Skills Needed for The Industry 4.0 Era

IMT Solutions

VNITO Alliance

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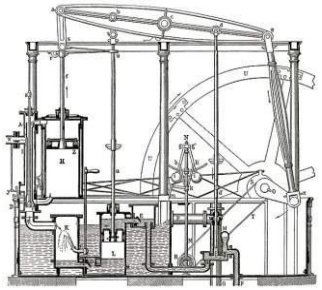
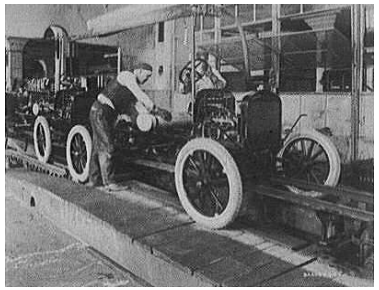
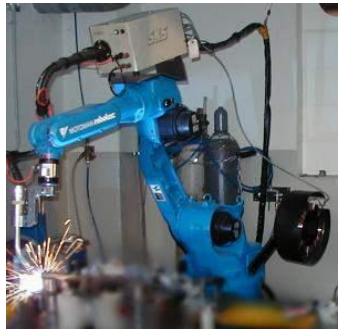
Speaker Bio

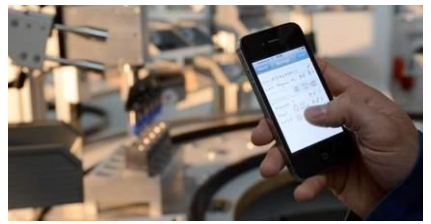
- Over 20 years of experience in technology development, executive management and international projects.
  - Co-founder and President – IMT Solutions
  - Co-founder – Sapientific
  - CIO – Vis Analytics
  - Vice President VNITO Alliance
- Worked oversea in Silicon Valley (CA, USA), Columbus (OH, USA), Ottawa and Toronto (Canada)
- Currently incubating several start-up companies with unique products in IoT, AI, mCommerce, communications and retail.
- Bachelor and Master degrees in Electronics and Telecommunications from Back Khoa University of Ho Chi Minh city. An also obtained his MBA degree from Asian Institute of Technology (AIT), Thailand.

Industrial Evolution









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

2. Industrial revolution
Introducing mass production lines powered by electric energy

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

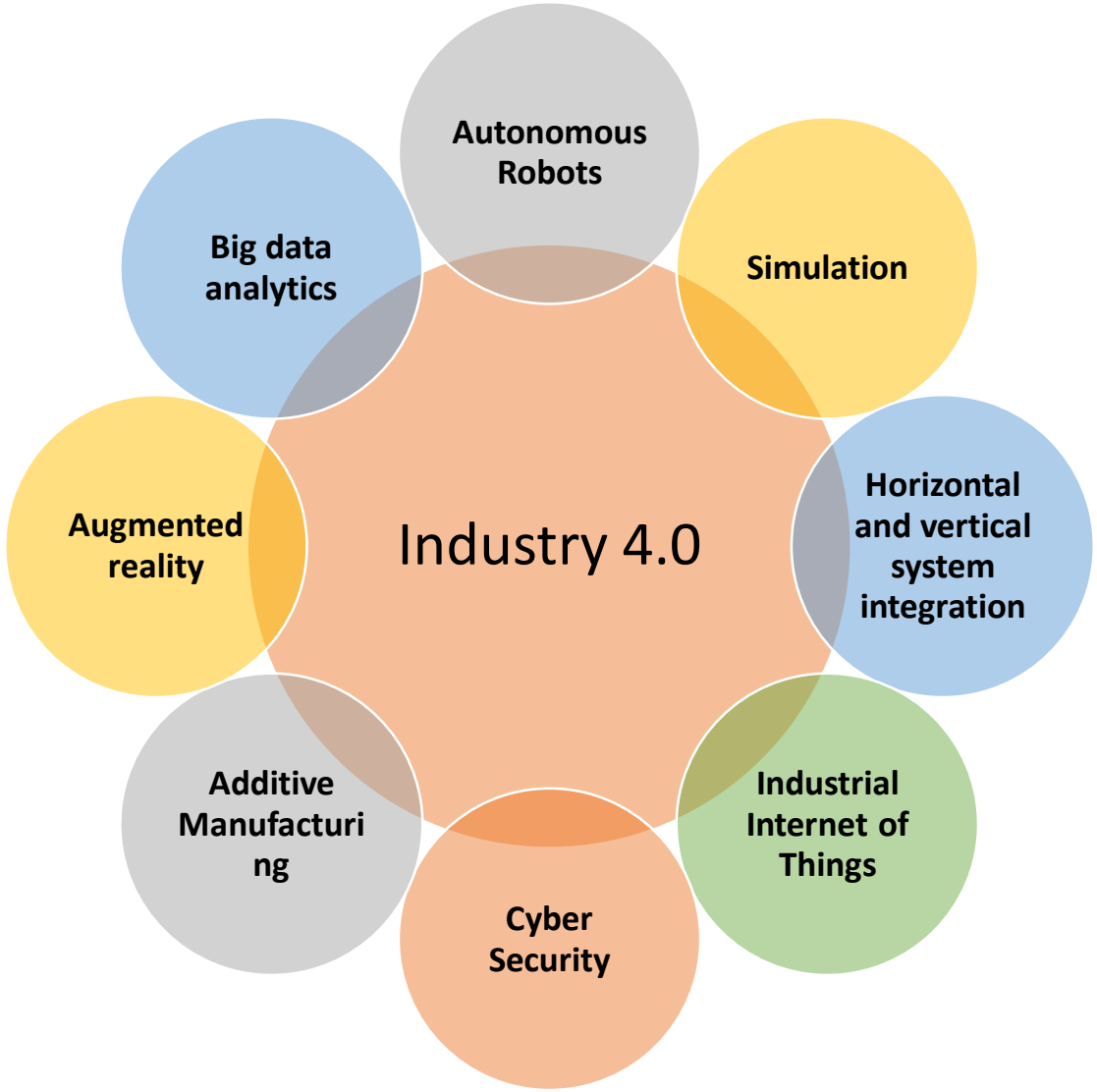
4. Industrial revolution
Based on cyber-physical-systems

