Tomorrow@Work: The Great Work Shift and What it Means for Our Lives

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Artificial intelligence and the next generation of competences :
How Digital – and Artificial Intelligence will impact jobs and competences profiles?

The World Conference on Intellectual Capital for Communities

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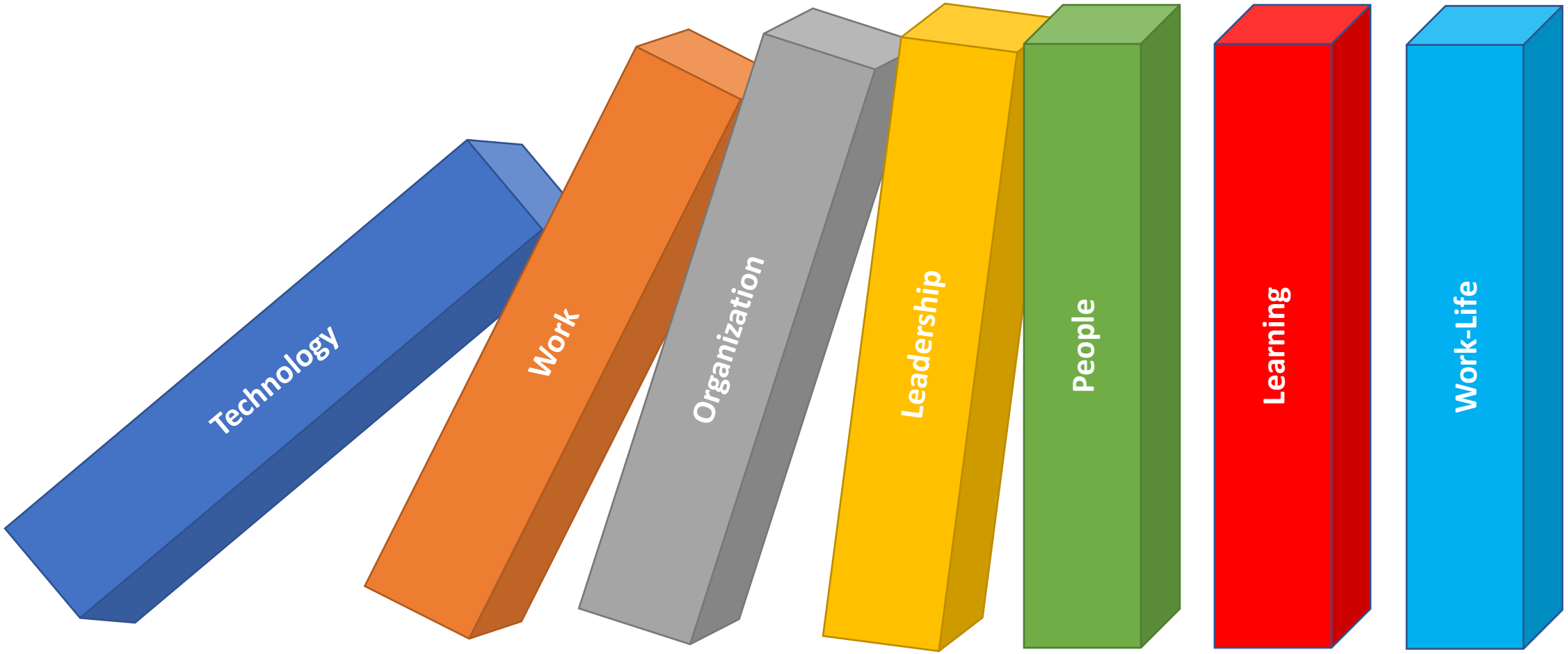
The Great Work Shift Dynamics Starts Today



