LIFELONG LEARNING IN AND FOR A DIGITIZED ECONOMY – A CONNECTIVITY PERSPECTIVE

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Three streams of discussion on digitization …

1. Media Competencies needed for living in a digitized world

2. Future of vocations/professionalization and working tasks

3. Dispositions regarding changes and disruptions in professional life

my focus today

Future of vocations/professionalization and working tasks

- Industry 4.0 discussion: The journey of the label ‚industry 4.0‘ started in 2011 at the Hannover industry fair in Germany.

- Behind this label vividly discussed in the German speaking countries stands the international (particularly US-driven) academic and non-academic discussion on the influence of digitization on industrial production procedures, workplaces in general, vocational education and training.

BMW Werk Leipzig, Germany
- bodywork

Source: http://bmw-werk-leipzig.de/

Where are the workers?

BMW Plant Leipzig, Germany, paint shop
Source: http://bmw-werk-leipzig.de/

...outside the production line, controlling the technical processes and the robots, making quality tests, solving problems.

The Study of Frey & Osborne (2013):

Estimation of probability of computerisation for 702 detailed occupations (US labor market).

Problems of the study:
US context -> has to be interpreted against the background of the different countries (f.e. done for Germany by Bonin, Gregory & Zierahn 2015).
Overestimation of technical potentials, underestimation of cultural hurdles.
Technological potential ≠ automatically an economic potential

BUT: if only something of their prediction will be realized, we'll see a enormous change in working conditions and employment, also in fields with a high rate of non-routine tasks.

Two waves Frey & Osborne (2013) predict for the next decades ....

Wave I: „In the first wave, we find that most workers in transportation and logistics occupations, together with the bulk of office and administrative support workers, and labour in production occupations, are likely to be substituted by computer capital.“ (p. 38)

Wave II: „Our model predicts that the second wave of computerisation will mainly depend on overcoming the engineering blottlenecks related to creative and social intelligence.“ (p. 40)

Educational attainment has a strong negative relationship with the probability of computerisation.

(Management, Education, Healthcare, Engineering, Science)

“According to our estimates, about 47 percent of total US employment is at risk.” (Fey/Osborne)
Time horizon: 10-20 years

