

# The Impact of Intelligent Automation on the Blue Chip Economy

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3<sup>rd</sup> December 2015

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# From Industry to Technology

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# The Economic Food Chain



# The World as It Was a Long Time Ago



Agriculture

Armament

...



# The World as It Was only Yesterday

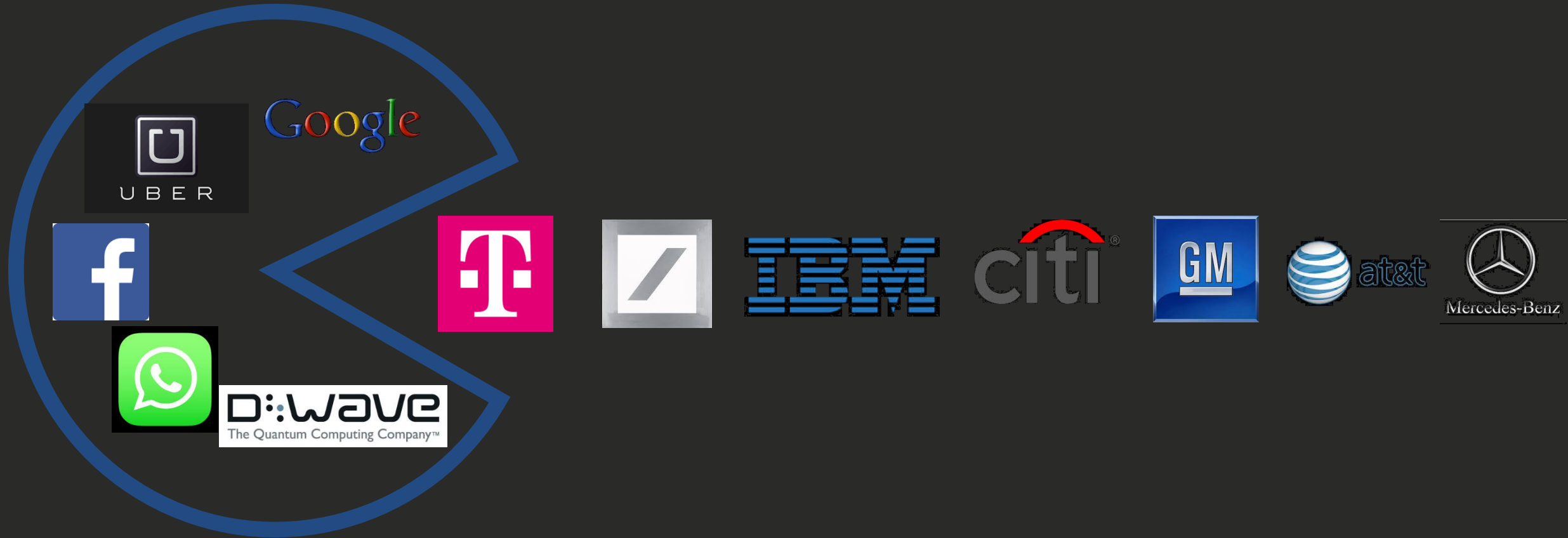


Finance

Automotive

...

# The World as It Is Today



# Examples of Tangible Disruption



- Introducing Google car reduces the need for new cars by 70%
- Facebook's production cost for a retail banking account would be 98% cheaper than any pure online bank's
- Quantum computers such as D:WAVE's can potentially substitute the entire IT hardware industry

**Consumers Using  
New Business Models  
Was the Beginning  
of the Change Cycle.**

# Information

## Speed:

Twitter has shortened the news cycle by 80%

## Reach:

Everybody is a journalist

## Cost:

Why pay for ads if you can get the same reach for free



# Entertainment

## Medium:

CD/BlueRay were the moneymakers, then came MP3/MP4, now it's streaming

## Ownership:

Streaming is the new owning

## Commercialization:

Artists are businesses – no longer the song sells, but concerts and merchandise



# Transportation & Travel

## Business model:

- The sharing economy is taking over
- Pricy infrastructure no longer is an asset

## Regulation:

The UBER Case might become blue print for how a regulated market is being replaced

