DELIVERY WITH QUALITY

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QUALITY: EXCELLENT VS DISASTER

VIDEO

What is Quality

- Performance
- Features
- Reliability
- Conformance
- Durability
- Serviceability
- Aesthetics
- Perceived Quality

What is Quality?

Project Quality Dimensions

- Performance
- Feature
- Reliability
- Conformance

- Efficiency with which a product achieves its intended purpose

(

What is Quality

Project Quality Dimensions

- Performance
- Features
- Reliability
- Conformance

- Attributes that supplement the product's basic performance

What is Quality

Project Quality Dimensions

- Performance
- Features
- Reliability
- Conformance

- Perform consistently over the product's useful life.

What is Quality

Project Quality Dimensions

- Performance
- Features
- Reliability
- Conformance

- Adherence to quantifiable specifications


カラオケ
ジョッコ
中古ギター専門店
PART2
シモクラセカンドハンズ
PART-2
TEL.3293-7727
アコースティックギター 大量展示!!
あらゆる楽器を
高額買取
まずはご相談ください!!
クロサク楽器
お茶の水駅前店新館 TEL.03-3293-5625
クロサク楽器店
お茶の水駅前店 TEL.03-3293-5627

What is Quality

Project Quality Dimensions

- Tolerate stress or trauma without failing

- Durability
- Serviceability
- Aesthetics
- Perceived Quality

What is Quality

Project Quality Dimensions

- A product is serviceable if it can be repaired easily and cheaply

- Durability
- Serviceability
- Aesthetics
- Perceived Quality

What is Quality

Project Quality Dimensions

- Subjective characteristics such as taste, feel, sound, look.

- Durability
- Serviceability
- Aesthetics
- Perceived Quality

What is Quality

Project Quality Dimensions

- Quality as the customer perceives it…image, recognition, word of mouth.

- Durability
- Serviceability
- Aesthetics
- Perceived Quality

What is Quality

Service Quality Dimensions

- Tangibles
- Service Reliability
- Responsiveness
- Assurance
- Empathy

What is Quality

Service Quality Dimensions

- Tangibles
- Service Reliability
- Responsiveness
- Assurance
- Empathy

- Physical appearance of the facility, equipment, personnel and compunctions equipment


SAFETY FIRST
UTAMAKAN KESELAMATAN
GUNAKAN ALAT KESELAMATAN YANG SESUAI
WEAR SUITABLE PROTECTIVE EQUIPMENT
DENDA
PENALTY


7-20
電気工事中
POWER UNDERCONSTRUCTION
TEPCO
地中化工事
徐行
ご迷惑をおかけします
電気設備の新設
を行っています
平成26年 3月31日まで
時間帯 9:00～18:00
歩行者通路
こちらをとおってください
120-995-002
-5683-5411
本行寺


LOTTERIA
LOTTERIA
LOTTERIA


820


IN
大成・鹿島 JV
OUT


安全第一
関係者以外
立入らないで下さい。


防音
防音


防 音
防 音

What is Quality

Service Quality Dimensions

- Tangibles
- Service Reliability
- Responsiveness
- Assurance
- Empathy

- The ability of the service provider to perform the promised service

What is Quality

Service Quality Dimensions

- Tangibles
- Service Reliability
- Responsiveness
- Assurance
- Empathy

➢ The willingness of the provider to be helpful and prompt in providing service

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VIDEO

What is Quality

Service Quality Dimensions

- Tangibles
- Service Reliability
- Responsiveness
- Assurance
- Empathy

- The knowledge and courtesy of the employees and their ability to inspire trust and confidence

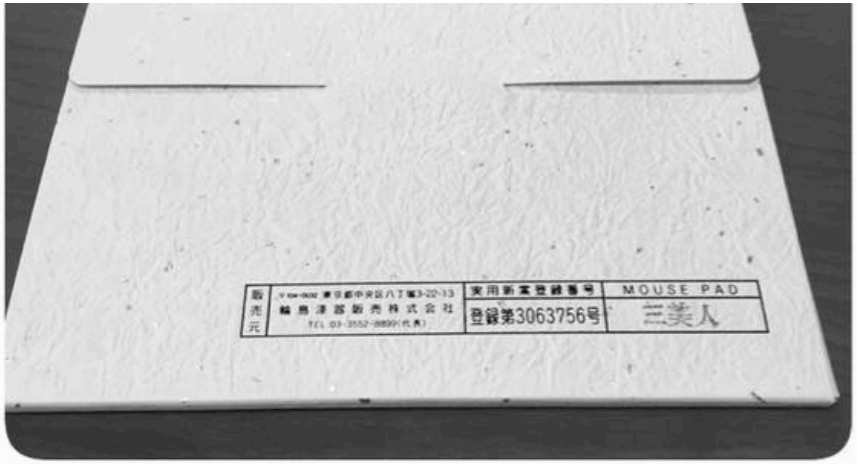

6 34
6番線 発車時刻
reserved LIMITED
seats only EXPRESS
reserved LIMITED
seats only EXPRESS
6:34 本NARITA-AIRPORT 6 Cars
6:51 本NARITA-AIRPORT 6 Cars

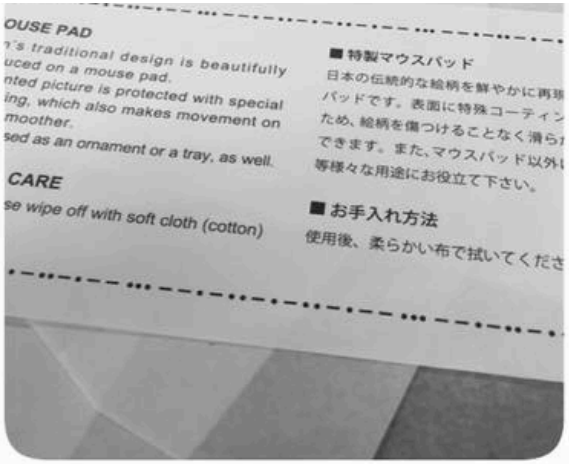
What is Quality

Service Quality Dimensions

- Tangibles
- Service Reliability
- Responsiveness
- Assurance
- Empathy

- Caring individualized attention from the service company


MOUSE PAD
登録第3063756号


OUSE PAD
's traditional design is beautifully
uced on a mouse pad.
nted picture is protected with special
ing, which also makes movement on
moother.
sed as an ornament or a tray, as well.
CARE
se wipe off with soft cloth (cotton)
■特製マウスパッド
日本の伝統的な絵柄を鮮やかに再現
パッドです。表面に特殊コーティン
ため、絵柄を傷つけることなく滑ら
できます。また、マウスパッド以外
等様々な用途にお役立て下さい。
■お手入れ方法
使用後、柔らかい布で拭いてくださ


ふんわりまろやか 萩の月
萩の花の咲き乱れる宮城野にぽっかり浮かんだ名月をかたどった「萩の月」。
ふんわりとした高級カステラでまろやかなオリジナルカスタードクリームを
たっぷり包みました。心なごむ美味しさを どうぞお楽しみください。
食品添加物の保存料などは一切使用せず、脱酸素剤エージレスによって
作りたての新鮮な味わいが保たれています。
萩の月

What is Quality?

Why does it matter that different definitions of quality exist?

What is Quality?

