

Digi-VET

Project Number: 2018-1-DE02-KA202-005145

Digi-VET

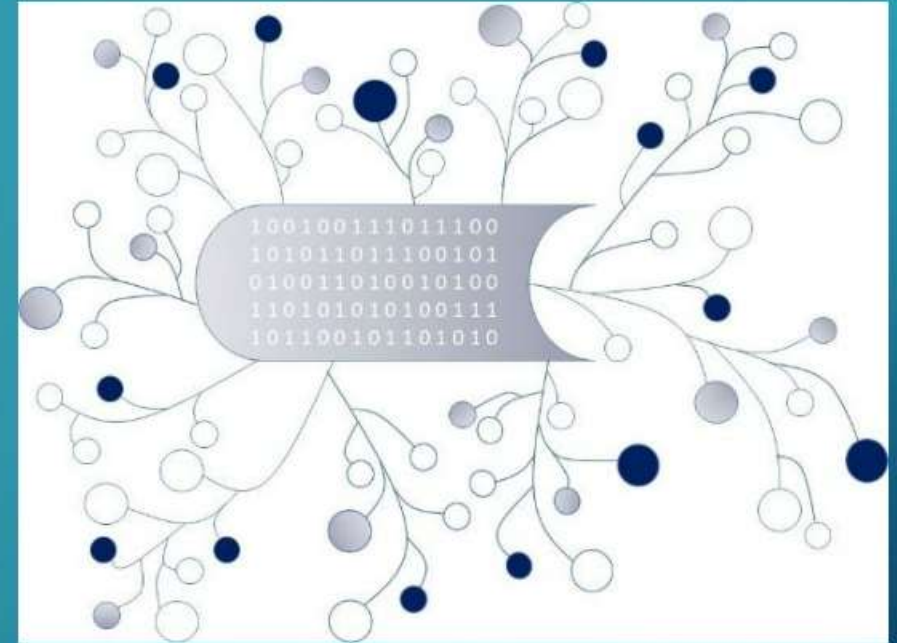
FOSTERING DIGITISATION AND INDUSTRY 4.0 IN
VOCATIONAL EDUCATION AND TRAINING

Training Modules for the Learner

Module B:

Industry 4.0 Terms and history

University of Paderborn, Jennifer Schneider



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Agenda of Module B: Digitisation Terms and history

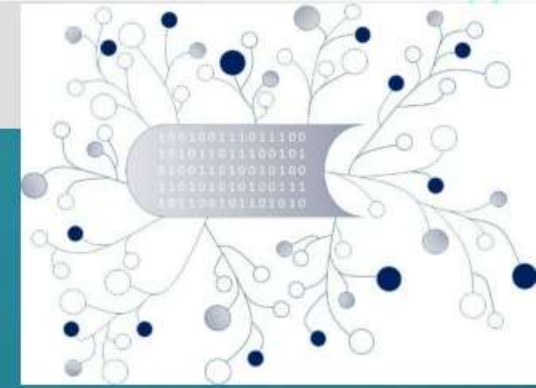
1. Mechanical loom and history of Industry 4.0

2. Industry 4.0

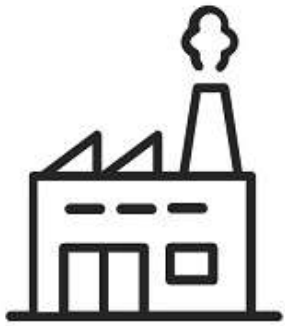
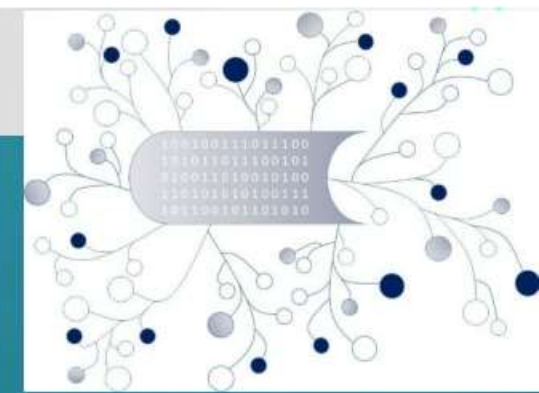
2.1 Task - Video