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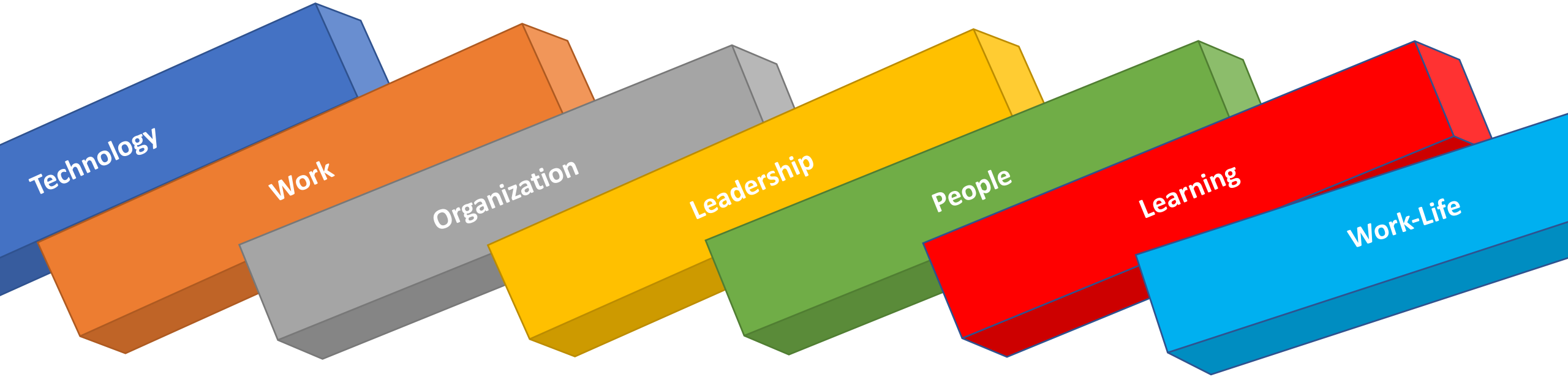
The Great Work Shift Dynamics 2030



From Work 1.0 towards Work 4.0: Technology Shifts Work

	Characteristic	Benefits	Challenges
Work 1.0	Introduction of machines in production	Machines replace hard manual work	Exploitation of humans
Work 2.0	Division of work and mass production	Machines replace dangerous and dirty manual work	Alienation and functional stupidity
Work 3.0	Robots replace humans in production	Machines replace boring manual work	Work safety: Interface humans and machines
Work 4.0	Digitalization of processes, increased interconnectedness between machines	Machines replace boring cognitive work Algorithms replace flawed human decisions	Self-exploitation Losing control Jobs???

Work 4.0 – What do You think?

- How and to what extent will you interact with machines?
- How do you envisage your work and your workplace in 2030?
- Will you work more or less?
- Will digitization increase or decrease your own work productivity?
- What, when and where will you work? Meaningful or stressful? Motivated or frustrated?
- What will happen when emerging technologies outperform you?
- What kind of further education and learning will you require?

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Learning in the year 2030……..

1. Learn –work –live: lifelong learning has become a reality
2. People take responsibility for self-organized learning & their competence portfolio
3. On-demand and informal micro learning combined with action has become the main learning approach, and is more important than formal learning programs
4. Learning is social
5. Human and machine learning are increasingly integrated
6. The education industry has profoundly changed: from educational institutions to multiple organizers of learning flows

