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MAKING EXPERIENCE EXECUTABLE

ARTIFICIAL INTELLIGENCE

Or the Rediscovery of the Future

Bad Homburg: September 21st, 2019

Hans-Christian “Chris” Boos, arago, @boosc



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BUSINESS PEOPLE **HAVE GOALS.**

ENGINEERS **HAVE PROBLEMS.**



BUSINESS PEOPLE EXECUTE PLANS.

ENGINEERS WRITE PROGRAMS.



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THE STARTING POSITION BEFORE AI

DISRUPTION.



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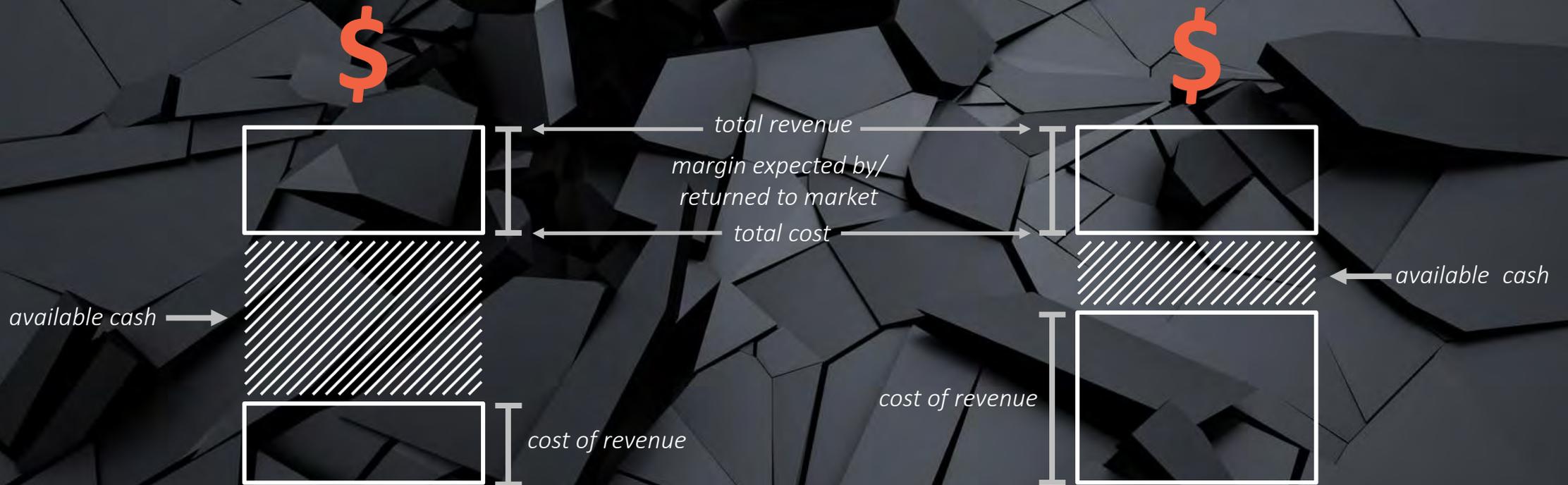
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THE PLATFORM COMPANIES' CASH POSITION

Lots of cash to invest with no urgency to prioritize budgets.

THE ESTABLISHED COMPANIES' CASH POSITION

Very little cash to invest, high pressure through external stakeholders (capital market, customers etc.).

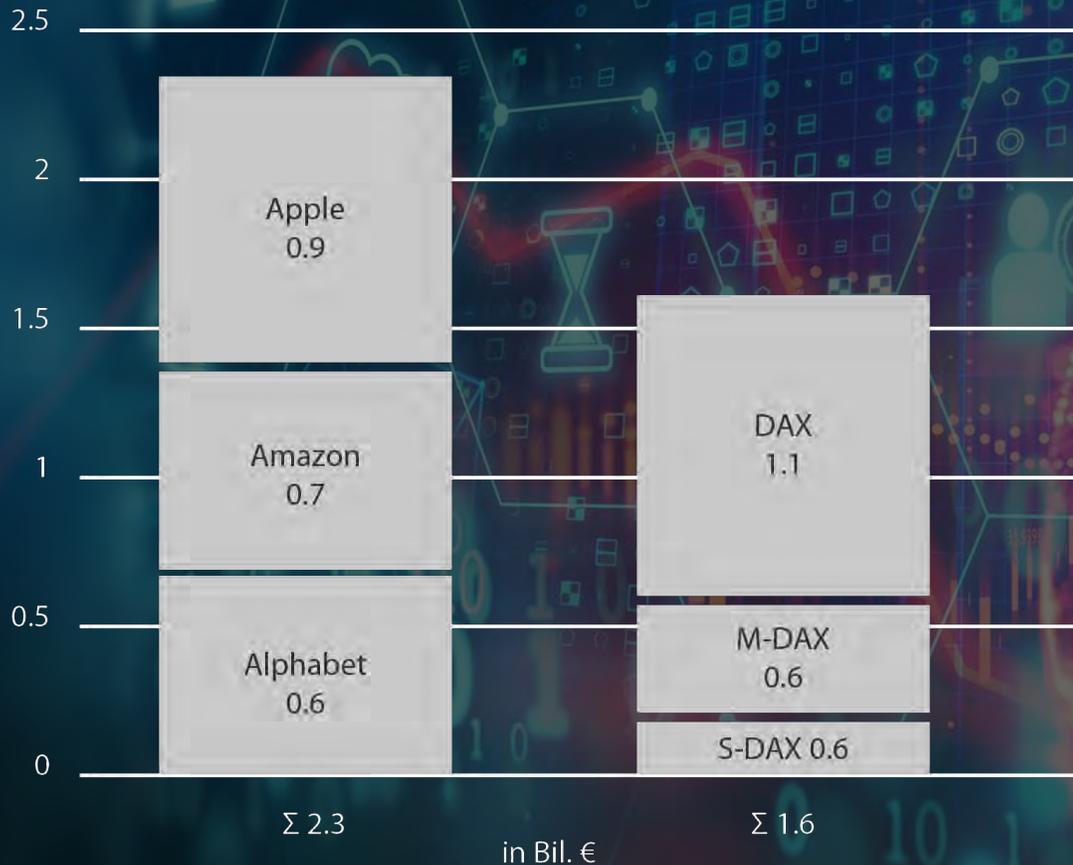


MONEY BELIEVES IN TECHNOLOGY.