Differing Functional Perspectives on Quality

What is Quality?
Differing Functional Perspectives on Quality

Engineering

Applying mathematical problem-solving skills and modeling techniques

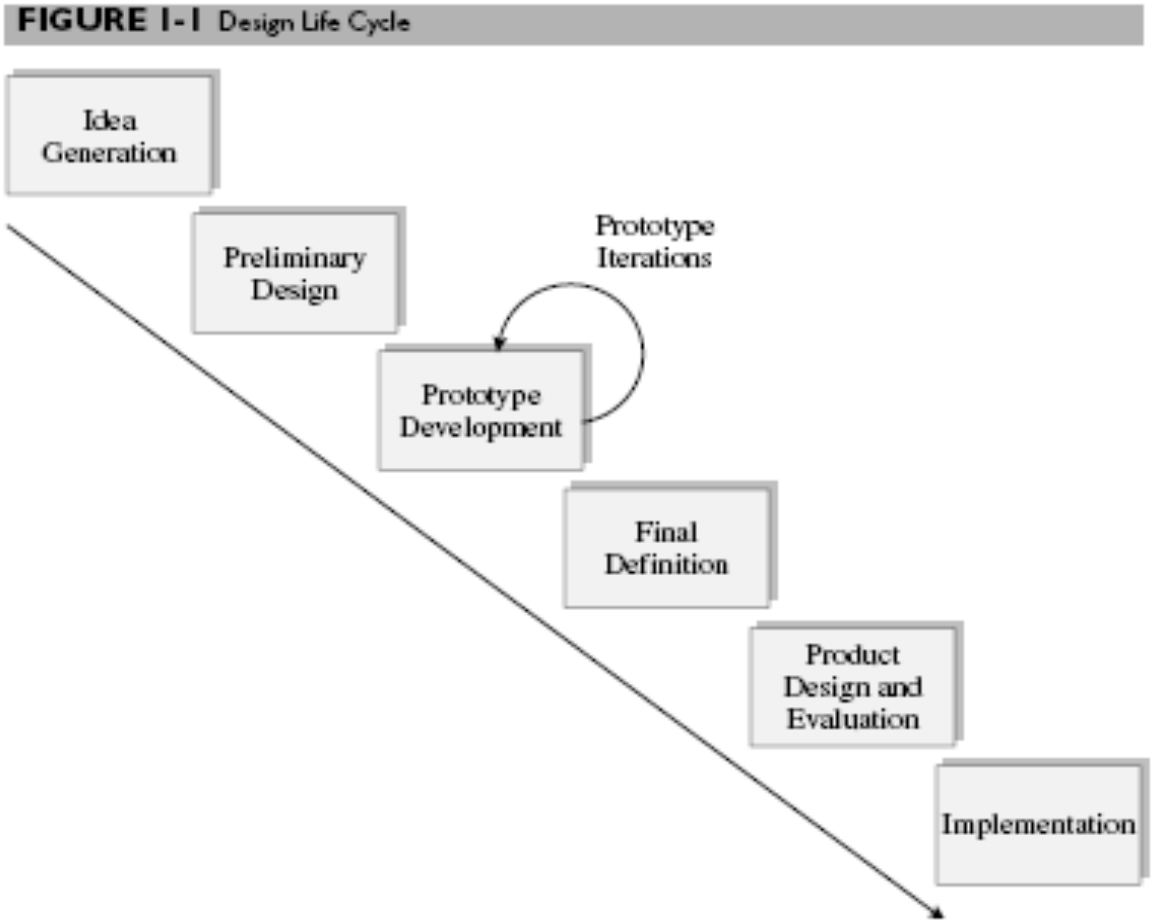
- Operations Research
- Product Design Engineering
- Concurrent Engineering

What is Quality?

Differing Functional Perspectives on Quality

Operations Perspective

- Uses the Systems View that underlies modern Quality management thinking



What is Quality?
Differing Functional Perspectives on Quality

Strategic Management

- For Quality Management to be pervasive in a firm it needed to be included in all of the firm's business processes including strategic Planning

What is Quality?

Differing Functional Perspectives on Quality

Financial

- Deming: Quality Improvement is linked to reduction of defects and improved organizational performance

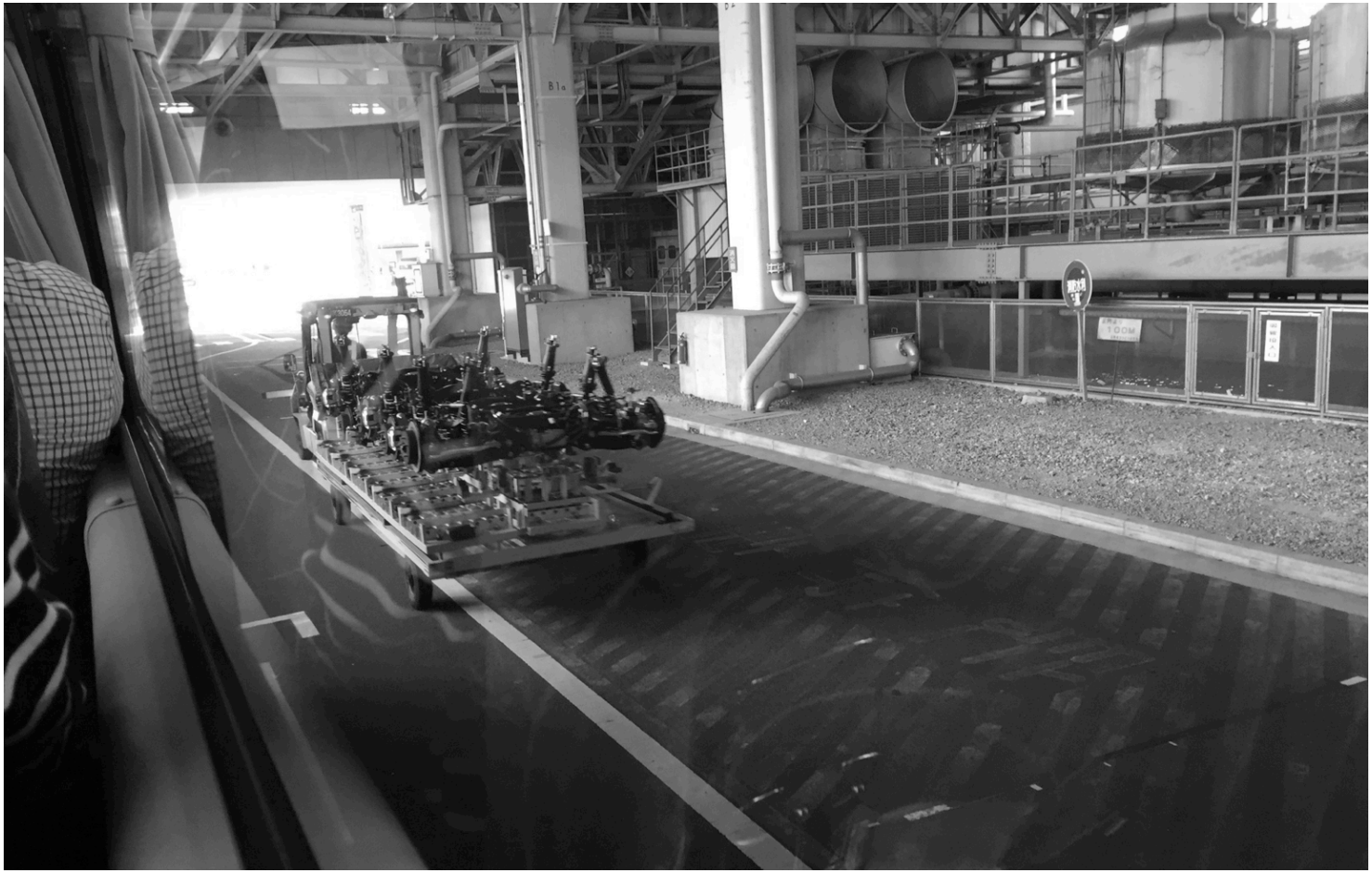
What is Quality?

Differing Functional Perspectives on Quality

Financial

- Deming: Quality Improvement is linked to reduction of defects and improved organizational performance
- Juran: Quality related costs can result in lost sales because of a poor reputation for reliability