1 The End of the Traditional Work-Life Model

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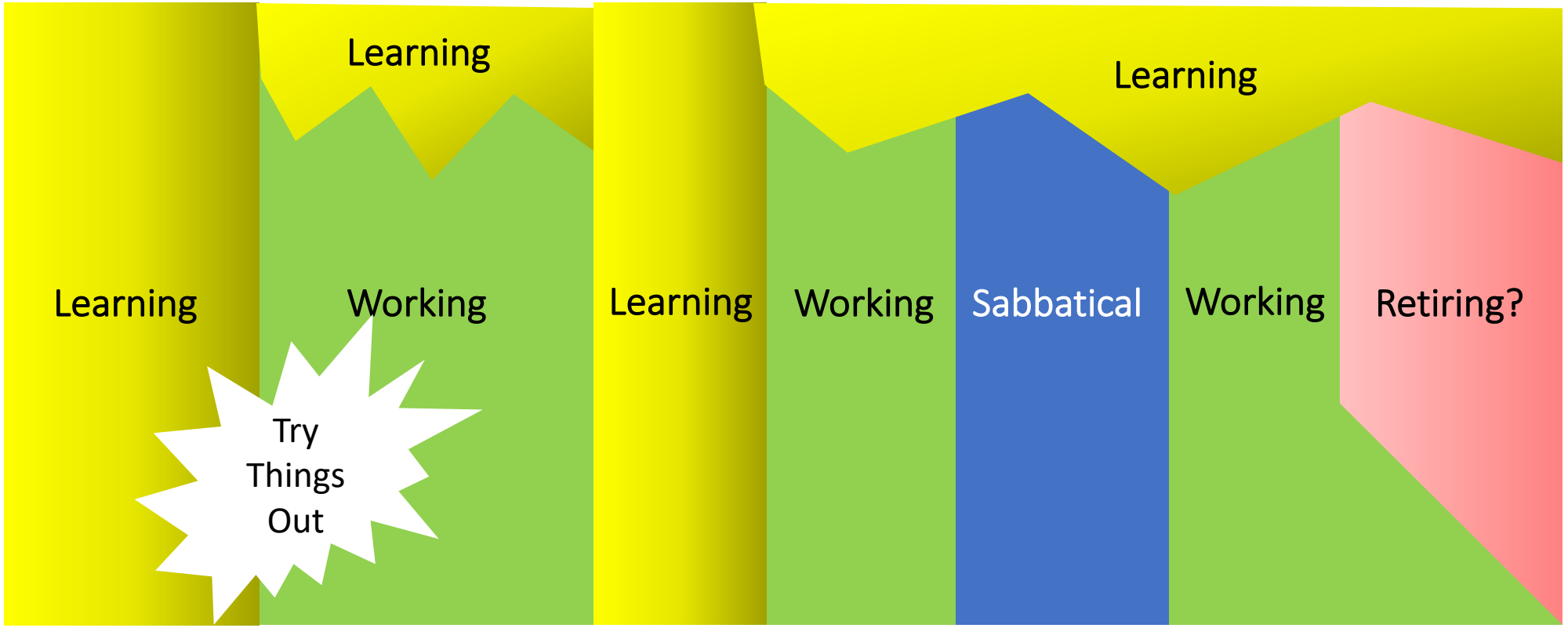
…..and this is how your Work-Life Model will shift