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The market believes in the potential of tech-companies and is very sceptical about established companies.

Single companies reach dimension of an entire markets.

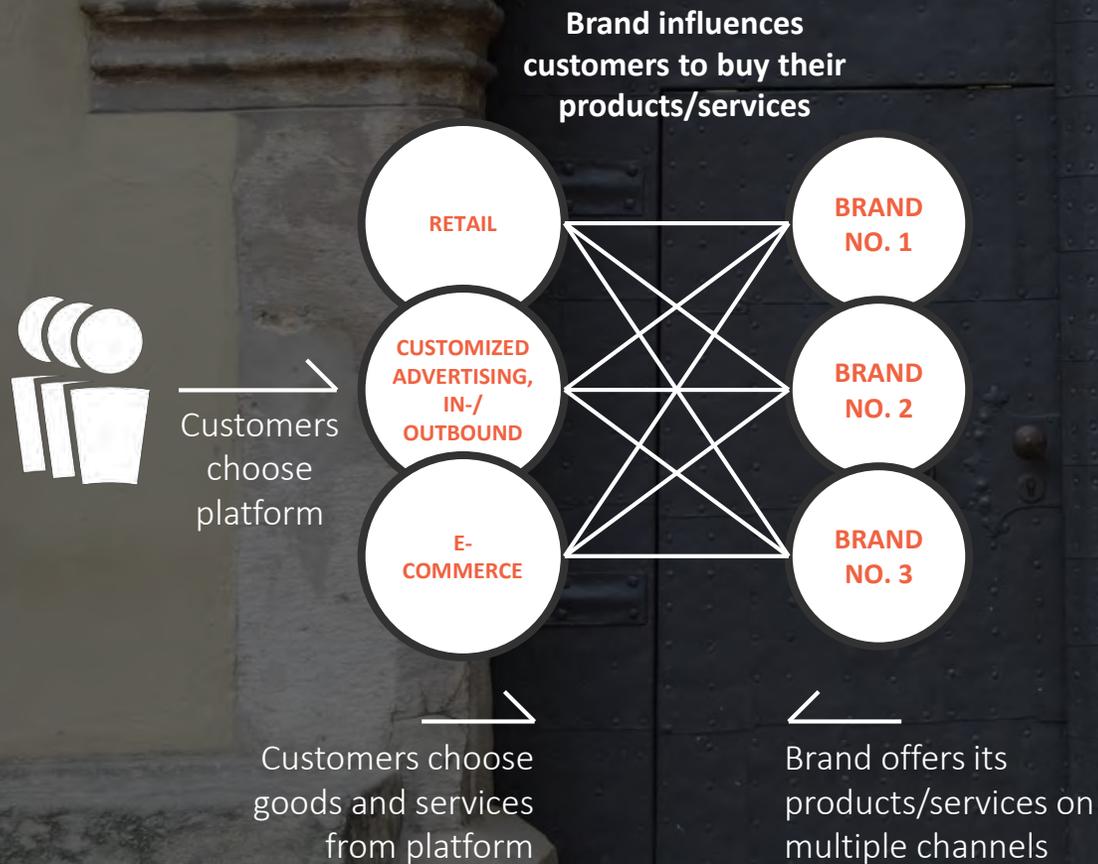
DISINTERMEDIATION.



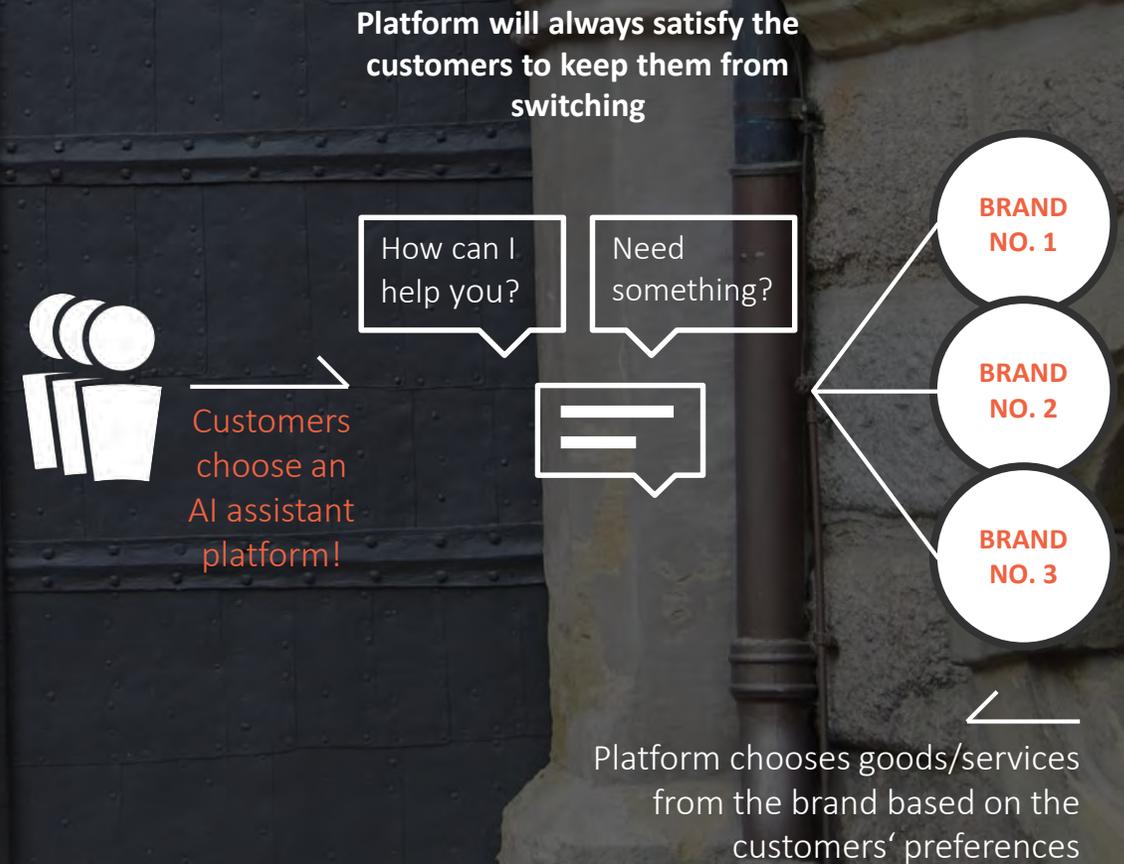
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IN THE PAST: DIRECT CUSTOMER RELATIONSHIP



