

Vladimir Simić



Quality 4.0 - Challenges to the Future of Quality Improvement



Sretan praznik!

World Quality Day

SRETAN PRAZNIK



ASQ QUALITY 4.0 SUMMIT
November 18 – 19, 2019 | Dallas, TX
ONLINE REGISTRATION ENDS NOVEMBER 4!



Make Quality Great Again!
...No Q without U



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WORLD QUALITY DAY - ett årligt SFK arrangemang

START ANMÄLAN SFK:S OLLE JONSONPRIS SFK

World Quality Day 2019, 14 november, Malmö



6. DGQ-Qualitätstag
Qualitätsmanagement neu denken!

28. November 2019
FRANKFURT HOLM, House of Logistics and Mobility



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World Quality Day 2019 | Quality for Italy – Italy for Quality

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Category: Quality for Italy , Seminars and Conferences Date: 14.11.2019

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World Quality Day 2019

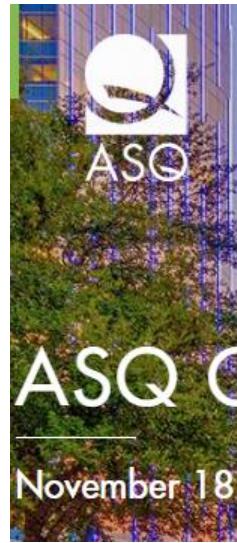
14 November 2019

Introduced in 1990 by the United Nations, World Quality Day aims to raise awareness of the importance of quality performance of professional responsibilities and tasks across nations and in organisations to strengthen the improvement of innovation, growth and sustainability. It takes place on the second Thursday of November.

RELATED INFORMATION

[Chartered Quality Institute](#)

[South African Bureau of Standards](#)



Rick Smith

Author, Innovator, Co-Founder and
CEO, Fast Radius
Monday, November 18, 8:00 a.m.



Todd McLees

Founder, Pendio Group and
TENXManufacturing Ecosystem
Tuesday, November 19, 8:00 a.m.



Elmer Corbin

Head of Global Delivery Excellence
and Customer Success, IBM Watson
Health
Tuesday, November 19, 4:15 p.m.

THEME

FOCUS AREAS

To achieve excellence through quality is to embrace the future of quality. It is paramount that quality professionals help their organizations make the vital connection between quality excellence and their ability to thrive in disruption. ASQ's Quality 4.0 Summit will act as the catalyst for professionals, helping them understand how quality will enable transformation and growth.



EOQ 63rd Quality Congress - 23-24 October, 2019 in
Lisbon/Portugal

The impact of Quality Management on the Business of the company Metalac

- *Aleksandar Marković, METALAC [SERBIA]*



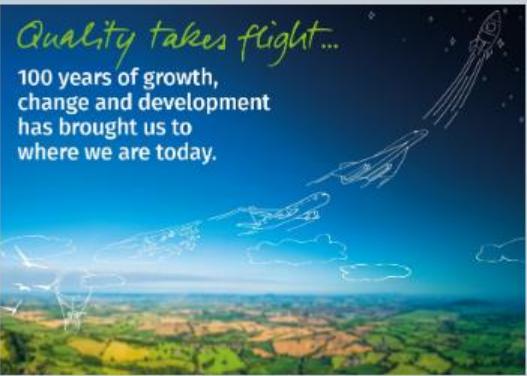


Home About

Australia

Quality takes flight...

100 years of growth,
change and development
has brought us to
where we are today.



Sydney - World Quality Day 2019 - Celebrating Our Commitment to Quality

Date: 14 November 2019

Time: 5.00pm - 7.00pm

[MORE INFO](#)

[REGISTER NOW](#)



Brisbane - World Quality Day 2019 - Quality Quiz Night

Date: 13 November 2019

Time: 5.45 pm - 7.15pm

[MORE INFO](#)

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AOQ Annual General Meeting 2019

Hunter Region NSW - "World Quality Day" 100 years of Quality – Hunter Chapter Networking Event

Date: 14 November 2019

Time: 5.00pm - 6.30pm

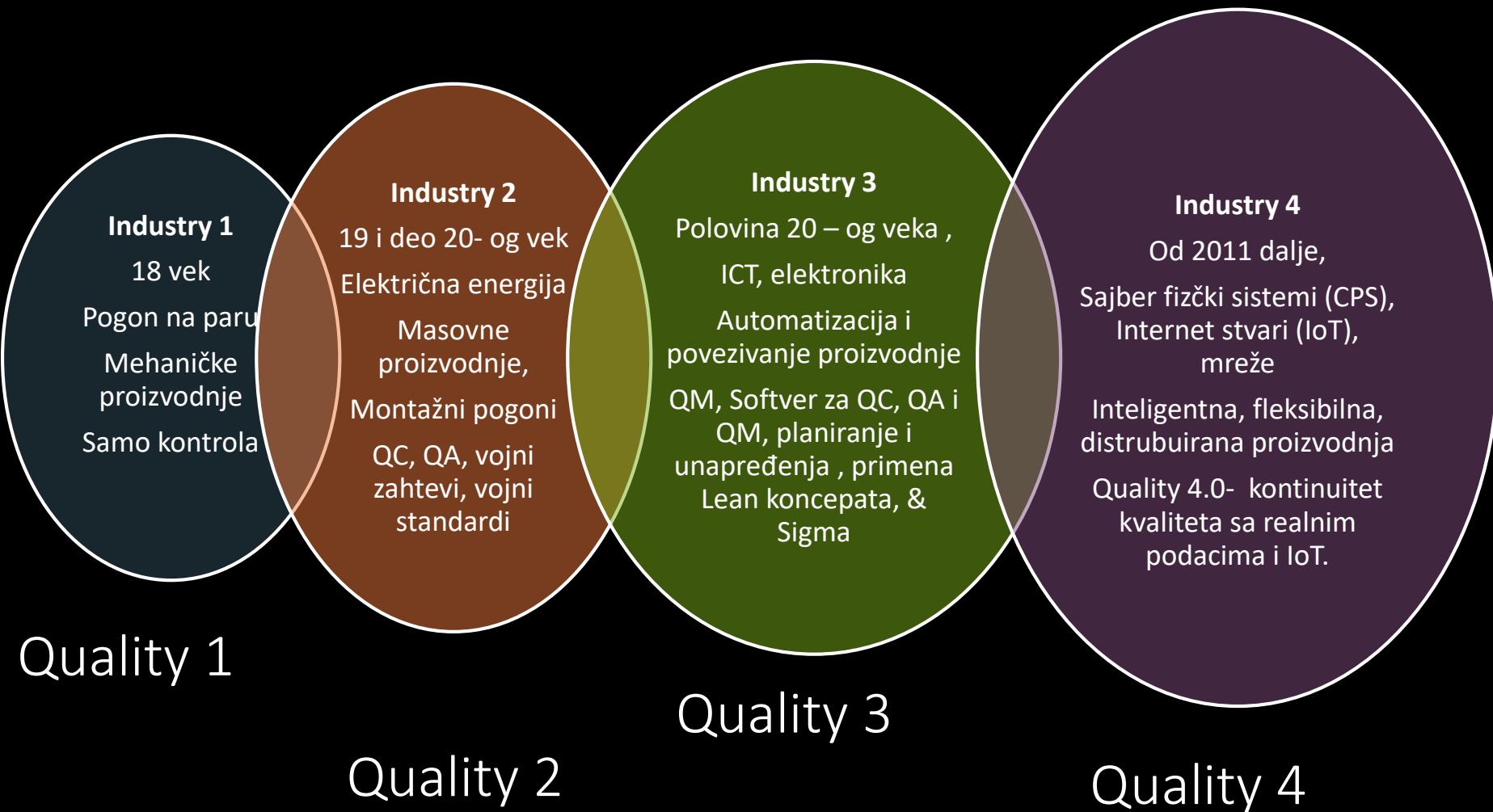
[MORE INFO](#)

[REGISTER NOW](#)

World Quality Day 2019



Industry 4.0



“

THE FOURTH
INDUSTRIAL REVOLUTION
WILL AFFECT THE VERY
ESSENCE OF OUR
HUMAN EXPERIENCE.”

KLAUS SCHWAB
FOUNDER & EXECUTIVE CHAIRMAN,
WORLD ECONOMIC FORUM



Moto!

„Opseg, obim i složenost kako tehnološka revolucija utiče na naše ponašanje i način života, biće različito od bilo čega što je čovečanstvo doživelo.“

*Klaus Schwab, Engineer and Economist;
Founder and Executive, Chairman of
the World Economic Forum 2016.*

Inspitacija
i ideja

VID-20191117-
WA0005.mp4

VID-20191117-
WA0003.mp4





QUALITY CONVERSATIONS

Insights from Mike Turner, Managing
Partner of Oakland Consulting

<https://www.armaturecorp.com/quality-conversations-quality-takes-lead/>

Dve poruke iz njegovog
izlaganja na ASQ 2018
godine

- One big message I would give is that traditionally, we in the quality profession have focused on the quality of products and the quality of services. Now we've got to help organizations focus on the *quality of data*.
- When Quality takes the lead ?

QM Workshop 2019



With integrated SAP
Quality Management to
“Quality 4.0”



On Thursday, September 26, 2019, this year's 18th QM Workshop will take place in Walldorf. Remember the appointment in the calendar!

