

# DIGITAL DEVELOPMENTS AND CHANGES IN THE COMPETENCIES OF SKILLED WORKERS IN SELECTED ECONOMIC SECTORS

*Guru Mallikarjuna – Managing Director of Bosch Vietnam*

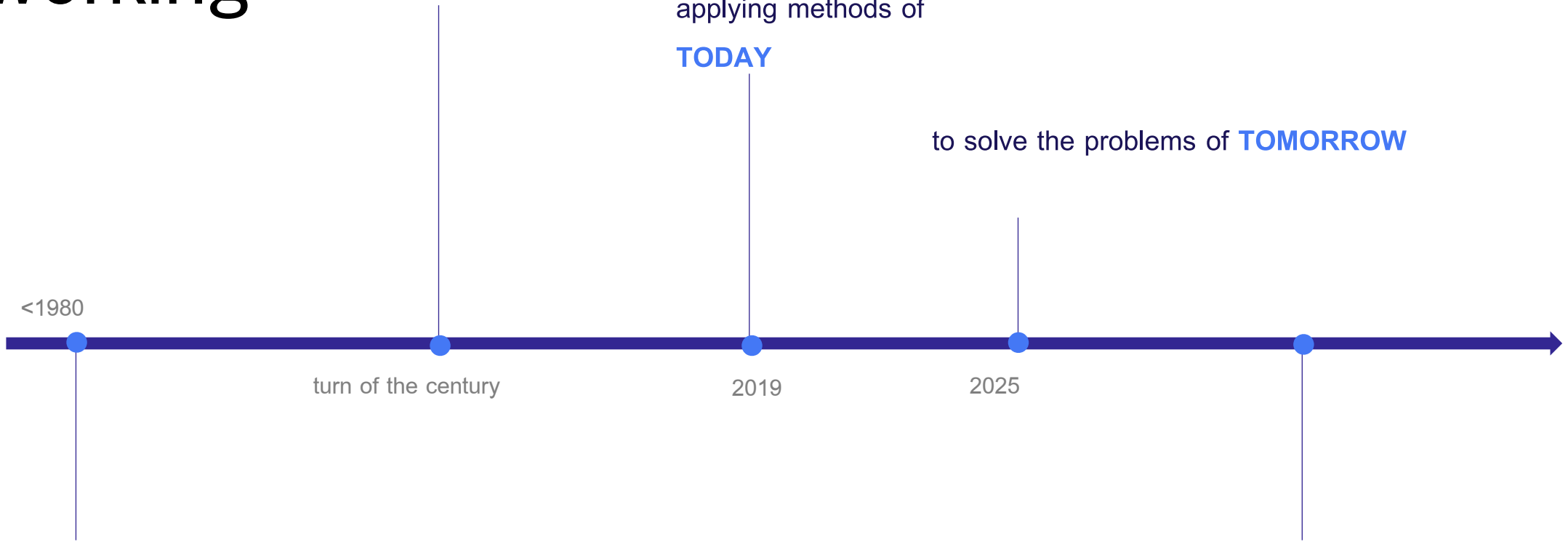
*08 September 2021*

# We're working

in structure built **YESTERDAY**

applying methods of  
**TODAY**

to solve the problems of **TOMORROW**



with decisions makers who grew up  
**THE DAY BEFORE YESTERDAY**

and who won't live to see  
**THE DAY AFTER TOMORROW**

Source: *Future leadership* – Franz Kuehmayer

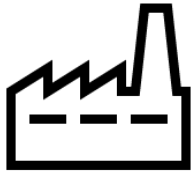
Bosch Vietnam | 2021-08-09

© Bosch Vietnam 2021. All rights reserved, also regarding any disposal, exploitation, reproduction, editing, distribution, as well as in the event of applications for industrial property rights.