2.2 Task - Multiple Choice Task

2.3 Task – Multiple Choice Task



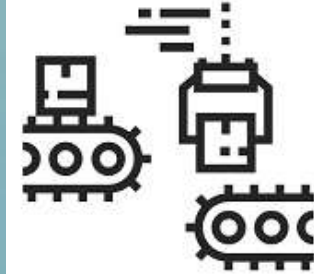
1. Mechanical loom and history of Industry 4.0



First revolution

(end of the 18th century)

-mechanical production on the basis of water and steam.



Second Industrial Revolution (beginning of the 20th century)

- happens during the introduction of conveyor belt, mass production
- Henry Ford and Frederick Taylor



Third revolution

(middle of the 20th century)

- digital automation of production by means of electronics and information technology (IT) system

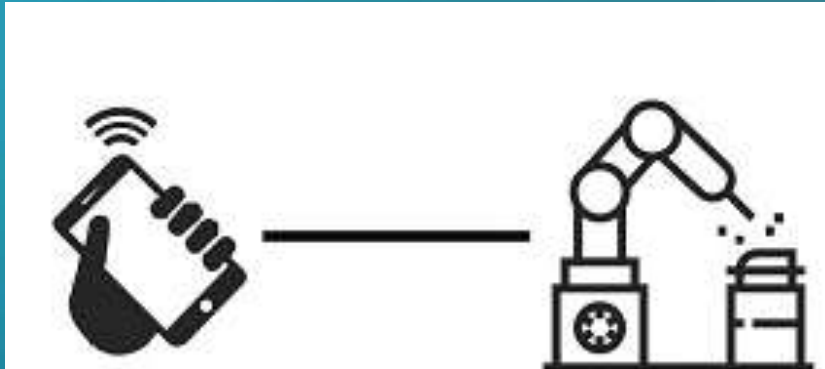
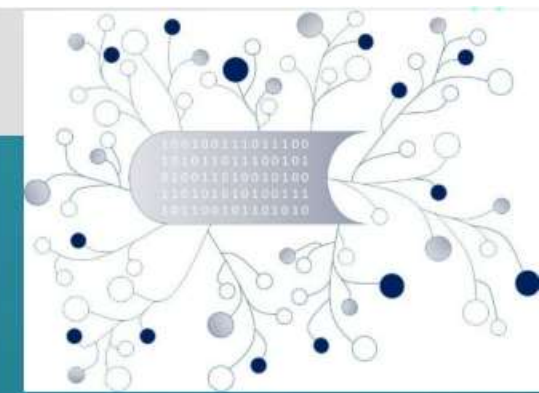
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Link: https://elektrohelden.rexel.de/cfs-file/__key/communityserver-wikis-components-files/00-00-00-00-71/0_5F00_Industrie_5F00_Revolution.jpg

71/0_5F00_Industrie_5F00_Revolution.jpg

(Lasi, H., Fettke, P., Kemper, H. *et al.*, 2014)

1. Mechanical loom and history of Industry 4.0



Fourth revolution- Industry 4.0

(last decades of the 20th century)

- rise of autonomous robots, contemporary automation, cybersecurity systems, the internet of things, the internet of services, etc.
- one of the key driver: Industrial robots

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Link: https://elektrohelden.rexel.de/cfs-file/__key/communityserver-wikis-components-files/00-00-00-00-71/0_5F00_Industrie_5F00_Revolution.jpg

(Lasi, H., Fettke, P., Kemper, H. *et al.*, 2014)

