Blockchain – accompanying article in QP by Narahari Rao
 - Deep Learning
 - Enabling technologies
 - Machine Learning
 - Data Science



RADZIWILL PROPOSES THE NEW ROLE OF QUALITY:

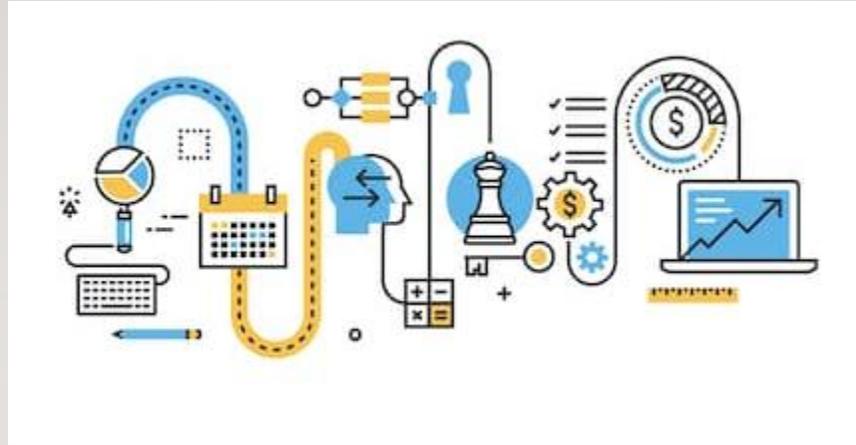
- Quality as inspection – early days involved inspecting bad quality out of products
- Quality as design – Deming stated “cease dependence of inspection
- Quality as empowerment – TQM, Lean and Six Sigma
- Quality as discovery – how well we can discover and aggregate new data sources



ACTIVITIES SUPPORTING QUALITY AS DISCOVERY

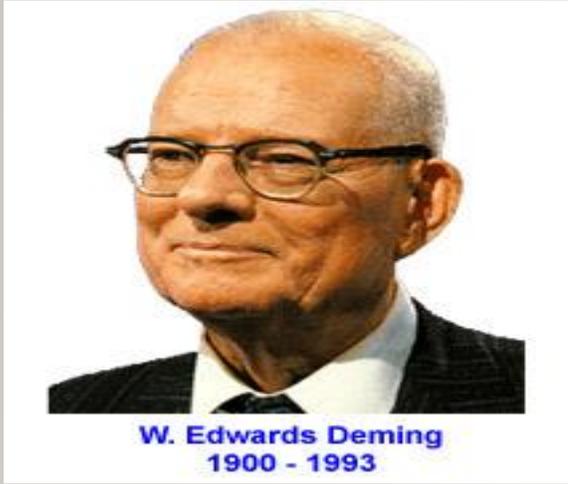
- KMPG Survey in QP June 2018 – Business students surveyed resulted in 35% anticipate new technologies will enable them to improve their work performance and 20% said new technology will enable them to constantly develop their skills and abilities
- QP “Helping Families Initiative” article
- Belgrove Funeral Home ISO certification
- St. Agnes Anglican Church application of CMQ/OE BOK





More and more organizations are seeking better processes and tools to ensure that the right people have the information at the right time to make smarter decisions.

Big Data, Data Mining, and Machine Learning: Value Creation for Business leaders, and Practitioners, Dean, Jared, (2017)



DEMING AND DRUCKER

**BASIS FOR MUCH OF THE THEORY RELATED THE IMPORTANCE OF
PEOPLE IN THE SUCCESS OF ANY ORGANIZATION**

"The best way to predict the future is to create it" - Peter Drucker



Mr. Peter Drucker
World Marketing Specialist



**DRUCKER PROVIDED A BASIS FOR
MANY OF THE TOOLS OF QUALITY
HE NEVER CLEARLY STATED QUALITY TOOLS
BUT HE ADVOCATED PDCA.**

PETER DRUCKER'S QUOTES:

Without the will to take risks, to venture into the known and let go of a familiar past, a corporation cannot thrive in the 21st century.

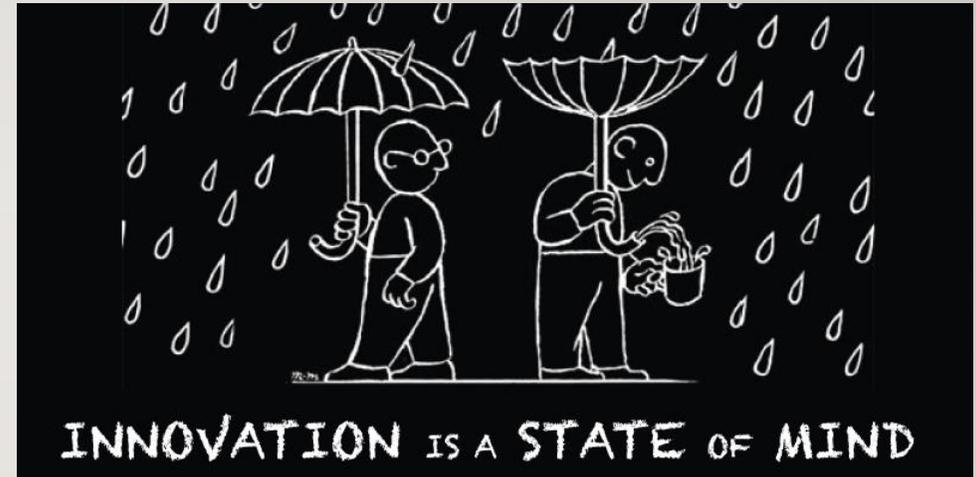
There is no substitute for fact based decision making and no excuse for managing from the gut.