ようこそ元町工場へ
Welcome to
Motomachi Plant
热烈欢迎
光临 元町工厂

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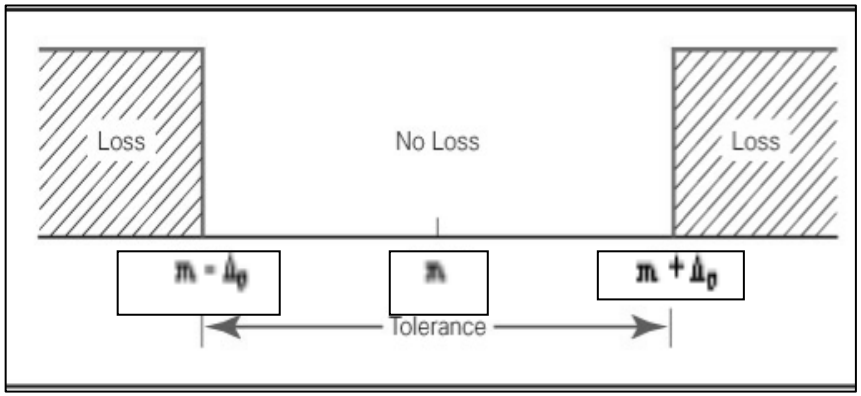
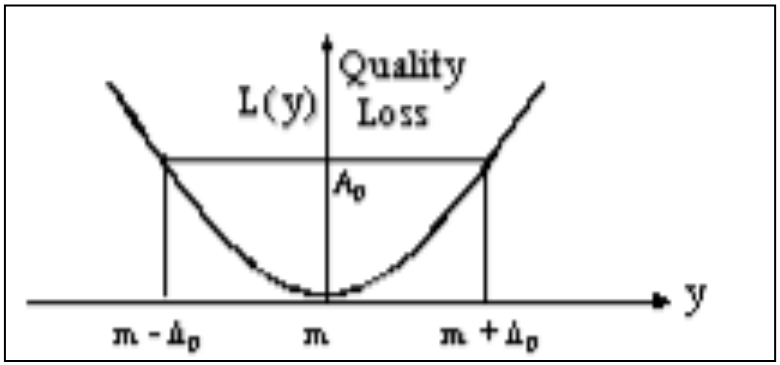
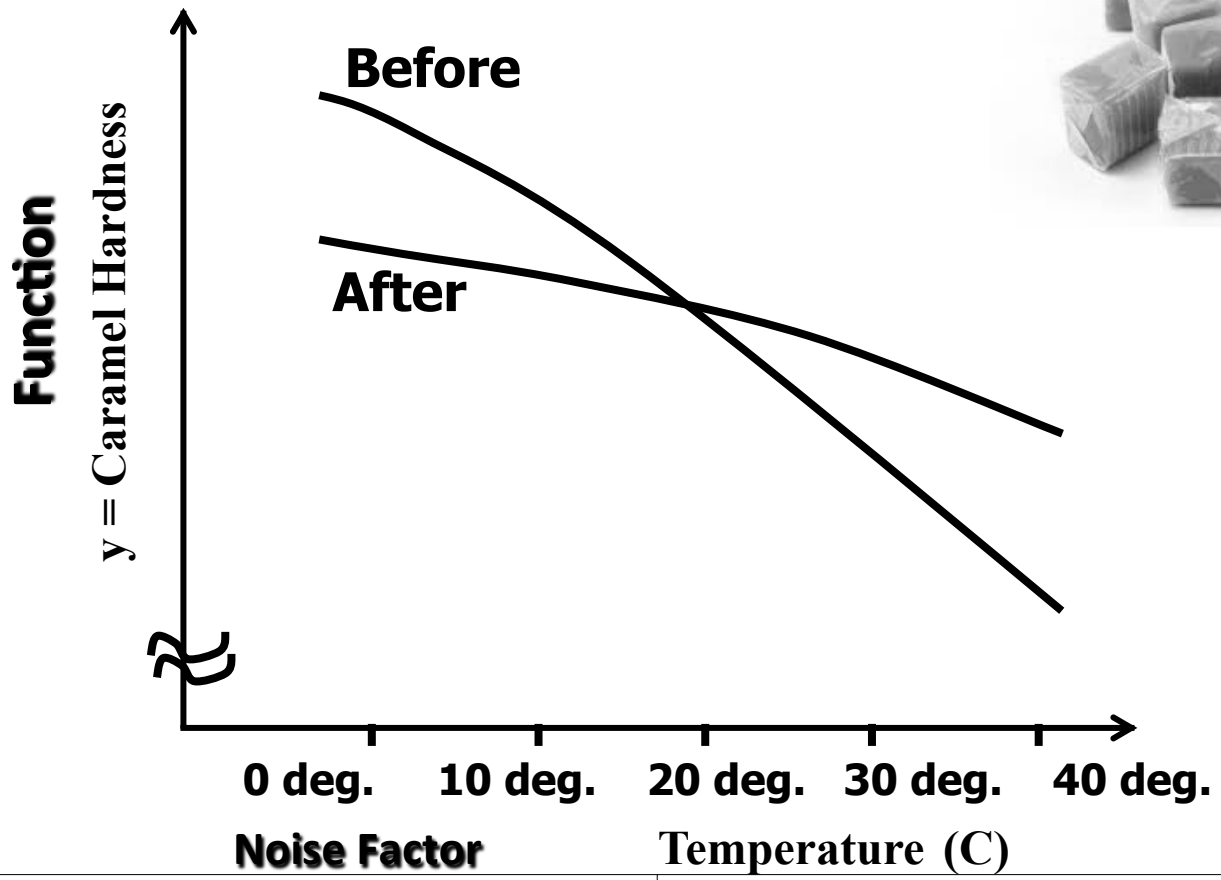
Traditional and Taguchi's Defination of Quality

Traditional	Taguchi's
There is Good or Bad Products only as per Limits. 	When a product moves from its target will cause the loss even if the product lies or not within Limits. 

1948 Morinaga Company - Caramel Candy Hardness

Take advantage of
Interactions between Control & Noise , AxN, BxN, ..
to achieve "Robustness"



The quality loss function is based on the work of electrical engineer, Genichi Taguchi.

- The quality loss function recognizes that products falling between specific limits are not all equal. The four following statements summarize Taguchi's philosophy.

1. We cannot reduce cost without affecting quality.
2. We can improve quality without increasing cost.
3. We can reduce cost by improving quality.
4. We can reduce cost by reducing variation. When we do so, performance and quality will automatically improve.

In Taguchi's view, quality is not defined by specific limits, but rather on whether or not it creates a financial loss to society.

An example given is a defective automobile exhaust system creating air pollution.

What is Quality?

Differing Functional Perspectives on Quality

- Human Resources
  - It is impossible to implement quality without the commitment and action of the employees

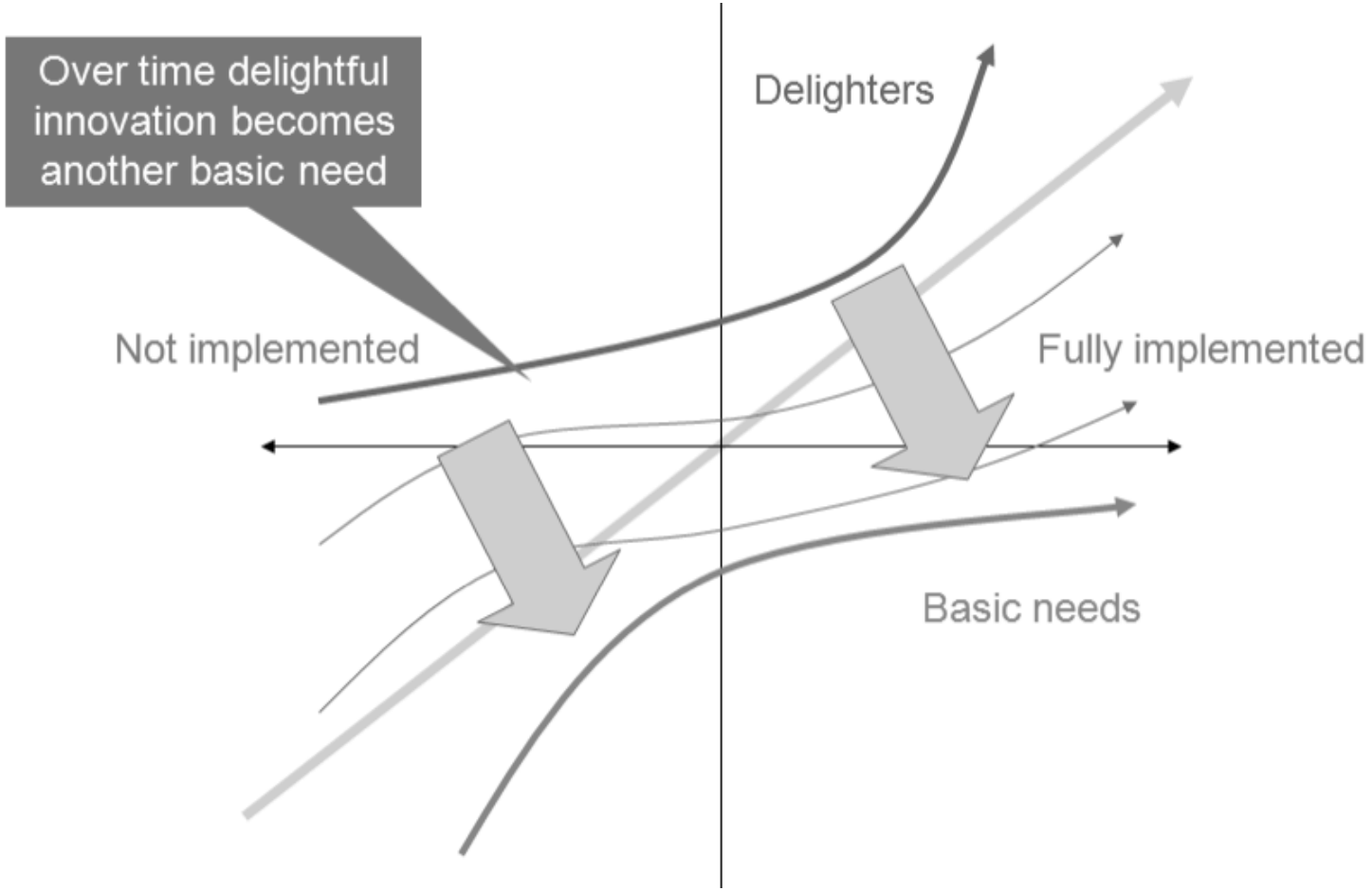
TOP MANAGEMENT COMMITMENT!!!