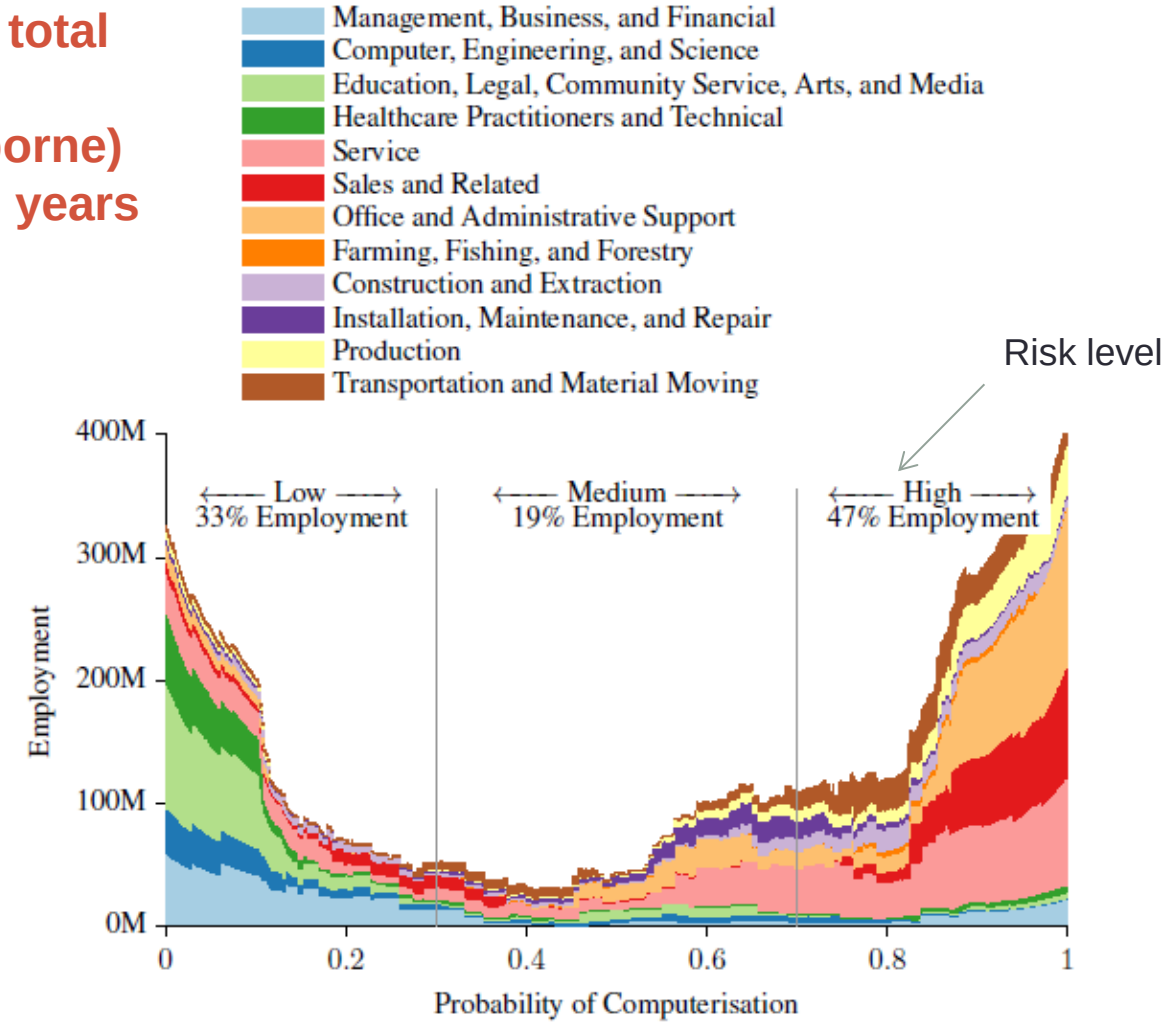
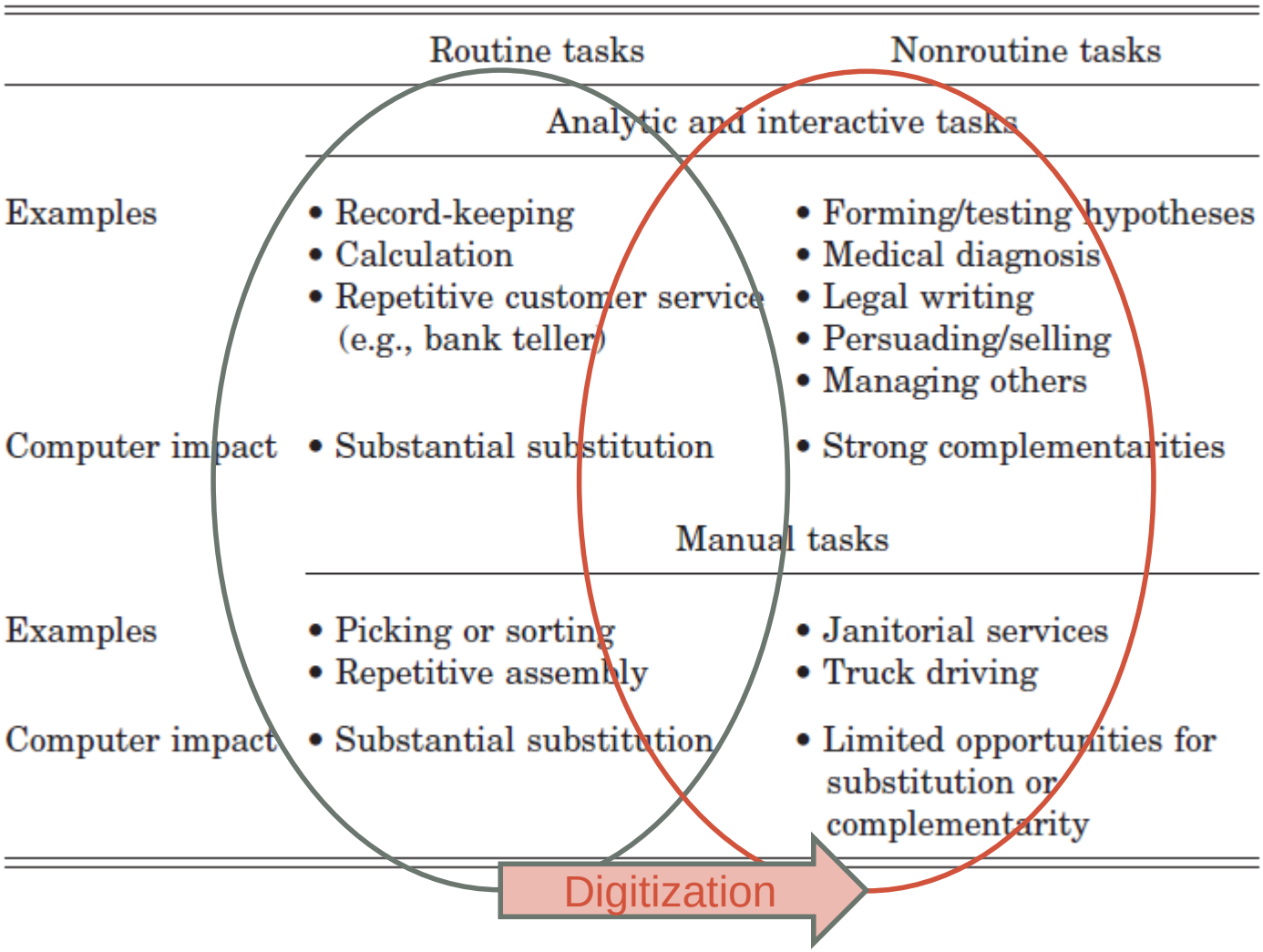