TODAY: POINT OF SALE MOVES INTO THE PLATFORM

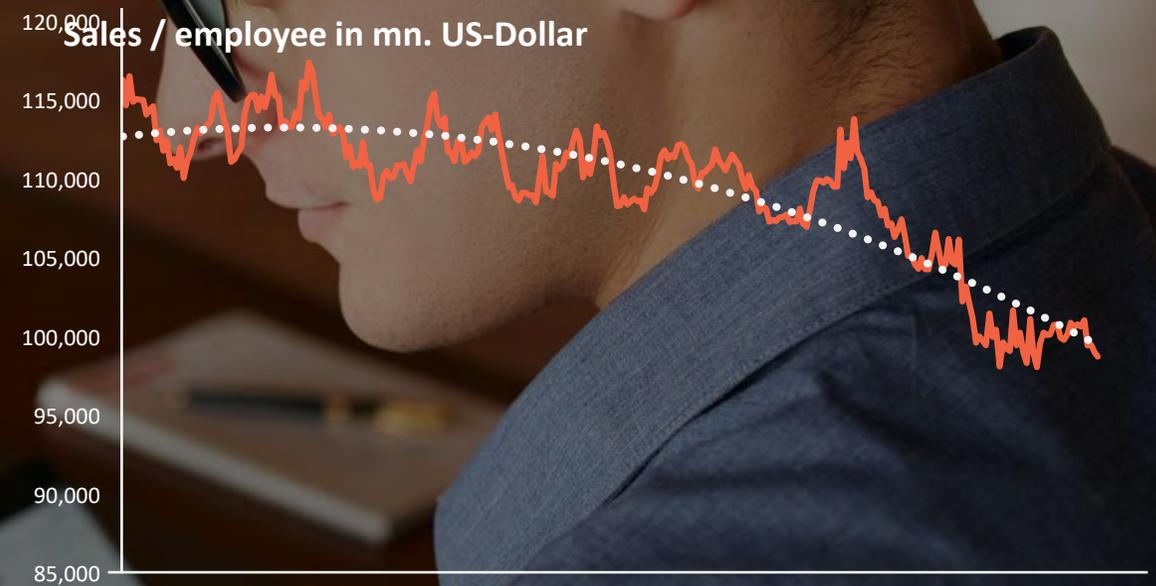


STRUCTURAL CHANGES ARE ALREADY VISIBLE



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DIGITIZATION AND THE ROLE OF AI



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**DIGITALIZATION AND AI ARE NOT
ABOUT FINDING PATTERNS AND
MAKING PREDICTIONS.**



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**AI AND DIGITALIZATION
WILL END THE INDUSTRIAL AGE –
THE ERA OF ECONOMIES OF SCALE.**

GOING BACK IN HISTORY: STAGES OF EVOLUTION.



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**AGRICULTURAL
AGE:**

**SELF-SUPPLY &
FRAGMENTATION**

**INDUSTRIAL
AGE:**

**MASS PRODUCTION
& DIVISION OF
LABOR**

**IT-ENABLED
INDUSTRIAL AGE:**

**STANDARDIZATION
& SCALE EFFECTS**



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**DIGITALIZATION MEANS FAREWELL
FROM THE INDUSTRIAL AGE AND
ITS STANDARDIZATION PARADIGM.**

*“Any customer can have a car
painted any color that he wants so
long as it is black.” (Henry Ford)*



IT'S ALL ABOUT **AUTOMATION**.
ONLY THIS TIME, WITHOUT LIMITATIONS IN VARIETY.
NOW YOU CAN HAVE ANY COLOR – PERIOD!



