LLLight´in´Europe

LifeLong | Learning | Innovation | Growth & Human Capital | Tracks in Europe
Complexity Problem Solving Skills and Economic Growth

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Why are there wealth differences among European regions?
Income gaps of top-earners to bottom-owners grow with time
What is complex?

Complex tasks

• Optimization of production
• Making predictions
• Making decisions with significant financial consequences
• Teaching
• Planning and organizing work of large teams

Simple tasks

• Following clear and simple instructions
• Cleaning or polishing surfaces
• Serving food
• Organizing limited amount of information
• Filling out forms with known information
• Copy-pasting
Complex job holders experience a sustained growth of income
Non-complex job holders experience no income growth
The more complex the job, the faster, longer and higher the income
The same patterns are also true for USA
With our economic model based on complexity we predict GDP per capita per region very well.
Complexity-based model explains 89% of all regional wealth differences in Europe

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
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<td>Complexity</td>
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<td>Youth Unemployment</td>
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<td><strong>0.89</strong></td>
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**p < 0.001, *p < 0.01, *p < 0.05**
Social trust is critical for complexity to function well
We can also explain refine the understanding of regional economic growth.
Diversity of complexity per industry is also important
Complex Problem Solving skills by company
Complex Problem Solving skills by industry
Complex Problem Solving skills by occupations
Moore: Double IT Capacity in Two Years

Microprocessor Transistor Counts 1971-2011 & Moore's Law
Cost of Human Genome Sequencing

Human Genome Project
USD 3 billion

Craig Venter
USD 300 million

Breakthrough!
USD 10 million

Experts: Moore’s Law
Artificial Intelligence in 2016

2016:
- Giraffe learns Chess in 76 hours
- Alpha Go beats 9th Dan Go master
- Arago beats 80% of Free Civ players
AI Surpassed One Human Intelligence: CPS

THE TYPES OF INTELLIGENCE
by Mark Vital

- spatial: visualizing the world in 3D
- naturalist: understanding living things and reading nature
- musical: discerning sounds, their pitch, tone, rhythm, and timbre
- quantifying things, making hypotheses and proving them
- logical-mathematical
- interpersonal: coordinating your mind with your body
- bodily-kinesthetic: sensing people's feelings and motives
- existential: tackling the questions of why we live, and why we die
- linguistic: finding the right words to express what you mean
- intrapersonal: understanding yourself, what you feel, and what you want

Frames of Mind: The Theory of Multiple Intelligences by Howard Gardner

Funders and Founders
Jobs Which Were Replaced by AI in 2016

In 2016, AI-driven computers showed that they were more cost-efficient and more product-effective in these jobs:

- Insurance claim assessment
- Legal text research
- MRI picture analysis
- Cancer diagnosis
- Pharmaceutical compound research
- Advertising campaign design
- IT maintenance
- Music composition
- Movie trailer composition
- Cooking
- Prostitution

Is the Era of Complex Problem Solving Already Over?
Participating Universities

- Zeppelin University, Germany
  - Peer Ederer

- University of Nottingham, United Kingdom
  - John Holford

- Danish School of Education, Denmark
  - Ulrik Brandi

- Ifo Institute, Germany
  - Ludger Woessmann

- Wageningen University, Netherlands
  - Thomas Lans

- University of Luxembourg, Luxembourg
  - Samuel Greiff

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  - Martina Lubyova

- China Center for Human Capital, China
  - Haizheng Li

- Innovation & Growth Academy, Netherlands
  - Silvia Castellazzi
Thank you for your attention

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