LLLight´in´Europe

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Human Capital | Tracks in Europe

Complexity Problem Solving Skills and Economic Growth

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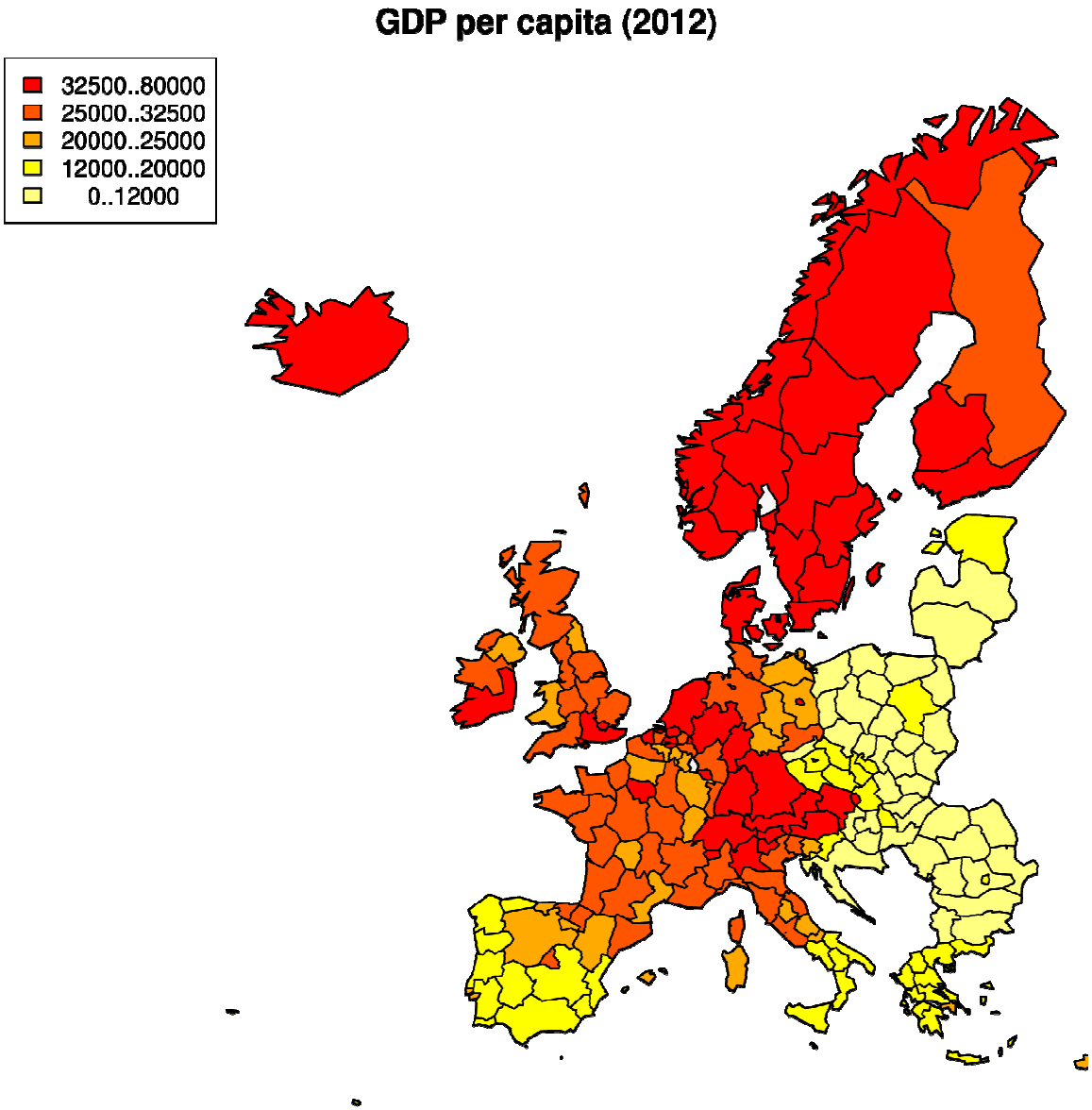
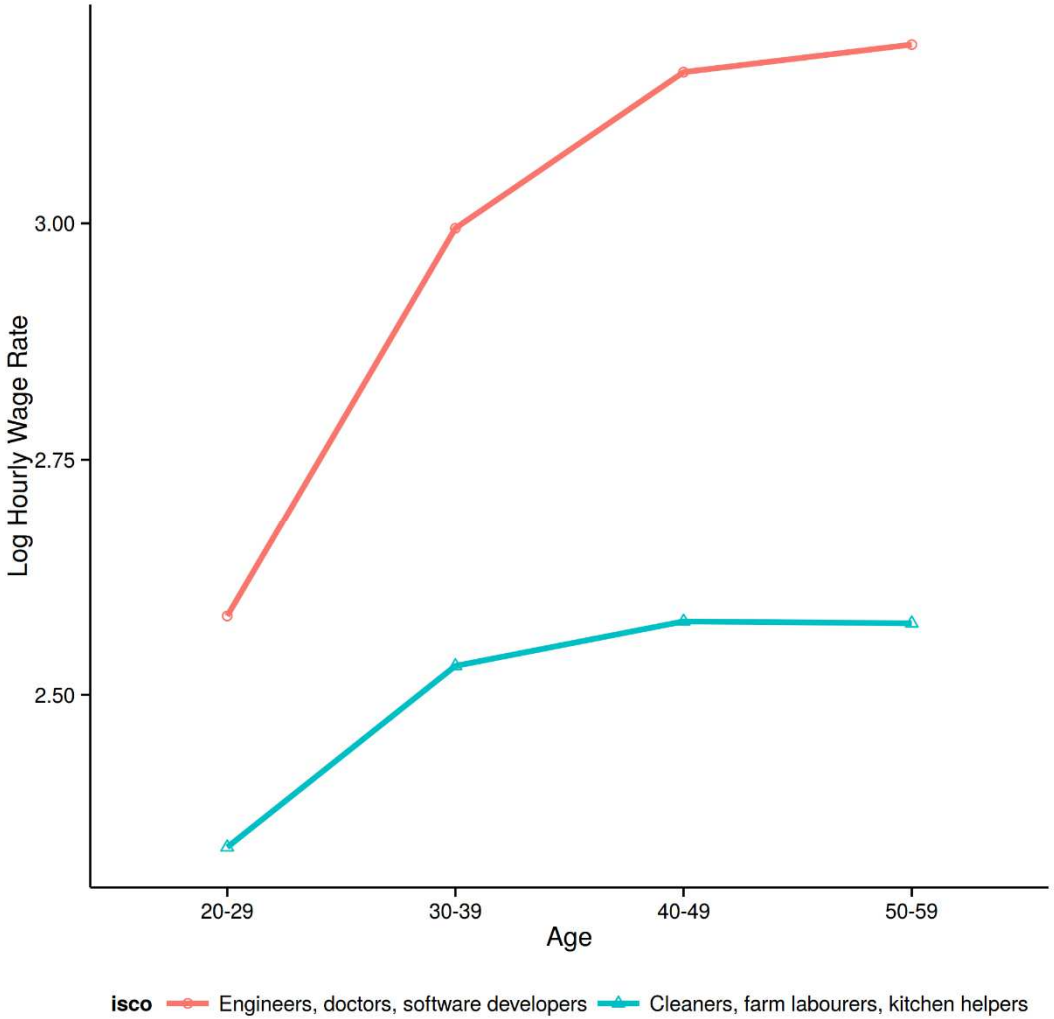
Why are there wealth differences among European regions?



Income gaps of top-earners to bottom-owners grow with time



What is complex ?

