# axians





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# ARTIFICIAL INTELLIGENCE AND THE FUTURE OF HUMANITY

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@gleonhard





# Our world will change more in the next 20 years than in the previous 300 years

# t could be heaven or it could be hell











# ... we don't confuse the tool with the purpose



















DATA every-where/thing CLOUD everything SMART everything CONNECTED everything **COMPUTE** anything MAKE anything TRANSACT anything SEE everything

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# Data is the new oil, and Artificial Intelligence is the new electricity







#### Public / Private Internet Companies, Ranked by Market Valuation (5/29/18)

Rank 2018		Region	2013	2018
1)	Apple	USA	\$418	\$924
2)	Amazon	USA	121	783
3)	Microsoft	USA	291	753
4)	Google / Alphabet	USA	288	739
5)	Facebook	USA	56	538
6)	Alibaba	China		<b>509</b>
7)	Tencent	China	71	483
8)	Netflix	USA	13	152
9)	Ant Financial	China		150
10)	eBay + PayPal*	USA	71	133
11)	<b>Booking Holdings</b>	USA	41	100
12)	Salesforce.com	USA	25	94
13)	Baidu	China	34	84
14)	Xiaomi	China		75
15)	Uber	USA		72
16)	Didi Chuxing	China		<b>56</b>
17)	JD.com	China		52
18)	Airbnb	USA		31
19)	Meituan-Dianping	China		30
20)	Toutiao	China		30
		Total	\$1,429	\$5,788



#### Market Value (\$B)



# Artificial Intelligence





#### How Companies Around the World Are Using Artificial Intelligence

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

IT activities are the most popular.

Detecting and detering security intrusions

Resolving users' technology problems

Reducing production management

Gauging internal compliance in using

Anticipating future customer purchases

Monitoring social media comments to determine overall brand affinity and issues

Tailoring promotions (online or offline)

Financial trading (e.g., high-frequency

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#### SOURCE TATA CONSULTANCY SERVICES SURVEY OF 835 COMPANIES, 2017

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# AI: MACHINES THAT CAN HEAR, SEE, SPEAK, LEARN... THINK?









1900



# Programmable Systems Era

1950



#### 2020





# "Machine learning is the science of giving computers the ability to learn and find insights without explicitly programming the machines on what to do"



# "Deep learning (also known as deep structured learning or hierarchical learning) is part of machine learning methods. Most modern deep learning models are based on artificial neural networks"

#### Field of Artificial Intelligence

Field of Machine Learning

Deep Learning



#### ALPHAGO 00:05:30





# Example: Apple LIAM





# **Example: UPS ORION**

## ORION: ON ROAD INTEGRATED OPTIMIZATION & NAVIGATION







#### **Fiction Writing**

#### Science

#### **Human Genome Editing**



**Computer Vision** 

Programming

**Speech Recognition** 

**Financial Services** 

**Social Media** 

#### Arithmetic

Landscape of Human Competence (Moravec, Tegmark)







# Smart everything, everywhere: IA (not AI)







Benefits of AI for Retail (Survey). Statista (2018).



# Technology is a great servant but a terrible master

**ARTIFICIAL INTELLIGENCE IS THE FUTURE. NOT ONLY FOR RUSSIA BUT** FOR ALL HUMANKIND"







# Becoming super-human: be careful what you wish for!



# Humans and Machines





# Algorithms



# Androrithms



## Technology is exponential, but humans are not. What matters most to us is not 'technology'!





# Machines don't understand 95% of what makes us human



Data and Information is not Knowledge\* is not Understanding is not Wisdom is not Purpose



# "We are least aware of what our minds do best. The most difficult things for machines to emulate are those that are unconscious" (Moravec, Minsky et al) Would we WANT machines to 'emulate the unconscious'? Social Intellectual Kinaesthetic









# Humans ≠ Machines\*

# Smart Machines ≠ Human







# Anything that can be digitized or automated, will be: the end of routine is near!





# The End of Routine is not the end of our work, or of our purpose!



### **USELESS HUMANS**





# 'Working like a robot' is not our future





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# **Commerce is driven by data, but meaning is created by humans!**

# Algorithms

# "When it comes to really important decisions data trumps intuition every time"

amazon.com

"All of my best decisions in business and life have been made with heart, intuition, guts...not analysis"

Androrithms



umanity thics Creativity magination



Science echnology Engineering Vathematics

VS




## 

- **1** Complex Problem Solving
- Coordinating with Others
- **3** People Management
- **4** Critical Thinking
- Negotiation
- Quality Control
- Service Orientation
- **Judgement and Decision Making**
- Active Listening
- Creativity

## 

- **1** Complex Problem Solving
- Critical Thinking
- Creativity
- **4** People Management
- Coordinating with Others
- Emotional Intelligence
- 7 Judgement and Decision Making
- Service Orientation
- Negotiation
- **10 Cognitive Flexibility**



## Digital Ethics



#### "Ethics is knowing the difference between what you have a right (or the power) to do and what is the right thing to do"



## **TECHNOLOGY HAS NO ETHICS**

adapted from Potter Stewart









# Wheeler of the second s

## **DIGITAL ETHICS**: the difference between doing whatever technological progress will allow us to do, and putting human happiness and societal flourishing first at all times



## "Technology can do great things. But it does not WANT to do great things." It doesn't want ANYTHING" (Tim Cook, CEO of Apple, Oct 23 2018)











### The externalities of exponential technological growth must be INCLUDED in the digital economy, as well!





## Not sustainable



## A new economic logic: ETA 20 years





#### Exponential technological progress will enable as well as force us to expand our current economic logic







### PROSPERITY



#### The Global Risks of Highest Concern, 2016

Percent of participants mentioning the respective risk to be of high concern for the time frame of 18 months or 10 years, respectively. Participants could name up to five risks in each time frame. In each category, the risks are sorted by the total sum of mentions.

#### For the next 18 months



#### For the next 10 years



Read more: wef.ch/risks2016 #risks2016



# 



## We need to invest as much into humanity as we invest into technology





## The Future: awesome humans (HI) on-top of amazing technology (AI)



IMAGINATION

PASSION





#### PURPOSE

CURIOSITY

FORESIGHT

**CRITICAL THINKING** 









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