What is Quality?

Differing Functional Perspectives on Quality

- Marketing
  - Marketers focus on perceived quality or quality as the customer views it.

KANO MODEL


Over time delightful innovation becomes another basic need
Delighters
Not implemented
Fully implemented
Basic needs

What is Quality?

What is Quality?

The Three Spheres of Quality

What is Quality?

- Other Perspectives on Quality:
  - Value-Added Perspective on Quality
  - Cultural Perspective on Quality

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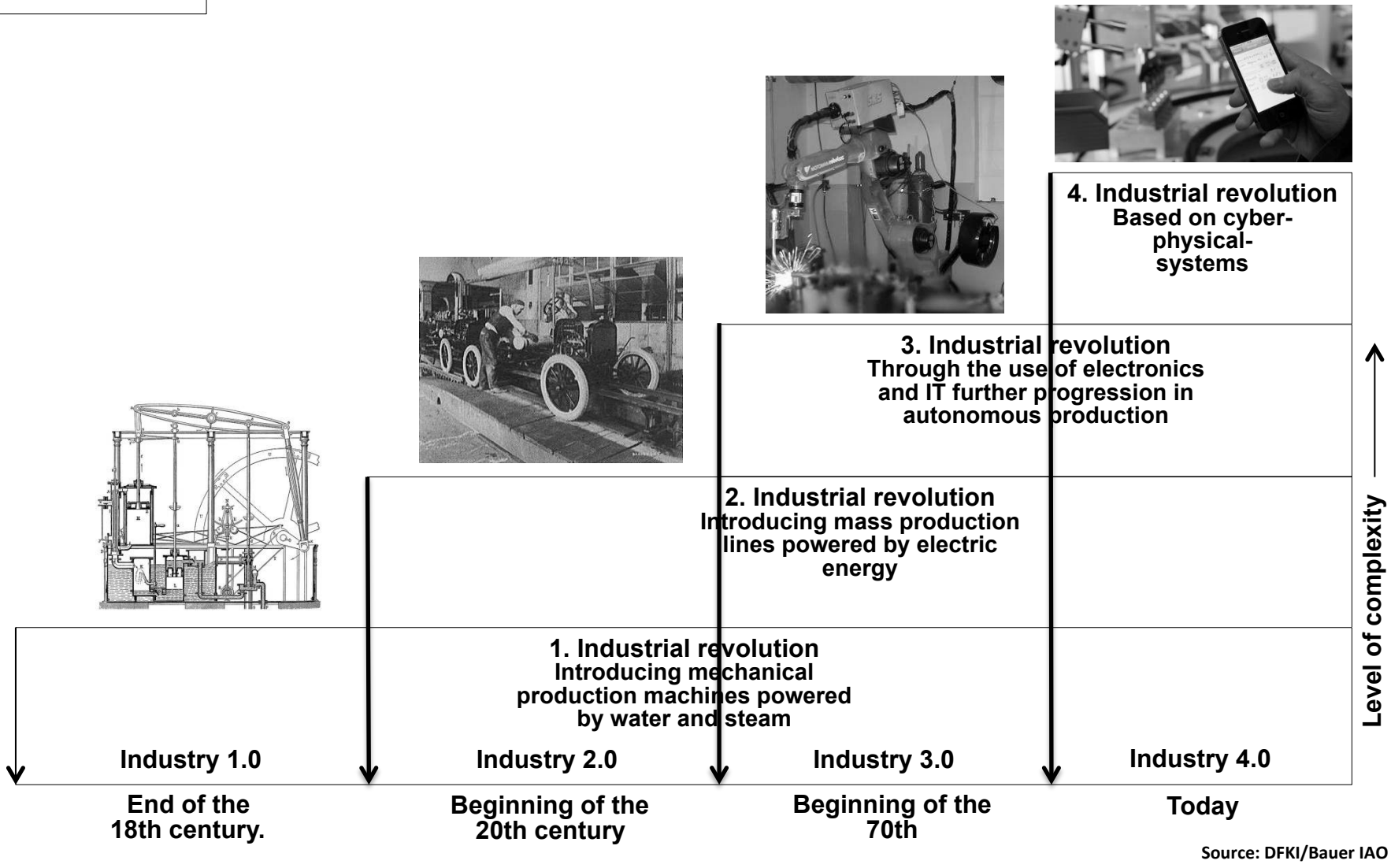
CHALLENGES in Quality Management…..

INDUSTRY REVOLUTION 4.0…….

Industrial Evolution



Source: DFKI/Bauer IAO

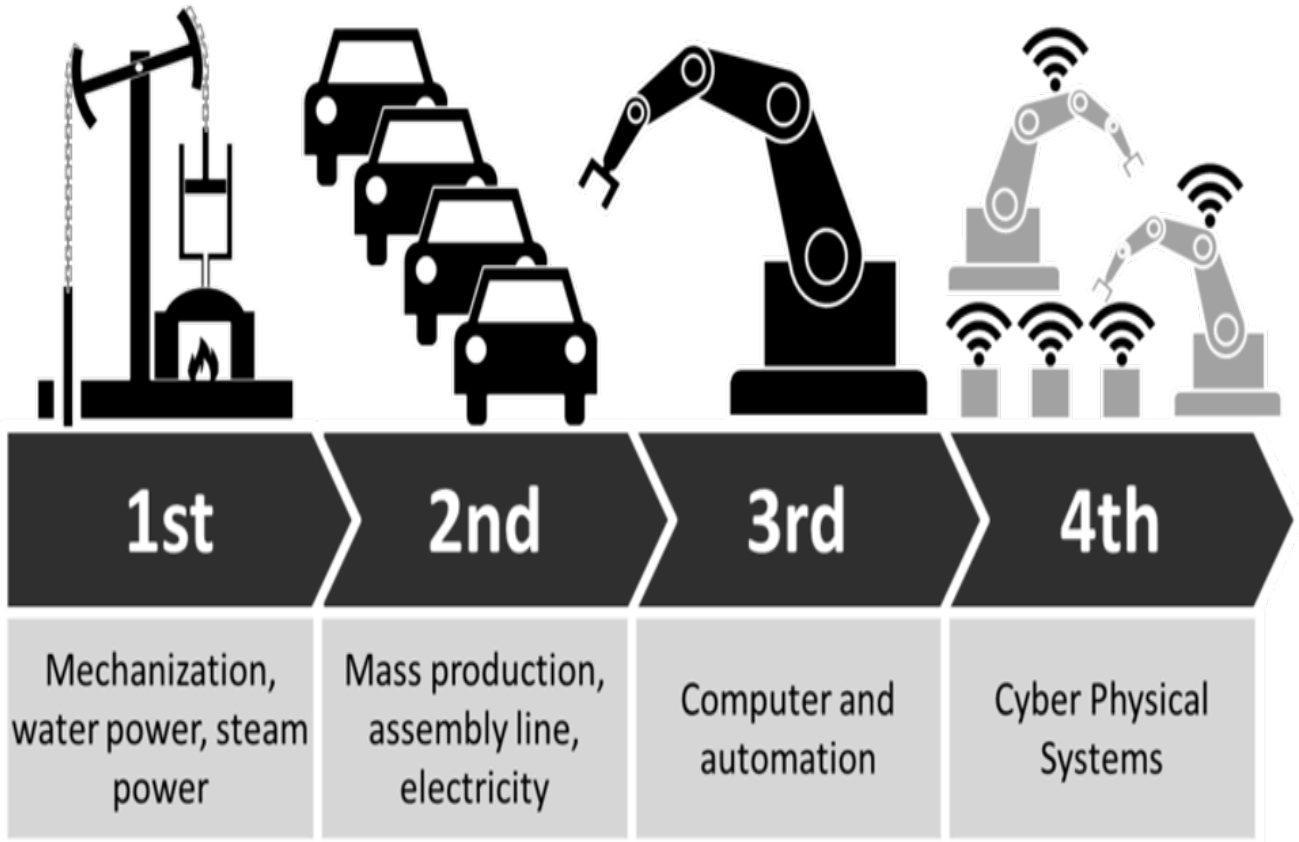
Phases of earlier 3 Industrial Revolutions

1. 1760 to 1840 - Ushered in Mechanical production; railways and steam engine
2. 1870 to 1940 - Mass production; electricity and assembly line
3. 1960 to 2010 - Computers; semi conductors, main frame computing, personal devices, internet

What is 4IR?