Veoma interesantne
teze



Natella Isazada

**The End of Quality
Department Era?**

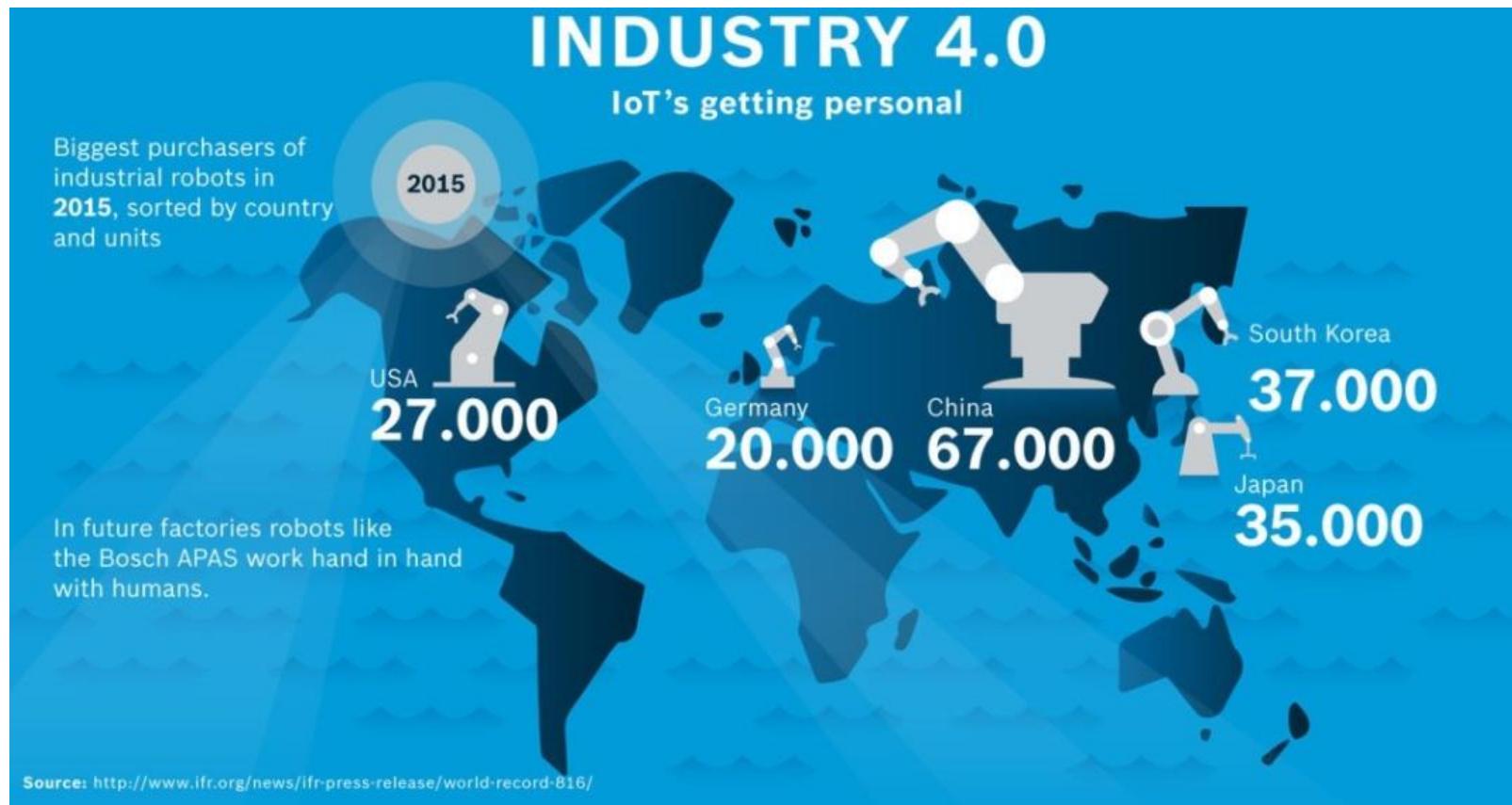
Sunset or a New Dawn?

**What is True Today
Might not be Tomorrow**

**People Skills are not
"Soft"**

Freedom to Fail

Najveći kupci robota



Articles, Industry 4.0

What is Pharma 4.0? – Insights into the paradigm shift: Written by Christian Woelbeling, Chairman ISPE Special Interest Group “Pharma 4.0”



AYRTON BOLDT

May 16, 2018, 1:09 pm  5319

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QUALITY 4.0

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Consortium

VDEh-Betriebsforschungsinstitut GmbH (BFI) is a non-profit, limited liability company and one of Europe's leading private-sector Institutes for applied research and development in the field of steel technology. The involved department of 'Quality and Information technologies' is specialised to the development of technological systems and their implementation into steel producing processes. BFI is skilled in all kinds of industrial applied computer-based processing, starting from data management over data analysis and utilisation up to knowledge management.

Thyssenkrupp Rasselstein GmbH (RAB) is a subsidiary of thyssenkrupp Steel AG and is one of the three largest packaging steel producers in Europe. Rasselstein's 2,400 employees turn out about 1.5 million tons of packaging steel yearly from their Andernach production site, serving over 400 customers in 80 countries - with years of experience and great success. RAB production chain starts from hot strips and ends with the in-plate involving various types of processes such as pickling, cold rolling, degassing, annealing (batch and continuous), temper rolling, tinning/chromium coating, film laminating, cutting, slitting, leucaturing. The production routes can be organized in a very flexible manner in dependence to customer demands.



Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna (SSSA) is an autonomous, special statute public university operating in the field of applied sciences with the aim of promoting the development of culture, scientific and technological research, and innovation. SSSA will participate to the project through the centre of ICT for Complex Industrial Systems and Processes (ICT-COIP) of the institute of Communication Information and Perception Technologies (TeCIP). ICT-COIP is very active in the research field in both process and manufacturing industries and holds an extensive expertise in development and software implementation of mathematical models of industrial processes and application of traditional and advanced (also Artificial Intelligence (AI)-based) techniques to complex industrial processes and machines simulation, monitoring and control, including analysis and mining of data coming from the same applications.



Centre d'Excellence en Technologies de l'Information et de la Communication ABL (CETIC) is an applied research centre in the field of ICT. CETIC's mission is to support economic development by transferring the results of the most innovative research in ICT to companies, particularly SMEs. CETIC helps companies integrate these technological breakthroughs into their products, processes and services, enabling them to innovate faster, save time and money and develop new markets. CETIC develops its expertise in key technologies, including Big Data, Cloud Computing, the Internet of Things, software quality, and trust and security of IT systems. These innovations are applied in domains of primary importance to society, such as health, smart mobility, energy and industry. CETIC is composed of 3 departments focusing on System and Software Engineering, Embedded Communicating Systems and Software and Service Technologies. The last department will be involved in the project. In particular, the System and Service Technologies will bring their expertise in the following domains: Big Data Programming Frameworks able to process data at high Velocity, or Stream processing; rules programming, based on rules engine, to implement data plausibility checking, and Data Interoperability methods and tools for integration of data from various sources and formats. This approach includes semantic algorithms and tools. The know-how of the Department on IT systems automated deployment and configuration will also help in test and evaluation of outcomes of the project.



Bidenor I+D (BID) (former Gerold I+D) is one of the European leaders in special steel long products. With an installed capacity of 1 million tonnes per year, it produces straight bars (rounds and flats), bar in coil and wire from a range of 5.5 mm to 220 mm diameter of high quality engineering steel grades. The production route comprises EAF-LF-VOD-OC (Billet and Bloom) and also Ingot casting. It has 5 rolling mill, heat treatment and finishing facilities. The main market is automotive and energy. It also produces forged and cast parts for metallurgical goods (rolls...), energy (shafts, crankshafts) and heavy machinery sectors. Bidenor I+D is the research and development centre of sidenor. It has a manpower of 46 persons (87% of them are PhD and engineers) working in 2 departments: Process and Product. It has its own Research Laboratory, which is equipped with modern test facilities both for metallurgical characterisation as for physical simulation. It also has capabilities for numerical simulation through the use of both commercial (FEM...) as well as its own developed software. One of the strengths of BIDENOR I+D comes from the easy access to the production plants in order to carry out at industrial level the required experimental work, process monitoring and data acquisition. The Center has extensive experience in carrying out R&D projects over a number of years both as coordinators or as partners, in nearly all the Technical Committees (TGB 2, 3, 4, 5, 6, 7, 8 and 9).



QUALITY 4.0

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IoT ANALYTICS

Leading Industry 4.0 Vendors 2019

—Connected Industry Building Blocks—



- Other Industry 4.0 Supporting Technologies



Source: IoT Analytics, January 2019. Vendor map does not include suppliers of vertical or use case specific solutions (i.e. end-to-end vibration monitoring solutions, etc.). Leading companies were selected based on a number of factors including sophistication of relevant products, offerings, number of completed case studies, and size of industry 50 business. It is possible that some vendors failed to submit a company for consideration in the 2020 vendor map. Please contact research@iot-analytics.com with the company information.