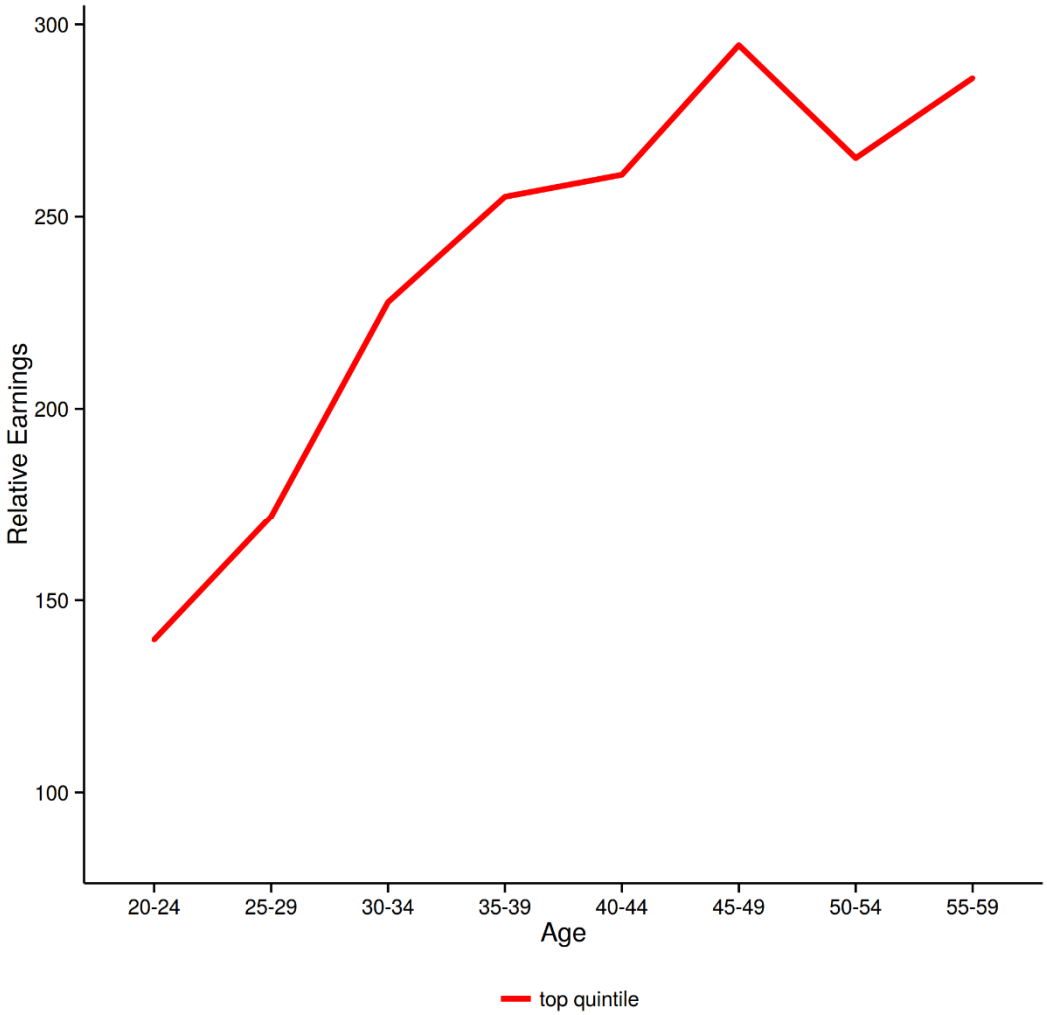
Complex tasks

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

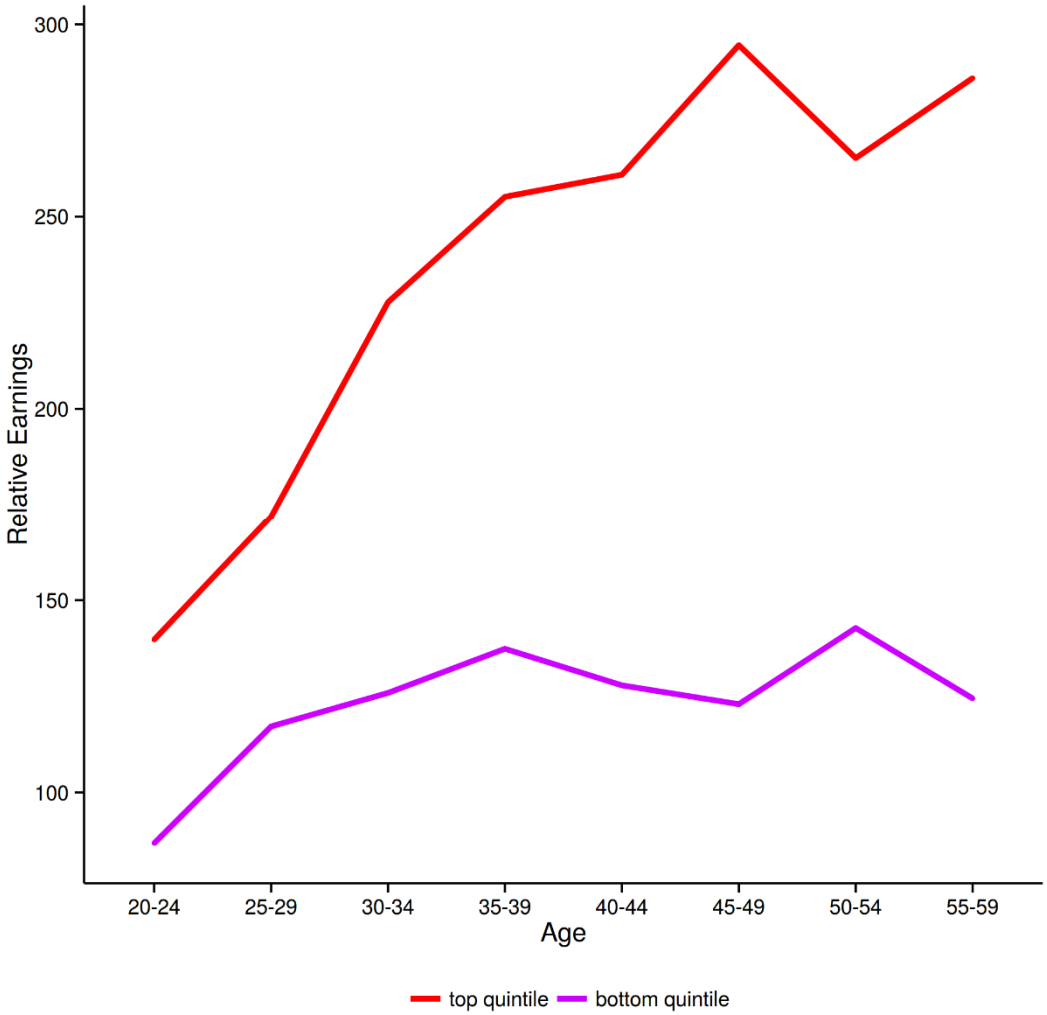
Simple tasks

- Following clear and simple instructions
- Cleaning or polishing surfaces
- Serving food
- Organizing limited amount of information
- Filling out forms with known information
- Copy-pasting

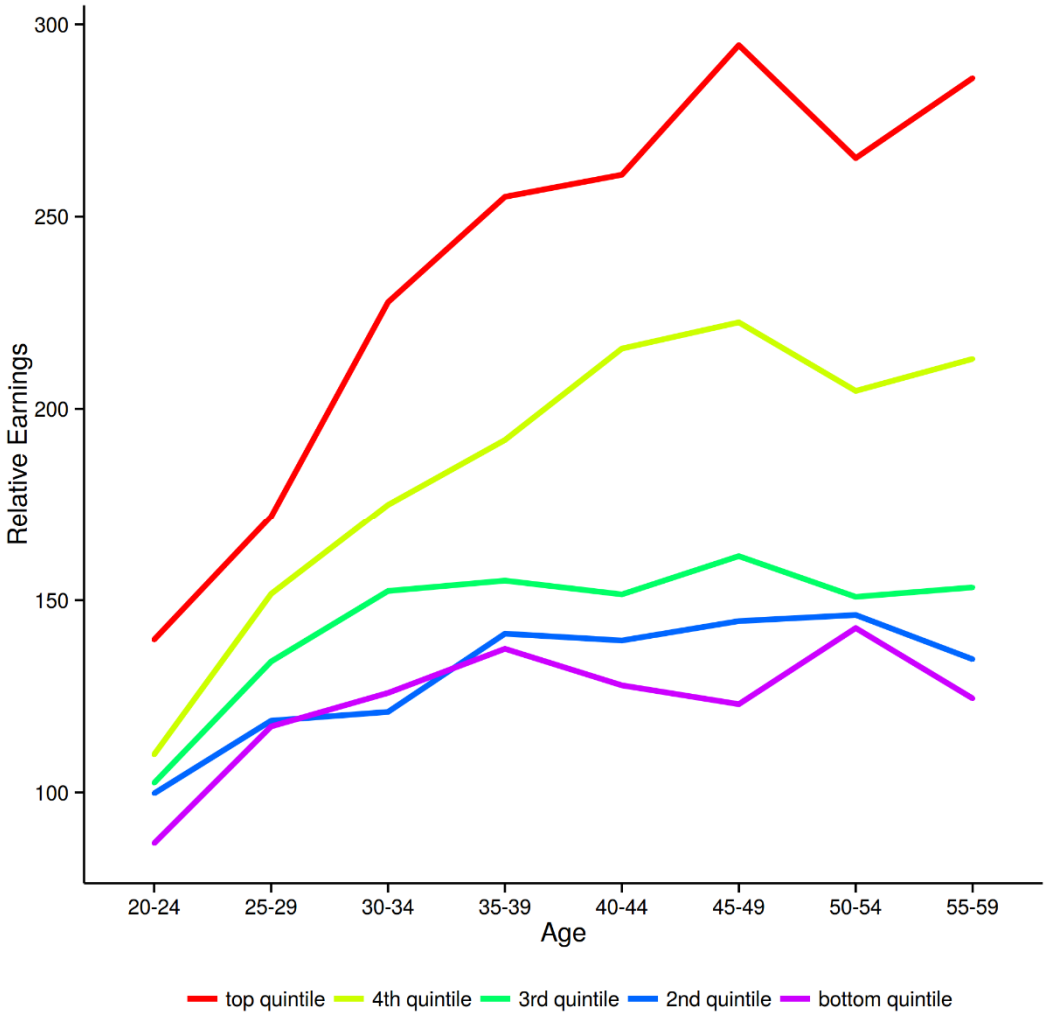
Complex job holders experience a sustained growth of income