2. Industry 4.0

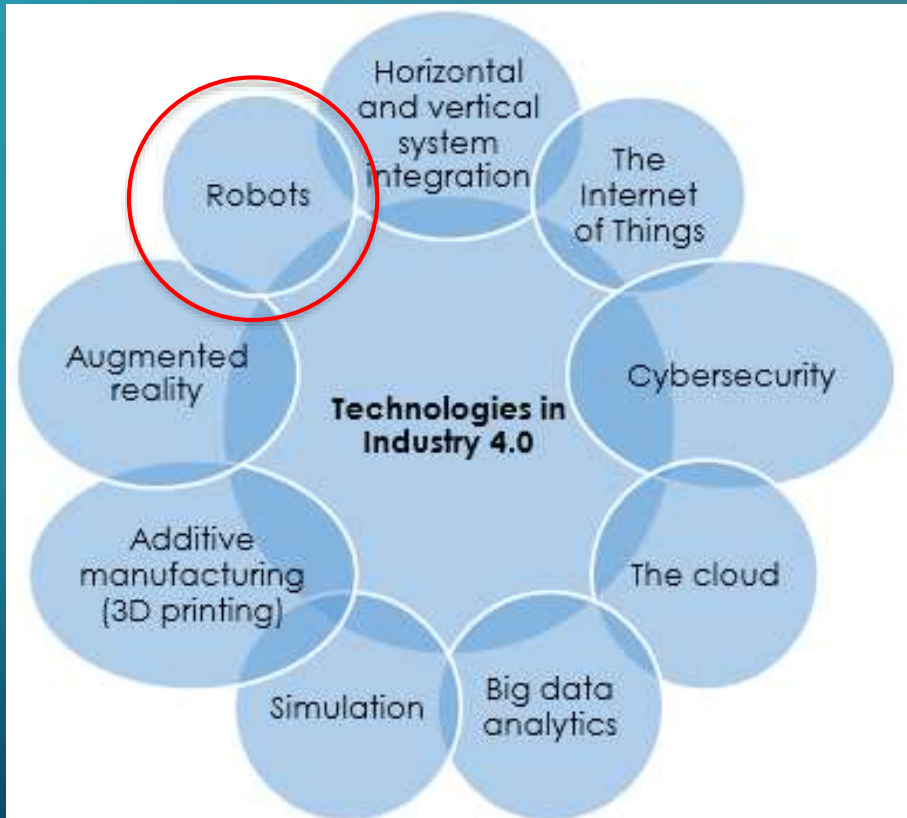


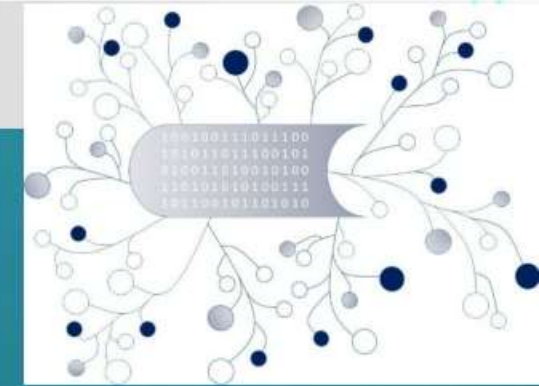
Figure: Own figure, following: Technologies Related to Industry 4.0 by Bahrin et al.; 2016.

Industry 4.0

One of key drivers: **Industrial robots**

- becoming more productive, flexible, versatile, safer, and collaborative and
- are thus creating an unprecedented level of value in the entire ecosystem.
- Smart factories (heart of Industry 4.0) , will take on board information and communication technology for an evolution in the supply chain and
- production line that brings a much higher level of both automation and digitization.

(Lasi, H., Fettke, P., Kemper, H. et al., 2014)