Level of complexity

Industry 1.0	Industry 2.0	Industry 3.0	Industry 4.0
End of the 18th century.	Beginning of the 20th century	Beginning of the 70th	Today

Source: DFKI/Bauer IAO

Building blocks of Industry 4.0



Horizontal and Vertical System Integration

New Challenges, New Jobs

Employees will need to shift their focus to the things machines so far can’t do

- Robot coordinator
- Industrial data scientist
- Emotional Intelligence

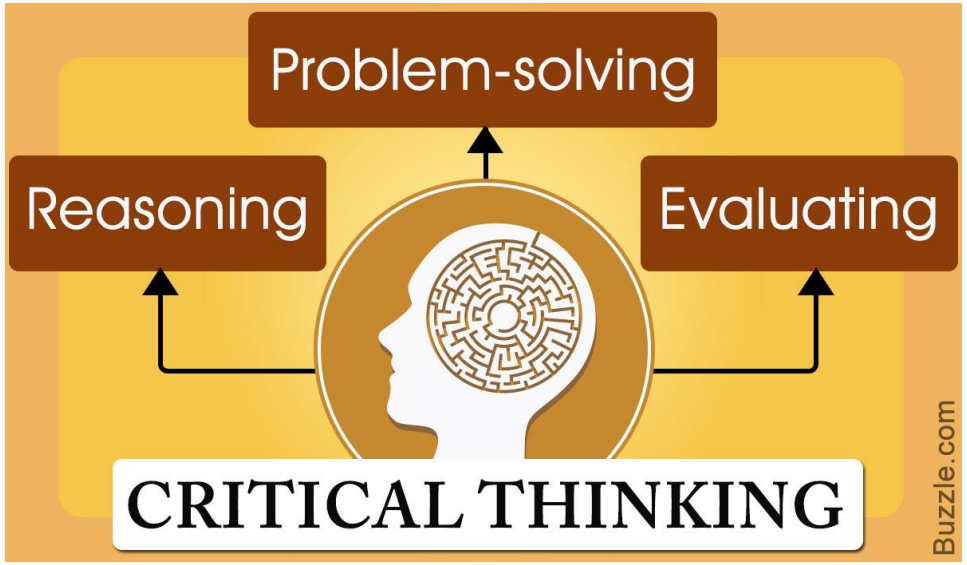
Top 10 Skills to be relevant in Industry 4.0

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

Source: Future of Jobs Report, World Economic Forum

Critical Thinking

- Critical thinking is the ability to think clearly and rationally, understanding the logical connection between ideas
- Ability to translate vast amount of data into abstract concepts
- Critical thinking involves being able to use logic and reasoning to interrogate an issue or problem, consider various solutions to the problem, and weigh up the pros and cons of each approach.