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500-999 Pieces	US \$10.5
1,000+ Pieces	US \$10.2



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Industrie 4.0

In der Praxis

Über die Plattform



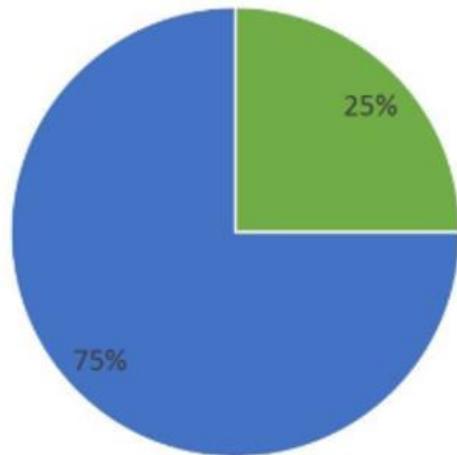
Suchbegriff eingeben



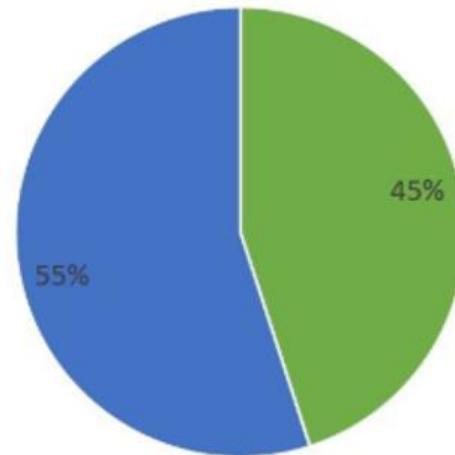
Was ist die Plattform Industrie 4.0?

Preuzeto od Ottomotors

Nekada



Sada i budućnost



Radni prostor

Kancelariski prostor

<https://ottomotors.com/blog/industry-4-0-connected-factory>

Izvor: Quality 4.0 Survey – BCG, ASQ and DGQ

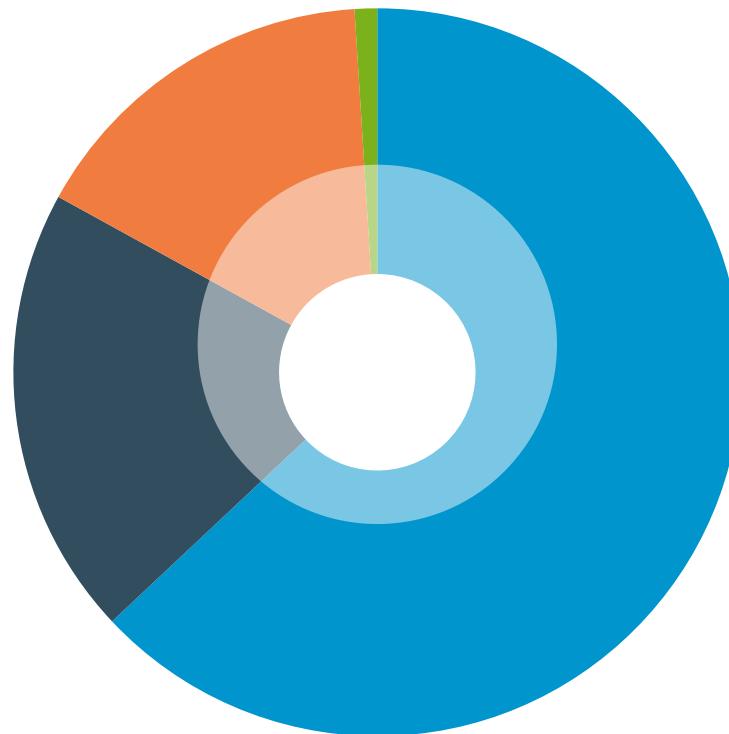
Quality 4.0 Takes More Than Technology
AUGUST 20, 2019

Za sada ogromne razlike

U SAD primenjuje 6%

U Evropi 21% (zasluga Nemačke)

Svet



63% Ne planiraju

20% Planiraju

16% Primenuju

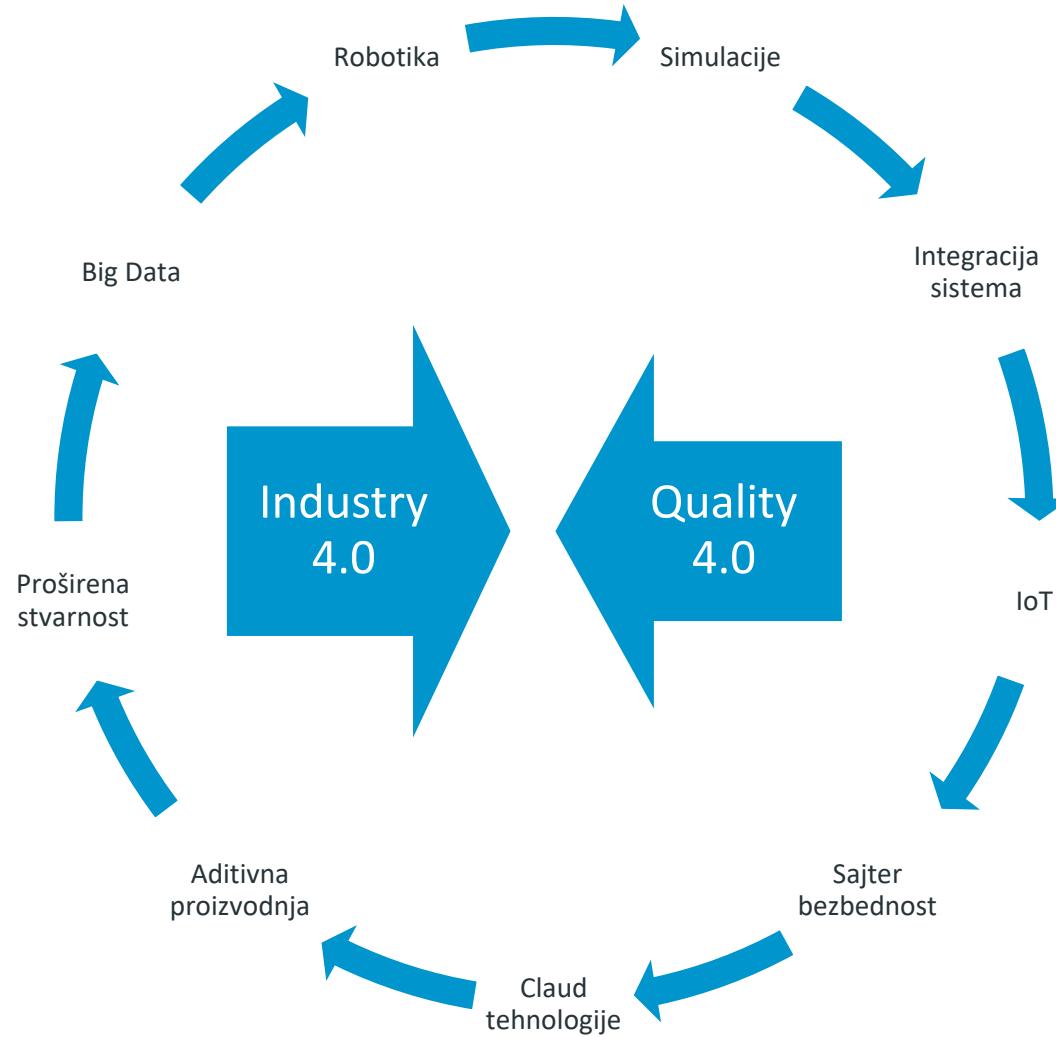
1% Završili

Quality 4.0

Mnogo načina i teorijskih pristupa



Pronalazio sam paralele



Brojni izazovi vezani za kvalitet



Nivo kvaliteta raste ili opada

Održavanje visokog nivoa kvaliteta usred visokih očekivanja i promena u zahtevima kupaca



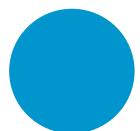
Ulaganja u razvoj

Neophodnost ulaganja u resursa za inovacije i istraživanje novih metoda poboljšanja kvaliteta