2 People take responsibility for self-organized learning & manage their competence portfolio

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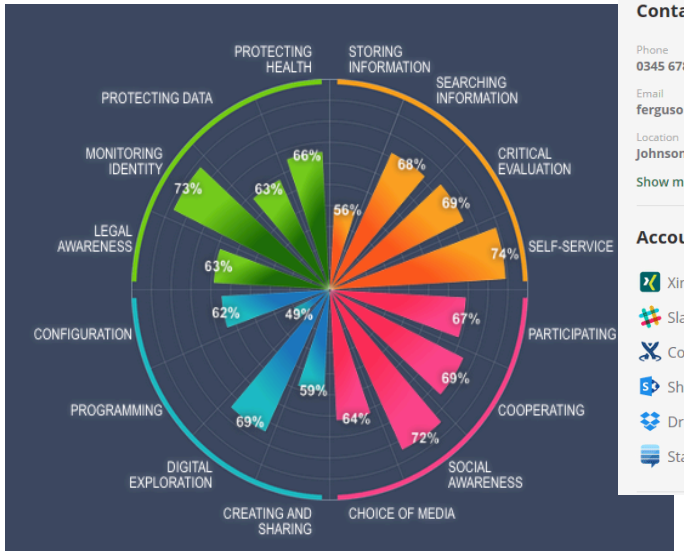
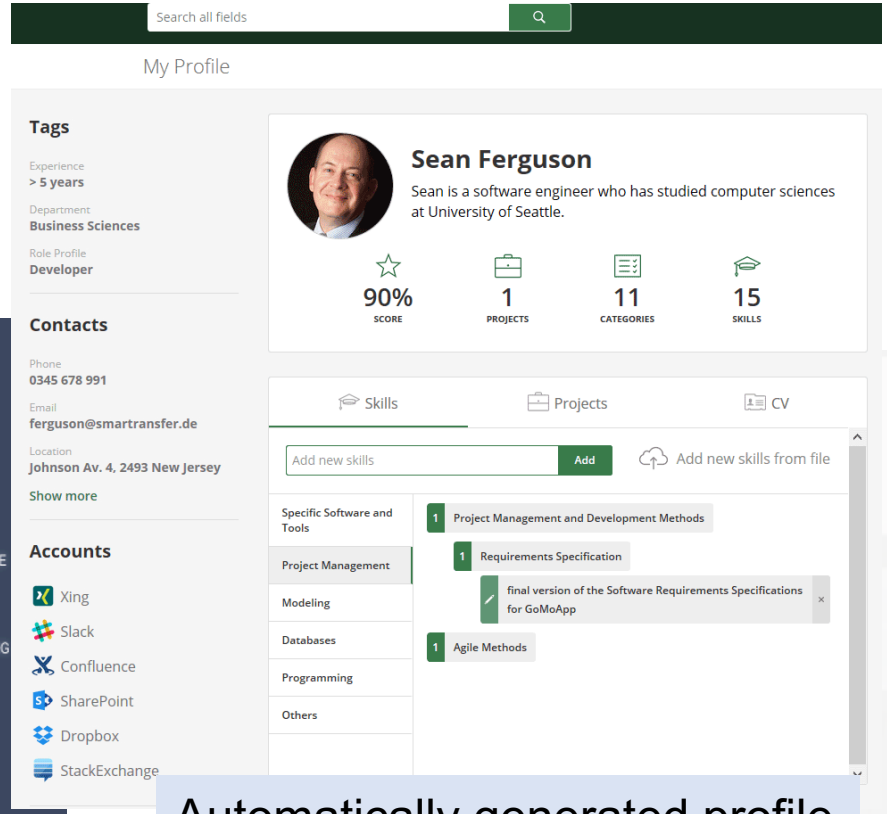
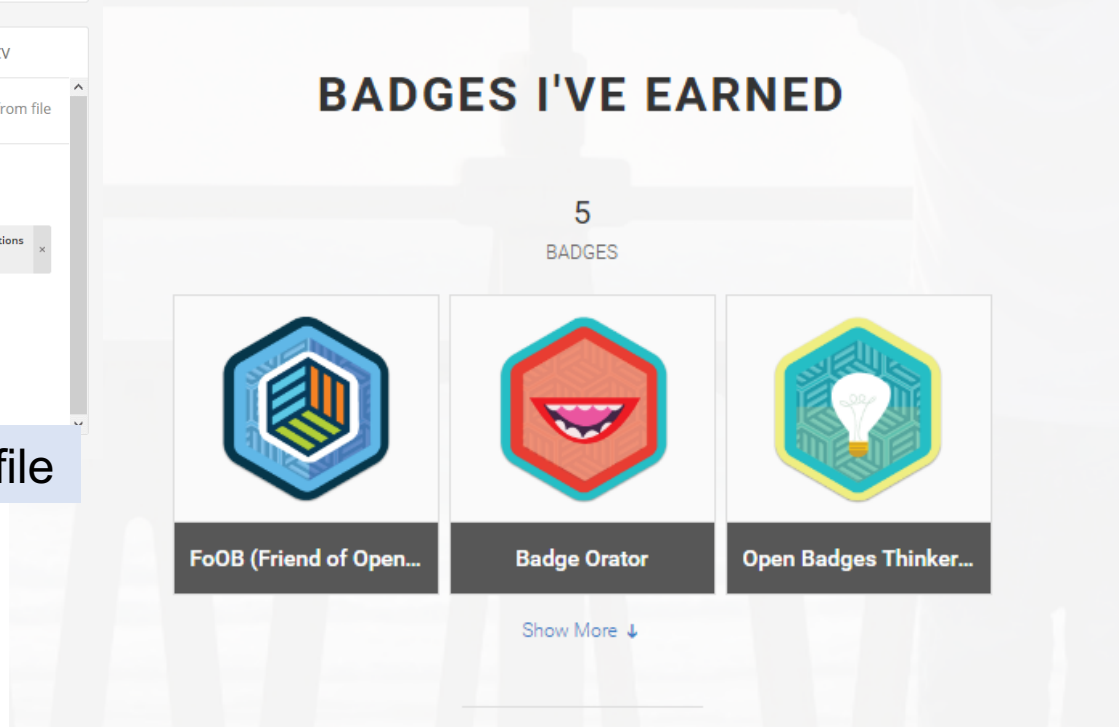
Manage your own competence portfolio