1. The First industrial revolution was about water & steam.
2. The Second was about electricity & mass production.
3. The Third harnessed electronics, computing & information technology to automate production.
4. 4IR or industry 4.0 incorporates artificial intelligence, nanotechnology, biotechnology, materials science, 3D printing & quantum computing to transform the global economy. 4IR consists of smart factories in which machines are web connected to a system that can visualize the entire production chain & make decisions on its own - (Bernard Marr 2016)

The FOURTH INDUSTRIAL REVOLUTION



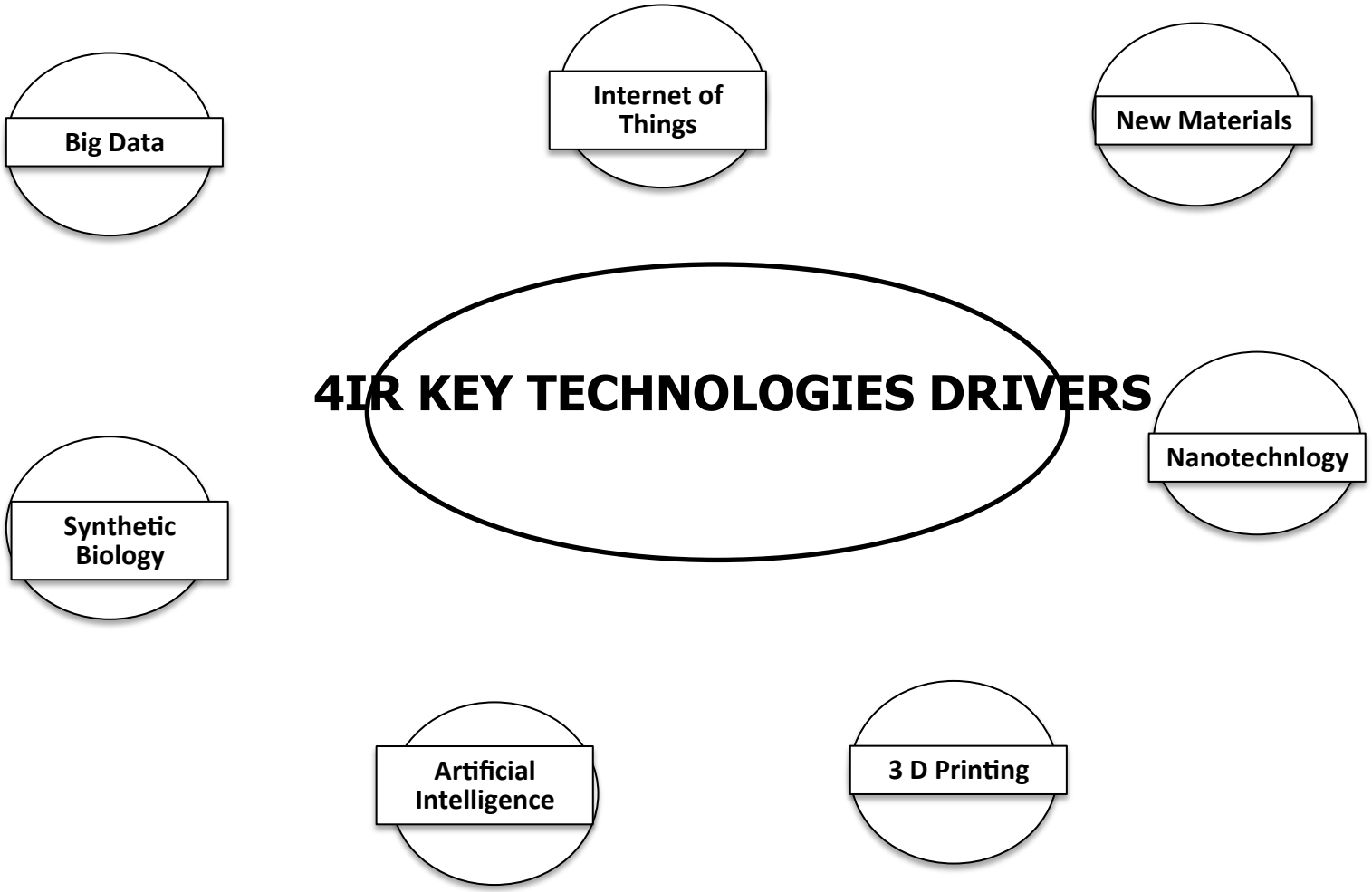
Why is the 4IR SO SIGNIFICANT?

4IR changes the way we perform & organise our tasks, changes our culture & values, affects our identity, notions of privacy, ownership of property, consumption patterns, how we meet & cultivate relationships, look after our health, entertainment

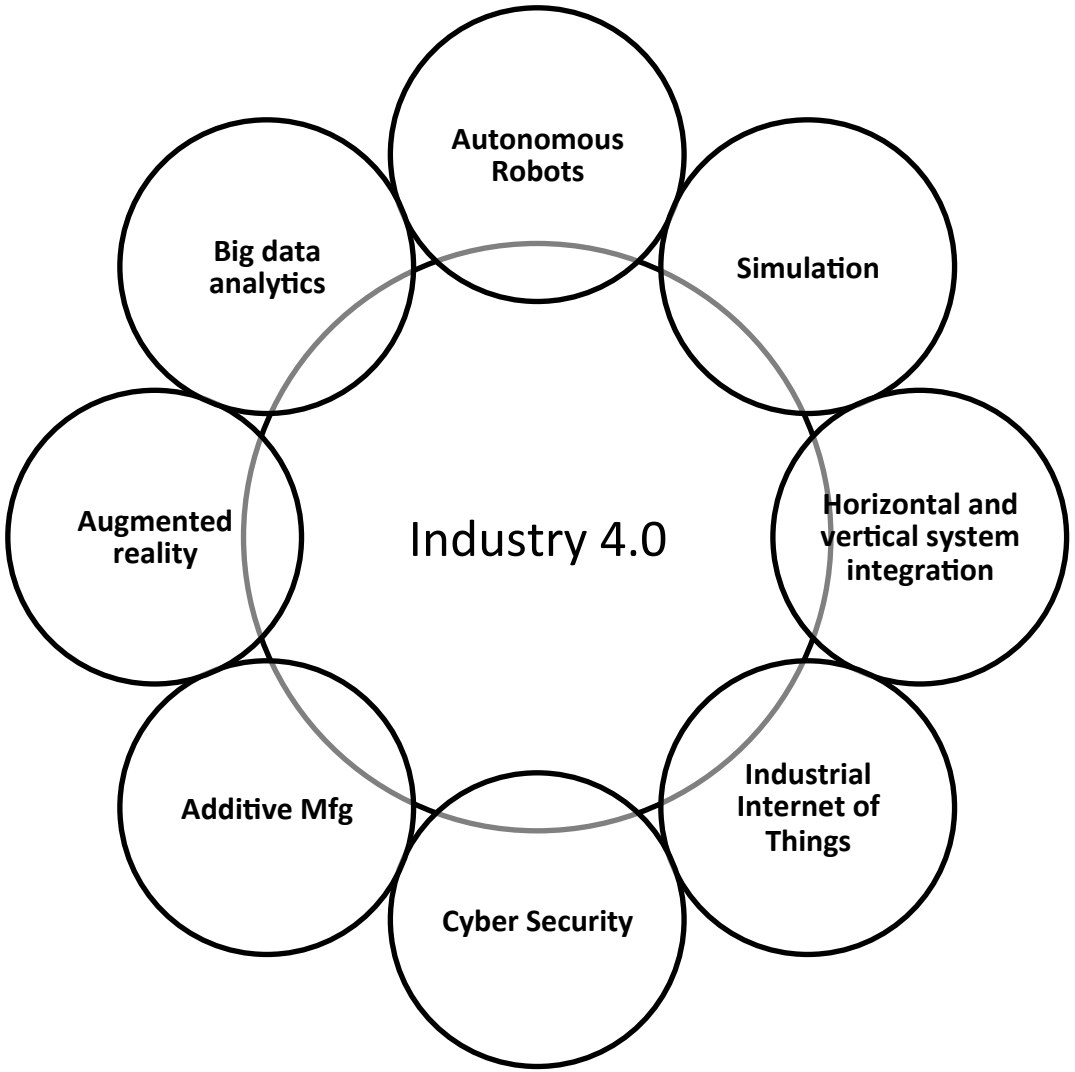
General Effects OF 4IR On Industry

1. **Customer Expectations**- Improving how customers are served
2. **Product Enhancement**- Value add physical products & services with digital capabilities. New technologies make assets more durable & resilient, while data & analytics are transforming how they are maintained
3. **Collaborative innovation**- speed at which innovation & disruption occurs requires new forms of collaboration models.
4. **Organizational forms**- emergence of *global platforms & other new business models, finally, means that talent, culture, & organizational forms will have to be rethought.*