Stepen usklađenosti

Povećanja stepena usklađenost sa promenama u zakonskim propisima na svim nivoima



Brzine reagovanja na promene

Brzina reagovanja na povećanje potrošnje i izmene strukture korisnika



Uloga standardizacije

Uloga globalnih standardizacija



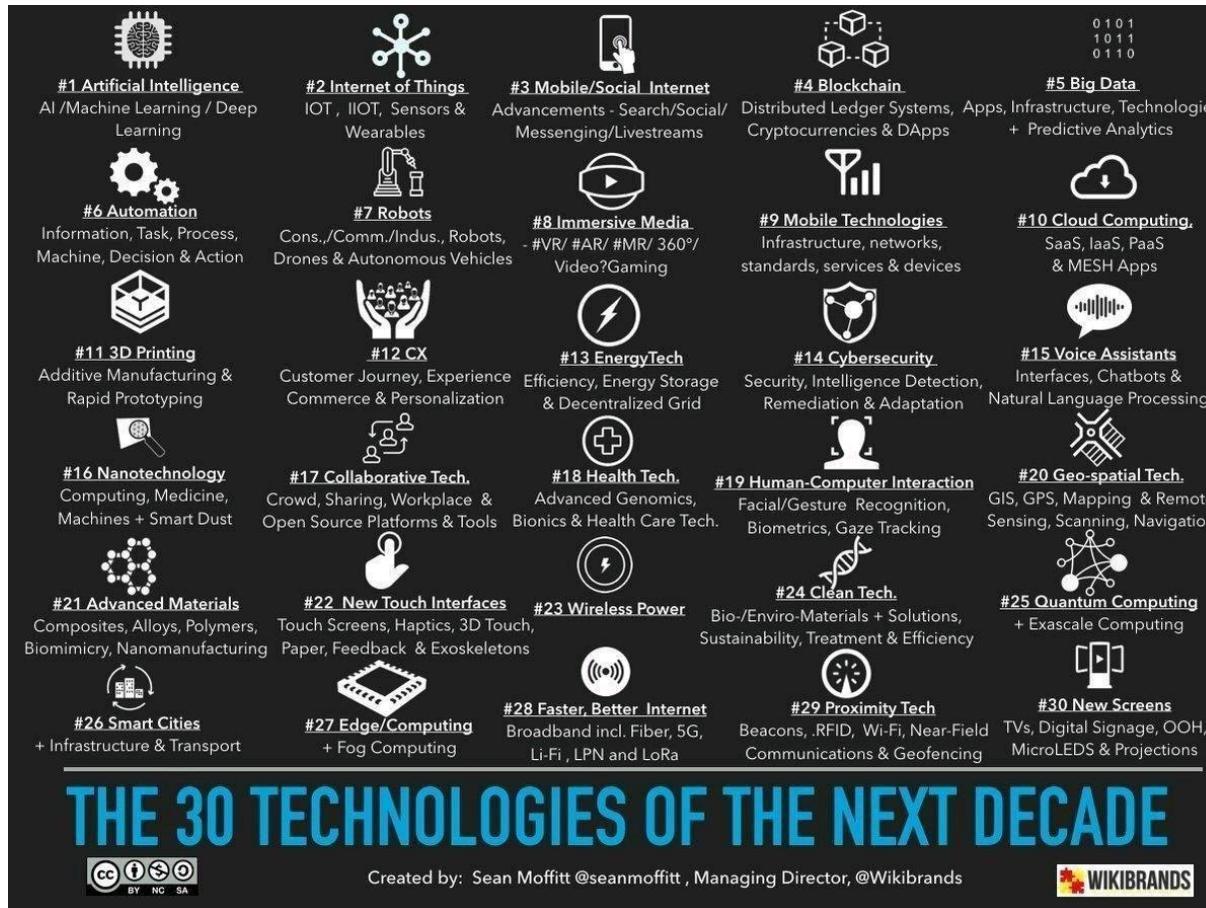
Digitalizacija svuda i svega

Digitalizacija svuda oko

A šta se to, u svetlu interesa za ulogu kvaliteta, ustvari menja ili očekuje u Industry 4.0



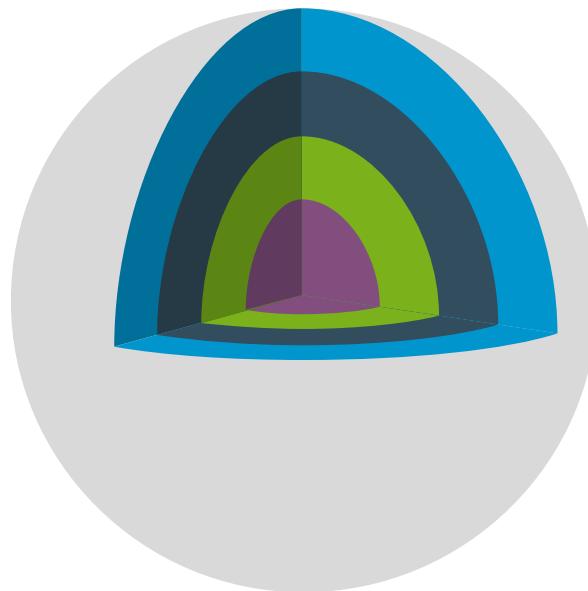
Mnogo je novih tehnologija



Probao sam
da skupim
sve
elemente u
ove grupe



4 grupe elemenata Quality 4.0



Realna sadašnjost

Veliki bum

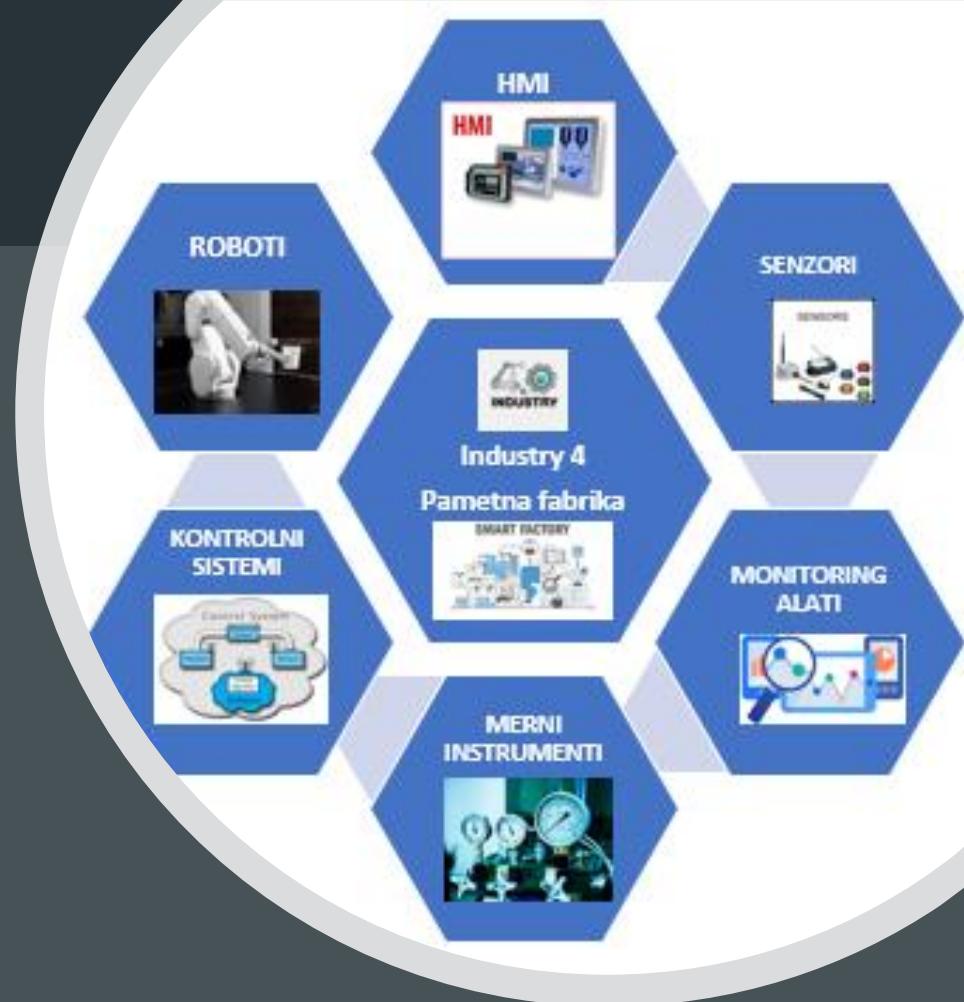
Integracije

Odlučivanje

*This slide is using Font Awesome

Realna sadašnjost

- kapaciteti monitoringa i merenja kvaliteta u realnom vremenu i
- integracija svih mernih i ostalih sistema u organizaciji i lancu snabdevanja.
- Ako uzmemo primer neke proizvodne organizacije i pokušamo da o njoj razmišljamo kao „smart“ fabriči, onda je svakako veoma značajno da ta realna sadašnjost svih merenja i monitoringa koji postoje u njoj, budu povezani na novim osnovama





Veliki bum

- Analitika Big Data,
- Mašine koje uče i veštačka inteligencija,
- Big Data 3V (obim, raznolikost i brzina)

Podsetimo se recimo jedne pogonsku sveske kontrole kvaliteta neke fabrike, onda ćemo videti lako značaj obrade svih podataka a ne samo jednoga ili jedne manje grupe, u smislu donošenja odluke da li proizvod prolazi ili ne i analiziranja i predviđanja mogućih situacija kada će se to desiti.