Automatically generated profile

(open) badges to certify informal training



skillhub.ch
know & share your competencies

AI Meta-Tutors assist in scaffolding for self-regulated learning

- '*Gavin the Guide'* supports students' navigation in the learning environment and provides questionnaires for self-assessment.
- *'Pam the Planner'* monitors the *planning* process during self-regulated learning and helps users to set sub-goals or to activate their pre-knowledge.
- *'Mary the Monitor'* presents the *meta-cognitive* monitoring of self-regulation during learning by stimulating self-assessments on text comprehension or estimated sub-goal achievement and so forth.
- *'Sam the Strategizer'* encourages *cognitive learning strategies*

Source: Azevedo, R., Martin, S. A., Taub, M., Mudrick, N. V., Millar, G. C., & Grafsgaard, J. F. (2016): Are pedagogical agents' external regulation effective in fostering learning with intelligent tutoring systems? in International Conference on Intelligent Tutoring Systems. Springer, p. 197-207.

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3 On-demand and informal micro learning combined with action has become the main learning approach

Instant advice and **microlearning** in maintenance

HoloLens wearers see a representation of a **human body in 3D**, and can navigate through the layers of the body

surgical skills training in “realistic simulated” environments with the use of VR, AR and holographic technologies.

12 Principles of Modern Learning

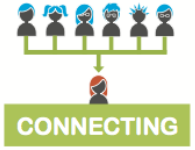
Modern Inquiry Learning

Principle	Reality	Opportunity
 COMPILE	The ability to save and retrieve information in a variety of formats…	gives modern learners virtually unlimited capacity to store and retrieve information.
 CONTRIBUTE	The ability to participate in more complex projects…	enables modern learners to participate in more complex projects.
 COMBINE	The ability to reuse and build upon the work of others…	enables modern learners to move beyond individual and isolated projects.
 CHANGE	The abilty to quickly obtain feedback from multiple sources…	enables modern learners to continuously improve current work.

Modern Self Directed Learning

Principle	Reality	Opportunity
 CORRELATE	The ability to generate large amounts of data about our technology-based activities…	enables modern learners to use self generated data to assess and make decisions on future actions.
 COMPARE	The ability to view the learning artifacts of others…	enables modern learners to learn from what other learners are doing or have done.
 CATCH	The ability to participate in virally amplified online activities and events…	enables modern learners to easily identify new and important ideas and content.
 COOPERATE	The ability to learn in the same communities as experts and professionals…	enables modern learners to make better decisions about their own learning.

Modern Social Learning

Principle	Reality	Opportunity
 CONNECTING	The ability to access high quality content whenever and in whatever format needed…	enables modern learners to draw upon a diverse range of external resources.
 COMMUNICATING	The ability to publish using a variety of media for low or no cost…	enables modern learners to share their ideas and get feedback from others.
 COLLABORATING	The ability to form learning networks…	enables modern learners to contrast ideas and experiences with other learners.
 LEARNING COLLECTIVELY	The ability to form higly interconnected groups around an object of interest…	enables modern learners to engage in shared meaning making.