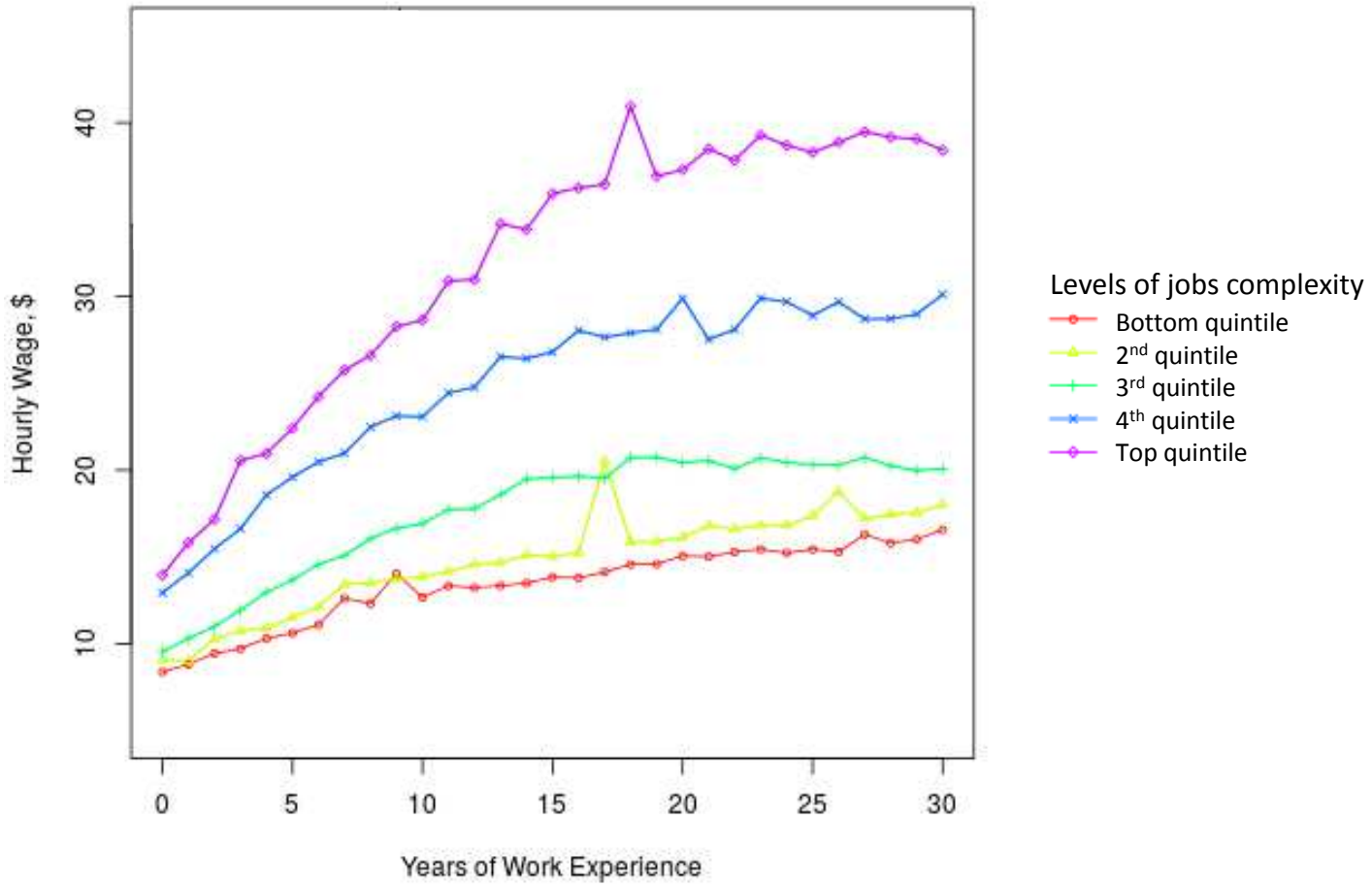
Non-complex job holders experience no income growth



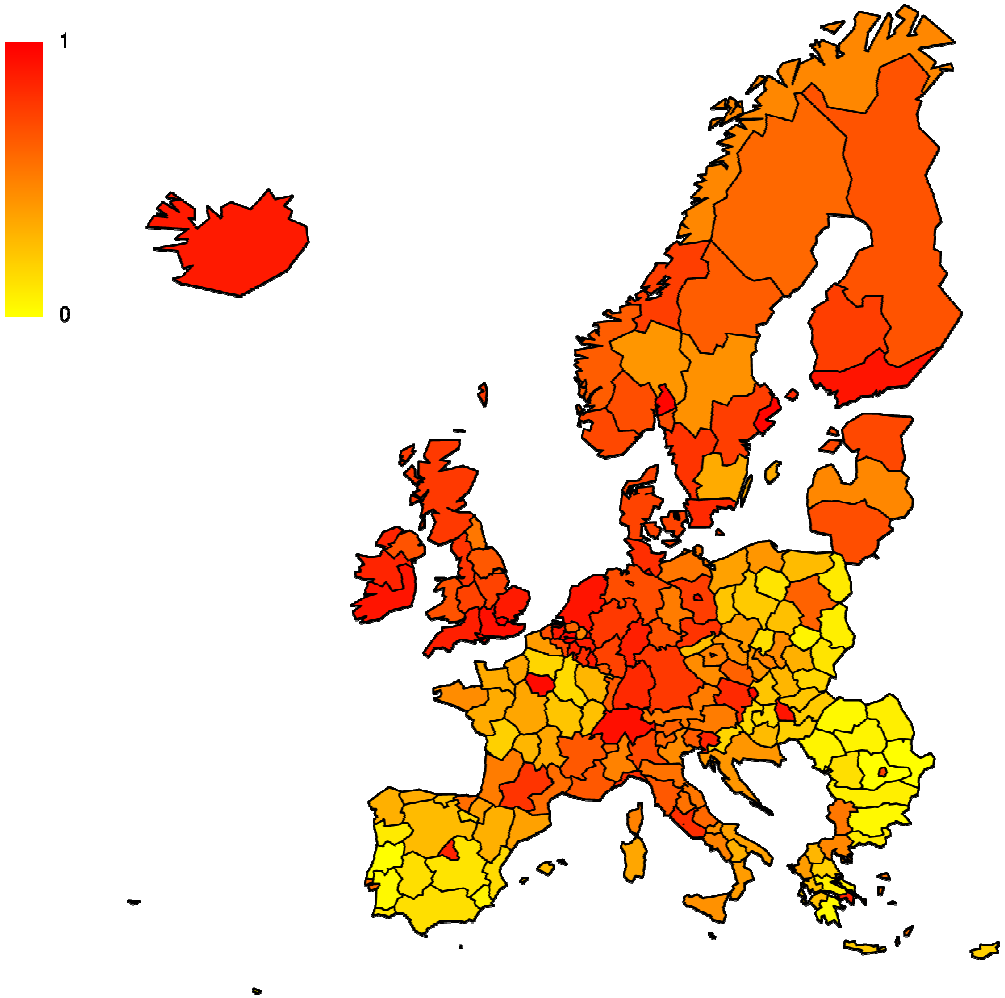
The more complex the job, the faster, longer and higher the income