BIG DATA

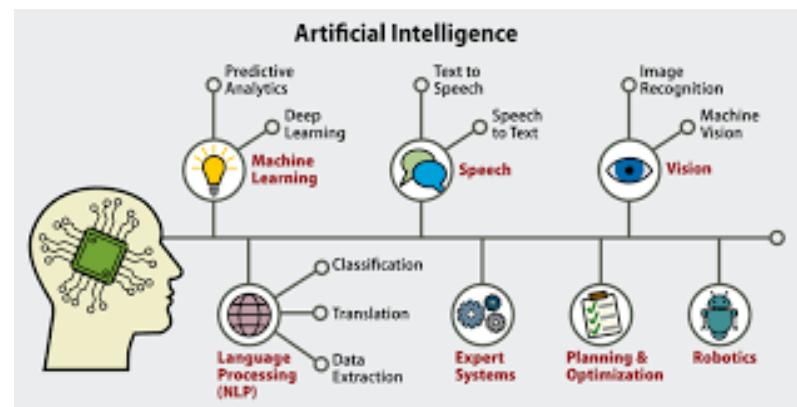
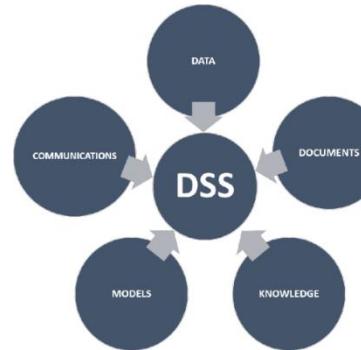
U pokušaju prepoznavanja

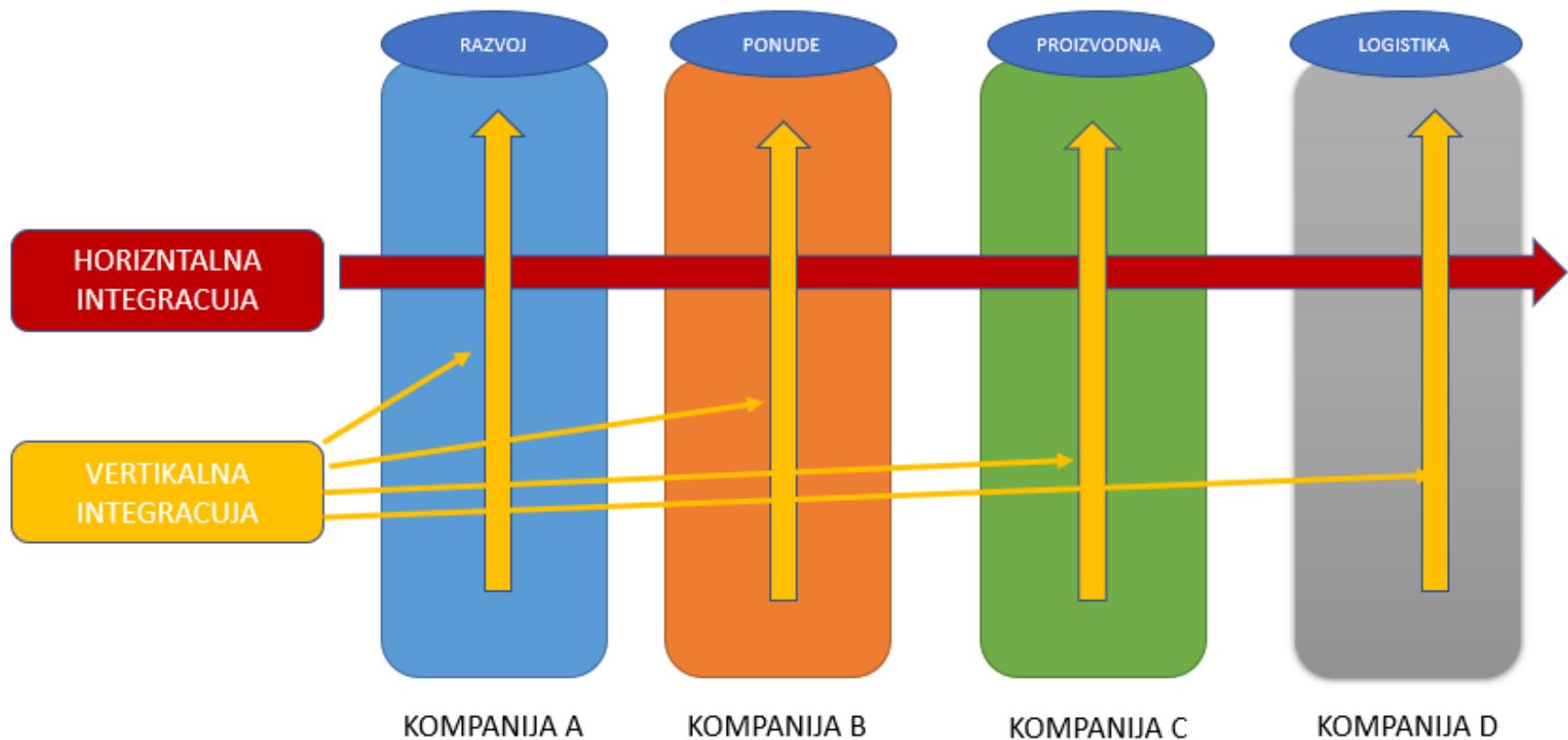


Odlučivanje

Big Data i veštačka inteligencija

- Sisteme za podrške donošenje odluka i
- Sistemi za automatsko donošenje odluka povezanim sa kvalitetom.
- Procesi decentralizacije odlučivanja - na vertikalnim i na horizontalnim pravcima
- Kompleksne decentralizavane odluke smanjuju mogućnost „krivudanja“ u odlučivanju a time se i rizici značajno smanjuju

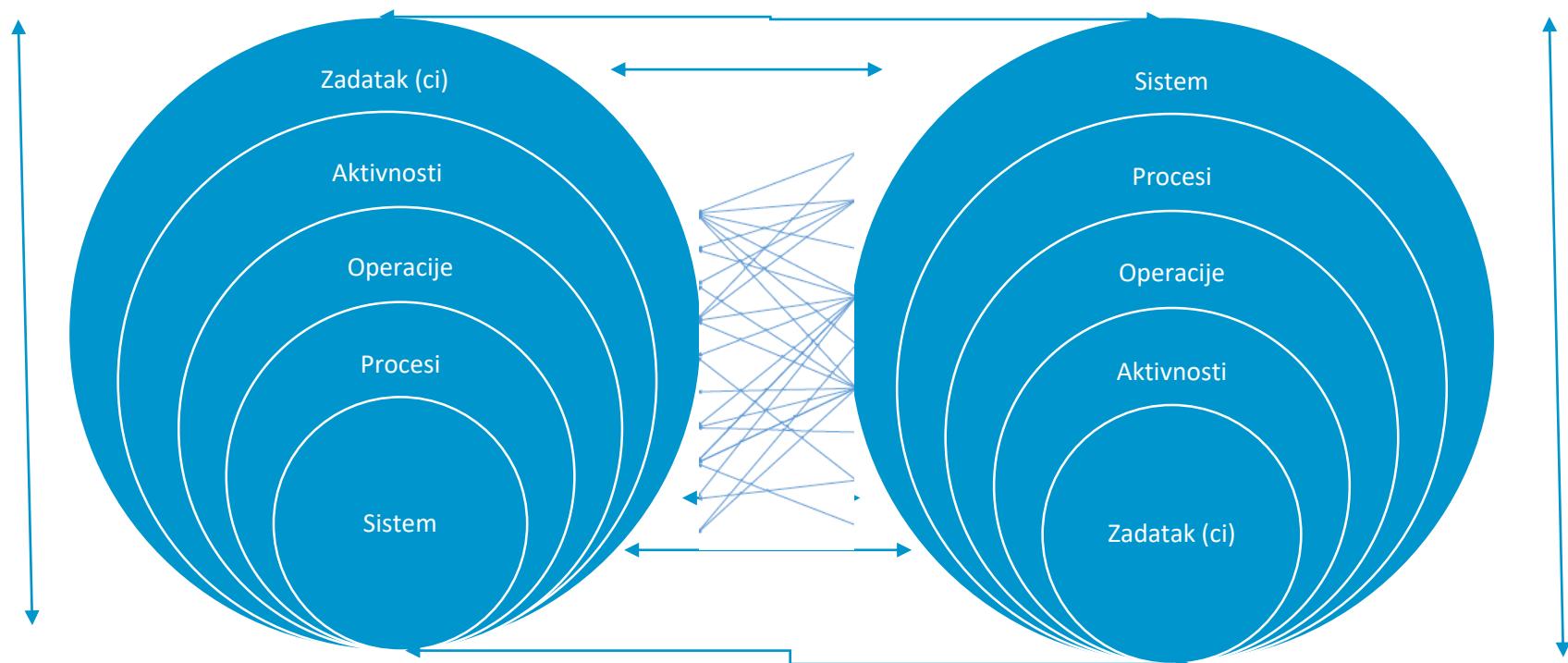




Četvrta grupa
elemenata - Integracije

- A četvrta grupa elemenata - Integracije, sa vertikalnim i horizontalnim integracijama procesa unutar samih organizacija, lancu snabdevanja i okruženju i Sajber fizički sistemi (CPS), gde elementi koji su vezani za kvalitet tek počinju da se razvijaju.