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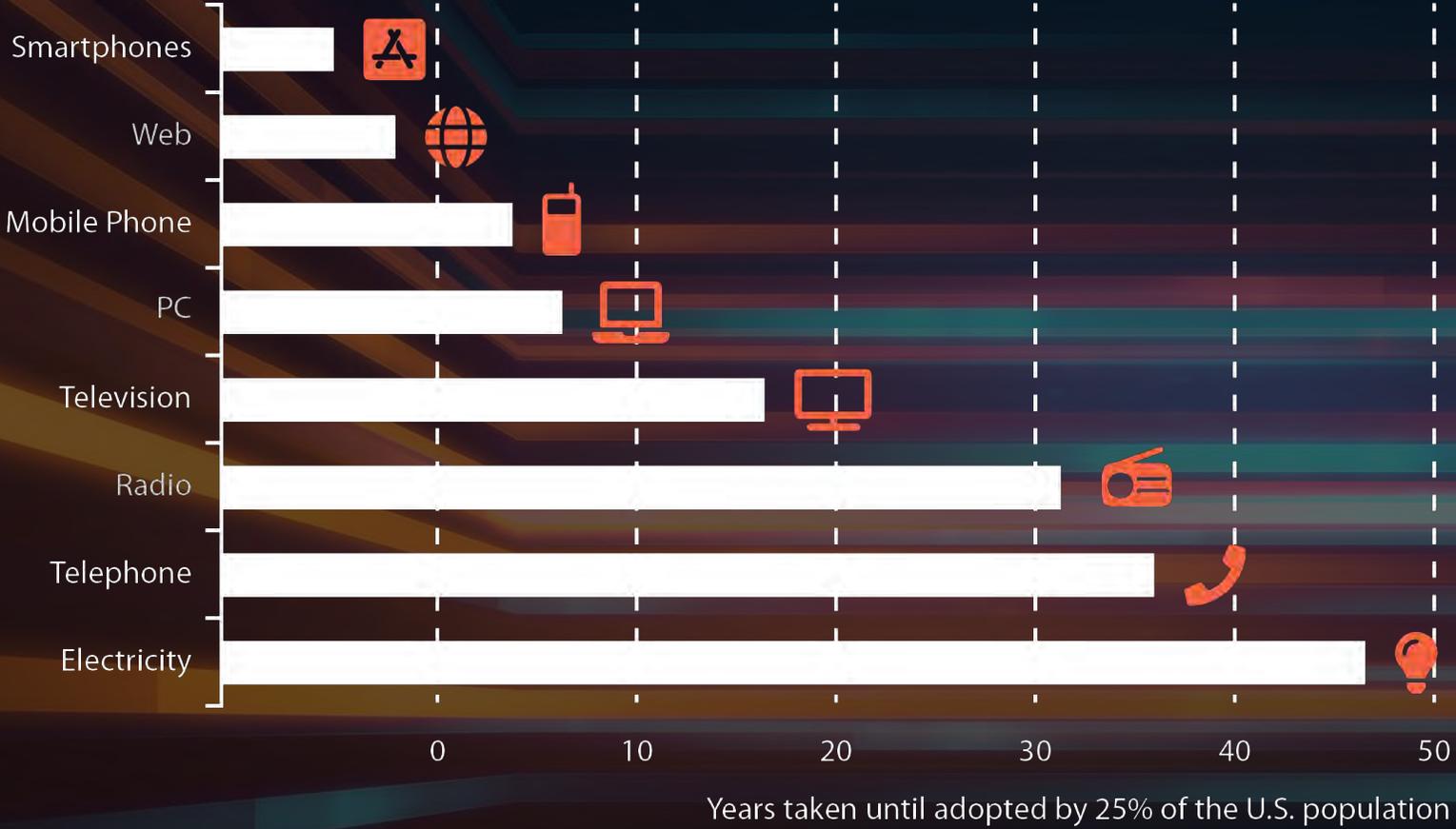
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**THE FUTURE OF BUSINESS:
ANYTHING THAT IS A PROCESS
CAN AND WILL BE RUN BY AN AI.**

THE CHANGE WE ARE FACING IS **NOT** 30 YEARS AWAY!



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Source: U.S. Census, Wall Street Journal: <https://marketrealist.com/2015/12/adoption-rates-dizzying-heights/>

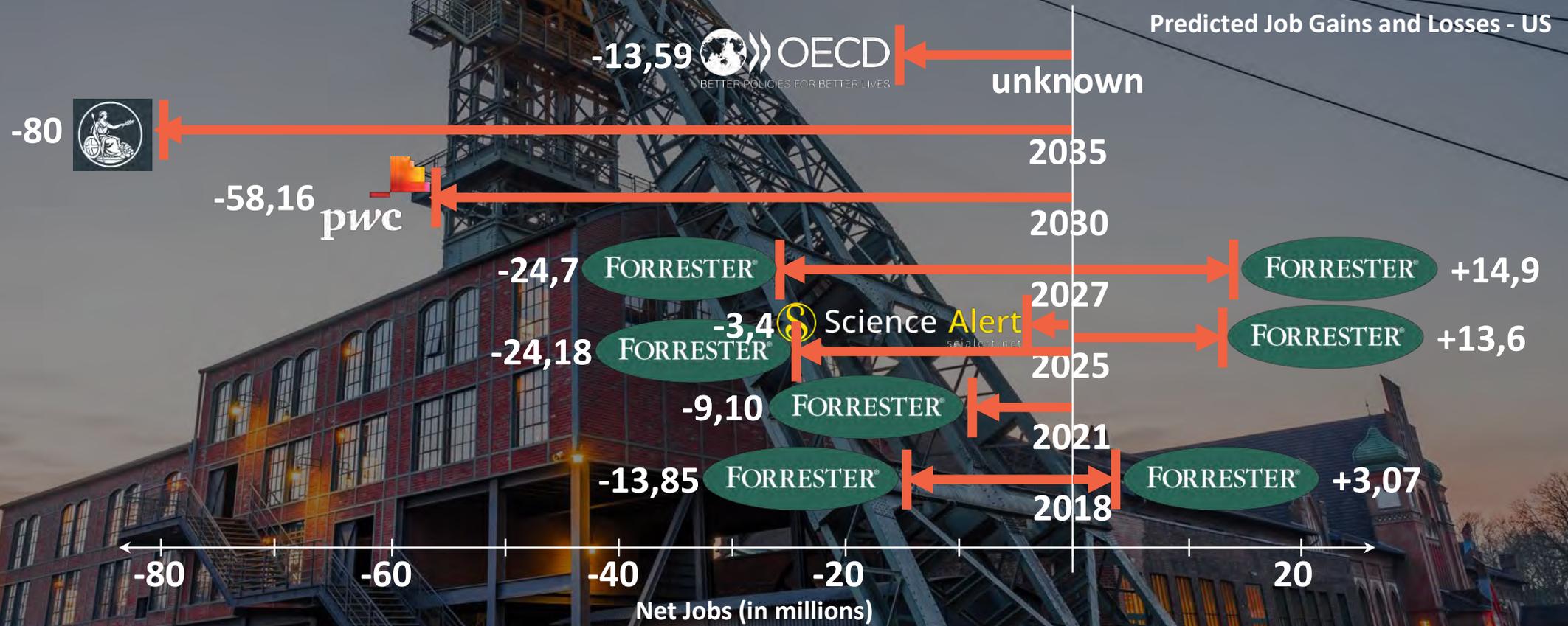


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CURRENT STATE OF AFFAIRS

EXPERTS DISAGREE ON **WHEN** UND **WHEN** CHANGE IS COMING. THEY AGREE THAT CHANGE IS **SIGNIFICANT** AND **INEVITABLE** ...