# Driving forces

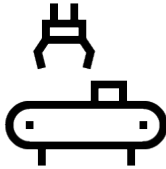
## Technology as a driving force for industrial development

### Industry 1.0



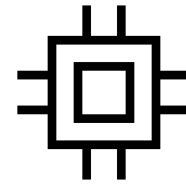
Mechanization,  
steam, power,  
weaving loom

### Industry 2.0



Mass production,  
assembly line,  
electrical energy

### Industry 3.0



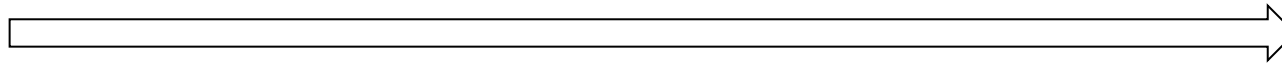
Automation,  
computers and  
electronics

### Industry 4.0



Cyber Physical  
Systems, internet of  
things, networks

INDUSTRIALIZATION



DIGITALIZATION

Based on: <https://www.simio.com/applications/industry-40/index.php> (2018)

Bosch Vietnam | 2021-08-09

© Bosch Vietnam 2021. All rights reserved, also regarding any disposal, exploitation, reproduction, editing, distribution, as well as in the event of applications for industrial property rights.

# Driving forces

## Lifelong Learning, as the World Economic Forum sees it

### Foundational Literacies

- Literacy
- Numeracy
- Scientific literacy
- Information and Communication Technology literacy
- Financial literacy
- Cultural and civic literacy

### Competencies

- Critical thinking / problem-solving
- Creativity
- Communication
- Collaboration

### Character Qualities

- Curiosity
- Initiative
- Persistence / grit
- Adaptability
- Leadership
- Social and cultural awareness

What if the picture changes to this 

Source: World Economic Forum, [New Vision for Education](#), Unlocking the Potential of Technology, prepared in collaboration with The Boston Consulting Group (Report 2015)

Bosch Vietnam | 2021-08-09

© Bosch Vietnam 2021. All rights reserved, also regarding any disposal, exploitation, reproduction, editing, distribution, as well as in the event of applications for industrial property rights.

# Driving forces

## Lifelong Learning, a little adapted to what's relevant for us

### Driving topics today

- (Industrial) Software
- Information
- Digital/ Automation
- Computational Thinking
- Electrification
- Mechatronics
- Business Model Innovation
- Artificial Intelligence

### Competencies

- Critical thinking / problem-solving
- Creativity
- Communication
- Collaboration

### Character Qualities

- Curiosity
- Initiative
- Persistence / grit
- Adaptability
- Leadership
- Social and cultural awareness

- ▶ In today's innovation-driven economy, employees need a **different mix of skills** than in the past.
- ▶ Technologies have the potential to **lower the cost** and **improve the quality of education**.
- ▶ Jobs will become more non-routine and require **deeper analytical and interpersonal skills**.

Source: World Economic Forum, [New Vision for Education](#), Unlocking the Potential of Technology, prepared in collaboration with The Boston Consulting Group (Report 2015)

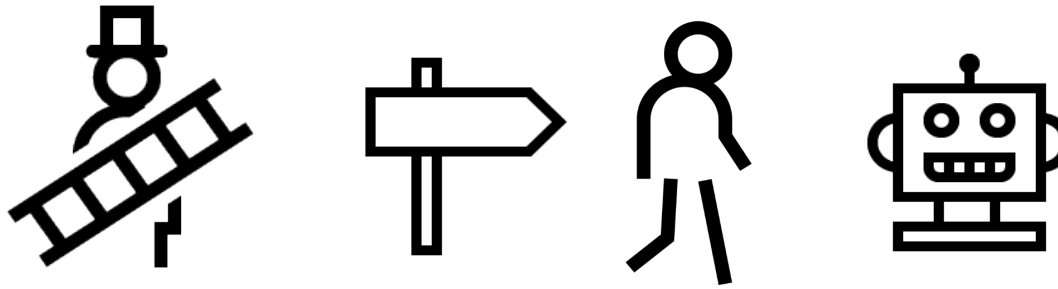
Bosch Vietnam | 2021-08-09

© Bosch Vietnam 2021. All rights reserved, also regarding any disposal, exploitation, reproduction, editing, distribution, as well as in the event of applications for industrial property rights.