Kvalitet 4.0 Hierarchy



SWOT Analiza – slobodno razmišljanje



Industry 4.0 i MS Anneks SL, Lean i TQM

PRVO UPOREĐENJE

ANNEX SL zahtevi (1)	Lean Principi (2)	TQM elementi (3)	Adaptivne proizvodnje (3 –D Printing)	Argumentovana realnost	Simulacije & Virtualizacija	Robotzika	IoT	Cloud tehnologije
4.1	Identifikacija vrednosti	Kupac u fokusu	1,2,3	1,2	2	1,2	1,2,3	1,3
6.1	Mapiranje vrednosti toka procesa	Totalna uključenost zaposlenih	1,2,3	1,2	1,3	1,2	1,2,3	1,2,3
6.2	Kreiranje toka procesa	Procesi u centru pažnje	1,2,3	1,2,3	1	1,3	1,3	1,2,3
8.1	Uspostavljanje lanca kupaca	Integracija svih sistema	1,3	1,2,3	1,2,3	1,3	1,3	1,3
9.1	Traženje perfekcije	Strateški i sistematski pristup	1,2	1,2,3	1,2,3	1,2	1,2	1,2,3
10.2		Kontinualno unapređenje	1,3	1,3	1,3	1,3	1,3	1,3
		Donošenje odluka na bazi činjenica	3	3	3	3	3	3
		Komunikacije	3	3			3	3

Industry 4.0 i MS Anneks SL, Lean i TQM

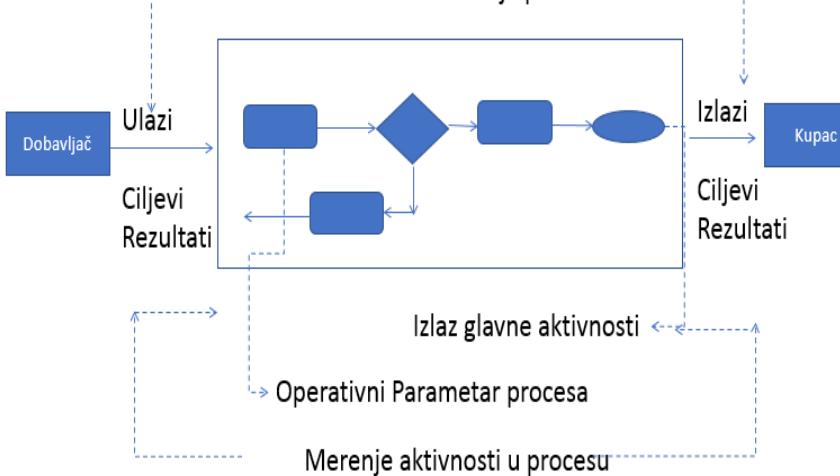
DRUGO UPOREĐENJE

ANEKS SL (1)	Lean principi (2)	TQM elementi (3)	Proizvodnja i dostupnost informacija	Povezivanje	Inteligentna obrada	Novi načini interakcija	Novi načini proizvodnje
4.1	Identifikacija vrednosti	Kupac u fokusu	1,2,3	1, 3	1	1,3	1,2,3
6.1	Mapiranje vrednosti toka procesa	Totalna uključenost zaposlenih	1,2,3	1,2,3	1,2,3	1,2,3	2,3
6.2	Kreiranje toka procesa	Procesi u centru pažnje	1,2,3	1,2,3	1,2,3	1,3	2,3
8.1	Uspostavljanje lanca kupaca	Integracija svih sistema	1,2,3	1,2,3	1,2,3	2,3	1,3
9.1	Traženje perfekcije	Strateški i sistematski pristup	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3
10.2		Kontinualno unapređenje	1,3	1,3	1,3	1	1,3
		Donošenje odluka na bazi činjenica	3	3	3	3	3
		Komunikacije	3	3	3	3	3

I još jedan primer

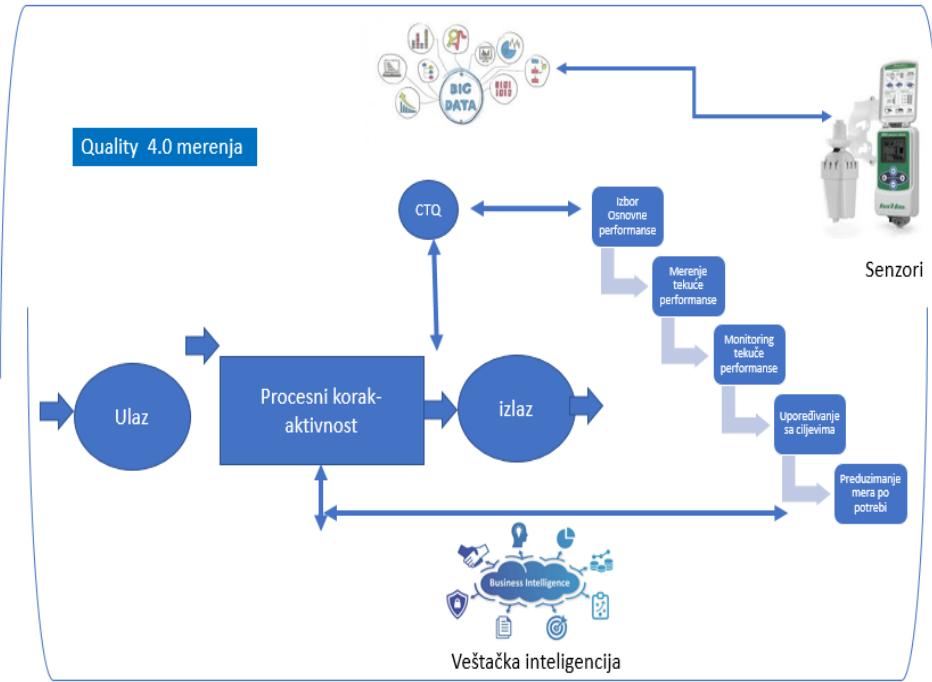
Merenja u procesima sada

Globalno merenje procesa



SADA

Quality 4.0 merenja





"The quality manager must be clear, right from the start, that zero defects is not a motivation program. Its purpose is to communicate to all employees the literal meaning of the words 'zero defects' and the thought that everyone should do things right the first time."

-- *Quality Is Free* by Philip B. Crosby (McGraw-Hill Books, 1979)

- "Zero defects" is a philosophy, a mentality or a movement.
- Quality becomes free
- Zero defects is NOT about being perfect.
- Adaptable to any situation, business, profession or industry
- Continuously think of the places where flaws may be introduced



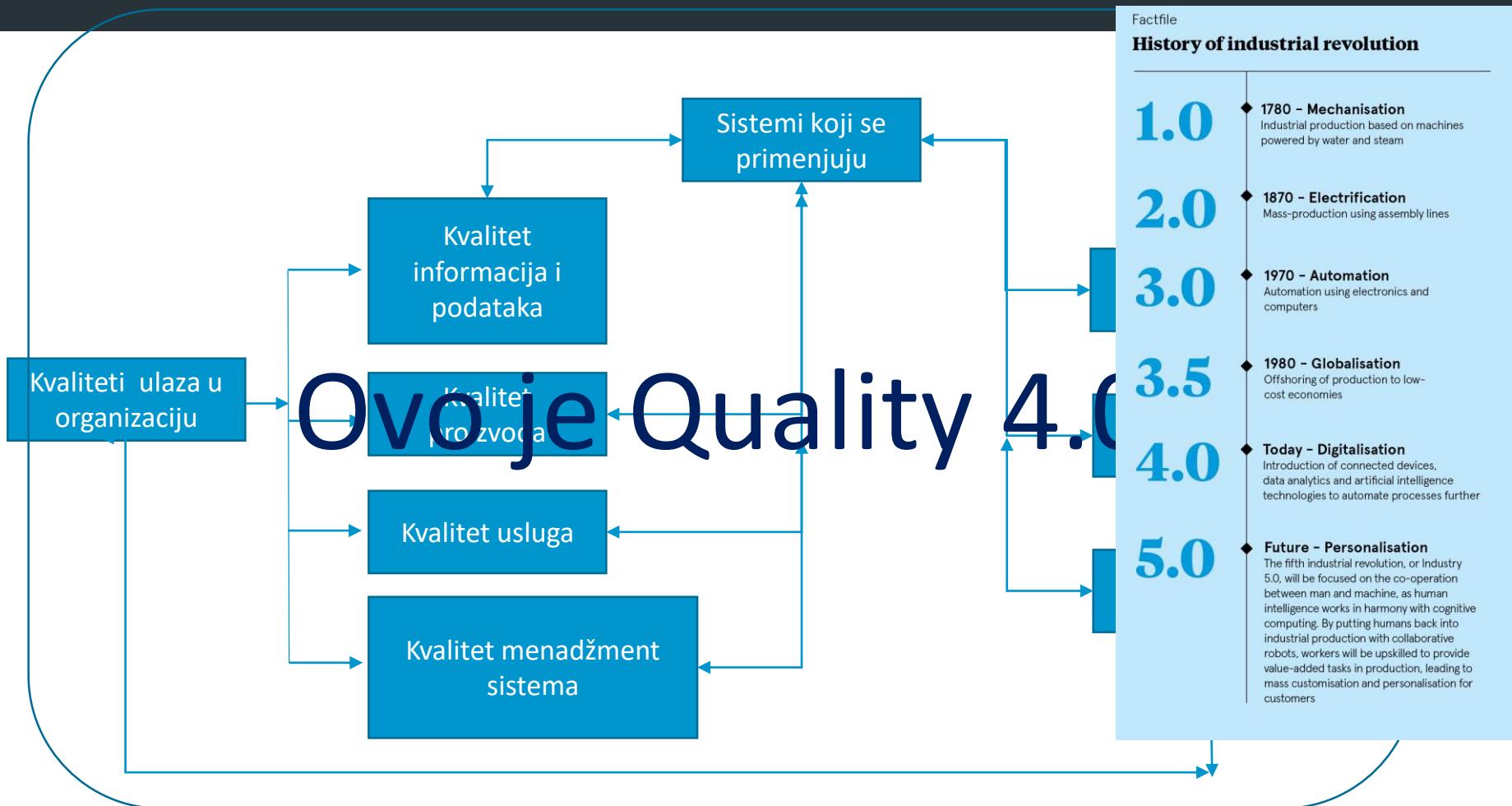
NASA Zero Defects award from the Apollo program

Da li Zero Defect postaje ponovo interesantan?