THE BILLION DOLLAR QUESTION IS: HOW MUCH TIME DO WE HAVE?



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Kai-Fu Lee



0 YEARS

**„THERE NO LONGER
IS A BRONZE MEDAL,
CHINA AND THE U.S.
ARE COMPETING FOR
GOLD AND SILVER“**

Darrell m. West



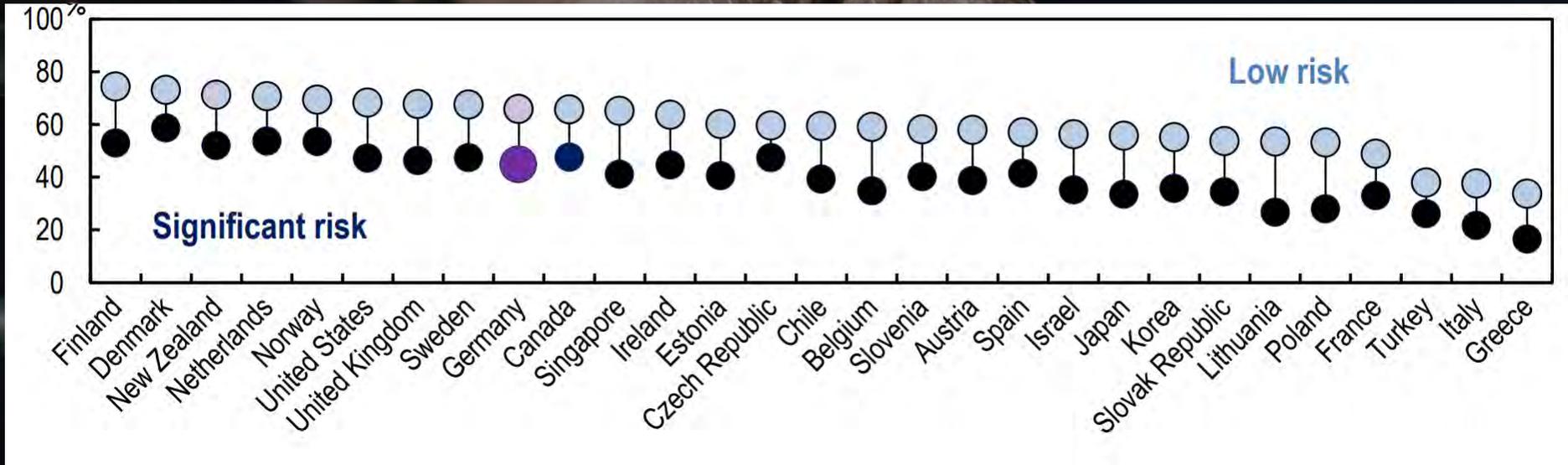
30 YEARS

**„WE HAVE LESS THAN
30 YEARS TO GET
THIS RIGHT“**

Kai-Fu Lee ist eine der wichtigsten Experten für KI in China und heute auch einer der größten Investment Manager in China. Er war Mitgründer von Microsoft Research Asien und Chef von Google China. In seiner Forschung war er einer der Pioniere der Anwendung von KI auf Sprache.

Darrell m. West ist international anerkannter Politikwissenschaftler und Berater im Bereich Politik, Medien und neue Technologien. Er ist Autor und Direktor für technologische Innovation bei Brookings Institution und damit ein einflussreicher Gesprächspartner in Washington D.C.

... THEY ALSO AGREE THAT **CHANGE** WILL BE **SO FAST**, **TRANSITION** WILL BE THE KEY CHALLENGE. AND THE **RISK PROFILE FOR DEVELOPED ECONOMIES IS HIGHEST.**