FIGURE III. The distribution of BLS 2010 occupational employment over the probability of computerisation, along with the share in low, medium and high probability categories. Note that the total area under all curves is equal to total US employment.

Frey, C. B. & Osborne, M. A. (2013): The Future of Employment: How susceptible are jobs to computerisation?, p. 37, Oxford University. http://www.oxfordmartin.ox.ac.uk/publications/view/1314

The Frey/Osborne-Study is based on this matrix of four categories of workplace tasks, developed by Autor et al. (2003:1286).

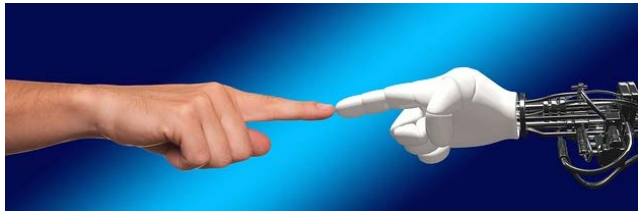


Brynjolfsson, E. & McAfee, A. (2016):
The Second Machine Age.
Work, Progress, and Prosperity
in a Time of Brilliant Technologies,
New York: Norton

The race with the machine and not against the machine

Combinating human skills with robots routines/algorithms makes the best results.

Interacting with machines will be increased, not only with electronic devices but also with robots. They get trained to be a collegue -> new workplace conditions in industry.



Pessimistic or optimistic view ?

The history of technological innovation shows that (with a time lag) fundamental new technology often lead to new jobs and increasing employment.

New developed occupations often have higher cognitive challenges.

New vocations are developed: Here: Example BMW

Vehicle mechatronics expert. System and high-voltage technology (needed for electronic cars).

The question is…for how many people can a new perspective be realised? ...how flexible have employees to be?

Photo: BMWemotion 2016: p.5

Dispositions regarding changes and disruptions in professional life

It is expected that people have to change more often the field of occupation, that they have to adjust their skill profiles more often and deeper, they have to be flexibel in thinking and learning.

- → Lifelong Learning gets more and more important.
- → LLL guidance and counselling is challenged
- → Transparency and documentation of Lifelong Learning is needed.
  Biographical approaches (portfolios....), digitized approaches

„LLL portfolio clouds“

A connective view on LLL

A connective view is focused on two core concepts:

"*connectivity*, which refers to bringing together things that have earlier been separated, and *transformation*, which refers to the changes that take place through connective activities." (Tynjälä 2010: 12)

It should be transferred also to Lifelong Learning issues,

looking on phenomenon of transition/bridging/tranfer.

f.e. discussion of connectivity between different areas of further education (in-company further education, general further education → opening/cooperation?)