4 Learning is social

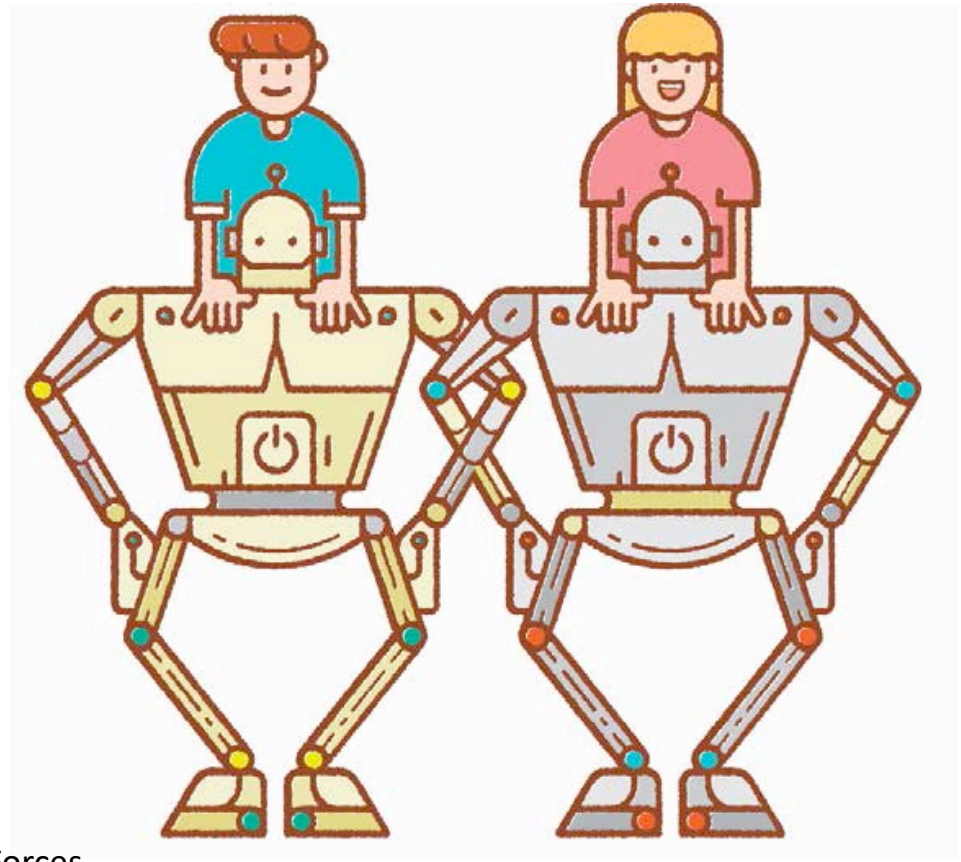
5 Human and machine learning are increasingly integrated

People are needed to:

- train machines,
- explain their outputs,
- and ensure their responsible use.

AI, in turn, can

- Enhance humans' cognitive skills,
- Provide decision support ,
- Detect learning needs and offer training



See: Wilson/Daugherty (2018): Collaborative Intelligence: Humans and AI Are Joining Forces Harvard Business Review, July- August