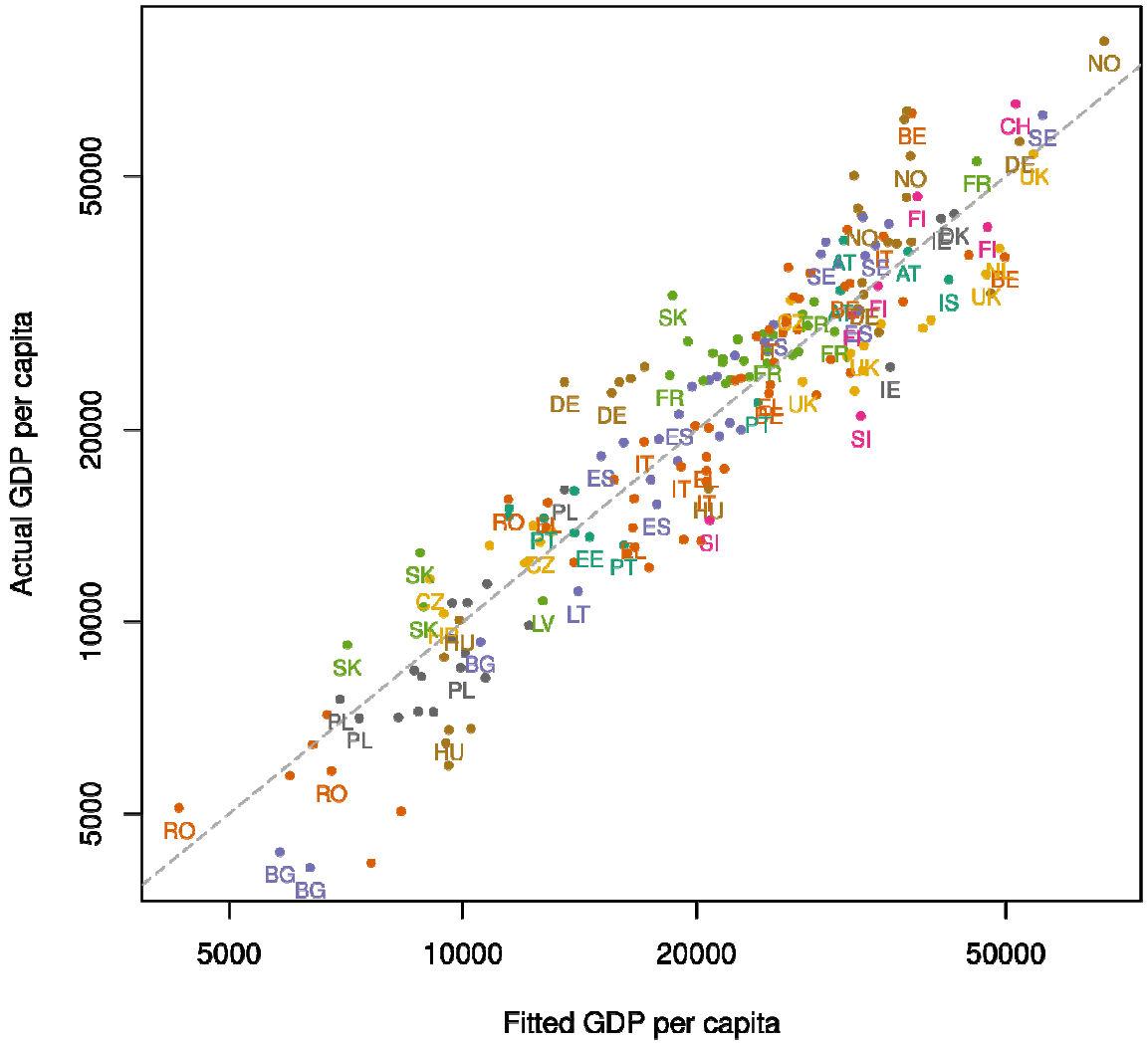
The same patterns are also true for USA



Complexity in 201 regions in Europe



With our economic model based on complexity we predict GDP per capita per region very well

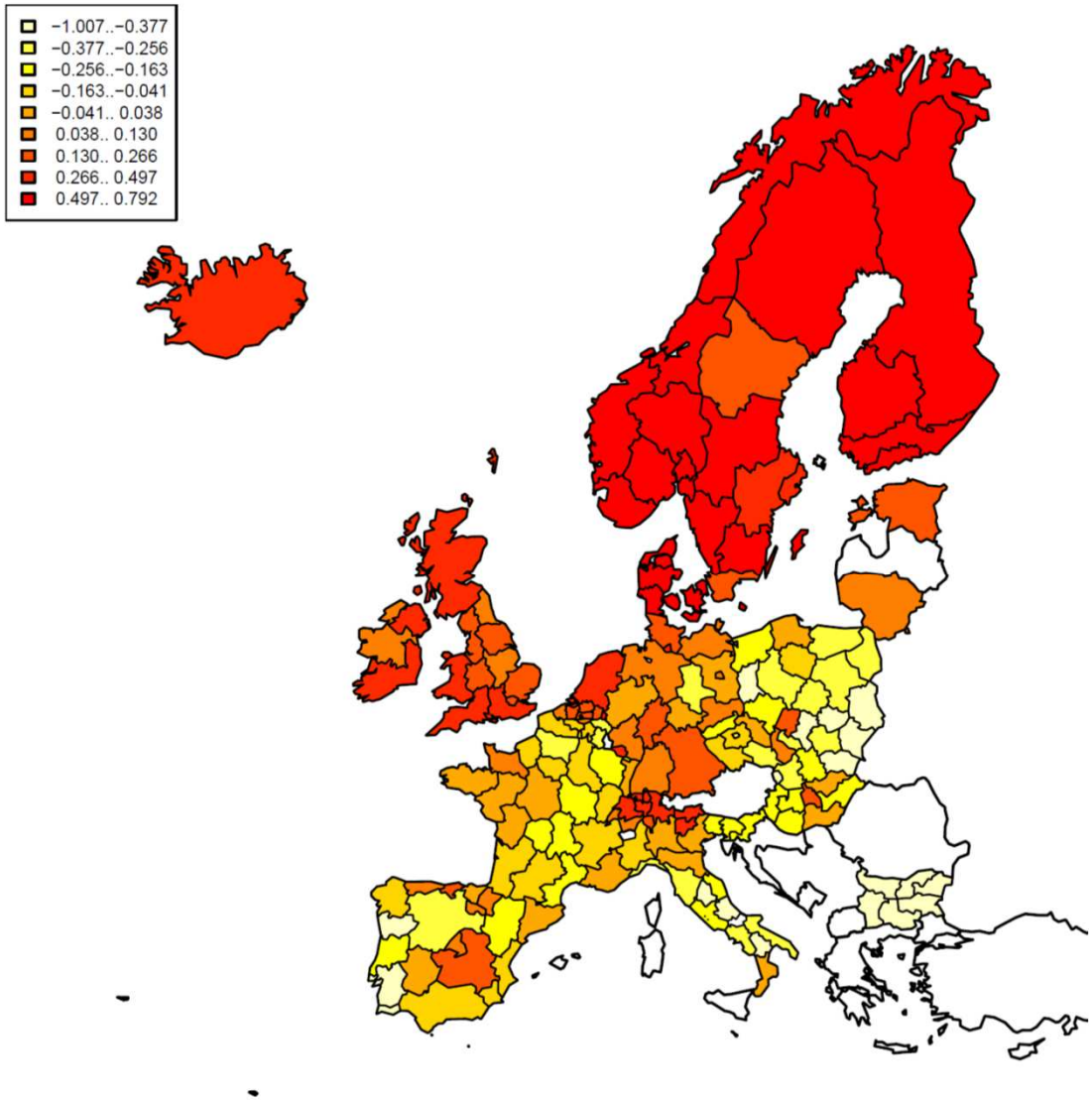


Complexity-based model explains 89% of all regional wealth differences in Europe

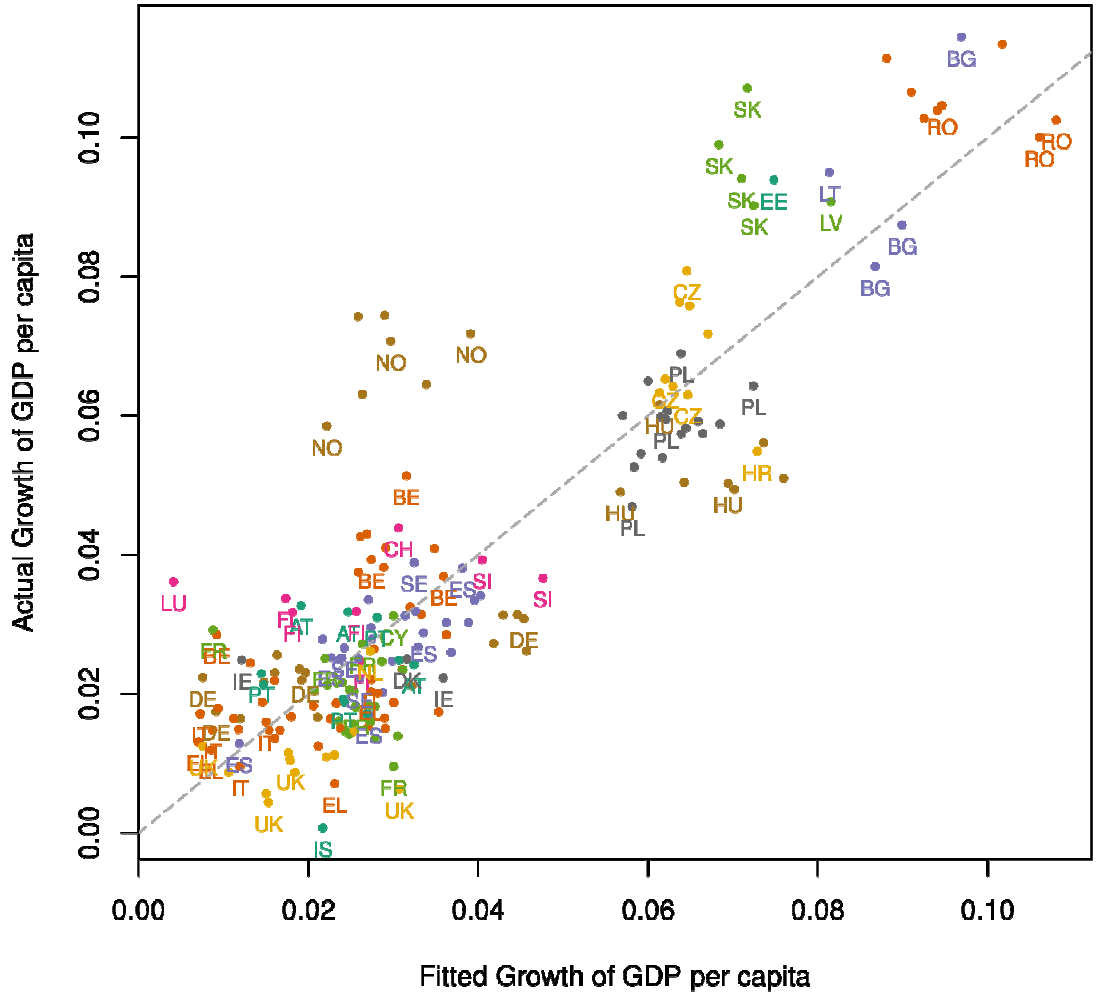
	Model 1	Model 2	Model 3	Model 4	Model 5
(Intercept)	14.13***	13.19***	13.10***	13.02***	12.54***
	(0.29)	(0.20)	(0.19)	(0.26)	(0.27)
Complexity	5.90***	4.28***	3.87***	3.76***	3.15***
	(0.42)	(0.29)	(0.28)	(0.40)	(0.39)
Ex-Socialist		−0.77***	−0.73***	−0.74***	−0.67***
		(0.06)	(0.05)	(0.06)	(0.05)
Youth Unemployment			−0.74***	−0.76***	−0.57**
			(0.18)	(0.20)	(0.21)
Capital				0.03	0.07
				(0.08)	(0.09)
Social Trust					0.32***
					(0.08)
R^2	0.62	0.85	0.87	0.87	0.89
Adj. R^2	0.62	0.85	0.87	0.87	0.89
Num. obs.	201	201	201	201	199
df	199	198	197	196	193
Mean dep. var	9.95	9.95	9.93	9.93	9.92
BIC	282	95	69	74	52
σ^2	44.68	27.75	25.75	25.78	24.31