## Platforms:

Proves the platform trend





# IT Infrastructure

## Entry barrier:

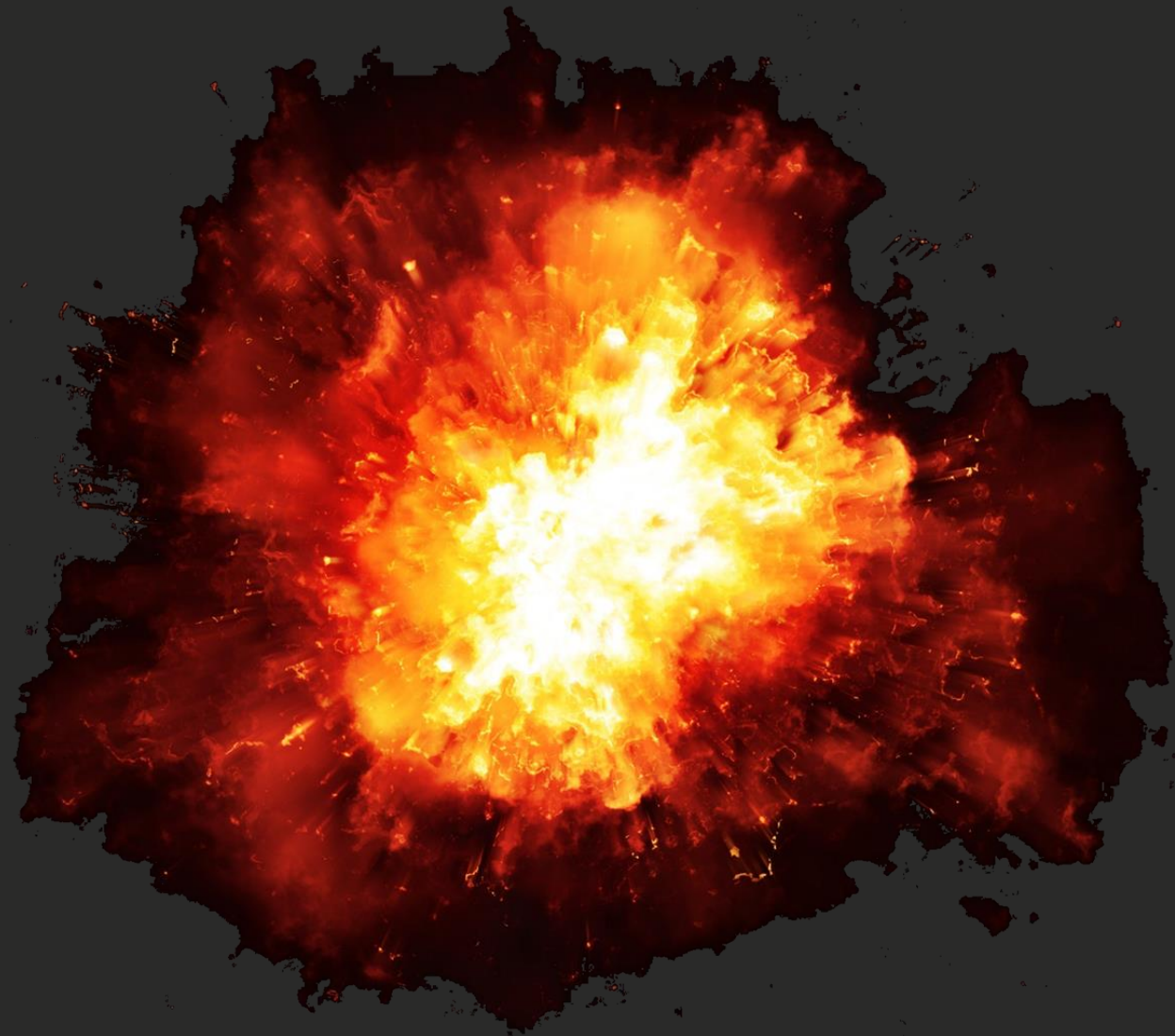
Owning a data center with adequate connectivity, good security and computing power used to be a huge investment

## Access:

Today, all this is available on demand and at low prices to anyone



**In the 2<sup>nd</sup> Part of the  
Change Cycle High-Tech  
Is Moving into All  
Business Models.**



**For Businesses,  
Change Is No Longer Optional.**

**What's Holding Back?**

**The Disadvantages of Blue Chip Companies**

# Operational Spend

Blue Chip



operations  
keeping the lights on  
job preservation

change  
redoing business  
reinvention

Tech leader





# Brain Drain





**CLAYTON M. CHRISTENSEN**

NATIONAL BESTSELLER

# THE INNOVATOR'S DILEMMA

"This book addresses a tough problem that most successful companies will face eventually. It's lucid, analytical—and scary."