KEY DRIVING TECHNOLOGIES BEHIND 4IR



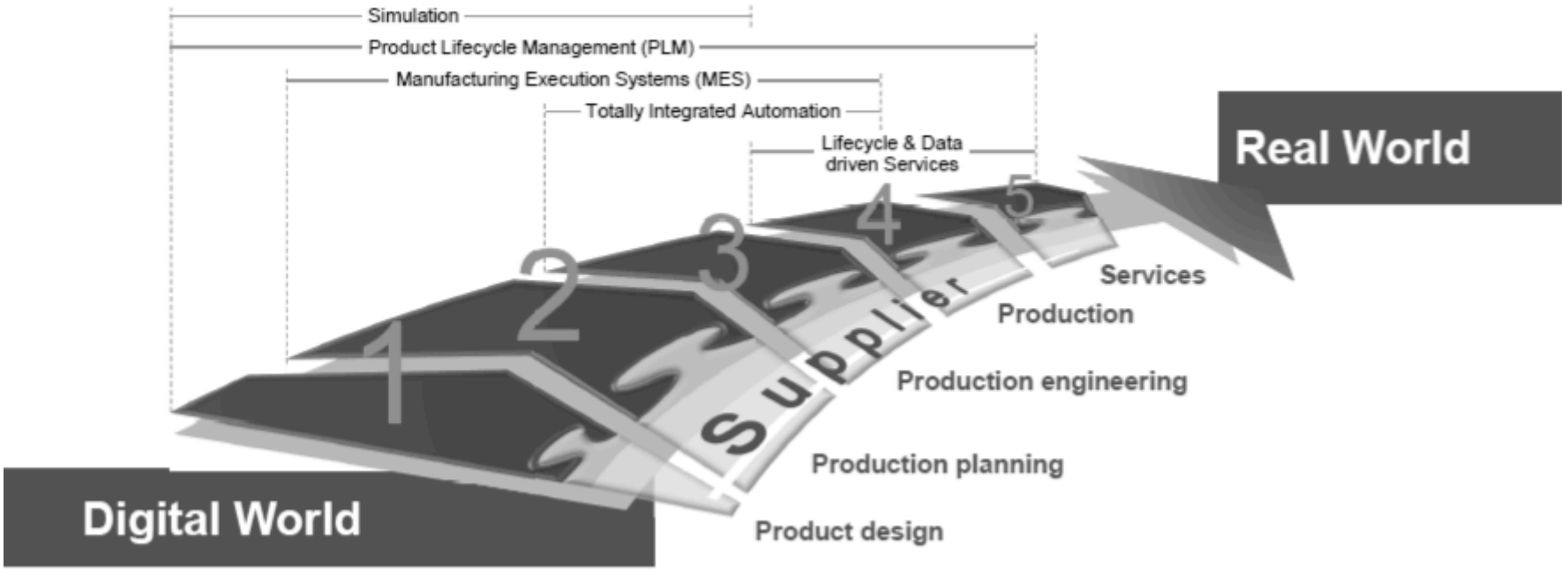
Building blocks of Industry 4.0



Impacting all aspect of value chain

Digital Enterprise

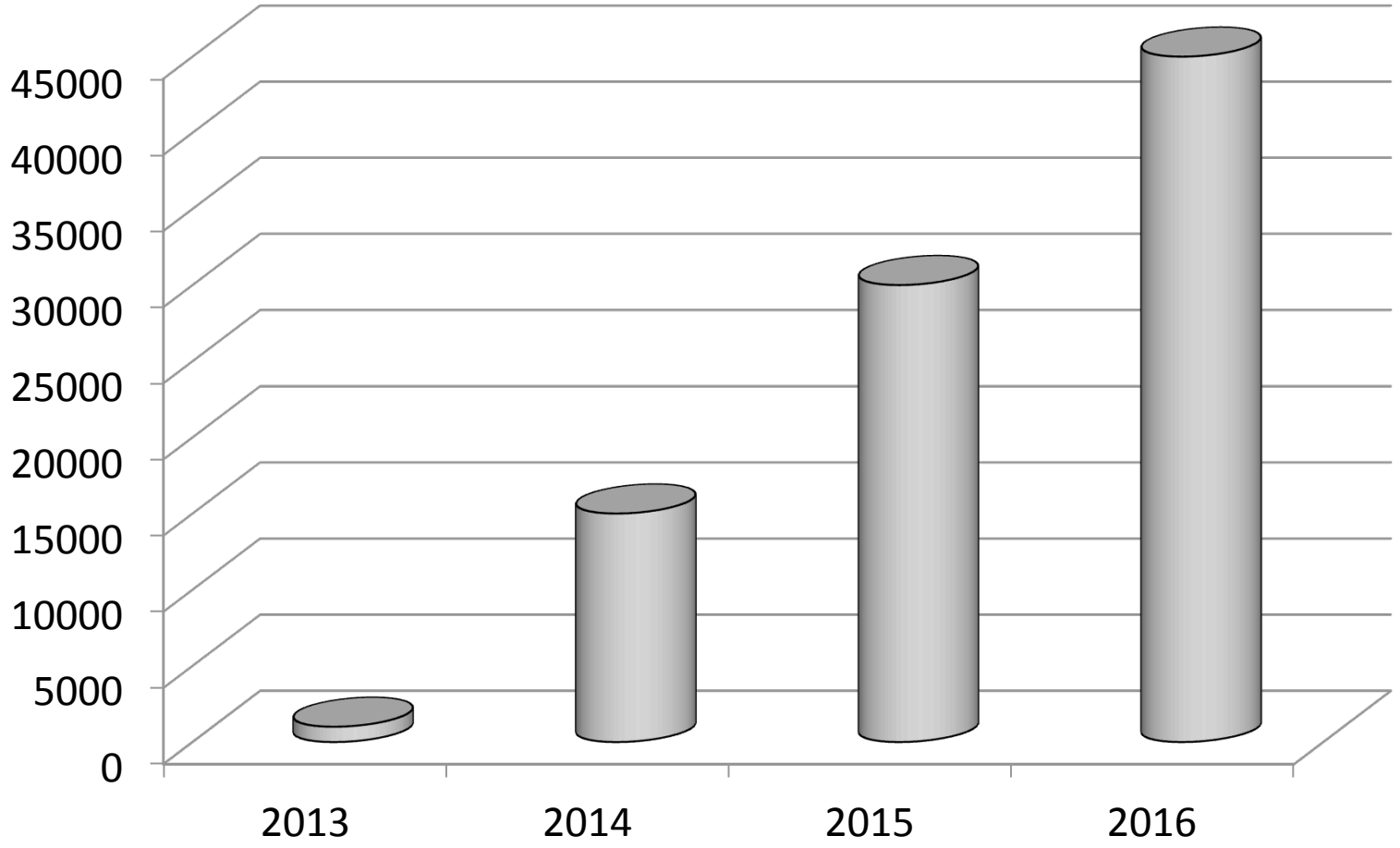
Entire value chain is digitized and integrated