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

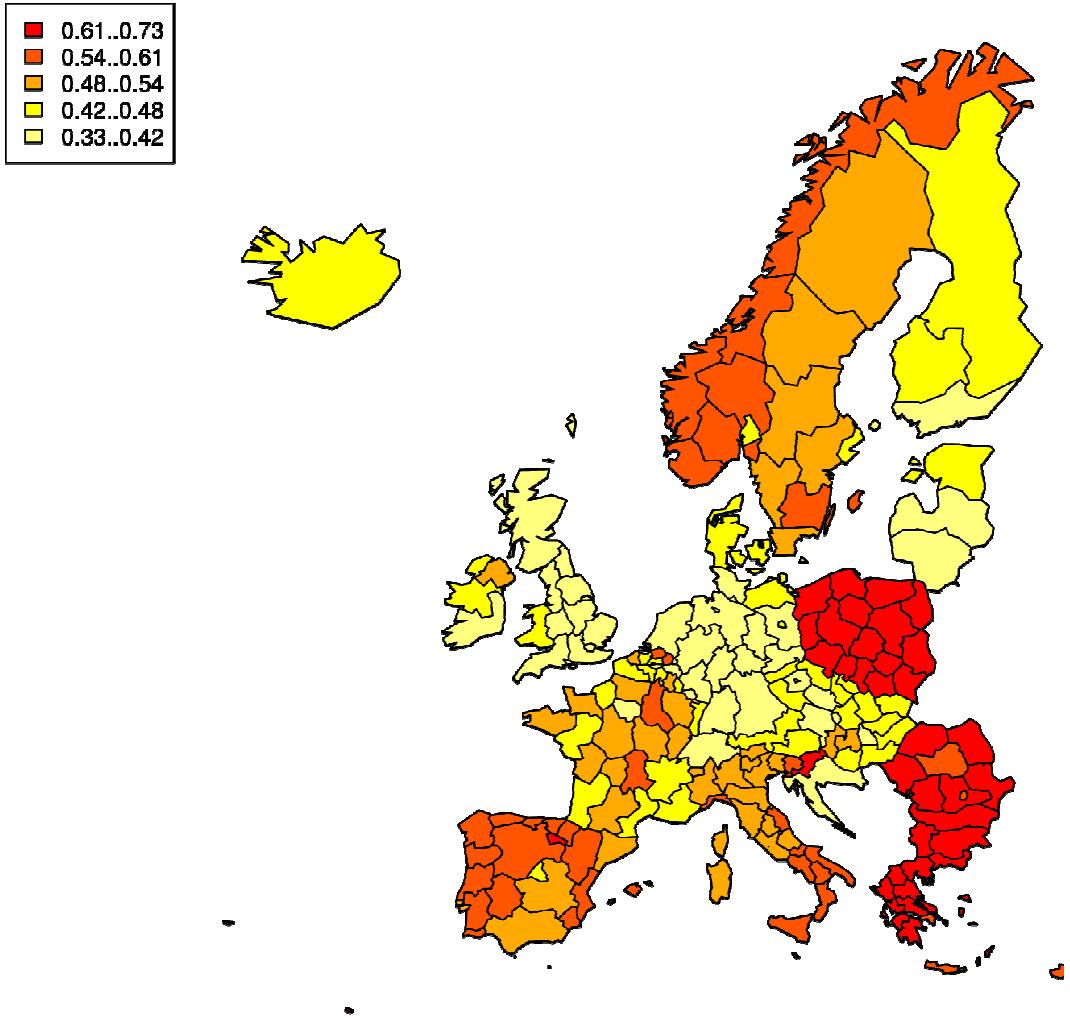
Social trust is critical for complexity to function well



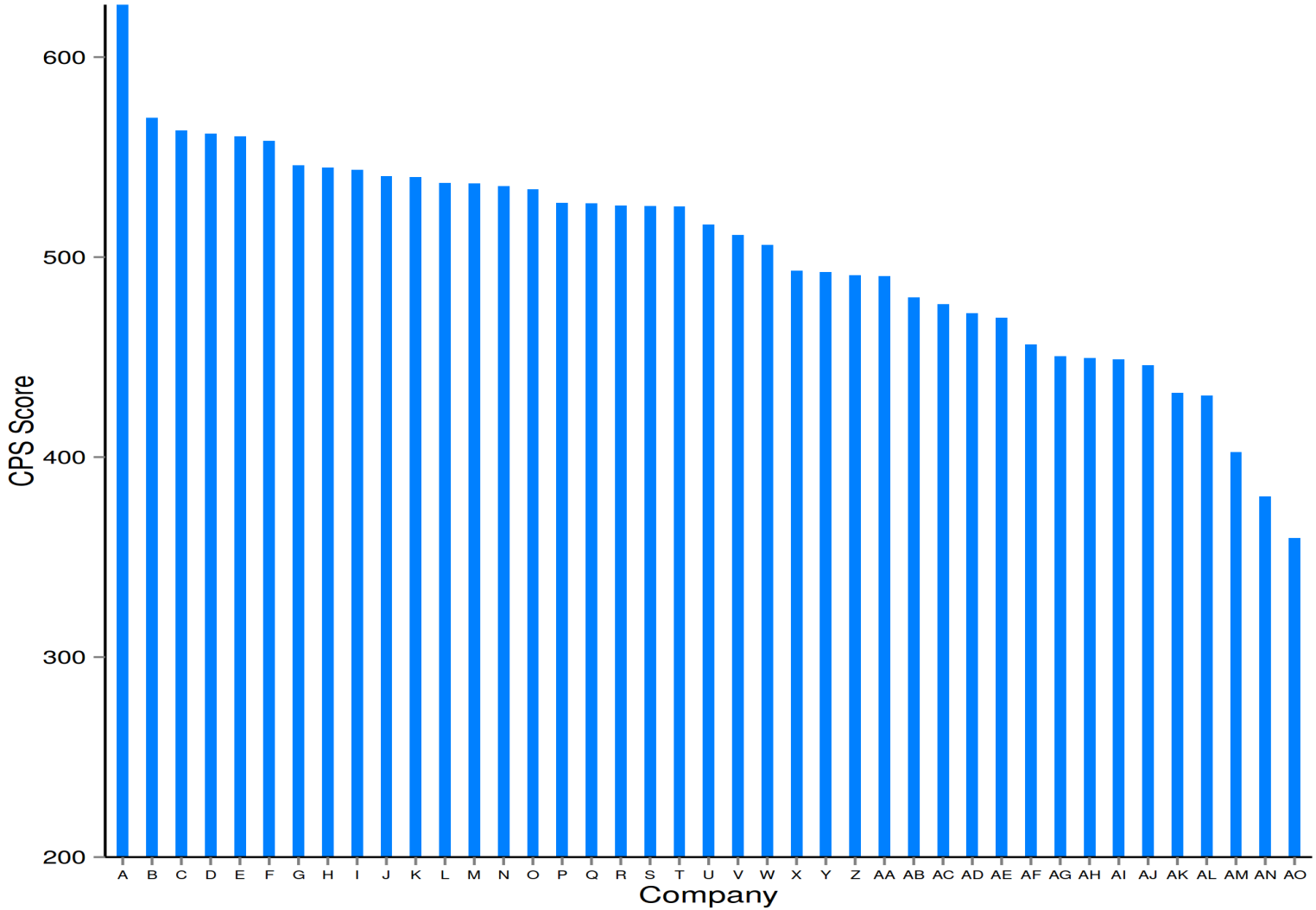
We can also explain refine the understanding of regional economic growth