Managers need to move forward while taking the right risks, not necessarily the least risk





INNOVATION

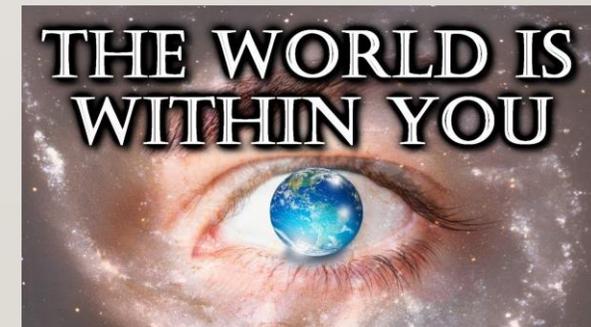


Innovation involves risk -

But as Drucker stated, we cannot survive without taking some risks

REAL LEARNING GOES TO THE HEART OF WHAT IT MEANS TO BE HUMAN DEVELOPS OUR CAPACITY TO CREATE

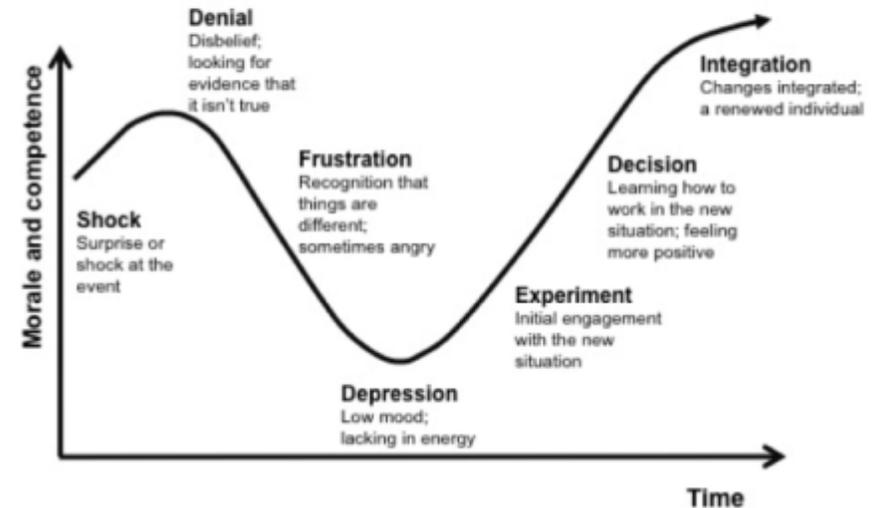
LEARNING ORGANIZATION IS AN ORGANIZATION THAT IS
CONTINUALLY EXPANDING ITS CAPACITY TO CREATE ITS FUTURE



THE HUMAN SIDE OF CHANGE

- Organizational success requires effective and efficient utilization of its core processes
- The foundations of processes exist with the people
- Technology will not replace the human element of core processes
- Human reaction to change varies from open hostility to a total commitment

The Kübler-Ross change curve



THE FUTURE OF QUALITY



Technology advocates may disdain that culture and proclaim themselves transhumanists who are better culture through blurring the line between humanity and technology.

The Efficiency Paradox: What Big Data Can't Do by Edward Tenner 2018

ELEMENTS NECESSARY FOR SUCCESS

- Awareness of the value quality can provide
- Communications and learning that **quality is not a technique to assure product integrity**
- Openness to accept change
- Embracing new and innovative “outside the box” ideas and concepts



QUALITY METHODOLOGIES

- Provides proven techniques for analyzing data, building teams, and fact based decision making
- Quality professionals have been restricted in applying their skills by siloed thinking
- Leaders in any type of organization need to understand the value quality can provide
- We as quality professionals must champion our skills



PEOPLE MUST REMAIN AN INTEGRAL PROCESS ELEMENT

- Data collection is virtually unlimited
- People have a capacity limit
- A balance must be maintained



CAUTION – DATA OVERLOADS

- Electronic Medical Records 2016 report in the *Annals of Internal Medicine* found that for every hour doctors spend with patients, two hours are spent on paperwork. Leads to abuse, which leads to more safeguards and cycle continues
 - *The Efficiency Paradox: What Big Data Can't Do* by Edward Tenner 2018
- A case study from Australia was cited where 98 nurses prepared over 4,200 medications in a given period of time and were interrupted by “alarms.” Each interruption increased the potential for error by 13%. It was reported that an alarm sounds every 8 minutes.
 - *The Efficiency Paradox: What Big Data Can't Do* by Edward Tenner 2018

EXTENDING THE QUALITY CULTURE IN THE DIGITAL AGE

Quality professionals need to be involved to assure that a balance is maintained between the data collection and the human element needed to analyze the data and make informed process based decisions.

We have products that perform as they are intended. We also understand the new technologies and products will continue to be developed. Quality in the traditional sense will maintain its traditional role.

But the quality body of knowledge provides a foundation for making our personal lives and society in general a better place.



THE FUTURE SUCCESS OF
QUALITY AS ORGANIZATIONAL
EXCELLENCE IS SITTING IN THIS
ROOM!



All of you have the basic skills and knowledge to make the
future of quality in Industry 4.0 very bright!

THANK YOU!

Milton Krivokuca DBA, CMQ/OE, CQE, SSBB, SSGB, CQA