

Occupational safety and health & digitalisation. Evolution or revolution for human factors?

Human Factors NL Jaarcongres 2019
28.-29.11.2019, Soesterberg

OSH & Digitalisation / Human Factors

Agenda

- **About BAuA**
- Definition & challenge
- Evolution / Revolution ?

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About BAuA

- Federal Institute for Occupational Safety and Health (research institute)
- Subordinated to the Federal Ministry of Labour and Social Affairs (BMAS)

Research and policy advice for safety and health at work.

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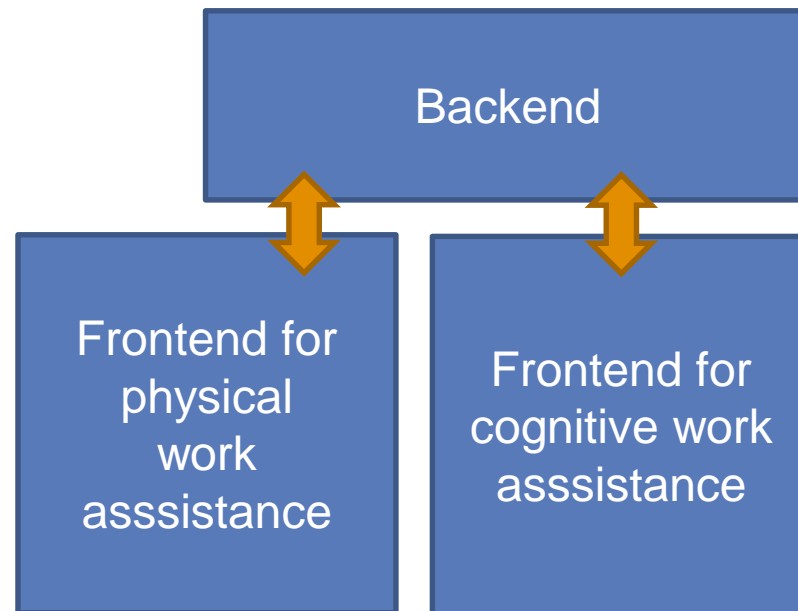
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Definition & challenge