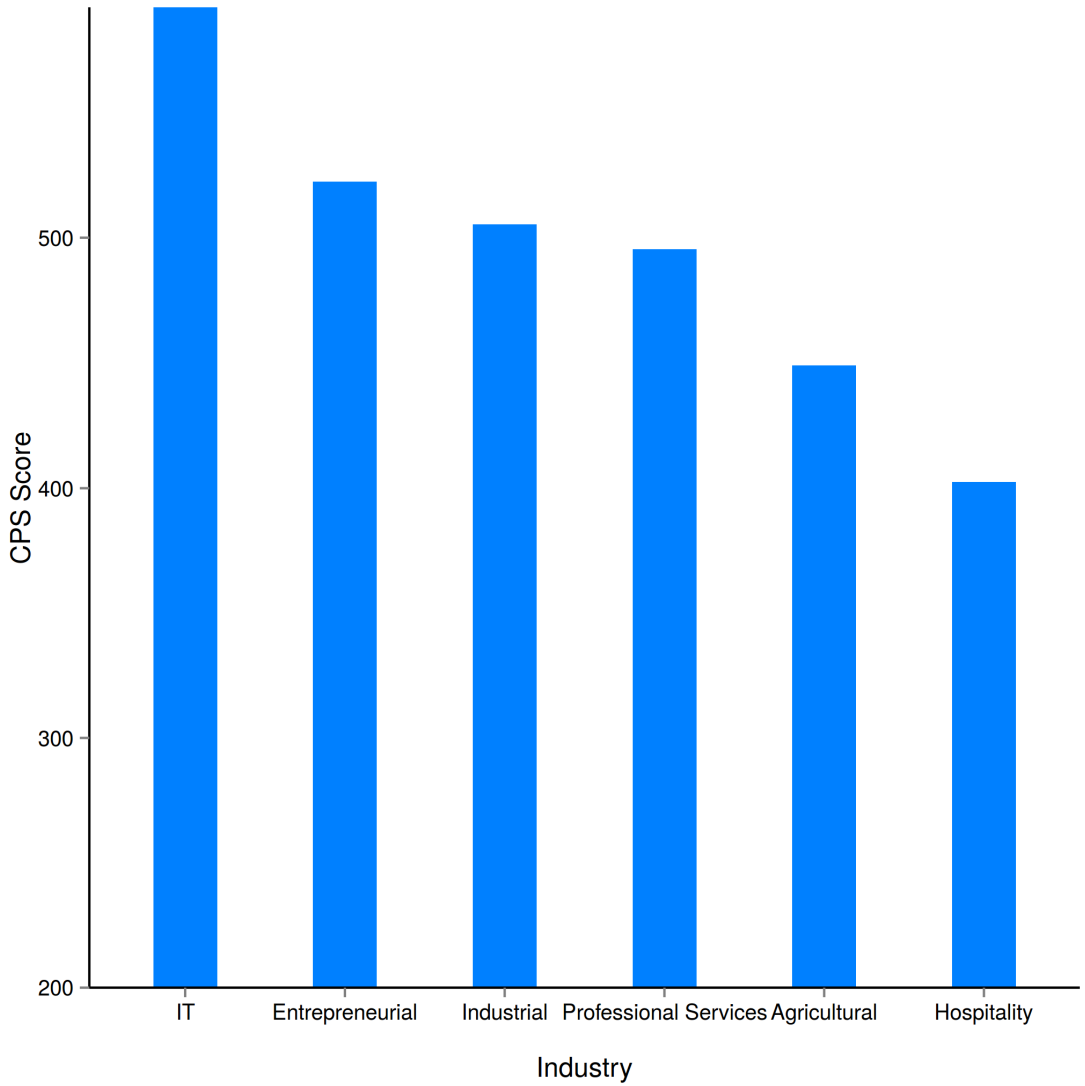
Diversity of complexity per industry is also important



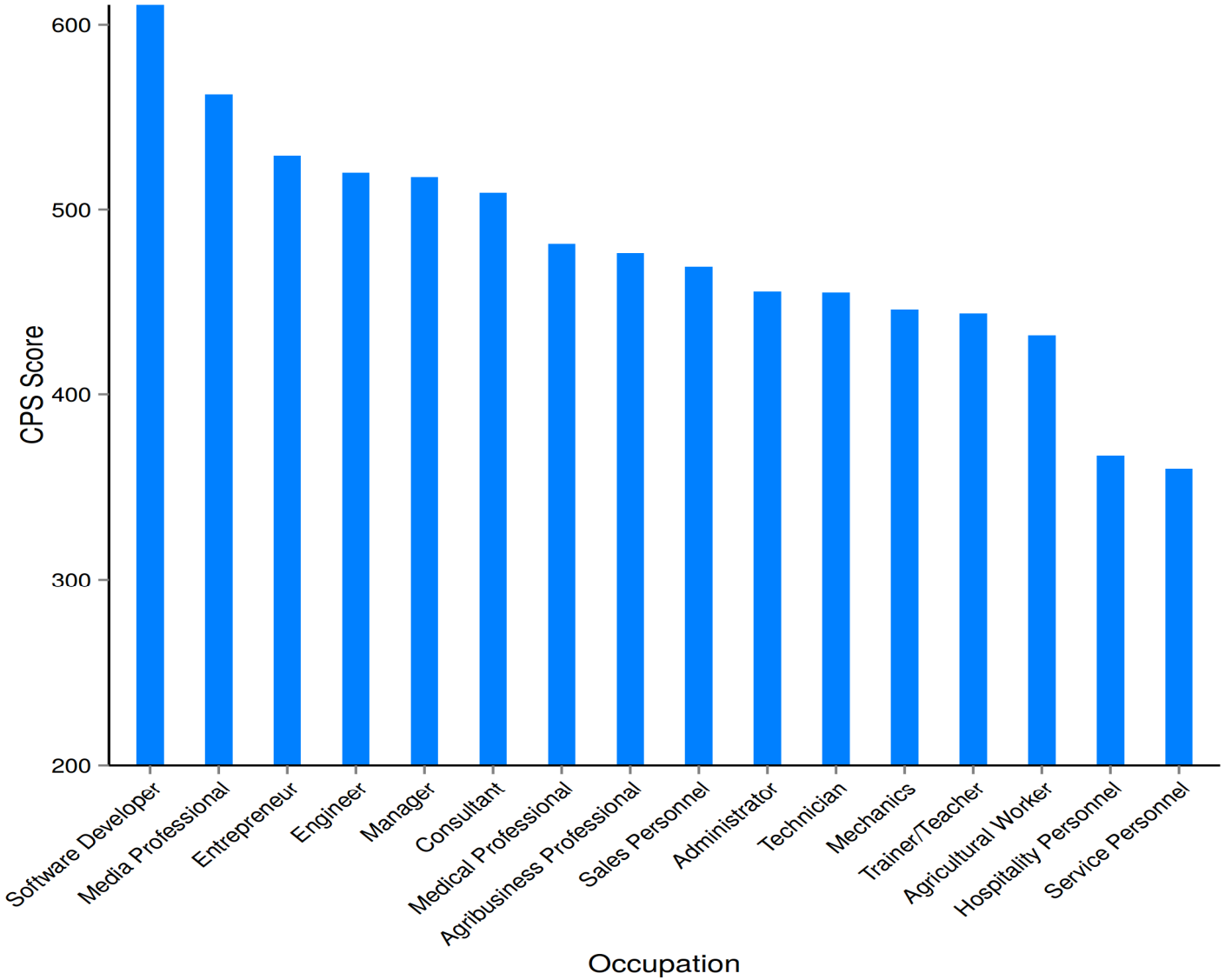
Complex Problem Solving skills by company