—Andrew S. Grove, chairman & CEO,  
Intel Corporation

The Revolutionary Book that Will  
Change the Way You Do Business

*HarperBusiness Essentials*

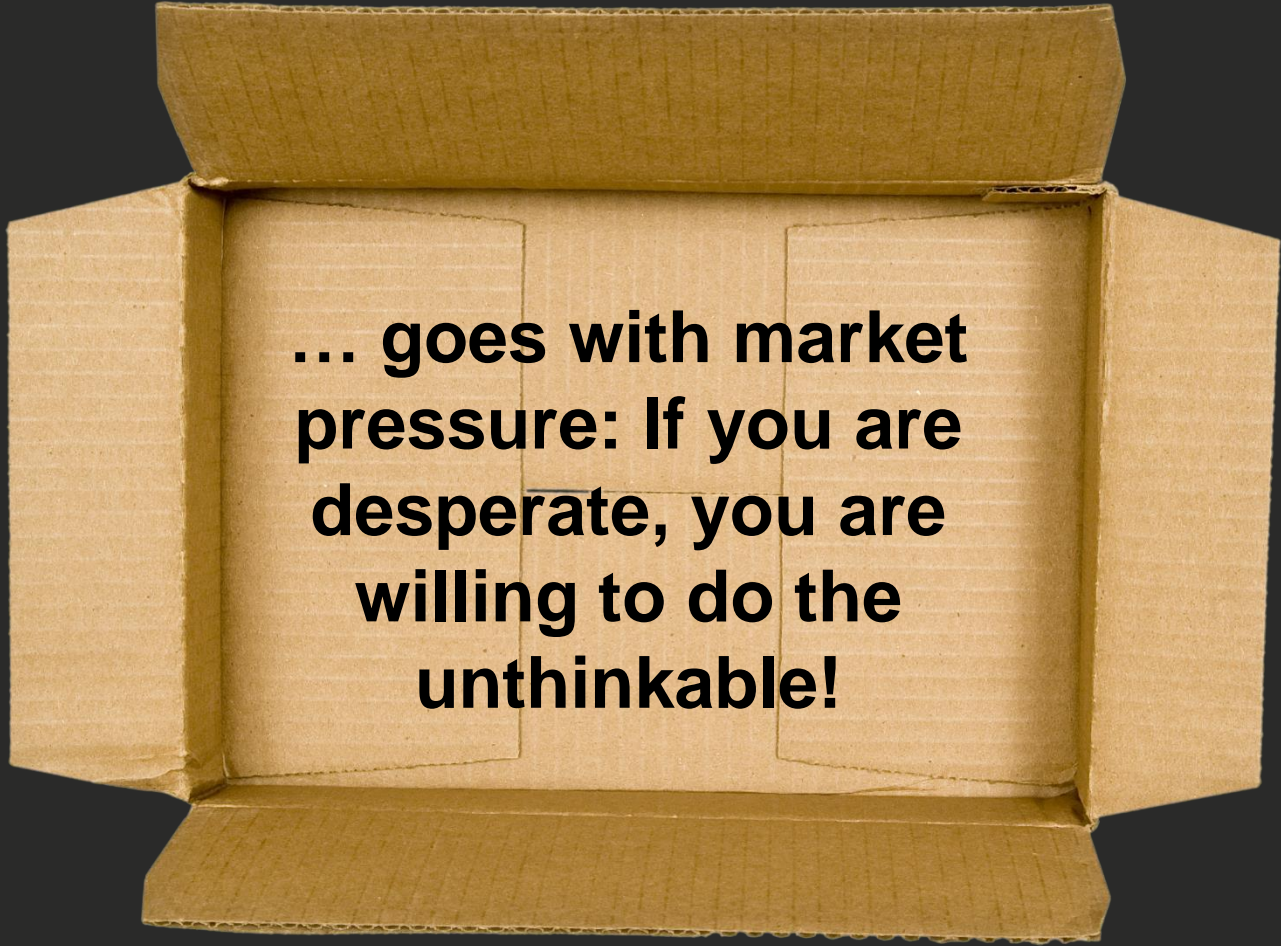
“[...] successful, outstanding companies can do everything ‘right’ and yet still lose their market leadership – or even fail – as new, unexpected competitors rise and take over the market.”