AI FROM A GEO POLITICAL PERSPECTIVE

SELF-CENTERED
NATIONAL STRATEGY
LITTLE EXECUTION

MULTIPLE PLATFORM
COMPANIES WITH
GOOD AI STRATEGY
AND LOTS OF IP

LOW OWNERSHIP OF
VALUE CHAIN ACROSS
INDUSTRIES

DEVELOPING
NATIONAL STRATEGY

NO PLATFORM
COMPANIES
BUT LOTS OF IP

OWNERSHIP OF VALUE
CHAIN OR AT LEAST
FULL KNOWLEDGE
ACROSS INDUSTRIES
LITTLE AI EXECUTION

NATIONAL STRATEGY
DEFINED AND IN
EXECUTION

MULTIPLE PLATFORM
COMPANIES WITH
LITTLE IP BUT
BRILLIAN EXECUTION

PART OWNERSHIP OF
VALUE CHAIN WITH
BRILLIANT EXECUTION

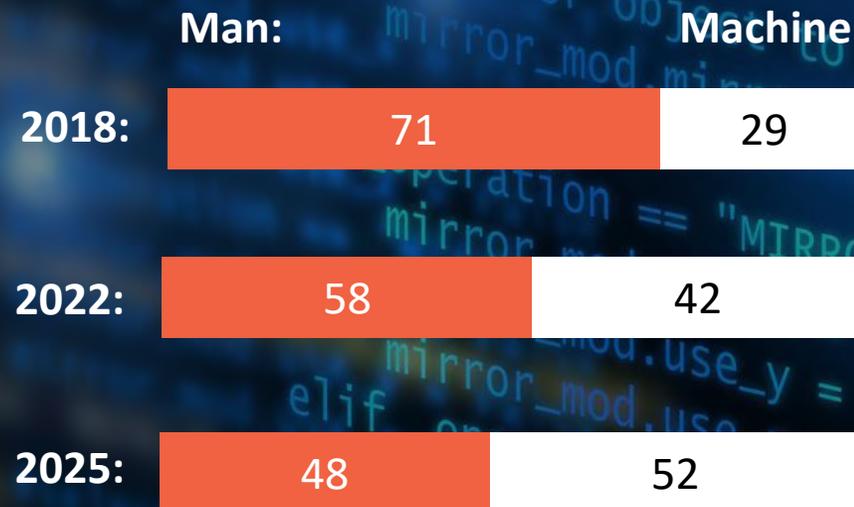


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**CURRENTLY 150 YEARS OF INDUSTRIALIZATION
RESULTED IN 29% OF ALL TASKS BEING AUTOMATED.
THE WEF THIS WILL BE 52% BY 2025.**





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SO, WHAT IS ARTIFICIAL INTELLIGENCE?

THE CORE DIFFERENCES BETWEEN MARKETING AND SCIENCE (OR HYPE AND REALITY)

**1. MACHINES
DO NOT
UNDERSTAND.**

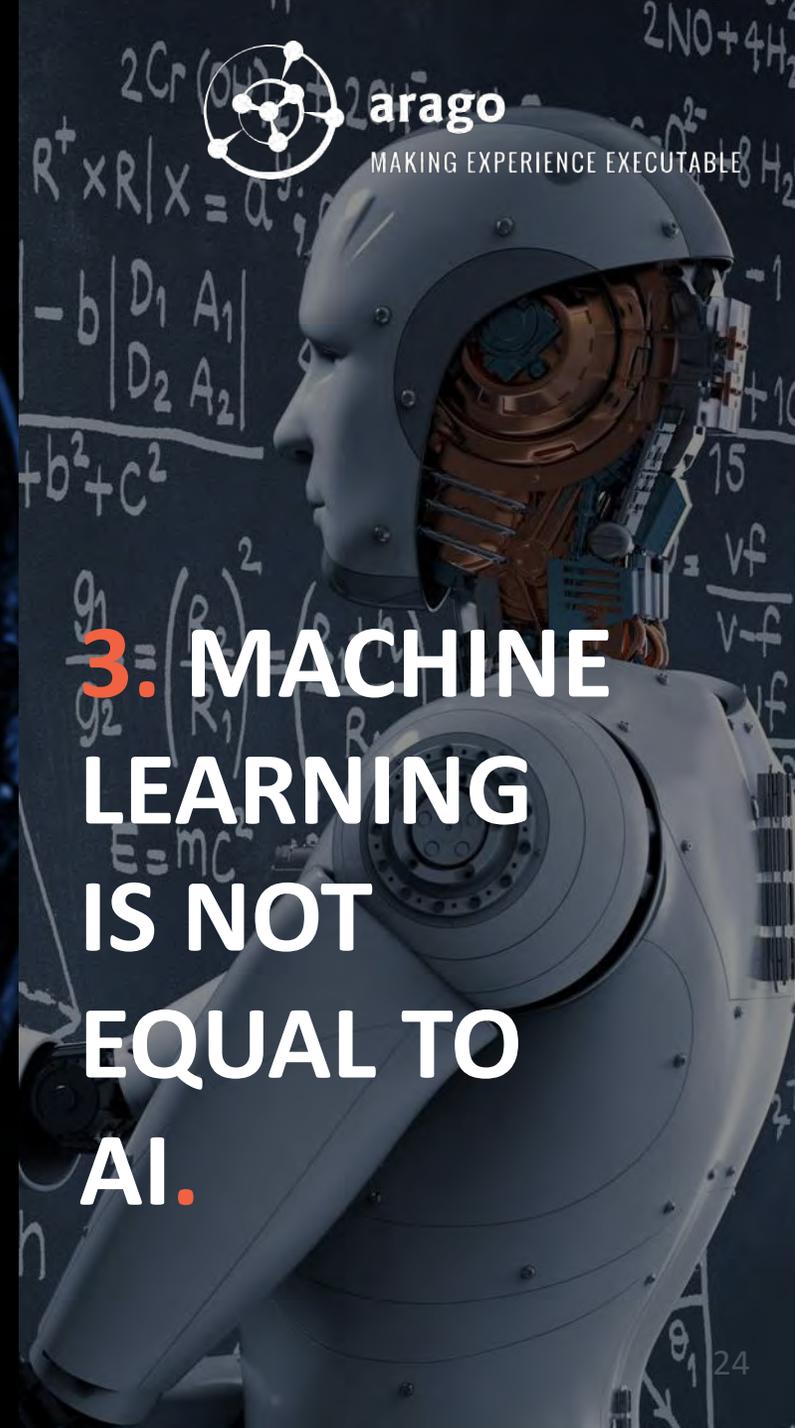
**2. MACHINES DO
NOT HAVE
HUMAN-LIKE
BRAINS.**

**3. MACHINE
LEARNING
IS NOT
EQUAL TO
AI.**



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THREE TYPES OF AI.

