



AI and the Human Brain: Friends or Foes in Higher Education?

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AI & Big Data Analytics

AI: Technologies to systematically "use" also **unstructured data**

based on
algorithms and big data

machines 'can'

- understand
- interpret
- learn
- interact

Touring Test
(Alan Touring 1950)

IBM's Watson

Daily produced new data

250.000 Libraries of Congress
90 years of HD Video

Mostly
(employees/cu

- Clickstr
- Facebo
- Cell pho
- RFID, b
- Real-tin
- Wearable

- Cars etc.
- Nature (winds, clouds, animals, plants)

AI
something with
machines
&
"cognitive"

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AI and Big Data Analytics

Not all 'Digital', IT, Robots, or Big Data Analytics is **AI**

but all AI needs Big Data Analytics

Big Data Analytics may be less sexy,
but it is easier to grasp

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Leading to a Management *Revolution*

... overturning existing power structure



HiPPO
Highest Paid
Person's Opinion*

(today ...: group talk
& HiPPO decision)

AI / Big Data
M2M, Apps,
recommending systems

(≠ people taking long
time to rate / analyze)

⇒ **Changing Decision Making**

"Data-driven decision making"

⇒ **Changing value of domain knowledge**

* McAfee, A., Brynjolfsson, E. (2012) Big Data: The management revolution, Harvard Business Review, 90 60-68.

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Big Data Analytics Changing Decision Making

added
after presentation

- On average better decision making
(Big Data Value = 0, if no better decisions / actionable results)
- Another revolution based on better "measurement" / data
 - ➔ Experiments with real time data
(challenge to filter 'noise' versus 'signal' - Hawthorne Effect*)
- Changing value of domain knowledge
 - ➔ Focus on asking right question & deciding on 'technique'

* Changing behavior due to observation

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Innovating Business & Changing Society

... almost analog to the 'not so new' IS/IT debates

Vehicles with
built-in sensors

Wine chemistry
predictions ++

Sports of all sorts
and kinds

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Innovating Business & Changing Society

- Empowering individuals & organizations, offering *competitive advantage* ✓
- Efficiency ✓ & Destroying economic rent ⚡
- Transparency ⇔ Privacy ⇔ Security ?
- Job Loss ⇔ Job Creation ?

... in HE

- MOOCs
- admin. processes
- cross-institutional research excellence

... we see it everywhere *but* in our own profession

"It is easier to understand that you face competition than obsolescence."

Shirky '08, p. 58



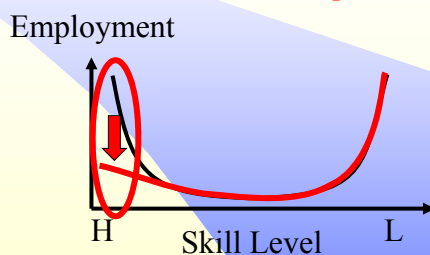
Challenging Employment

Role of technology
(in the era of Big Data Analytics)

Task	(ex)	
	routine	non-routine
manual		truck driving household
cognitive		medical diagnosis legal writing managing others

Boundaries not always obvious!
(e.g., chess, jeopardy, driving, ...)

Machines increasingly completing cognitive tasks / decision making:



Push HE - really ?



Education Challenges

Who to educate
whom?

To master what?

Who decides?

We know more than we can say !

Polanyi '74
Personal Knowledge, University of Chicago Press

RA to Einstein !

No way to measure knowledge !

Davenport & Prusak '03
What's the Big Idea, HBS Press

Acquiring knowledge takes **time** (and space)
regardless of technologies

(Prusak, Presentation, Harvard University Presentation '03)

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Discussion and Takeaways

- AI and "Big" data are here to stay - also in HE
- Substituting (not only supporting) highly skilled, cognitive jobs
- Revamping the concept of education
... and the function of educators and administrators

⇒ No sector should underestimate the momentum !

BUT

No AI without human brains!

So, let's be aware, let's be realistic, and then ...

let's **lead from a position of strength** !

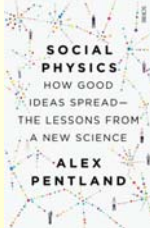
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References and Food for Thought

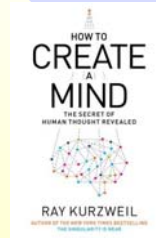
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Thanks for your attention !

.... Questions, Comments, Complaints ?

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