# The future of work

In case you do wonder “What does that have to do with us?”

Today’s learners will have **8-10 jobs by the time they are 38**



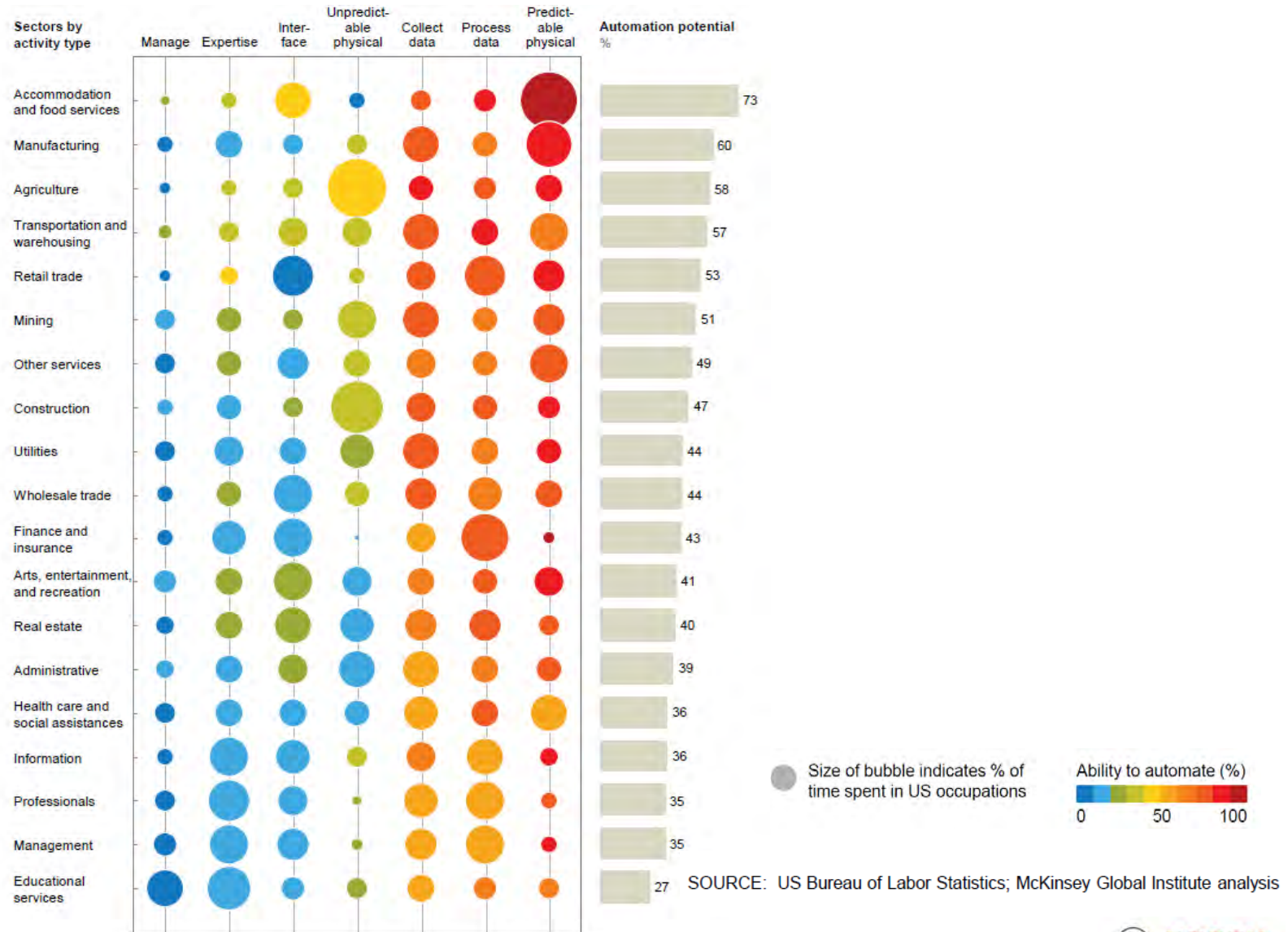
**85 % of the Jobs that generation Z\* will be doing in 2030 have not been invented yet**