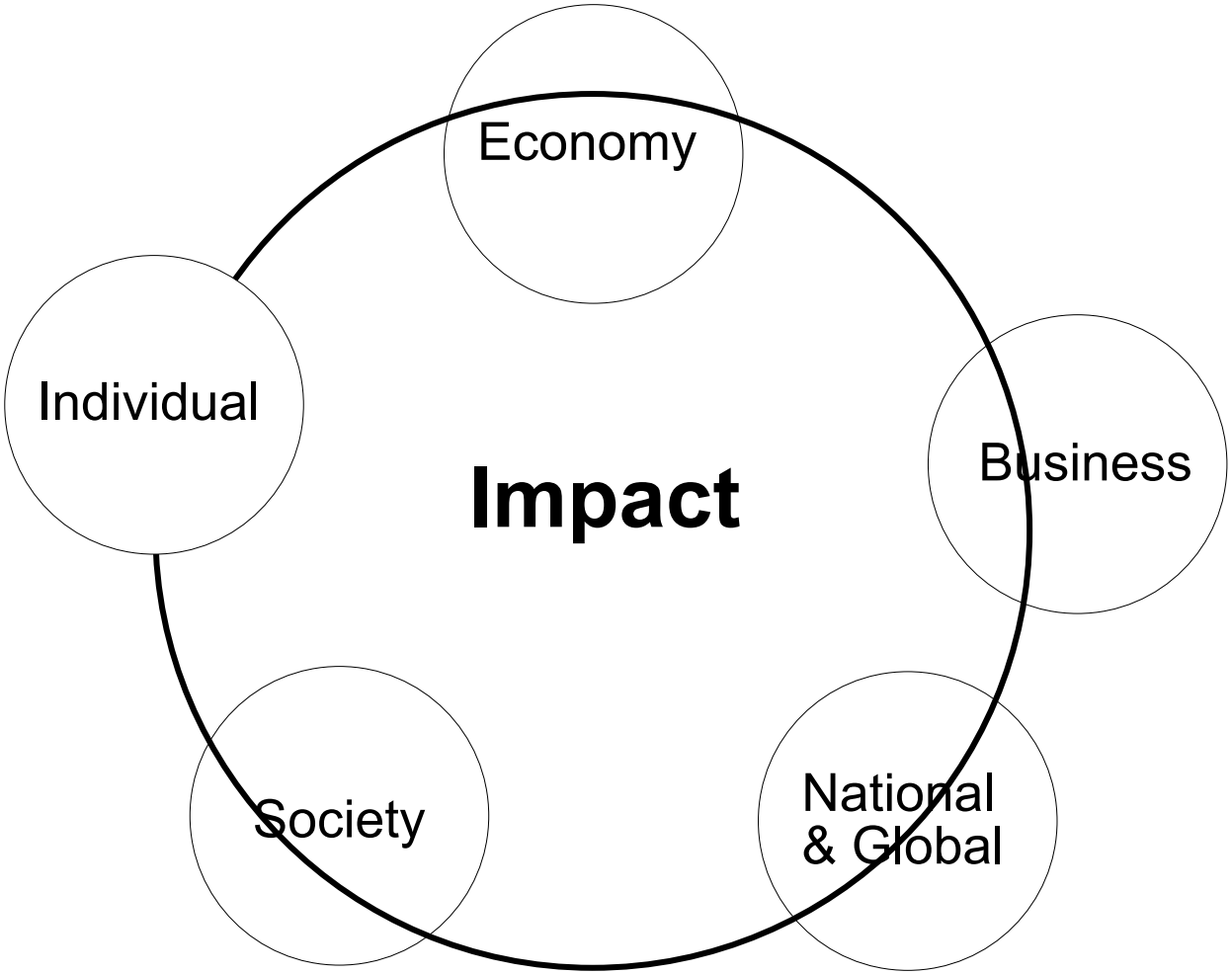
Potential Implications

- Robot Assisted production
- Predictive Maintenance
- Additive manufacturing of complex parts
- Machines as a service
- Big data drive quality control
- Production line simulation
- Smart supply network

Robots working in Amazon WH



Impact


Economy
Individual
Business
Impact
Society
National
& Global

Impact
Economy

- Growth
- Ageing
- Productivity
- Employment
- Labour subsititution
- The nature of Work

Impact

Business

- Customer expectations
- Data enhanced products
- Collaborative innovation
- New operating models

Combining digital, physical and biological worlds

Impact

- **National & Global**
  - Governments
  - Countries, regions & cities
  - International security
- **Society**
  - Inequality
  - Community
- **The Individual**
  - Identity, morality & ethics
  - Human connection

THE FUTURE IS ALREADY HERE (WELL ALMOST)

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SELF DRIVING TAXI

VIDEO

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AUTONOMOUS BUSES

VIDEO

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AUTONOMOUS TRUCK

VIDEO

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DRONE SUSHI

VIDEO

End of Internal Combustion Engine

France to ban sales of petrol and diesel cars by 2040

Move by Emmanuel Macron's government comes a day after Volvo said it would only make fully electric or hybrid cars from 2019

Renault's Zoe electric car will escape France's ban after 2040. Photograph: Renault

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Other Effects

- Impact on Jobs
- Impact on Business
- Emergence of new kids on the block
- The prevailance of flexible and temporary organisational structures
- Impact on Finance
- Manpower and human resource
- Education and training

Impact on Jobs

- Millions of traditional & manual intensive jobs will be replaced by intelligent machines & applications
- New high end jobs will be created
- What is not clear is whether new jobs will be as many as the old jobs they replace
- Will 4ir results in more unemployment & social divide? Societal & ethical impact needs to be examined

Many Jobs will dissapear

- or example, as automation increases, computers & machines will replace workers across a vast spectrum of industries, from drivers to accountants & estate agents to insurance agents. By one estimate, as many as 47 percent of U.S. jobs are at risk from automation.

Fourth Industrial Revolution brings promise and peril for humanity

Davos was a good forum for technology pioneers, business leaders and politicians to consider some of the implications of the new economy

Performers depict the Industrial Revolution during the opening ceremony of the London 2012 Olympic Games. Technological change has always been disruptive. Photograph: Ryan Pierse/Getty Images

JOBS MOST PRONE TO AUTOMATION

NO	PROBABILITY	OCCUPATION
1	0.99	TELEMARKETERS
2	0.98	INSURANCE APPRAISERS
3	0.98	UMPIRERS & REFEREES
4	0.98	LEGAL SECRETARIES
5	0.97	WAITERS IN RESTAURANTS, LOUNGES & COFFEE SHOPS
6	0.97	REAL ESTATE BROKERS
7	0.97	FARM LABOUR
8	0.96	SECRETARIES & LEGAL ASSISTANTS
9	0.94	COURIERS

REF: FREY & OSBORNE 2013

JOBS LEAST PRONE TO AUTOMATION

NO	PROBABILITY	OCCUPATION
1	0.0031	SOCIAL WORKERS
2	0.0042	PHYSICIANS & SURGEONS
3	0.0043	PSYCHOLOGISTS
4	0.0055	HUMAN RESOURCE MANAGERS
5	0.0065	COMPUTER SYSTEM ANALYSTS
6	0.0077	ANTROPOLOGISTS & ARCHAEOLOGISTS
7	0.010	MARINE ENGINEERS & NAVAL ARCHITECTS
8	0.030	SALES MANAGERS
9	0.0150	CHIEF EXECUTIVES

REF: FREY & OSBORNE 2013

Business 4.0

Business 4.0 will also change in line with changes in technology

Impact On Business

- Disruptive Innovation creates new customer experience & new behaviour patterns through digital platforms & force companies to adapt the way they design, market, & deliver products & services. New supply chain models replace the old structures
- Digital Platform lowers barriers to entry for newcomers allowing smaller & more agile players to outperform more established & bigger competitors
- People can create wealth as entrepreneurs (no longer paid workers) often working from home- creativity & innovation no longer the preserve of big business
- The automation age de-skills human labour. 4IR emphasises on creativity, innovation and skills

Impact On Business (Contd)

- 4IR creates multiple digital platforms upon which many **new** services can be created, ranging from laundry to shopping, from chores to parking, from massages to travel
- Integrating supply & demand means being able to manufacture on demand & the ability to share resources & reduce wastage- Sharing & Co-opetition is now in vogue
- Customers demand traceability, accountability, reliability in addition to lower costs & higher quality

New KIDS ON THE BLOCK

- Uber- World's Largest Taxi Company has NO taxis
- Facebook- World's Most Popular Media Owner creates NO content,
- Alibaba The most valuable retailer has NO Inventory
- Airbnb the world's largest accommodation provider has NO real Estate