# Legacy Thinking



**How to Catch on ...**

# Legacy Thinking

An open, empty cardboard box is centered against a dark background. The box is made of brown corrugated cardboard and is shown from a top-down perspective, with its flaps open. Inside the box, there is a block of text in a bold, black, sans-serif font.

**... goes with market  
pressure: If you are  
desperate, you are  
willing to do the  
unthinkable!**



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... goes with legacy thinking,  
because that is what keeps  
businesses from thinking out of  
the box.

## Operational Spend

Blue Chip



operations  
keeping the lights on  
job preservation

change  
redoing business  
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## Brain Drain



... leaves two to go ...

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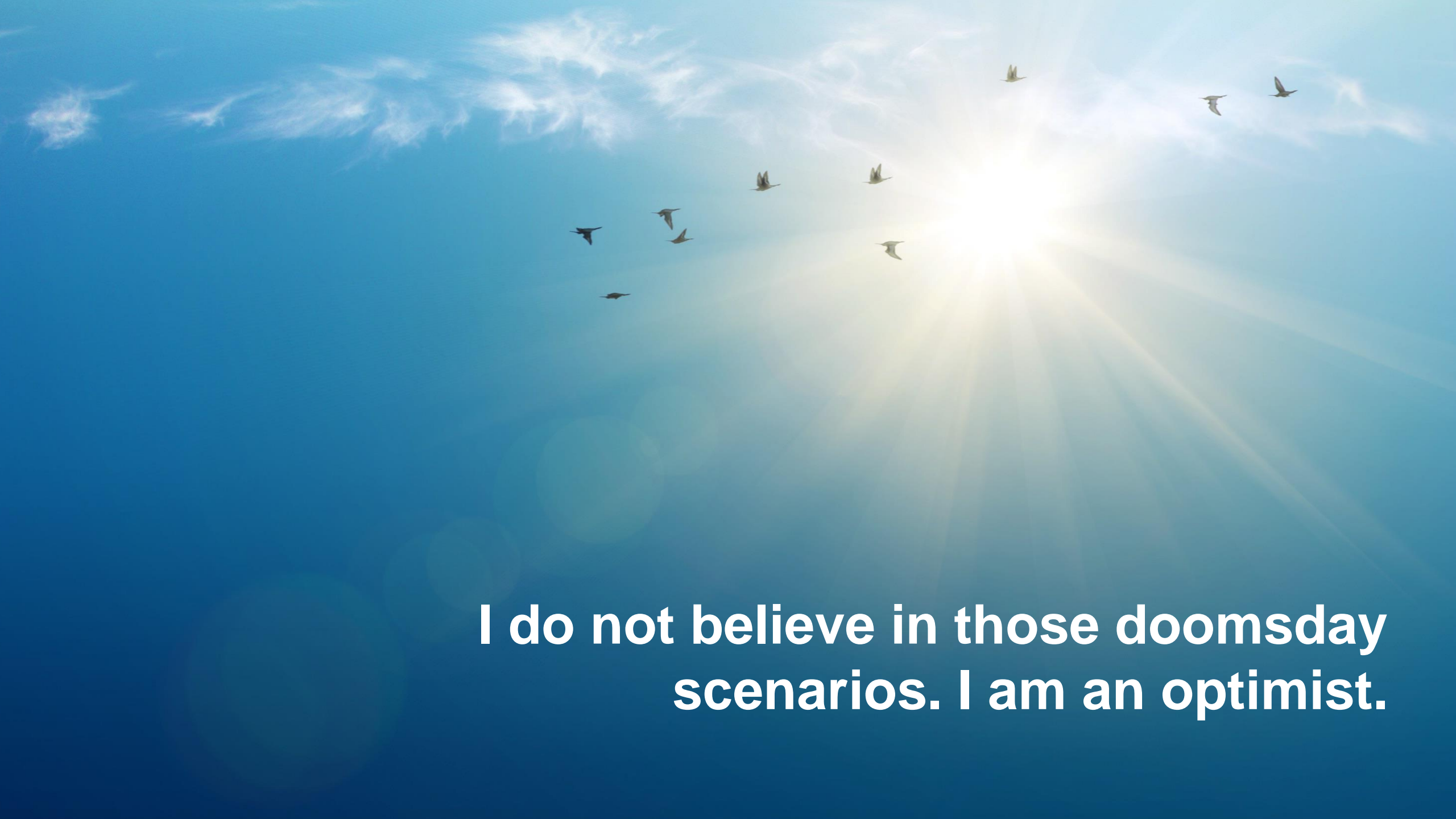
# **Artificial Intelligence (AI) Is the Key to Step Change**

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**There are many doomsday  
scenarios out there.**





**I do not believe in those doomsday scenarios. I am an optimist.**

**How about you?**

**Let me tell you the story of  
Artificial Intelligence.**





The story begins...