Zero-defect

Paremetri	Element i Zero defect
Glavna ideja	Rad ispravno iz prvog puta i uvek
Ciljevi	Prevencija defekata
Predmet i obim	Svaki posao u organizaciji
Standardi performansi	Postojanje defekata nije prihvatljivo
Instrumenti – alati	Kontinualno unapređenje kroz liderstvo i rešavanje problema
Uključenost zaposlenih	Mogi i trebaju da identifikuju probleme

Kako to može da se prikaže



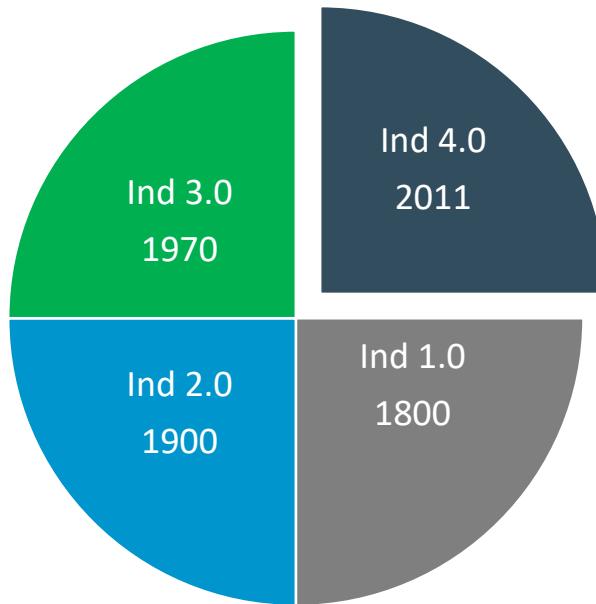
Uloga kvaliteta

Kao pokretač
razvoja

Kao dizajn

Kao otkriće,
nalazište

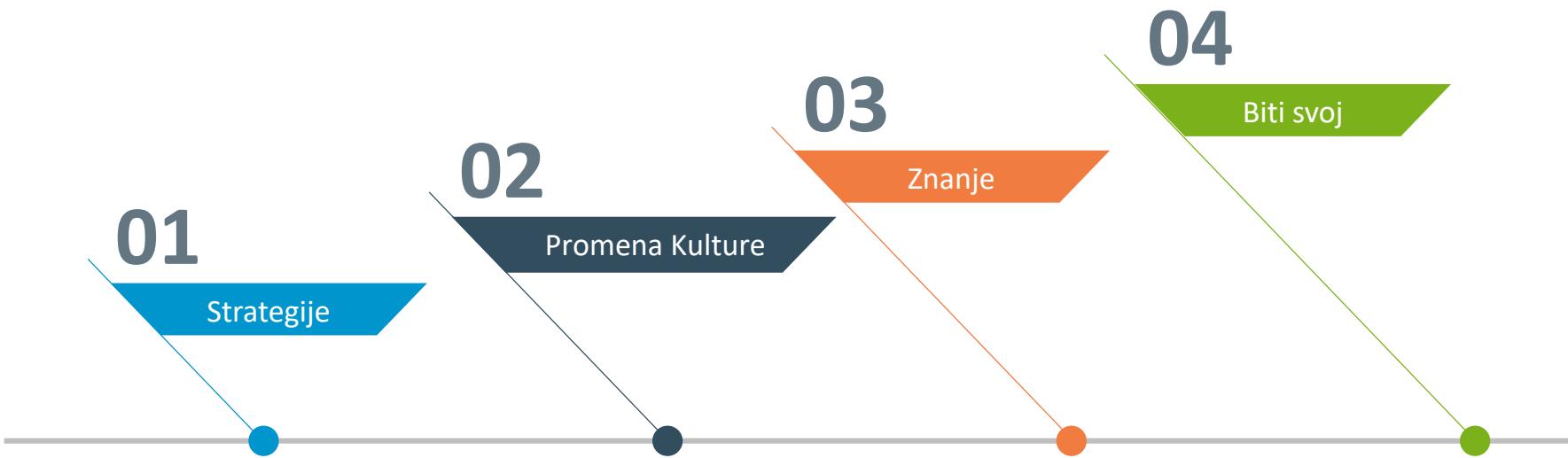
Kao inspekcija



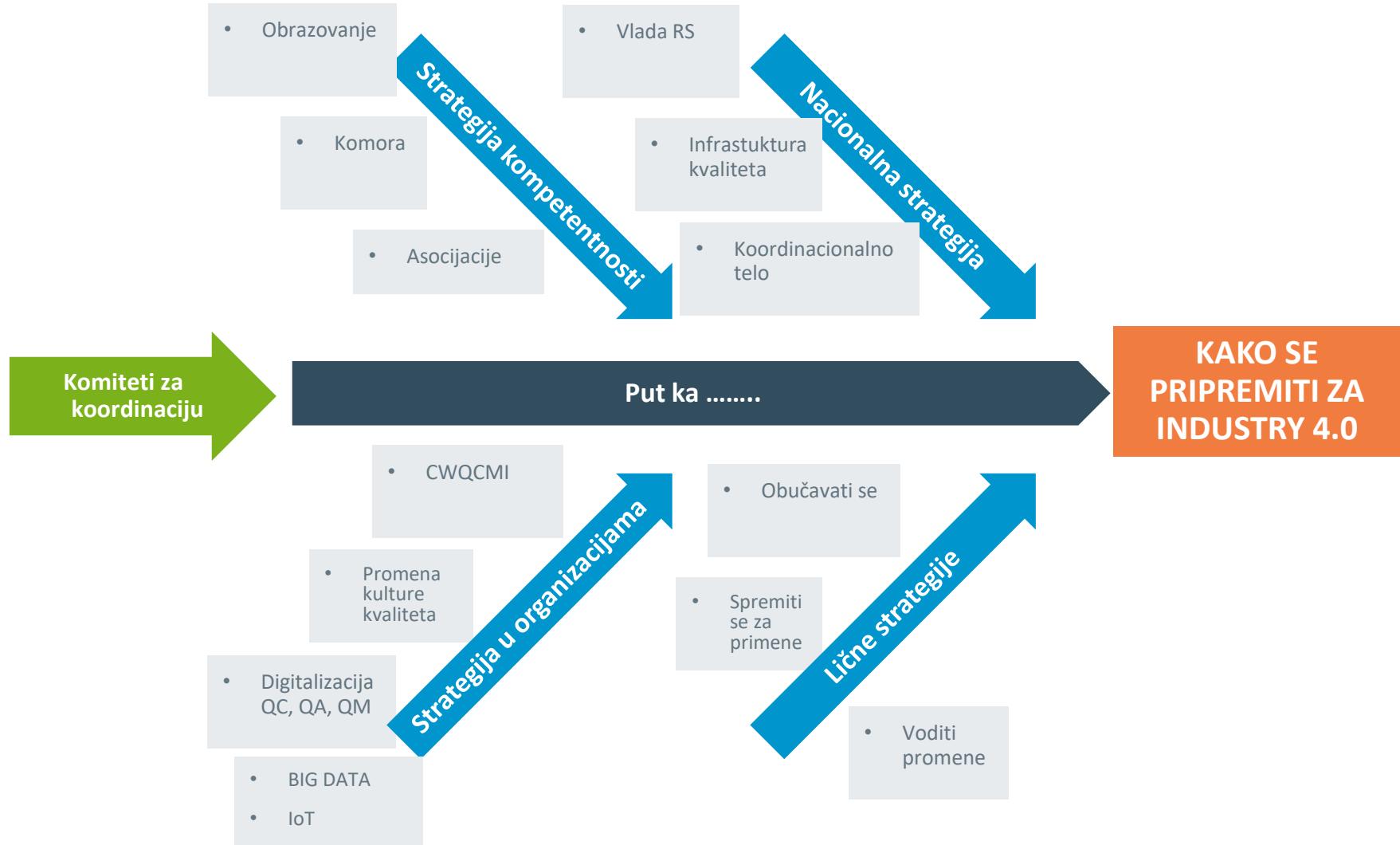
Zašto nam je ovo važno?



Šta da se radi?