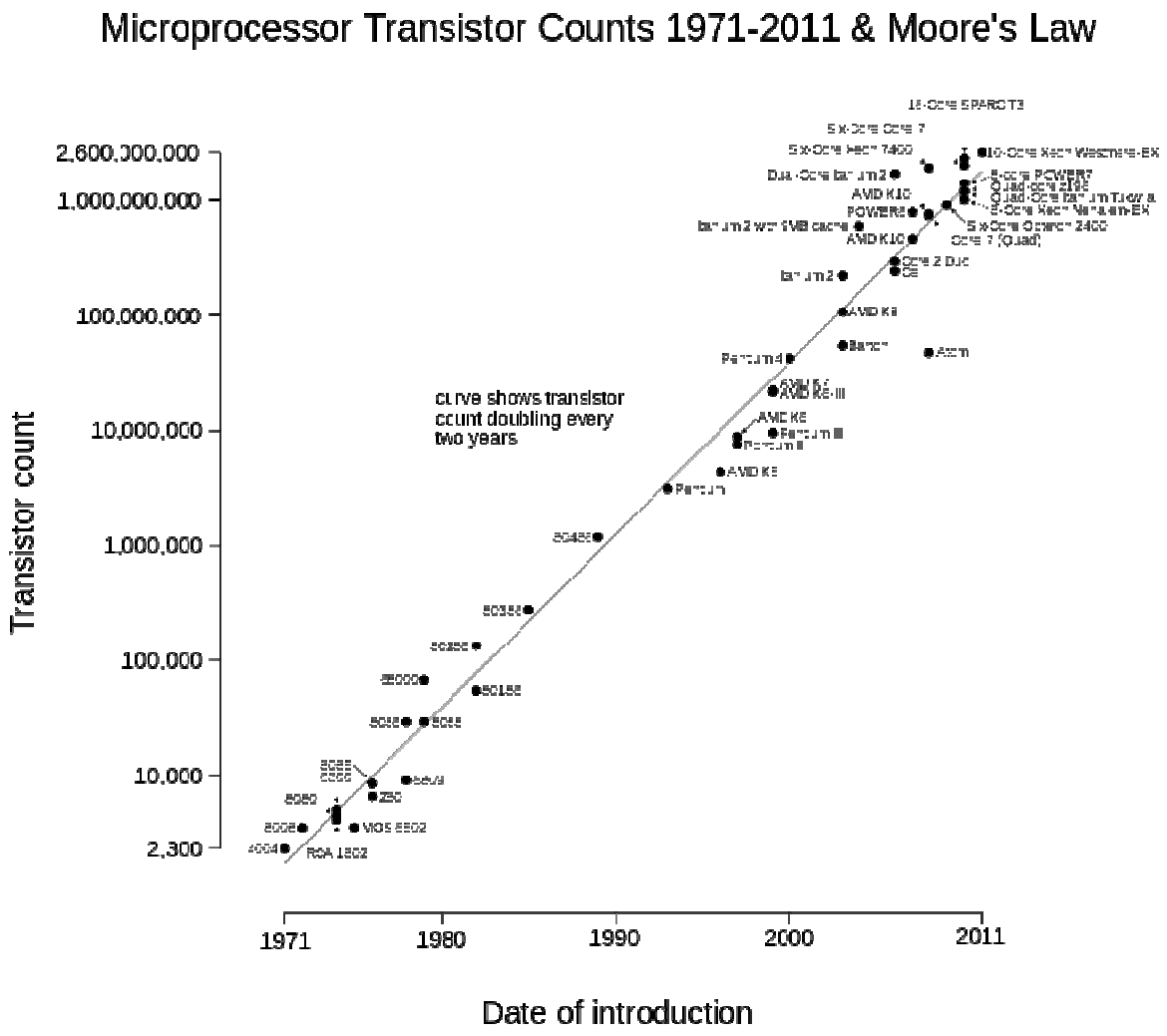
Complex Problem Solving skills by industry



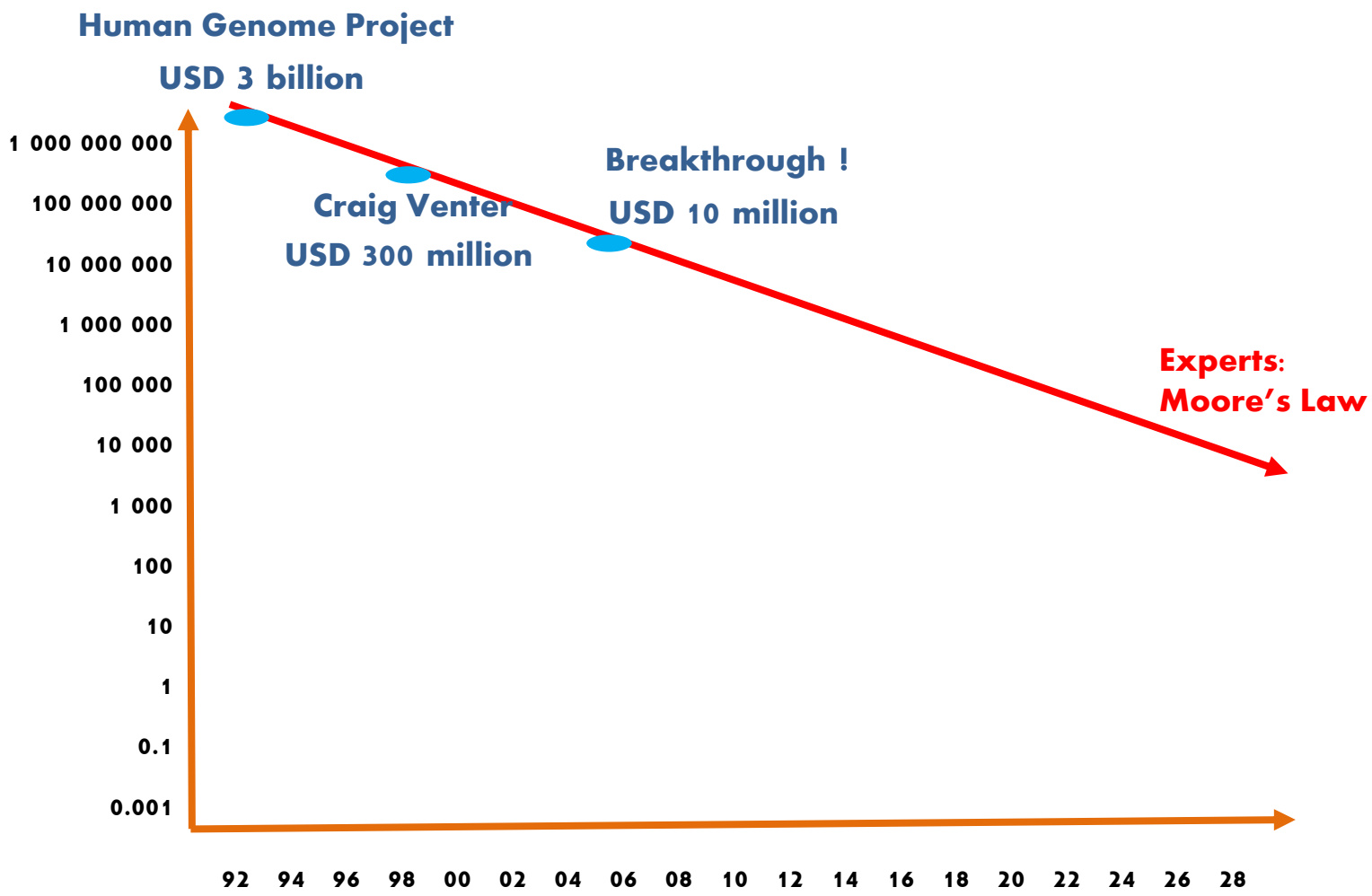
Complex Problem Solving skills by occupations