Sources: <https://www.workingdigital.de/de/blog/post/arbeit-2028-trends-und-dilemmata> (2018) [IFR World Robotics 2017, Eurobarometer 2017, Mark McCrindle, The Daily Telegraph 2014, Hernstein Management Report 2017, SpiceWorks, Europe Intelligence Unit 2016, Bitkom 2018, IFTF and Dell Technologies 2017, Schwarzmüller T, Brosi P, Welpel IM, 2016, Statista 2018, Forbes 2017, Henley Business School/Detecon International/Deutsche Telekom 2018], <https://www.bosch-presse.de/pressportal/de/en/in-all-regions-and-business-segments-bosch-power-tools-achieves-strong-growth-42886.html> (2015)

\* Generation Z: People born between 1995 and 2009

# The future of work

Technical potential for automation across sectors varies depending on mix of activity types



How do companies (in cooperation with TVET institutions)  
have to react to this?

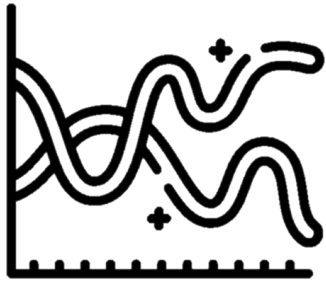


1886 – now

# Learning is part of our tradition.

- ▶ Since 1913, more than 100.000 people got trained for their professional career
- ▶ 6.000 vocational trainings in 30 professions, every year
- ▶ Almost 200 training providers worldwide