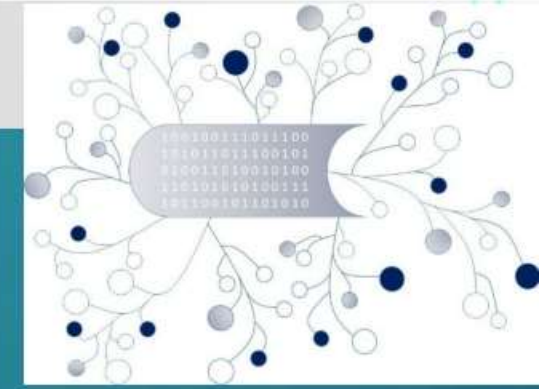


2.1 Task

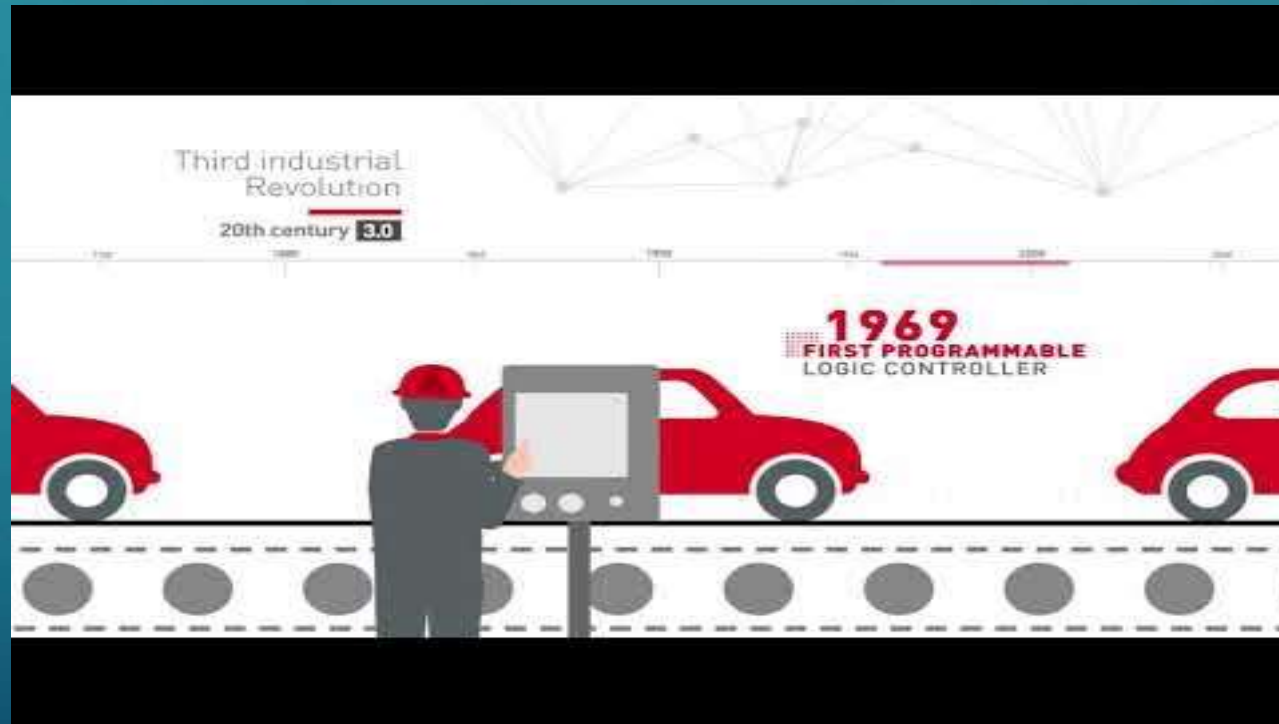
Please watch the following video about the **history of Industry 4.0.**

Please take some notes!

2.1 Task



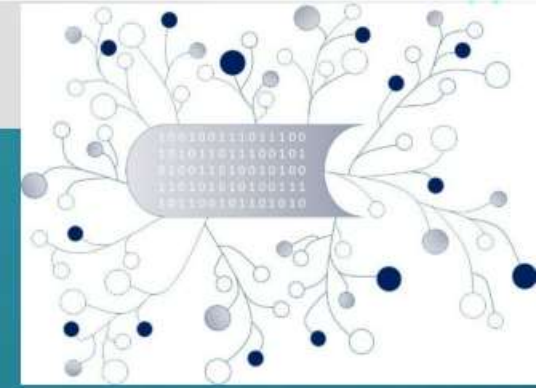
TASK



<https://www.youtube.com/watch?v=RPC7yo99Nxs>

2.2 Task

Please answer the next H5P.org tasks!