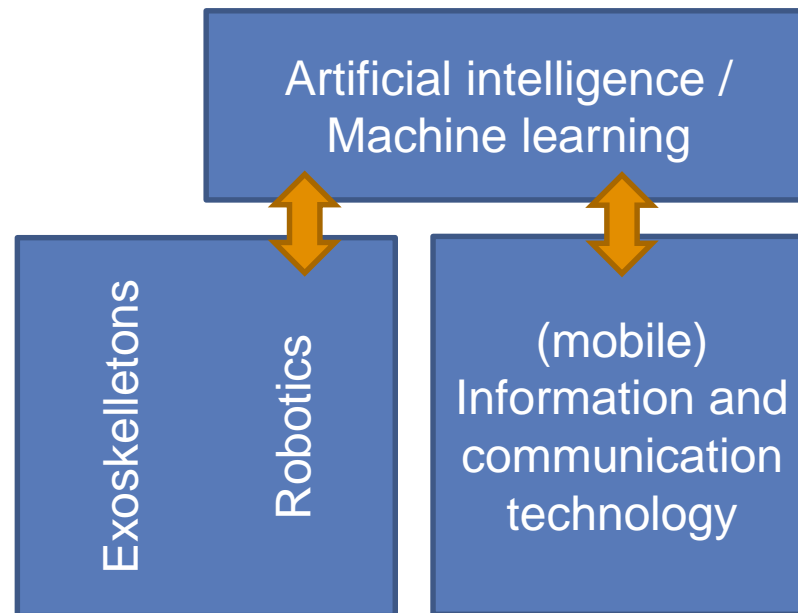
- Emerging technologies at work



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Definition & challenge

- Emerging technologies at work



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Definition & challenge

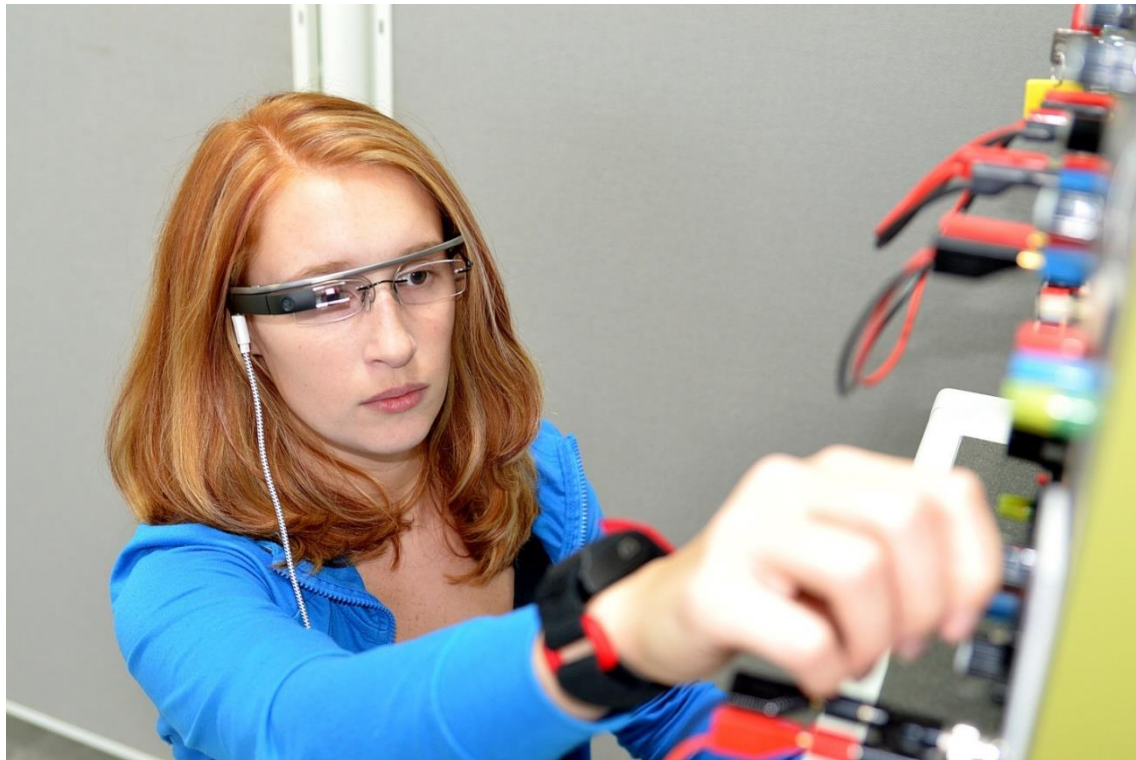
- „Keeping up“: Head-mounted device ~2010



