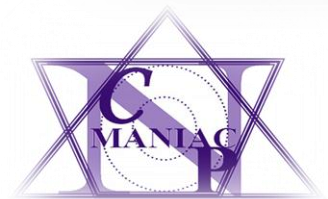




NCPMANIAC

Since 2008



INDUSTRY 4.0

Why it matters?



Agenda

Industrial Evolution

4th Industrial Revolution

Building Blocks of Industry 4.0

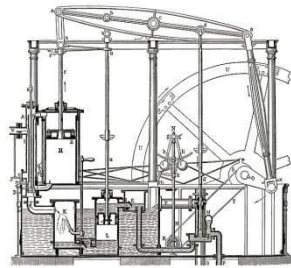
Potential Industrial Products Implications

Potential Consumer Products Implications

Impact of Industry 4.0

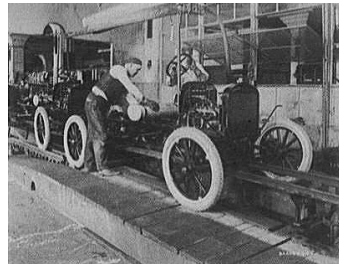


Industrial Evolution



1. Industrial revolution
Introducing mechanical
production machines powered
by water and steam
Industry 1.0

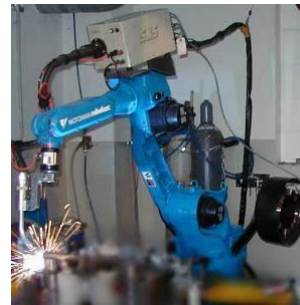
**End of the
18th century.**



Industrial revolution
Introducing mass production
lines powered by electric
energy