(Tom Goodwin in TechCrunch March 2015)

Newcomers with different business models can overtake established players

Manpower & Organisation 4.0

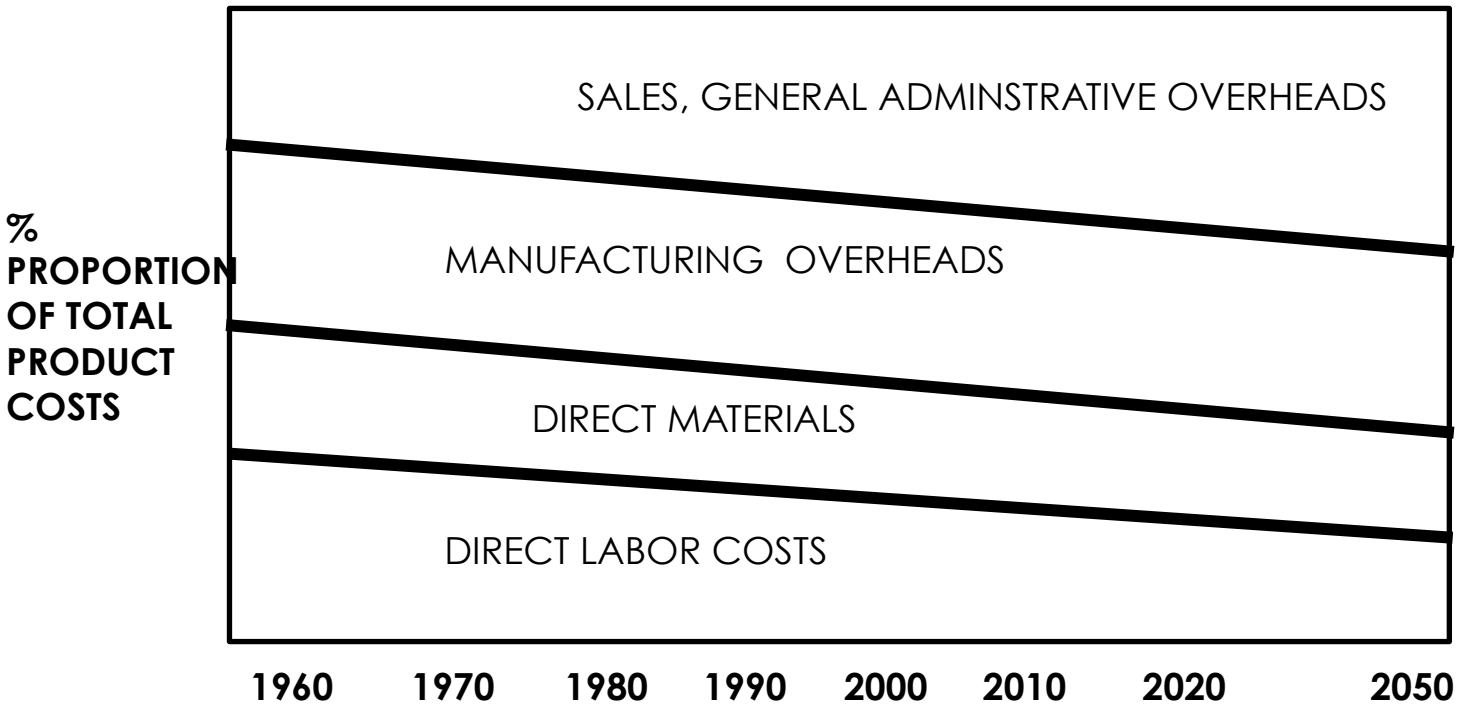
1. More people will freelance & not work in fixed organisations or departments
2. Talent is available & tapped from a virtual global human cloud
3. Intellectual property & data security issues become more crucial
4. Workers can collaborate independently of organisation structure
5. The death of trade unions??
6. The gradual demise of rigid organisation structures?

Finance 4.o

1. 4.0 companies need a real-time view of all their assets—physical, human, & financial—to react to new developments in their market & pinpoint opportunities in the face of growing competition
2. Financial data needs to be forward looking instead of backward looking for faster planning, budgeting & forecasting
3. Changes in cost makeup of products requires new changes in management accounting thinking

In 4IR Product Costing, Indirect Costs will grow exponentially. Labour costs will Shrink Conventional costing practices need upgrading,

Behaviour Patterns of Cost Categories



New Financial Practices

- Product lifecycles extremely short- yet investment need to be substantial, shorter window will exist to achieve ROI
- Risk will be substantial because probability of success in innovation is very high
- Instead of turning to banks, entrepreneurs will go for global crowd funding
- As indirect costs & indirect overheads increase in comparison to direct labour costs, this presents problems in allocating overheads to achieve accurate product costs
- Working in a human cloud environment requires adjustments to costing methods, tax policies and procedures, budgeting and planning on a global scale

Education & Training 4.0

Educators and Educational Institutions must harnesses the digital technologies, personalised data, open sourced content, and globally-connected, technology-driven world

Education & Training 4.0 (Contd)

- As some jobs disappear, so will be demand for the associated courses .
- When new jobs appear, so will be the rise in demand for them
- How quick & proactive will be the educational institutions in meeting these needs?
- Are our traditional curriculum content sufficient to meet the needs of the 4IR?
- Curriculum design, content, delivery, assessment etc must also be in line with the technological trends of 4IR & not be stuck in the past
- Concept of education to be customised & customer driven

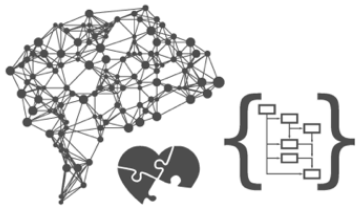
Education 4.0 (Peter Fisk 2017)

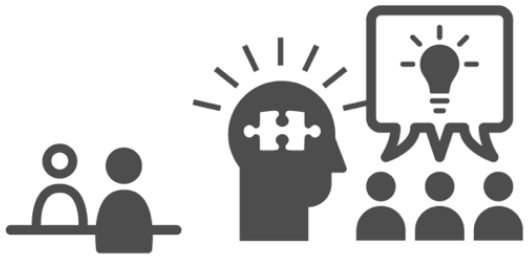
1. **Diverse time and place.**
   Students will have more opportunities to learn at different times in different places- life long learning will become more important
2. **Personalized learning.**
   Students will learn with study tools that adapt to the capabilities of a student. Blended learning, flipped classrooms and BYOD (Bring Your Own Device) form important terminology within this change.
3. **Project based.**
   As careers are adapting to the future freelance economy, students of today will adapt to project based learning and working. This means they have to learn how to apply their skills in shorter terms to a variety of situations.
4. **Field experience.**
   This means curricula will create more room for students to fulfill internships, mentoring projects and collaboration projects.

5. **Data interpretation.**
   Software will take care of every statistical analysis, predict future trends. Human reasoning & interpretation of these data become more important part of the future curricula.
6. **Exams will change completely.**
   Need to incorporate software, projects, field and job experience to measure competencies.
7. **Student ownership.**
   Students will become more and more involved in forming their curricula.
8. **Mentoring will become more important.**
   Students will become so independent in their learning process, mentoring will become fundamental to student success.

Top 10 Skills to be relevant in Industry 4.0

in 2020	in 2015
1. Complex Problem Solving	1. Complex Problem Solving
2. Critical Thinking	2. Coordinating with Others
3. Creativity	3. People Management
4. People Management	4. Critical Thinking
5. Coordinating with Others	5. Negotiation
6. Emotional Intelligence	6. Quality Control
7. Judgment and Decision Making	7. Service Orientation
8. Service Orientation	8. Judgment and Decision Making
9. Negotiation	9. Active Listening
10. Cognitive Flexibility	10. Creativity





Source: Future of Jobs Report, World Economic Forum

INDUSTRY 4.0 IN AUTOMOTIVE INDUSTRY

VIDEO

KEY POINT…

- USES INTERNET FACILITY TO IMPROVE QUALITY
- BUILT PEOPLE (HITTO ZUKURI) FIRST THEN BUILT PRODUCT (MONO ZUKURI)
  - ➢SO WHERE IS INTERNET???

SO?

- NOTHING NEW ABOUT INDUSTRIAL REVOLUTION 4.0…..

Erica…

Sopia the Robot

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THANK YOU

どうもありがとうございました

The inventor…. (video)

Robot debate about humanity (Video)

Erica in the Lab (Video)

Autonomous Driving Audi (Video)