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Definition & challenge

- „Keeping up“: Head-mounted device ~2014

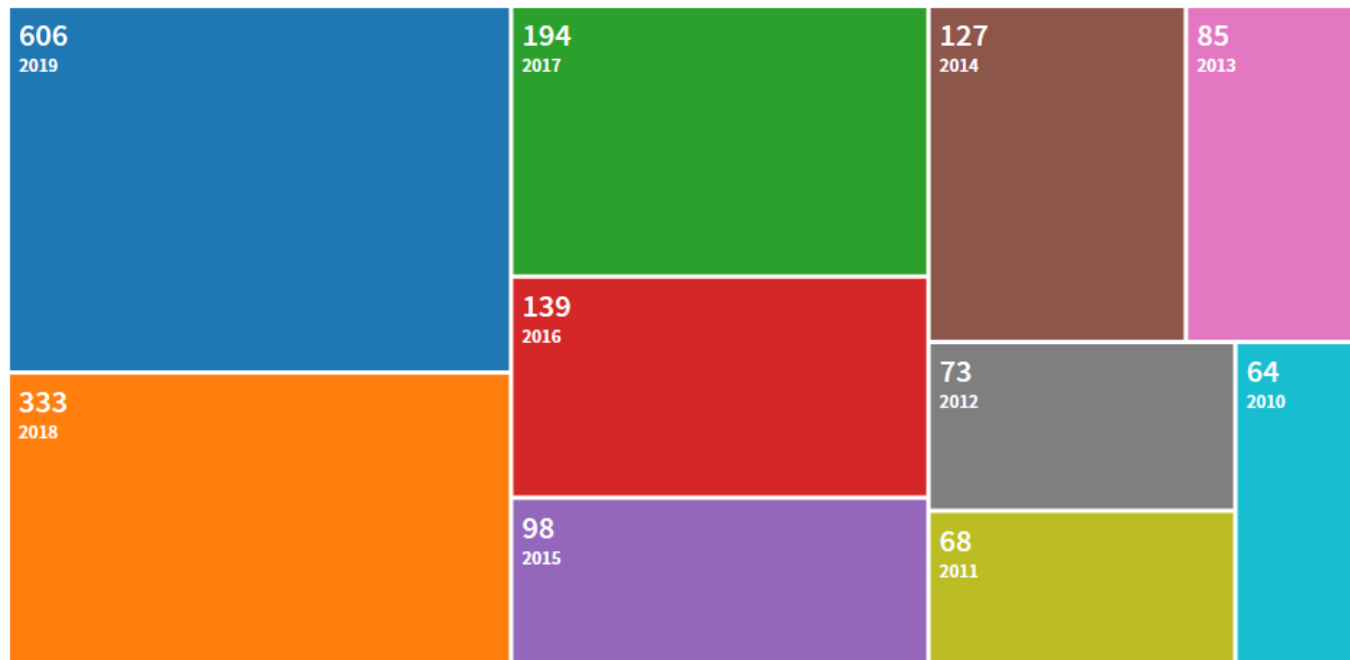


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Definition & challenge

- „Keeping up“:

Articles with AI in the title (web of knowledge, n=3.302 per 27.11.2019)



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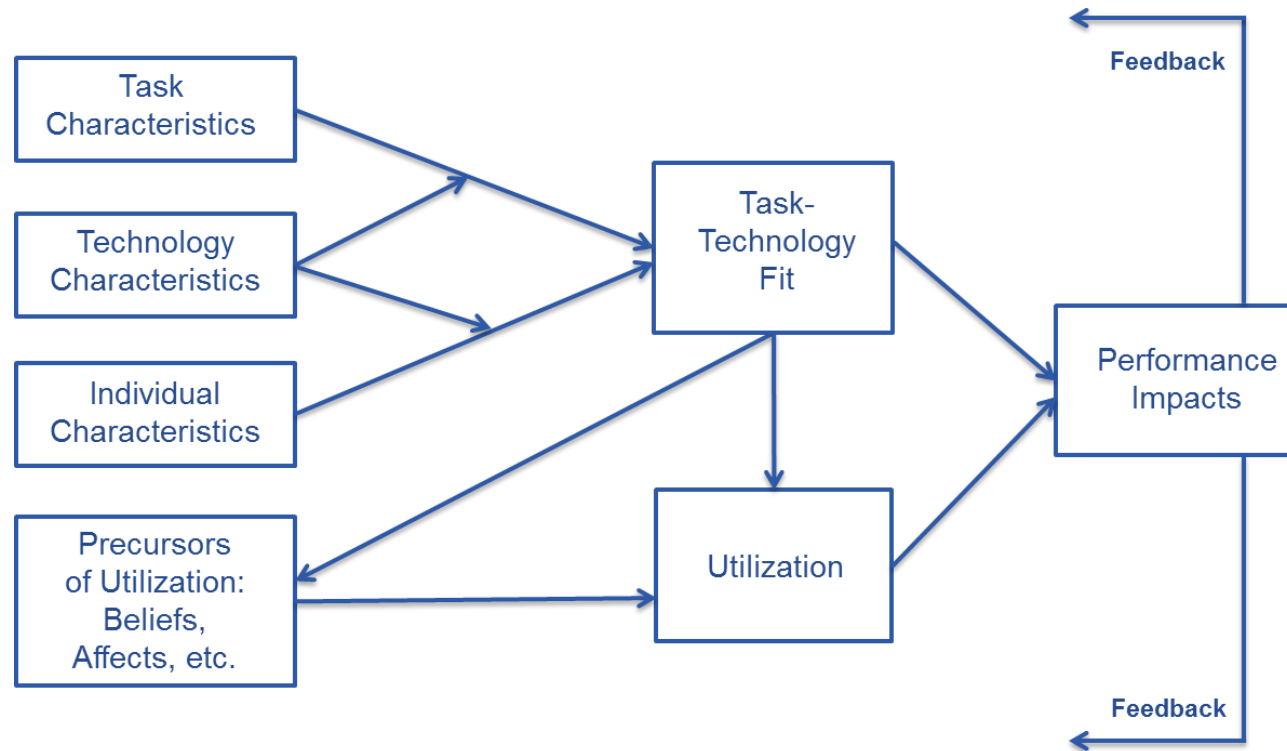
Revolution / Evolution ?