NARROW AI



HORIZONTAL AI



SCI-FI STORIES



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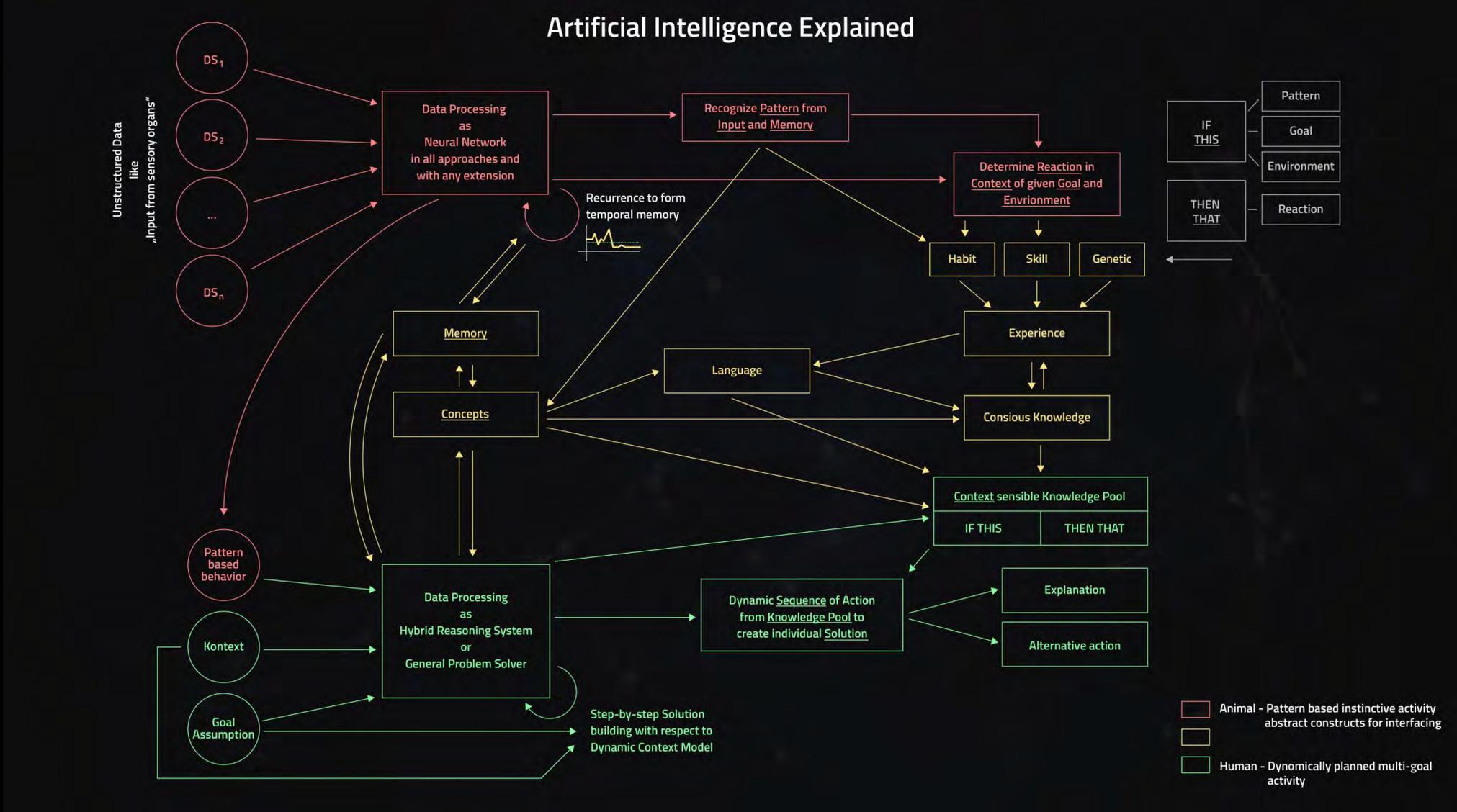
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A BASIC MODEL OF AI: FUNCTIONALITY 3/3

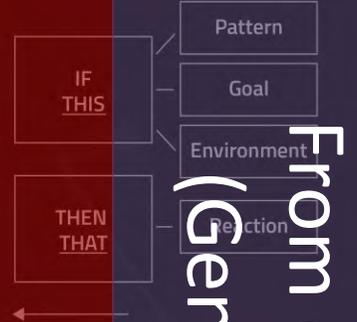
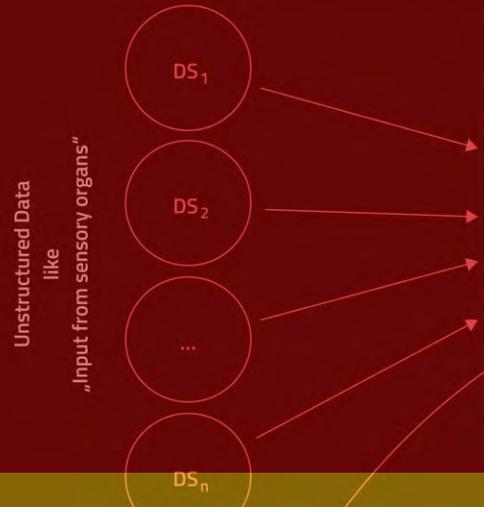


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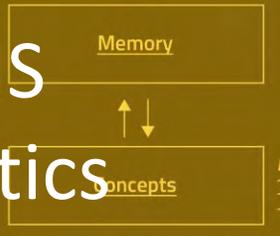
CONNECTIONISTS From neuroscience (Backpropagation)



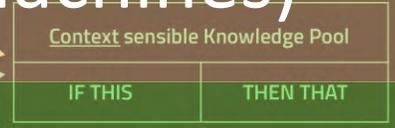
EVOLUTIONARIES

From evolutionary biology
(Genetic Programming)

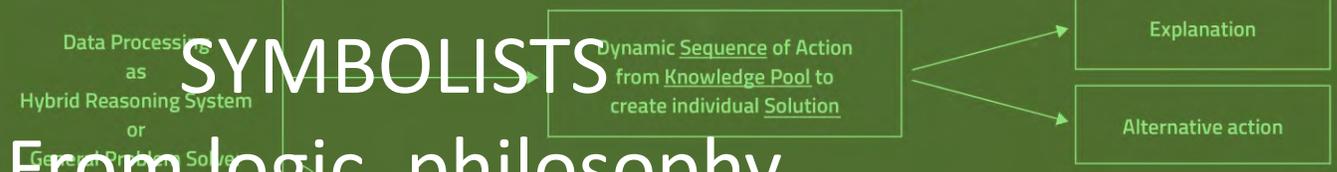
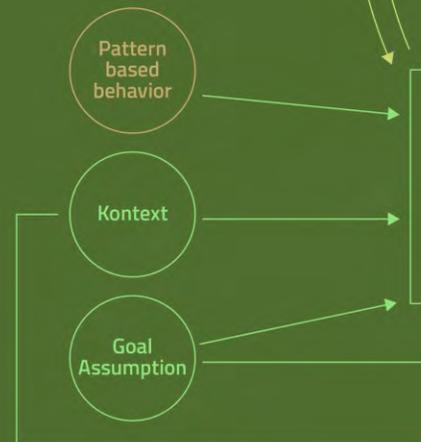
BAYESIANS From Statistics (Probabilistic Inference)