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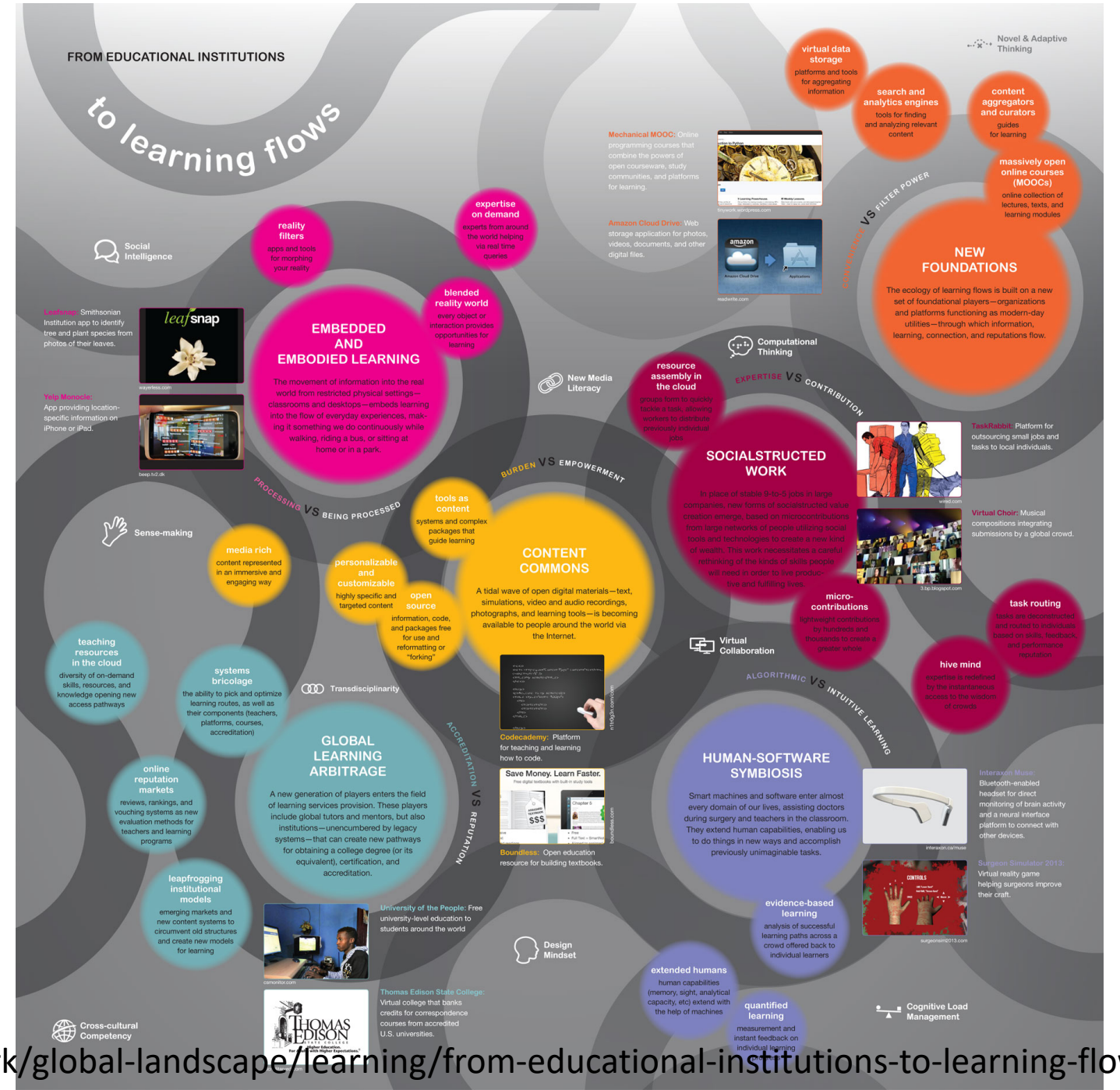
6 From educational Institutions towards learning flows



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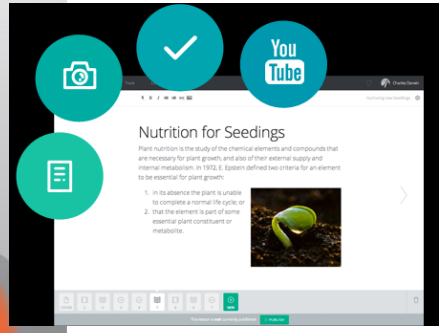
http://www.iftf.org/our-work/global-landscape/learning/from-educational-institutions-to-learning-flows-map/



Who will guide you through the jungle of learning?
Your AI powered personal trainer, coach and tutor