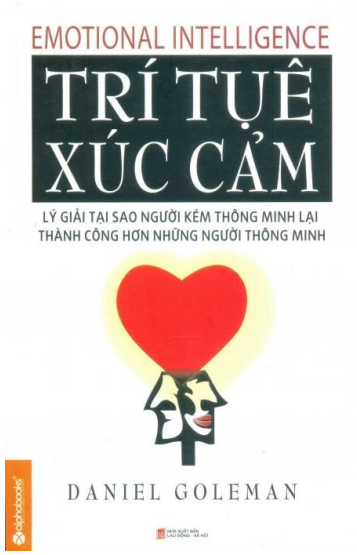
Coordinating with Others

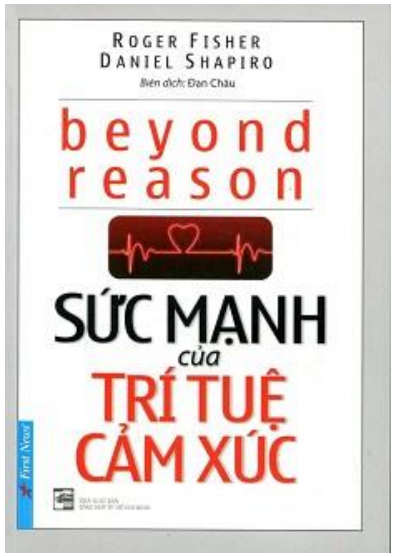
- Collaboration is crucial in any work environment and this is something that thankfully humans are still better at than robots!
- Businesses in the new era are emphasizing on strong interpersonal skills, and employees who play well with others.
- Coordinating well with others involves:
  - Strong communication skills (active listening, self-organizing..
  - Awareness of other people's strengths and weaknesses
  - Able to work with a range of different personalities

Emotional Intelligence

“capability of individuals to **recognize** their own emotions and those of others, **discern** between different feelings…, **use** emotional information to **guide thinking** and **behavior**, and **manage** and/or **adjust** emotions to adapt to environments or **achieve** goals”

Wikipedia





Service Orientation

- Ability to actively look for ways to help customers and anticipate what they will need in the future.

- *"Businesses in the energy, financial services and IT industries are increasingly finding themselves confronted with new consumer concerns about issues such as carbon footprints, food safety, labour standards and privacy"*

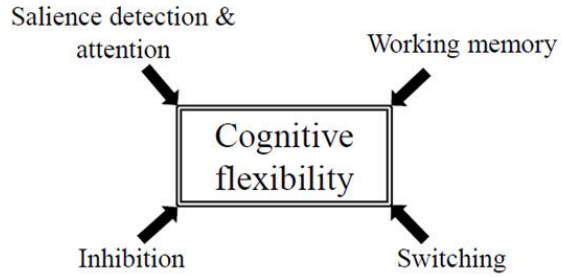
  WEF report

- Service Orientation skills help businesses learn to quickly **anticipate** new consumer values, to **translate** them into **product offerings** and to become ever more knowledgeable about the **processes involved in meeting** these demands

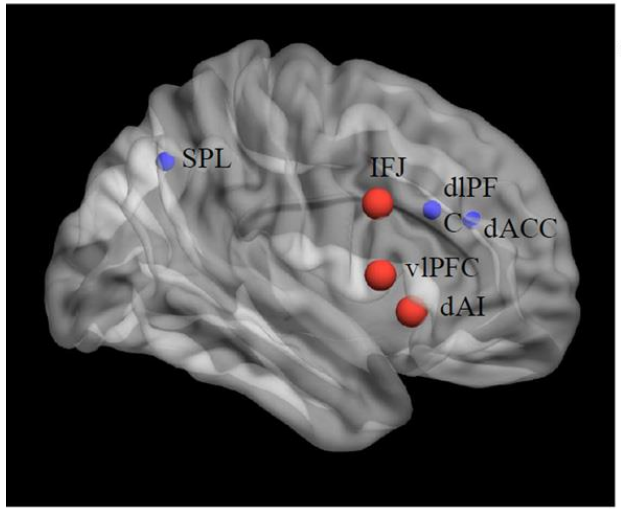
Cognitive Flexibility

- The mental ability to **switch** between thinking about two different concepts, and to **think** about multiple concepts simultaneously, quickly (and easily) **swing, and leap** back and forth between these concepts
- Examples
  - Flexible reading
  - Flexible thinking & writting

A. Cognitive processes



B. Neural context



Node	Function
dAI	Initiates neural switching
vlPFC	Left: resolves proactive interference Right: response set selection and/or context monitoring
IFJ	Inhibition and/or response set updating
dlPFC	Working memory
dACC	Response selection/ motor response
SPL	Visuomotor integration/ attention

thank you
danke
謝謝
ngiyabonga
рахмат
teşekkür ederim
Баярлалаа
спасибо
mersi
kia ora
barka
welalin
spas
tack
tapadh leat
mahalo
faafetai lava
vinaka
blagodaram
dank je
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bedankt
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shukriya
mercé
мерси
তোমাকে ধন্যবাদ
감사합니다
xièxie
ευχαριστώ
merci