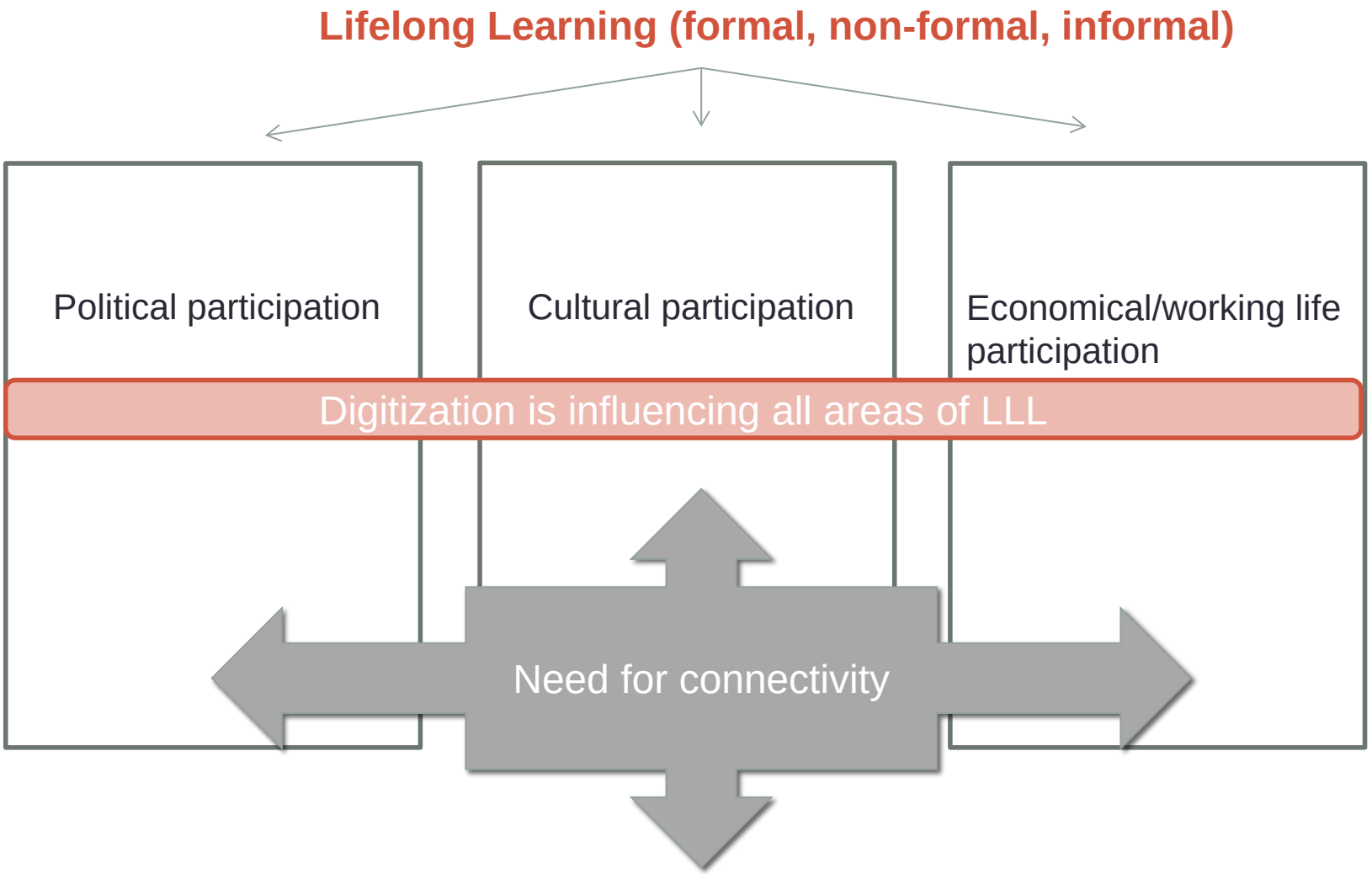
A connective view for researchers...

As researchers we should not only follow educational research work.

Also relevant is the work of labour economics, business sciences and information technology/systems.

So we need a transdisciplinary theoretical perspective on LLL.

Lifelong Learning: some considerations on consequencies of digitization – the three pillar model



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