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2.2 Task

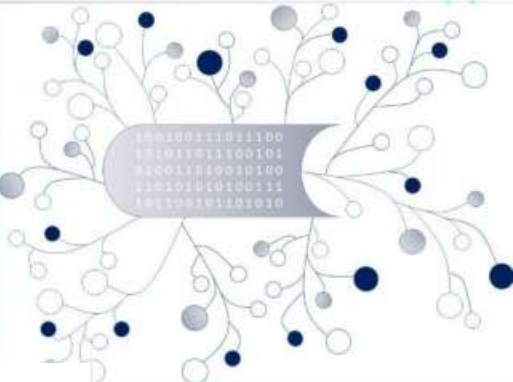
The third revolution was in the middle of the 20th century.

What were the main changes for this revolution?

- Automatical production on the basis of water and sun.
- Mechanical production on the basis of water and steam.
- Digital automation of production by means of electronics and information technology (IT) system.
- The introduction of conveyor belt and mass production.

✓ Check

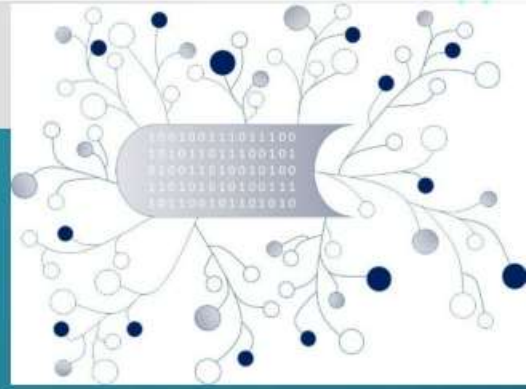
Reuse Embed



TASK

What's next?
You can use the following shortcode to insert this interactive content into posts, pages, widgets, templates etc.
[h5p id="1"]

2.3 Task



TASK

What are technologies in Industry 4.0?

- big data analysis
- the cloud
- simulation
- no horizontal system integration
- cybersecurity
- vertical system integration
- robots

Check

[Reuse](#) [Embed](#) H-P

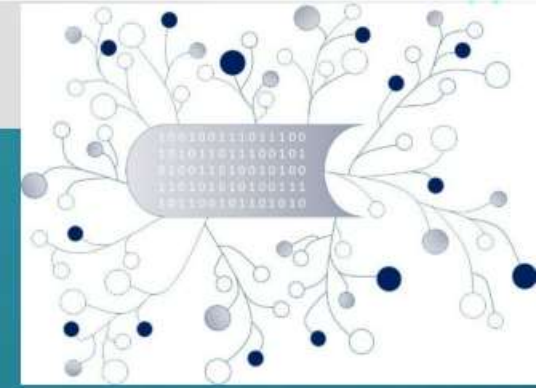
Shortcode

What's next?

You can use the following shortcode to insert this interactive content into posts, pages, widgets, templates etc.

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[h5p id="2"]
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Agenda of Module A: Digitisation Terms and history



- Bahrin, M. A. K.; Othman, M- F.; Azli, N. H. N.; Talib, M. F. (2016): INDUSTRY 4.0: A REVIEW ON INDUSTRIAL AUTOMATION AND ROBOTIC. Jurnal Teknologi , Centre for Artificial Intelligence and Robotic, Universiti Teknologi Malaysia, Kuala Lumpur, Malaysia. Link: https://www.researchgate.net/profile/Fauzi_Othman/publication/304614356_Industry_40_A_review_on_industrial_automation_and_robotic/links/57ac15aa08ae3765c3b7bab8.pdf
- Geisberger E, Broy M (2012) agendaCPS: Integrierte Forschungsagenda Cyber-Physical Systems. acatech, München
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- Lasi, H., Fettke, P., Kemper, H. *et al.* (2014): Industry 4.0. *Bus Inf Syst Eng* 6, 239–242. <https://doi.org/10.1007/s12599-014-0334-4>
- William M. D. (2014): Industrie 4.0 - Smart Manufacturing For The Future. Berlin: Germany Trade & Invest.

Online Source:

YouTube:

<https://www.youtube.com/watch?v=RPC7yo99Nxs>

Picture:

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Link: https://elektrohelden.rexel.de/cfs-file/_key/communityserver-wikis-components-files/00-00-00-00-

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<http://digivet.eduproject.eu/>

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