- Knowledge is out there / tools exist and are ready for use
 - Business as usual
- Knowledge is out there / tools exist but need to be adapted
 - Evolution
- No knowledge / no tools yet
 - Revolution?

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Revolution / Evolution ?

- Business as usual: Task-Technology-Fit



Source: Goodhue, D.L., Thompson, R.L. (1995), Task-Technology Fit and Individual Performance, MIS Quarterly 19.2, 213-236.

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Revolution / Evolution ?

- Business as usual: Ironies of automation
 - “One is that designer errors can be a major source of operating problems.”
 - “The second irony is that the designer who tries to eliminate the operator still leaves the operator to do the tasks which the designer cannot think how to automate.”

Source: Bainbridge, L. (1983) Ironies of Automation. Automatica, Vol. 19, No. 6. pp. 775-779.

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Revolution / Evolution ?

- Evolution: Dialogue Principles & ISOmetrics

- Suitability for the task,
- **self-descriptiveness,**
- **controllability,**
- **conformity with user expectations,**
- error tolerance,
- suitable for individualization,
- suitability for learning.

increasing importance
when looking at AI / ML

Source: ISO 9241 – Ergonomics of human-system interaction.

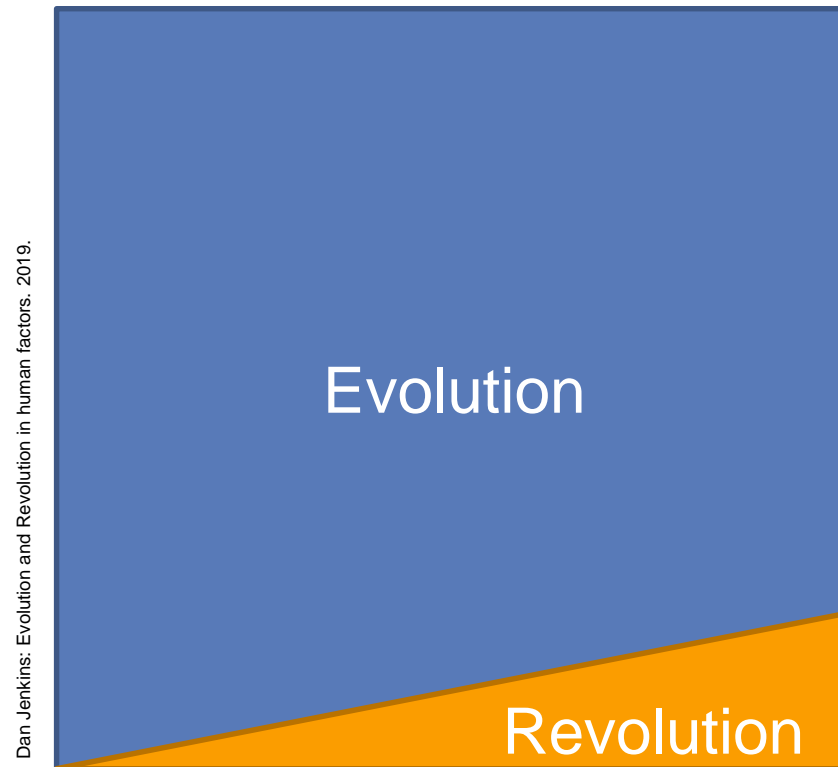
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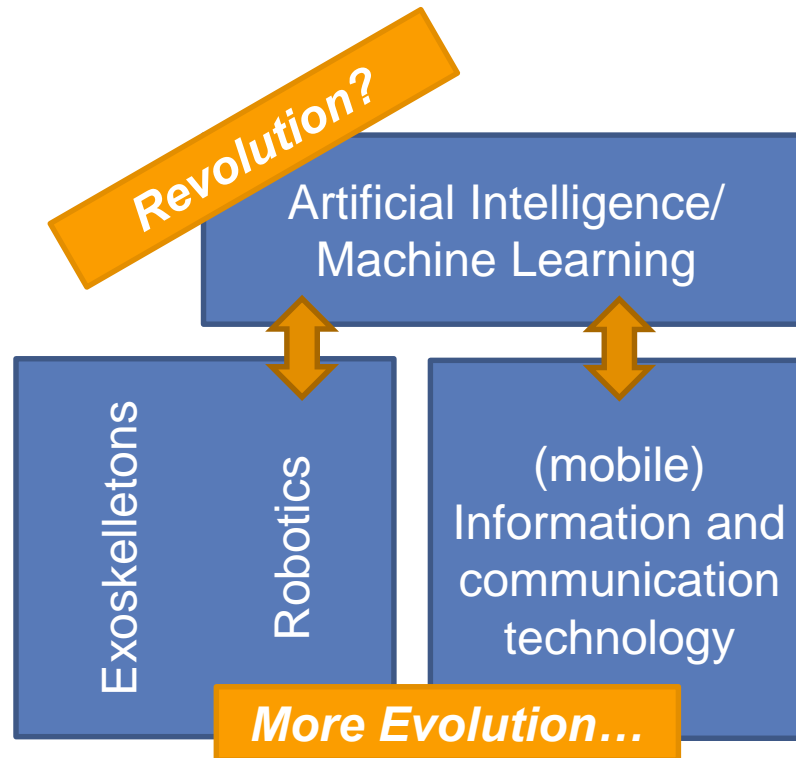
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Revolution / Evolution ?