Industry 2.0

**Beginning of the
20th century**



3. Industrial revolution
Through the use of electronics
and IT further progression in
autonomous production

Industry 3.0

**Beginning of the
70th**



4. Industrial revolution
Based on cyber-physical-
systems

Industry 4.0

Today



Level of complexity

Did not exist in 2006

❖ iPhone

❖ iPad

❖ Kindle

❖ 4G

❖ Uber

❖ Airbnb

❖ Android

▶ Android

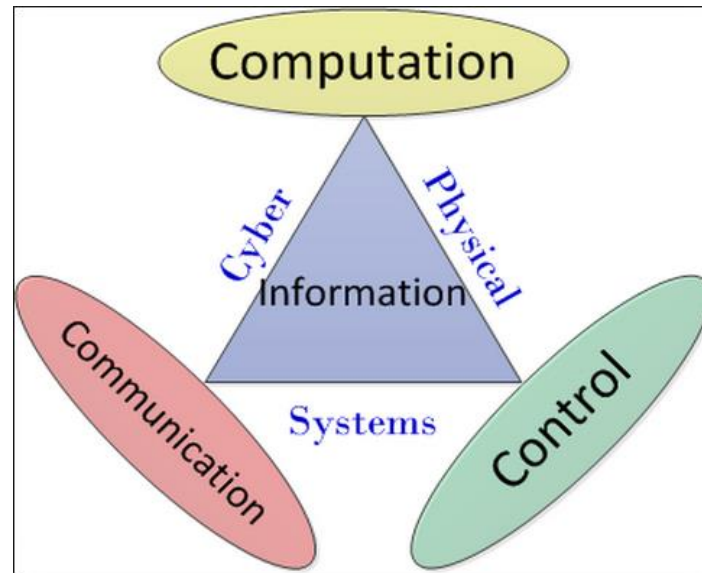
▶ Oculus

▶ Instagram

▶ Snapchat

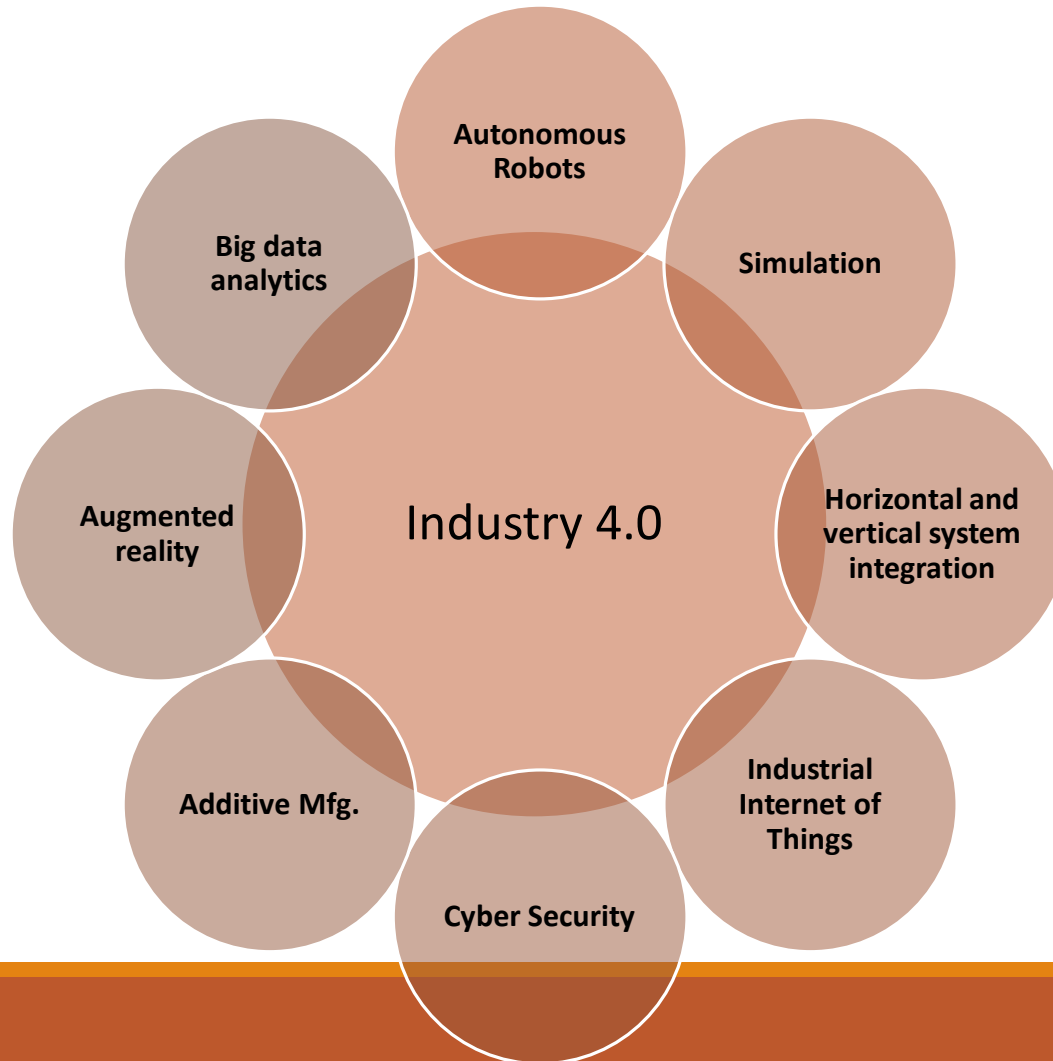
▶ WhatsApp

Cyber Physical Systems



A **cyber-physical system (CPS)** is a system of collaborating computational elements controlling physical entities. CPS are physical and engineered systems whose operations are monitored, coordinated, controlled and integrated by a computing and communication core. They allow us to add capabilities to physical systems by merging computing and communication with physical processes.

Building blocks of Industry 4.0



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

Examples

SIEMENS

German manufacturing giant Siemens, an industrial user, is implementing an Industry 4.0 solution in medical engineering. For years, artificial knee and hip joints were standardized products, with engineers needing several days to customize them for patients. Now, new software and steering solutions enable Siemens to produce an implant within 3 to 4 hours.

Examples TRUMPF

German toolmaker Trumpf, an Industry 4.0 supplier and worldwide market leader of laser systems, has put the first "social machines" to work. Each component is "smart" and knows what work has already been carried out on it. Because the production facility already knows its capacity utilization and communicates with other facilities, production options are automatically optimized.

Examples of Product evolution: Connected and smart products



Philips Lighting

Users can control Philips Lighting hue lightbulbs via smartphone, turning them on and off, programming them to blink if they detect an intruder, or dimming them slowly at night.



Medtronic

Medtronic's implanted digital blood glucose meter connects wirelessly to a monitoring and display device and can alert patients to trends in glucose levels requiring attention.



Ralph Lauren

Ralph Lauren's Polo Tech Shirt, available in 2015, streams distance covered, calories burned, movement intensity, heart rate, and other data to the wearer's mobile device.



Babolat

Babolat's Play Pure Drive product system puts sensors and connectivity in the tennis racket handle, allowing users to track and analyze ball speed, spin, and impact location to improve their game.

Economy

Growth

Ageing

Productivity

Employment

Labour substitution

The nature of Work



Impact

Business

Customer expectations

Data enhanced products

Collaborative innovation

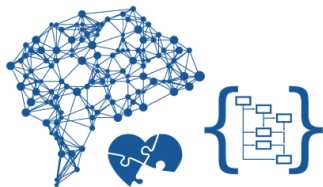
New operating models

A solid orange horizontal bar spanning the width of the slide at the bottom.

Top 10 Skills to be relevant in Industry 4.0

in 2020

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



in 2015

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



Thank **YOU**