Riblja kost



Ovaj Puzzle bi trebalo da se složi

1

Koordinaciono telo u Vladi

4

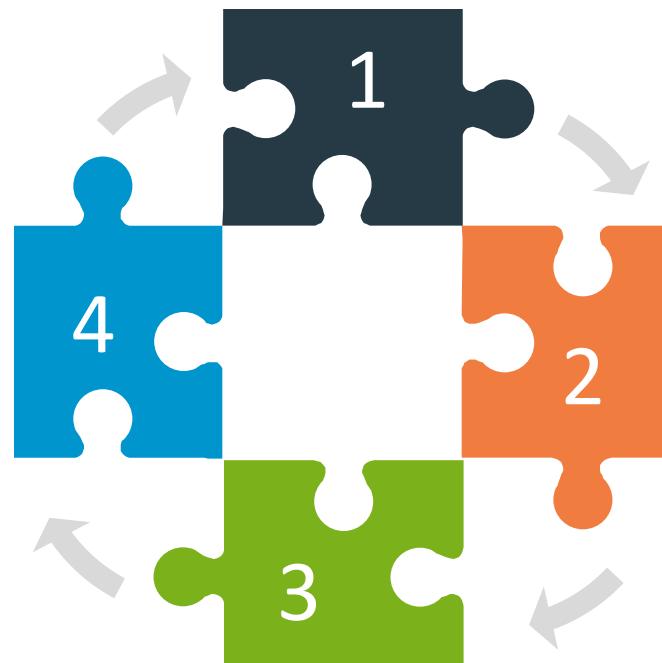
Koordinaciono telo u
Komori

2

Koordinaciono telo u
Infrastrukturni kvaliteta

3

Koordinaciono telo na
Univerzitetu



Vreme da se stanje menja



Nije teško predvideti da će se raditi o evoluciji

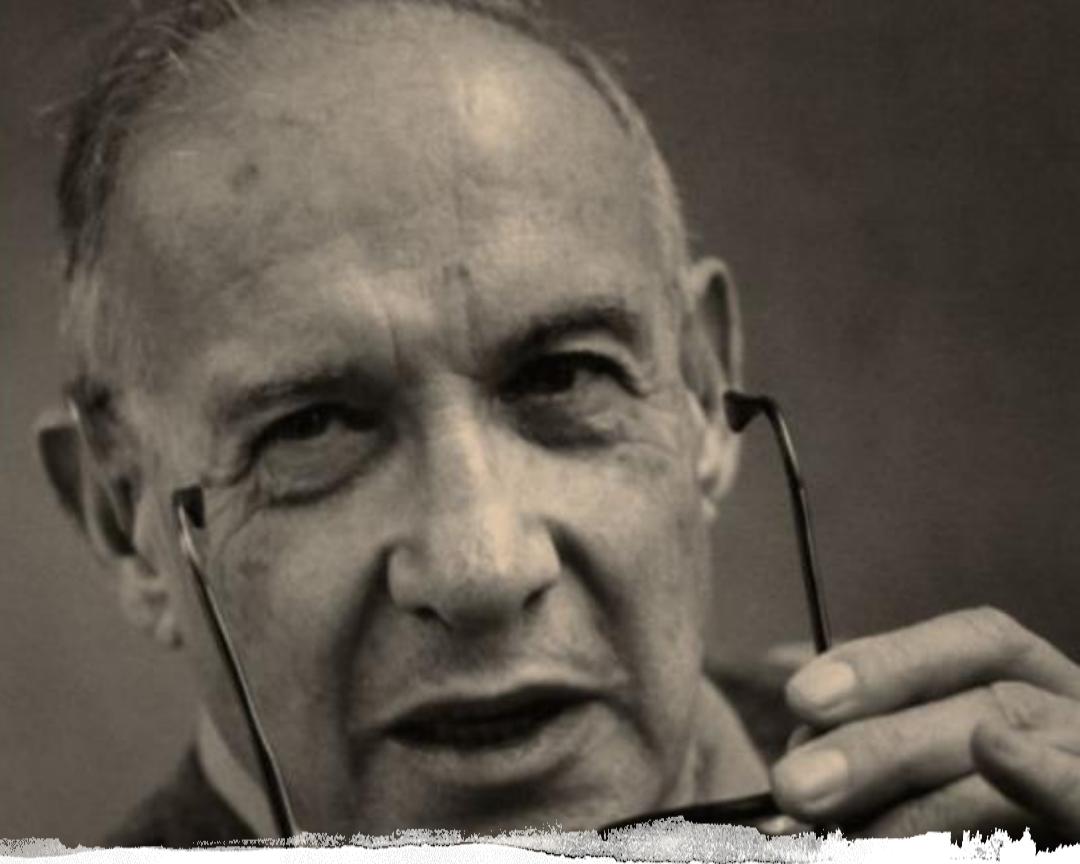


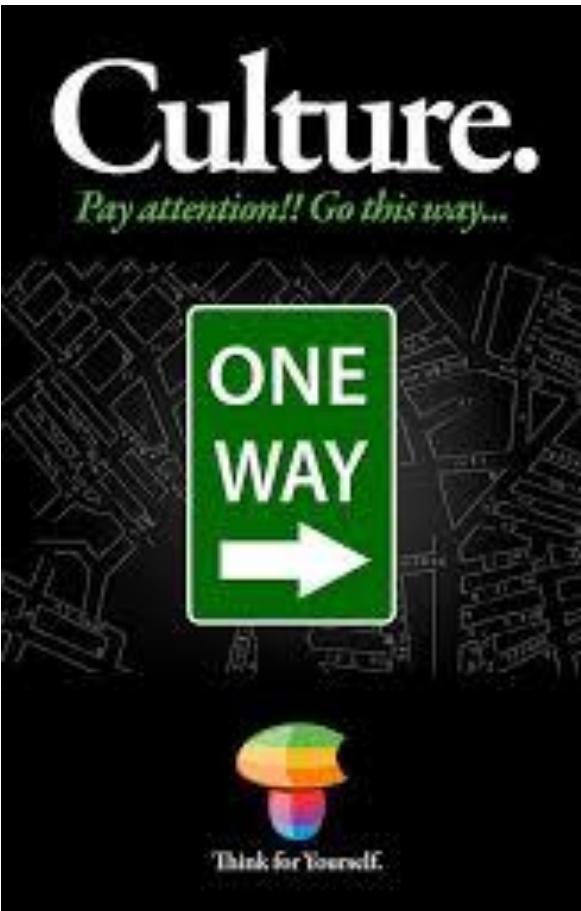
CULTURE EATS STRATEGY FOR BREAKFAST

Peter DRUCKER

Verovatno sam već
dosadan!

- Čak mnogo više nego do sada, imajući u vidu proširenje stepena digitalizacije svih aktivnosti u organizacijama, kultura kvaliteta dobija znatno veći i dublji značaj.





Glavni izazovi za razvoj kulture kvaliteta u Srbiji

- Stepen birokratizacije društva i organizacija
- Savladavanje otpora na promene

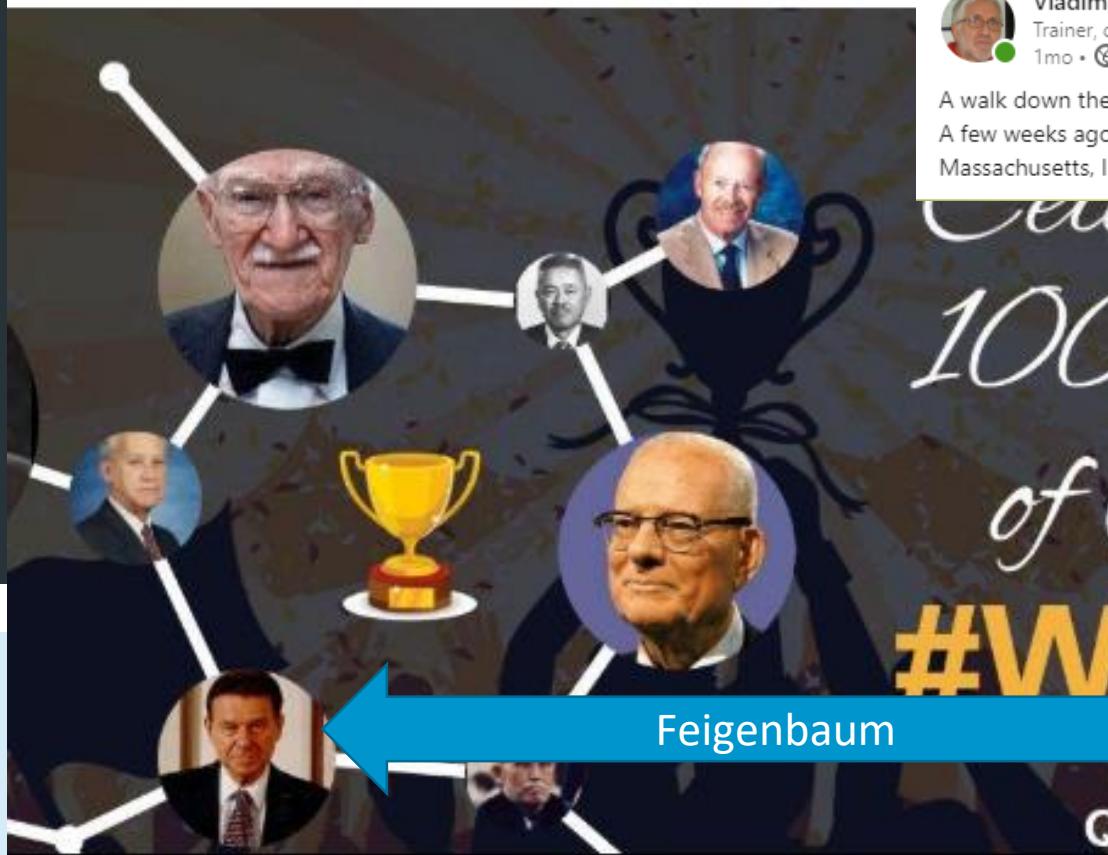
Da li se menja?

A i voz da se promeni!

Dani kada je kvalitet u zadnjim vagonima moraju da postanu prošlost!

Vreme je da se kvalitet postavi u prednje vagone u organizacijama, pored IT-a i zajedno krenu ka uspehu u Industry 4.0.





Kako sam doživeo pripreme za Praznik?



Vladimir Simic

Trainer, consultant and auditor

1mo • 0

A walk down the Quality memory lane

A few weeks ago while visiting the Berkshires, in the small town of Pittsfield Massachusetts, I noticed a Museum carrying a very familiar name - Feigenbaum Hall of Innovation ...see more



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HVALA