Communities

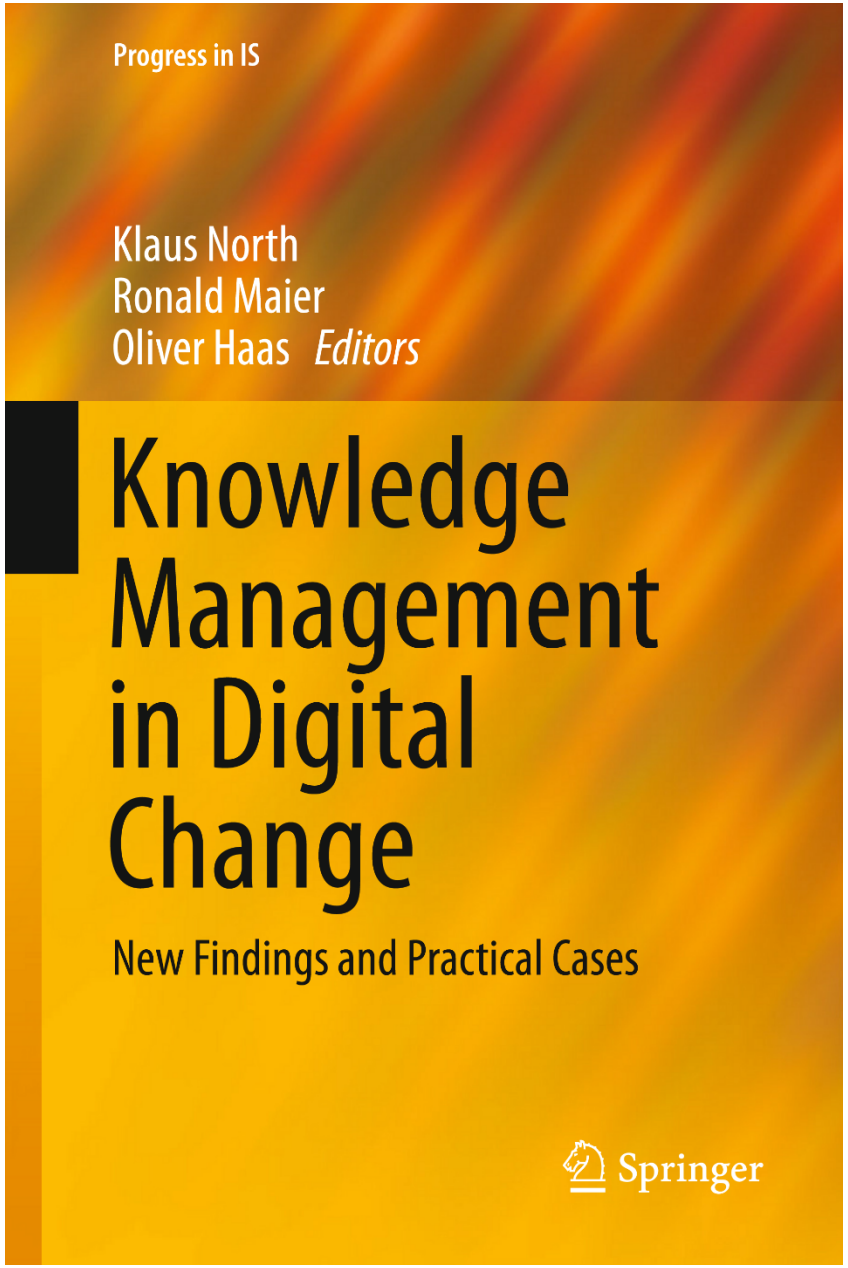
http://www.iftf.org/our-work/global-landscape/learning/from-educational-institutions-to-learning-flows-map/

The future of learning: …….upload knowledge to your brain

Researchers from the California-based HRL Laboratories working on Neurostimulation technology said they have found a way to amplify learning by feeding electric signals from the brain of an experienced airplane pilot into the brains of trainees.

The trainees receiving the electric signal were able to learn piloting airplanes in a flight simulator 33 per cent better than a placebo group.

https://scientifist.com/scientists-upload-knowledge-into-brain-matrix-style/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