**Volatility**

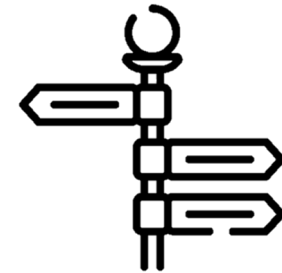


**Uncertainty**



**Complexity**

**VUCA**



**Ambiguity**



**Vision**



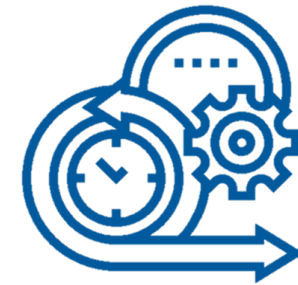
**Clarity**



**VUCA**



**Understanding**



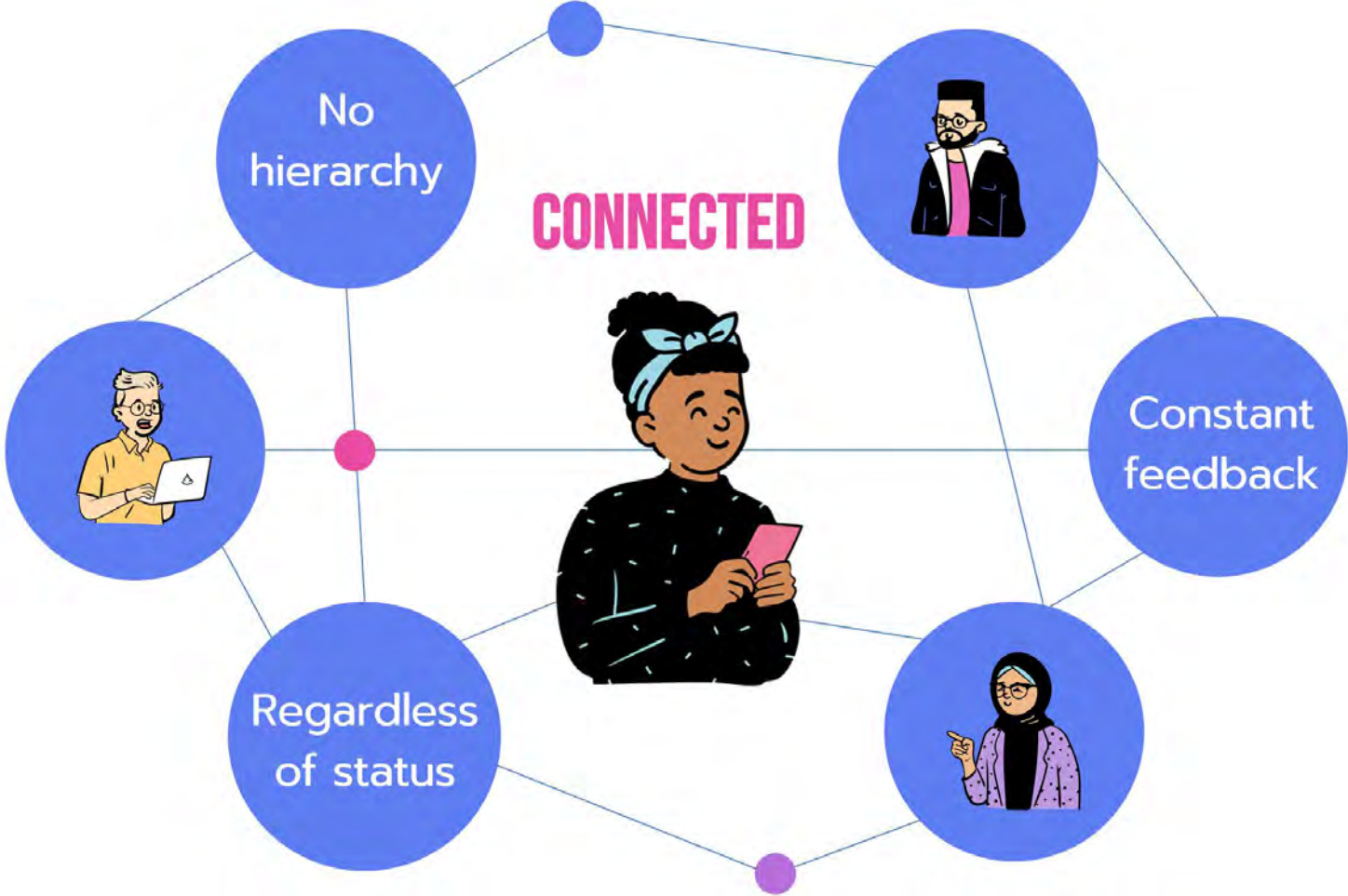
**Agility**

**“Agile is the vehicle for the VUCA journey”**

# Characteristics of digital natives



# Characteristics of digital natives



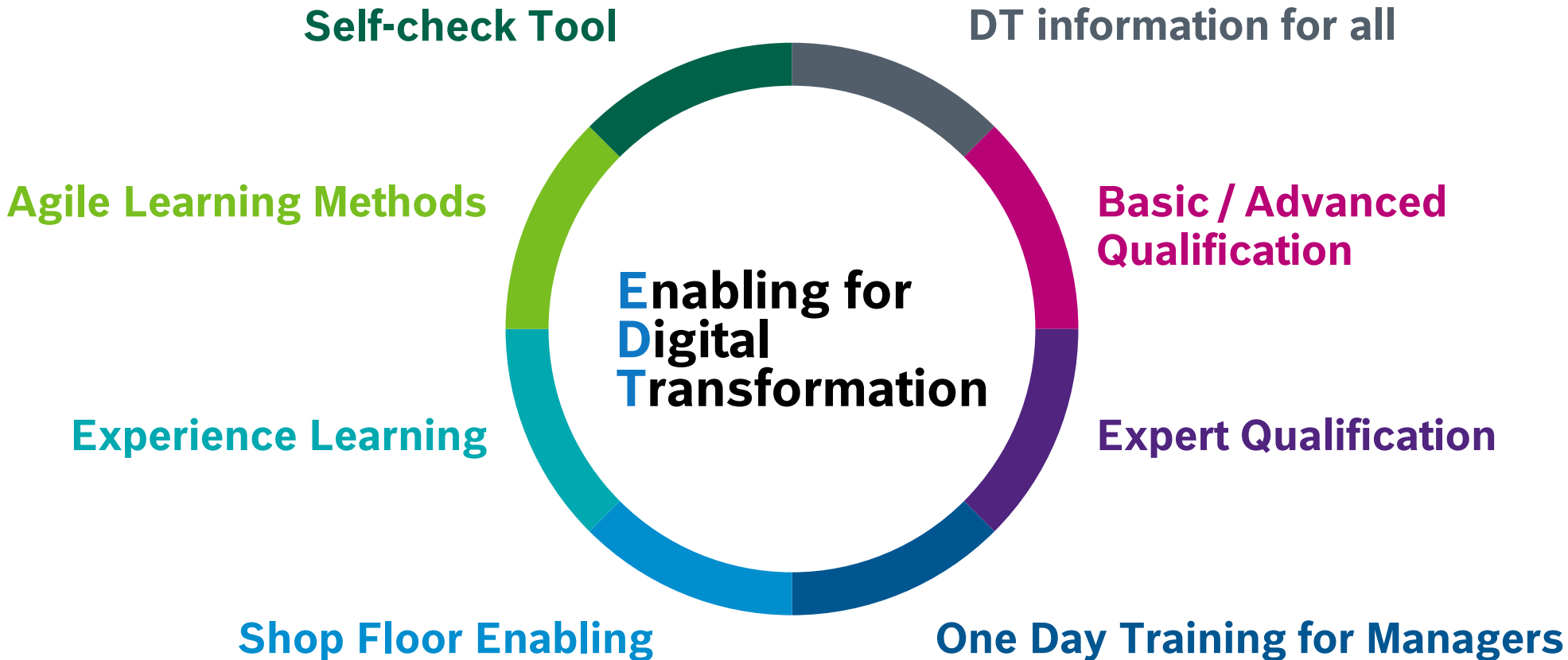
# Characteristics of digital natives



**NEW VALUES**

# Bosch Initiative

## Bosch Learning Company



# Companies in cooperation with TVET Integrating Industry 4.0 in Education



In need of skilled workforce:

- Handle complex situations
- Solve problems
- Think critically

- Incorporate **i4.0 studies** in **vocational program** (better understanding and application of i4.0)
- Equip with **real i4.0 machines/application** in the classroom
- **Apprentice** program with **multinational companies**
- Using **digitalization** to optimize further **training**