**1956-1975:**  
**The golden era of AI**

**1974-1980:**  
**The first AI winter**

**1980-1987:**  
**The rise of expert systems**

**1987-1993:**  
**The second AI winter**

**So, where is AI really today?  
And what direction is it taking?**

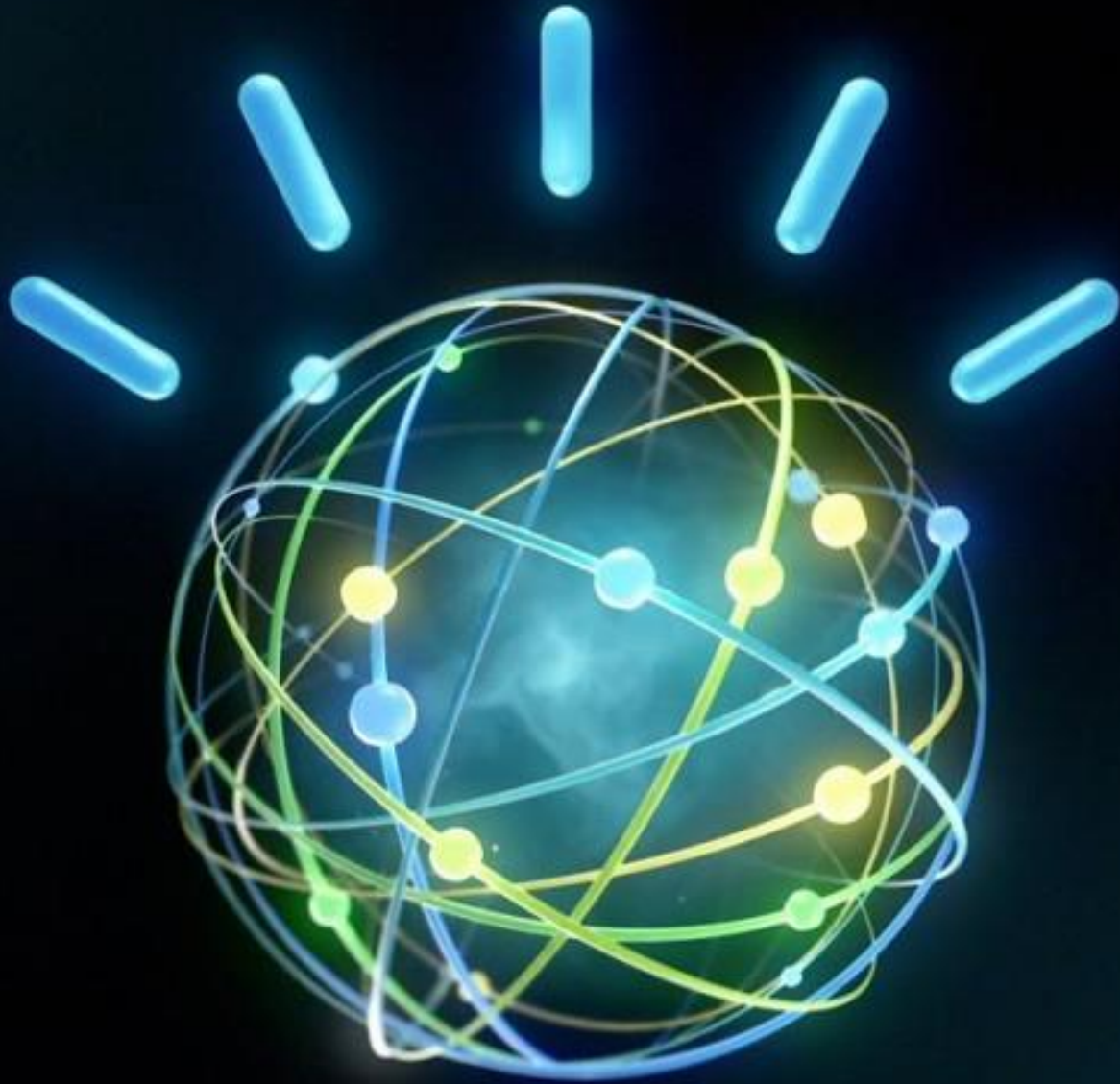


**1996:**

**IBM's Deep Blue is  
the first computer to  
beat the Chess world  
champion Kasparov.**







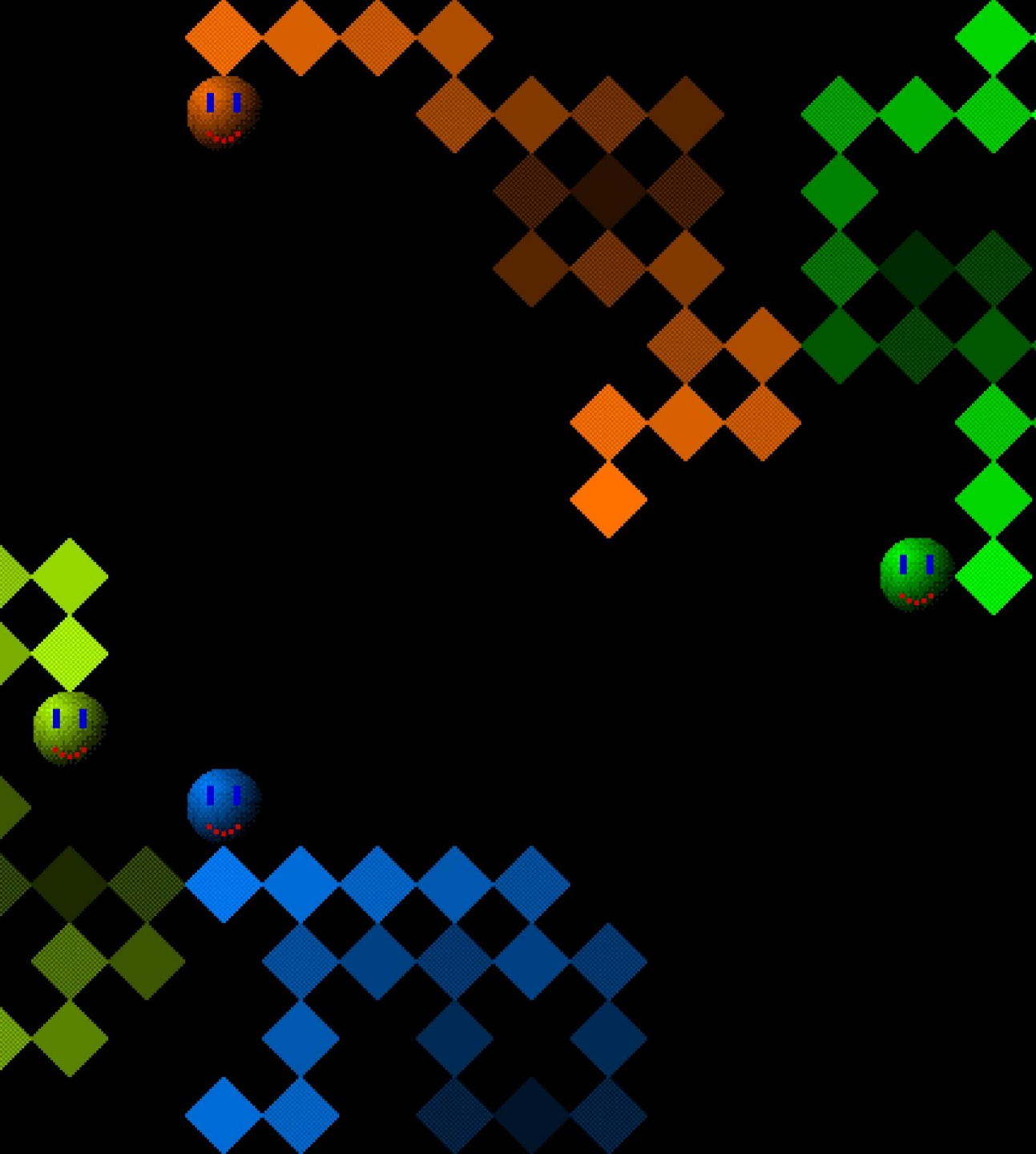
**2011:  
IBM's Watson  
wins  
Jeopardy.**