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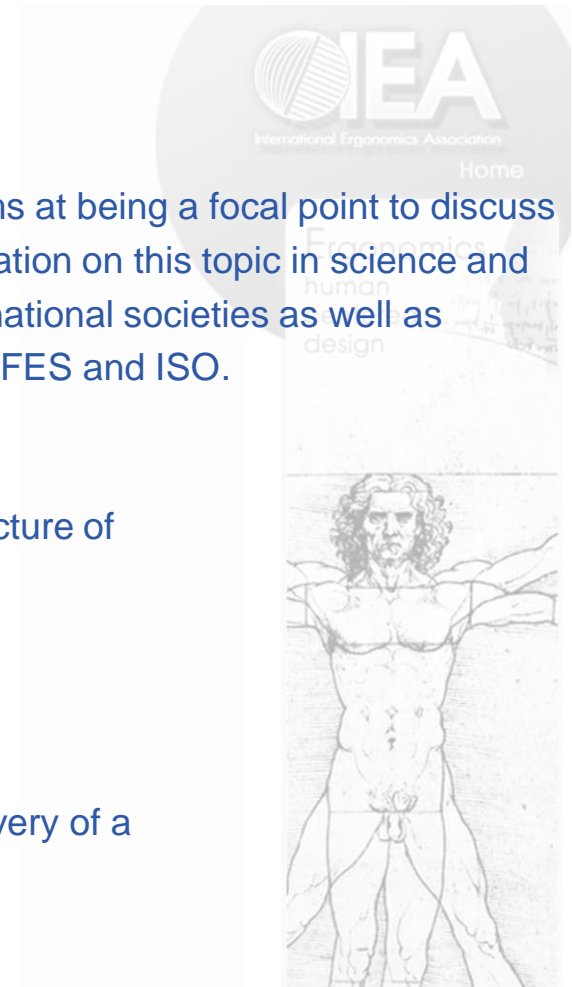
Emerging technologies at work



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Networking

- IEA TC Human Factors in Robotics (HFIR)
 - Objective: The TC Human Factors in Robotics (HFIR) aims at being a focal point to discuss and share the latest developments and up-to-date information on this topic in science and practice. The aims are linking activities of IEA federated national societies as well as fostering the exchange with other institutions like IEEE, HFES and ISO.
 - Next Steps:
 - Promote the new TC, recruit interested experts, structure of collaboration
 - Annual collaboration with IEEE Conference on Advanced Robotics and its Social Impact (ARSO) (2020, October 8th-10th in Nagoya, Japan)
 - Support the IEA Triennial Congress through the delivery of a “Human Factors in Robotics” track
 - [To join: https://www.linkedin.com/groups/8690241/](https://www.linkedin.com/groups/8690241/)



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