ANALOGIZERS From psychology (Kernel Machines)



SYMBOLISTS From logic, philosophy (Inverse Deduction)



Step-by-step Solution until reaching the expected to Dynamic Context Model

- Animal - Pattern based instinctive activity
- abstract constructs for interfacing
- Human - Dynamically planned multi-goal activity

IMAGINED AND TRUE CHALLENGES IN AI



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CHALLENGES
WE FEEL

NOT ENOUGH DATA

BAD QUALITY DATA

BIASED DATA

CHALLENGES
WE REALLY FACE

LIVING WITH LITTLE DATA

KNOWLEDGE TRANSFER

MORAVEC'S PARADOX



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FULFILLING THE PROMISE OF AI MEANS

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**THE BIGGEST OPPORTUNITY
WE HAD IN THE LAST 500 YEARS!**



EXAMPLES – OVERVIEW BUSINESS VIEW



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**50% LESS TIME
FOR MAINTENANCE**



**3X MORE PRIME
QUALITY CHICKEN**



**2X MARGIN ON
IT OPERATIONS**



**150X FASTER
INSURANCE PACKAGE**

AUTOMOTIVE – THE GERMAN SAMPLE INDUSTRY



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+ 60%

R&D growth in Europe created by German automotive sector

20%

of total domestic industry revenue generated by automotive industry

5.5 mio.

passenger vehicles produced in 2017 making Germany Europe's leading production site

1/3

of global automotive R&D spending made by German OEMs

1 in 5

cars that roll off the international production line is German OEM made

78%

of cars manufactured in Germany in 2017 destined for export market



820,500
Workforce



945
OEMs and Suppliers



EUR 423 bn
Industry Turnover



EUR 272 bn
Export Turnover

SELF DRIVING AS AN EXAMPLE



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**PESIMISTICALLY SELF DRIVING WILL INCREASE
PRODUCTIVITY IN TRANSPORT AND LOGISTICS
BY 15 X!**



IN A **STABLE SYSTEM** LIKE OURS, WE CAN **ONLY OPTIMIZE**, AND WE ARE GREAT AT IT.

BUT ALL THE **FLAWS** OUR SYSTEM HAS **CANNOT BE FIXED** AND **AMPLIFY** OVER TIME.

EXAMPLES: FAIR RENUMERATION, CLIMATE CHANGE, DEMOGRAPHIC CHANGE, ...



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**THE NORMAL WAY THINGS CHANGE
FUNDAMENTALLY IS AFTER A TRUE DESASTER.**

NO ONE WANTS THAT TO HAPPEN.



IF WE WANT ,
WE CAN MAKE ALL THE CHANGES THAT CAN
NORMALLY ONLY BE IMPLEMENTED
IN THE WAKE OF ABSOLUTE DESASTER
WHEN INTRODUCING AI



**THIS IS WHY AI IS A
TOPIC FOR EVERYONE**

**IT IS NOT A QUESTION OF DATA,
POLICY OR CAPITAL, IT IS A
QUESTION OF **DOING IT!****



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**WE CAN FIND A MORE HUMAN CENTRIC
DEFINITION OF WORK AND PRODUCTIVITY**

THE FUTURE OF WORK



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**PEOPLE PUTTING A SMILE ON
OTHER PEOPLE'S FACE**

**PEOPLE CREATING NEW THINGS AS
ARTISTS, INVENTORS, PIONEERS**

CREATIVITY?



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-1-

ARTISTS – PEOPLE WHO HAVE THE COURAGE TO LEAVE THE MAINSTREAM

-2-

INVENTORS – PEOPLE WHO SOLVE PROBLEMS WITH TECHNOLOGY

-3-

PIONEERS – PEOPLE WHO NEED MORE RISK TO BE HAPPY AND DISCOVER NEW GROUND

DIRECT IMPACT ON PEOPLE AND CAREERS: SPECIALIZATION IS NO LONGER CAREER BUILDER #1

WORLD ECONOMIC FORUM – SKILLS OUTLOOK 2022:

GROWING

1. Analytical thinking and innovation
2. Active learning and learning strategies
3. Creativity, originality and initiative
4. Technology design and analysis
5. Critical thinking and analysis
6. Complex problem-solving
7. Leadership and social influence
8. Emotional intelligence
9. Reasoning, problem-solving and ideation
10. Systems analysis and evaluation



THE **FUTURE** IS COMING ANYWAY,
WE MIGHT AS WELL **LOVE** IT...

BUT THERE IS EVERY REASON TO **LOVE A
FUTURE WITH AI**, BECAUSE IT GIVES US THE
SINGLE BEST **OPPORTUNITY TO REINSTATE A
SYSTEM FOCUSSED ON HUMAN HAPPYNESS
AND HUMAN POTENTIAL.**

EUROPE'S 3rd WAY: HUMANISM 2.0



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TO BE SUCCESSFUL AS PEOPLE, WE NEED TO
GET BACK TO HUMANIST SKILLS:

COMMUNITY BEFORE **SELF**

CURIOSITY BEFORE **SECURITY**

FACTS BEFORE **OPINIONS**

THINKING BEFORE **FEELINGS**



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THANK YOU.