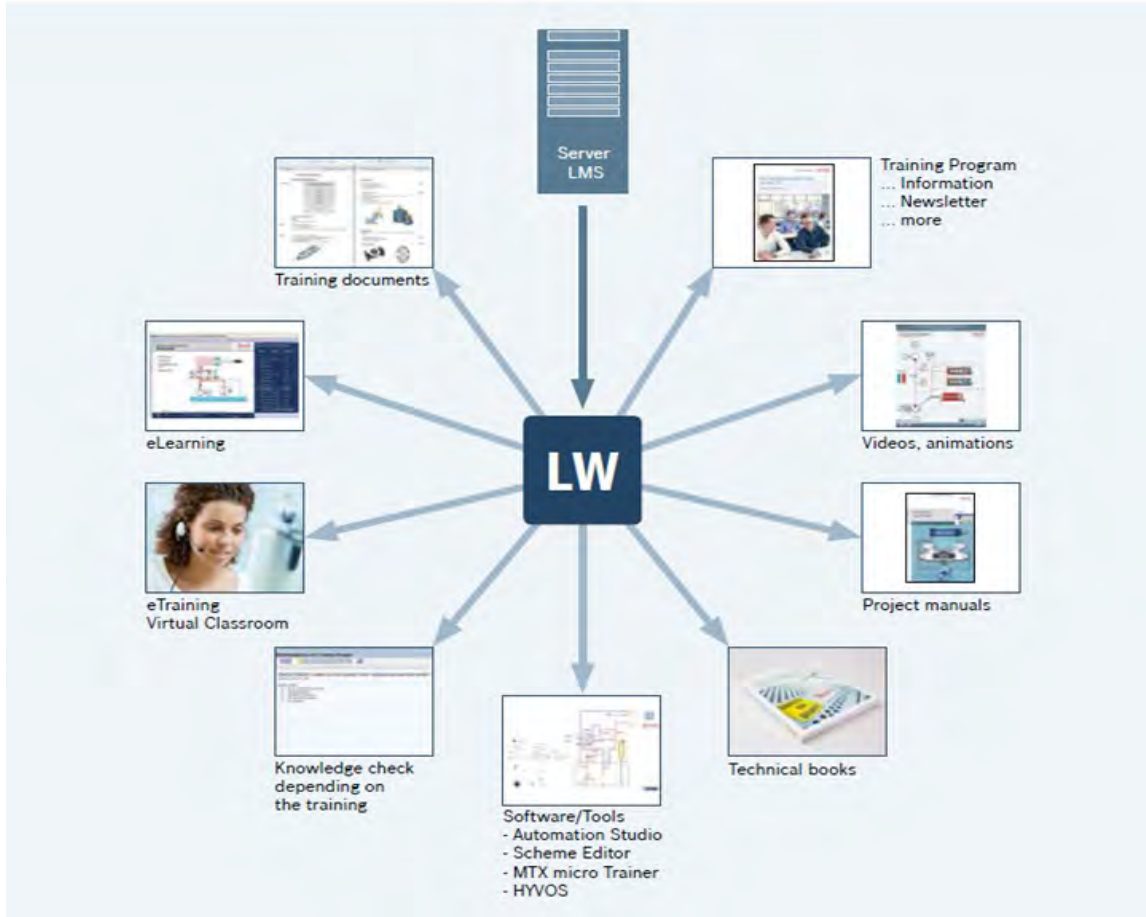


- Automation technology
- Control systems
- Innovation abilities



# Companies in cooperation with TVET

## Integrating Industry 4.0 in Education



- **Bosch Rexroth is the leading manufacturer of Drive & Control technologies.** It has expert know-how of the **latest technical trends and innovations**

- **We share our know-how in:**

Training, Industrial Hydraulics, Mechatronics, Linear and Assembly Technology, Mobile Hydraulics, Electric Drives and Controls, Safety Technology, Automation

### Under the form of

Training, Training Systems, Media, Knowledge Portal, Soft skills training, Job-related skills training, On-the-job training, Train the trainer



# Bosch in Vietnam

## TGA Training Center



One of the first and prominent vocational training partnership under the dual training framework of AHK in Vietnam



Certificate



Diploma

### Specialty/Occupation:

- Industrial Mechanics
- Mechatronics



192 apprentices have been attended TGA since 2013 (over 20% female)



5th generation of 22 Bosch apprentices graduated in Apr 2021 (more than 100 apprentices have been filled to permanent positions at HcP)

**04/2013** Signing a corporation contract of TGA

Recruiting the first 24 apprentices **10/2013**

**3,5 Years** Required training time

**100%** German standard

**75%** Practical hours

**25%** Teaching hours

Total investment

Over **1 mil euro**

# Bosch in Vietnam

## Bosch brings values in building up skilled workforce



5<sup>th</sup> generation of **22** Bosch apprentices graduated in Apr 2021 (more than **100** apprentices have been filled to permanent positions at Bosch Plant)



Signing MoU between **Bosch Vietnam**, **LILAMA 2**, **DVET**, and **GIZ** to integrate Industry 4.0 in education (2018 – 2020)



**Bosch** and **HCMUT** in collaboration to build **AI** competency to cater to Bosch internal needs & develop AI based solutions

# Driving forces

## Hence: Discover new directions!



We need to increase and expand our expertise and skills.

It is the only way that we will be able to help shape the fundamental change in which we find ourselves and use it for Bosch.

- Volkmar Denner -