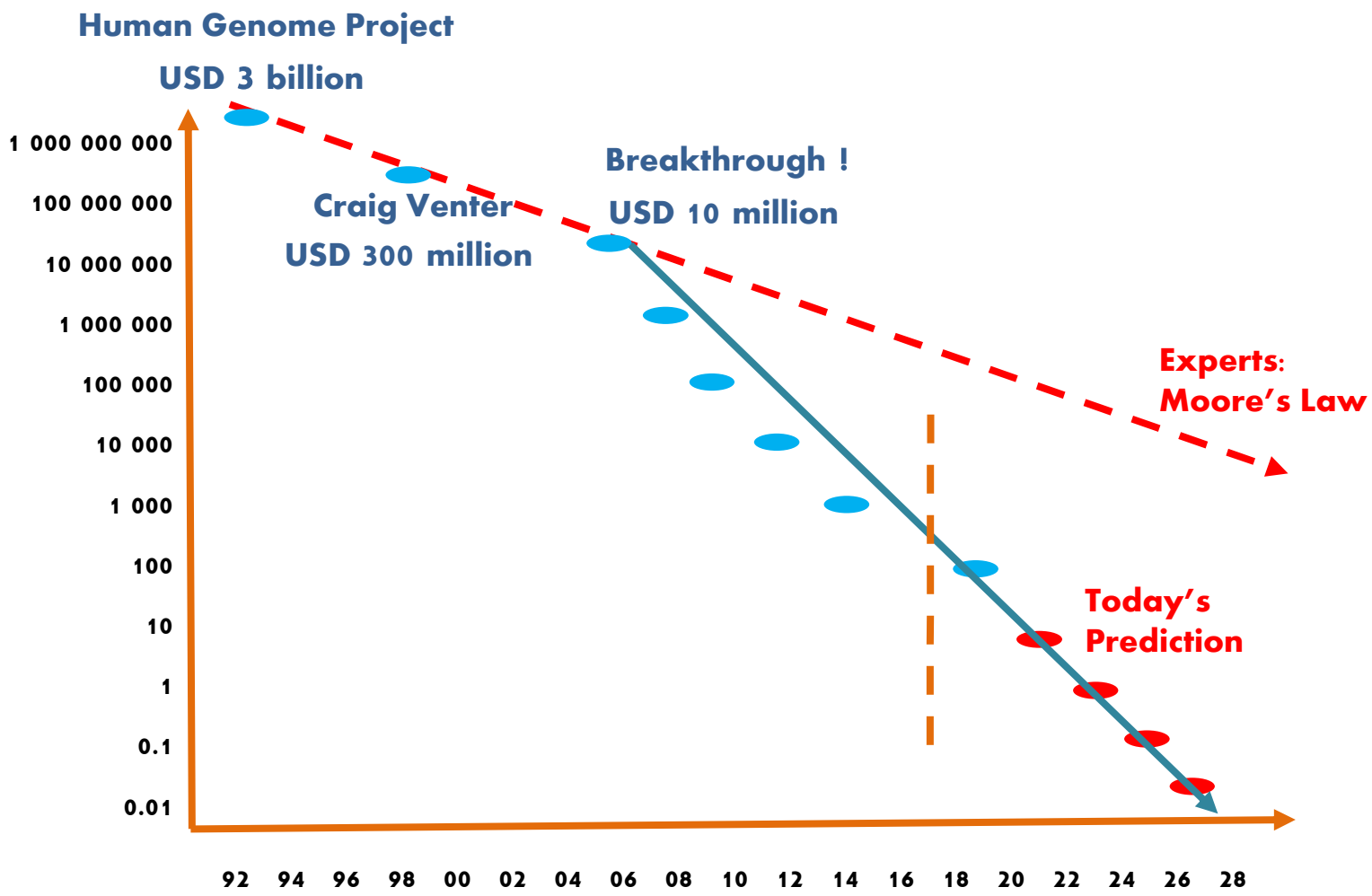
Moore: Double IT Capacity in Two Years



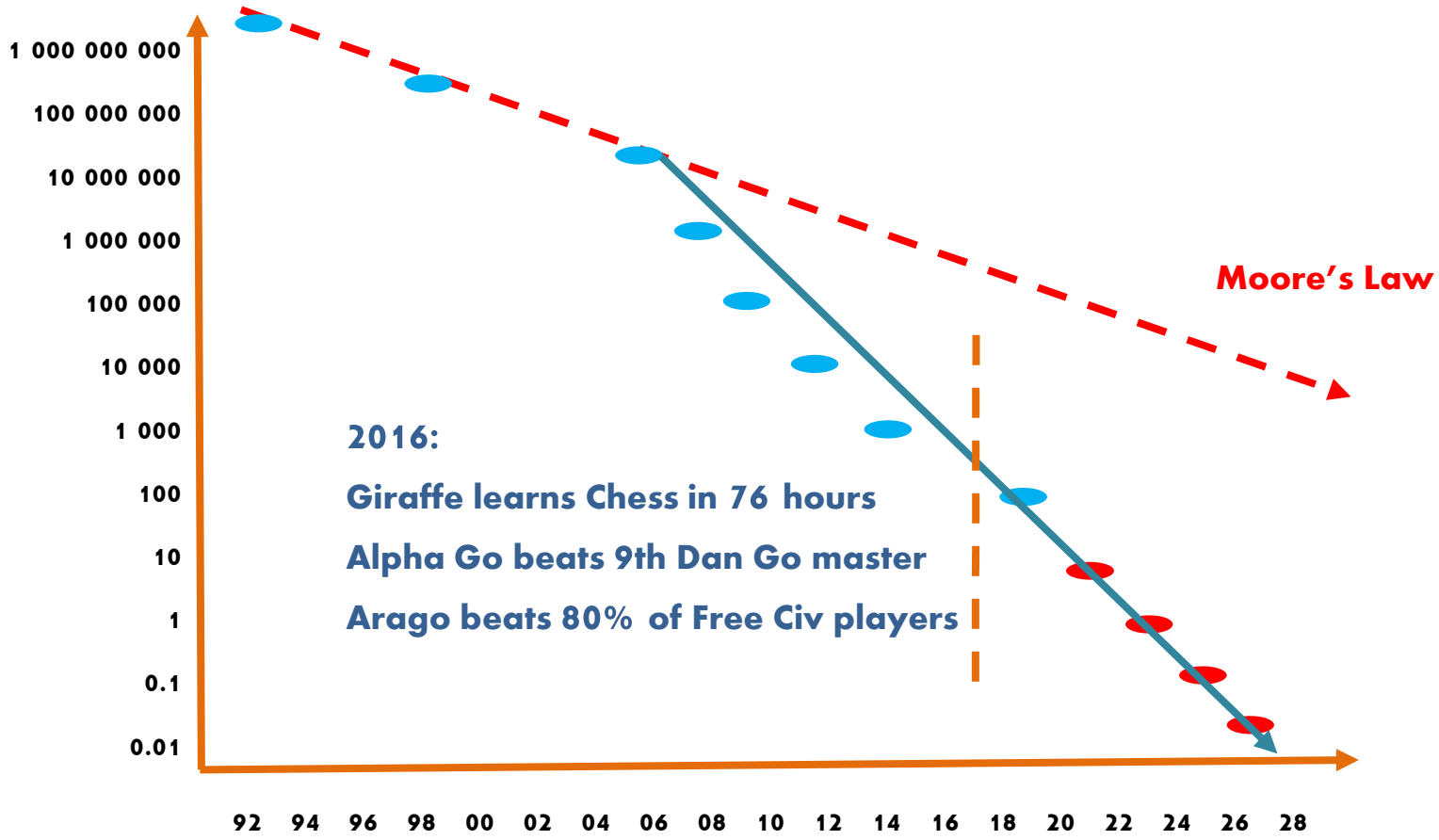
Cost of Human Genome Sequencing I



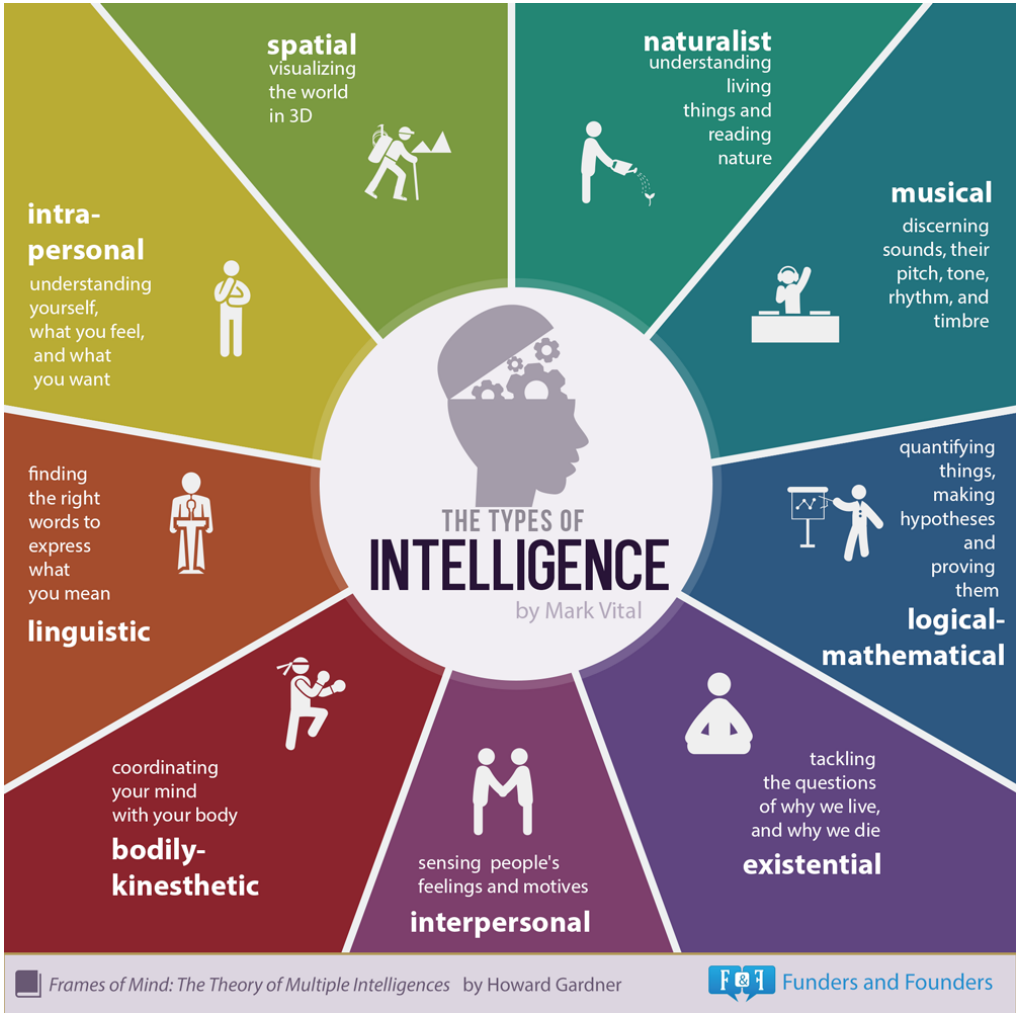
Cost of Human Genome Sequencing II



Artificial Intelligence in 2016



AI Surpassed One Human Intelligence: CPS



AI

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

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