**2012:  
Google Brain  
recognizes cat  
based on 10  
million  
YouTube  
videos with  
70% accuracy.**







**2014:  
DeepMind  
Technologies'  
artificial  
intelligence agent  
can play 49 classic  
Atari games. The  
company is  
acquired by  
Google for 500m+**






**arago**

the automation experts

**also does AI research.**

**We do it to solve the fundamental challenge  
to the Blue Chip economy.**



A large, heavy-duty metal shackle, likely made of steel, is shown against a dark background. The shackle has a U-shaped body with a red handle and a textured grip. The handle is attached to the shackle with a red sleeve and a silver-colored metal nut. The shackle has some markings, including "HMS" and "56".

**Reinforcement learning:  
By playing and experimenting,  
man and machine learn  
under the same condition.**

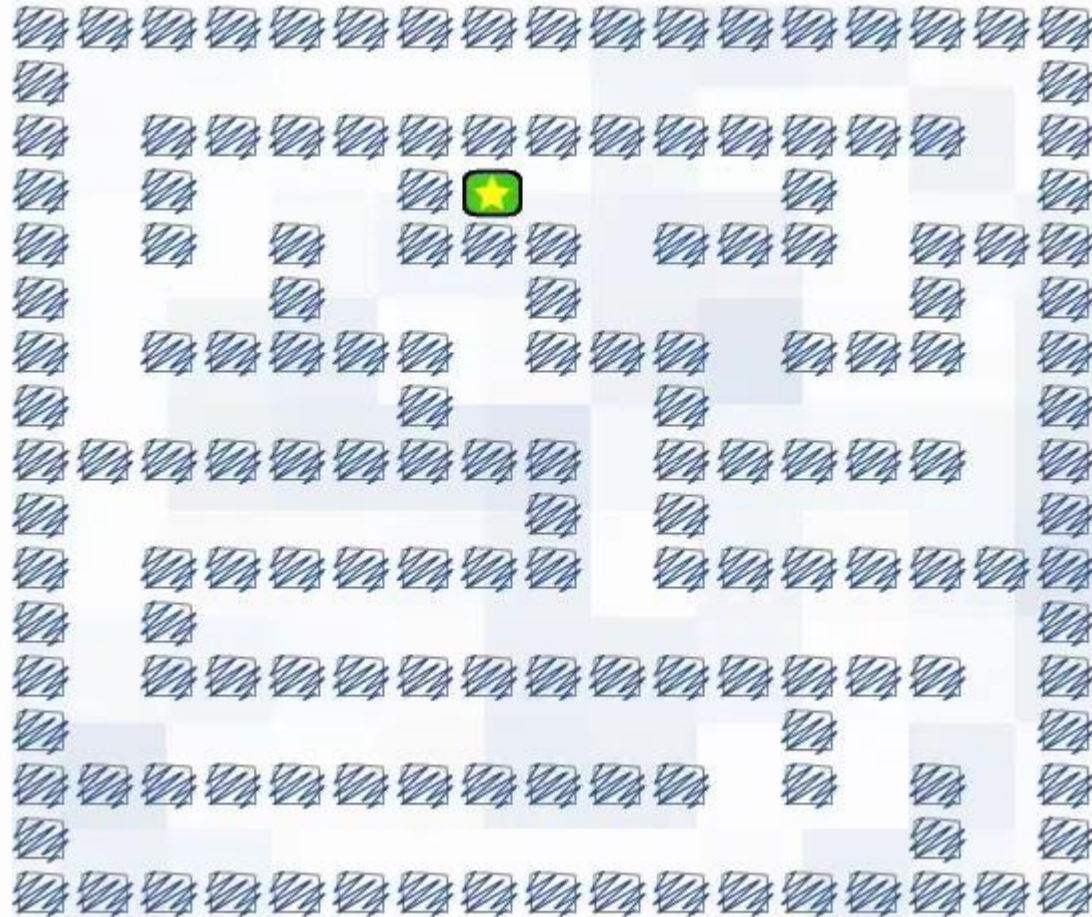


The Holy Grail of  
Traditional AI:

Learning from  
unstructured data without  
human assistance

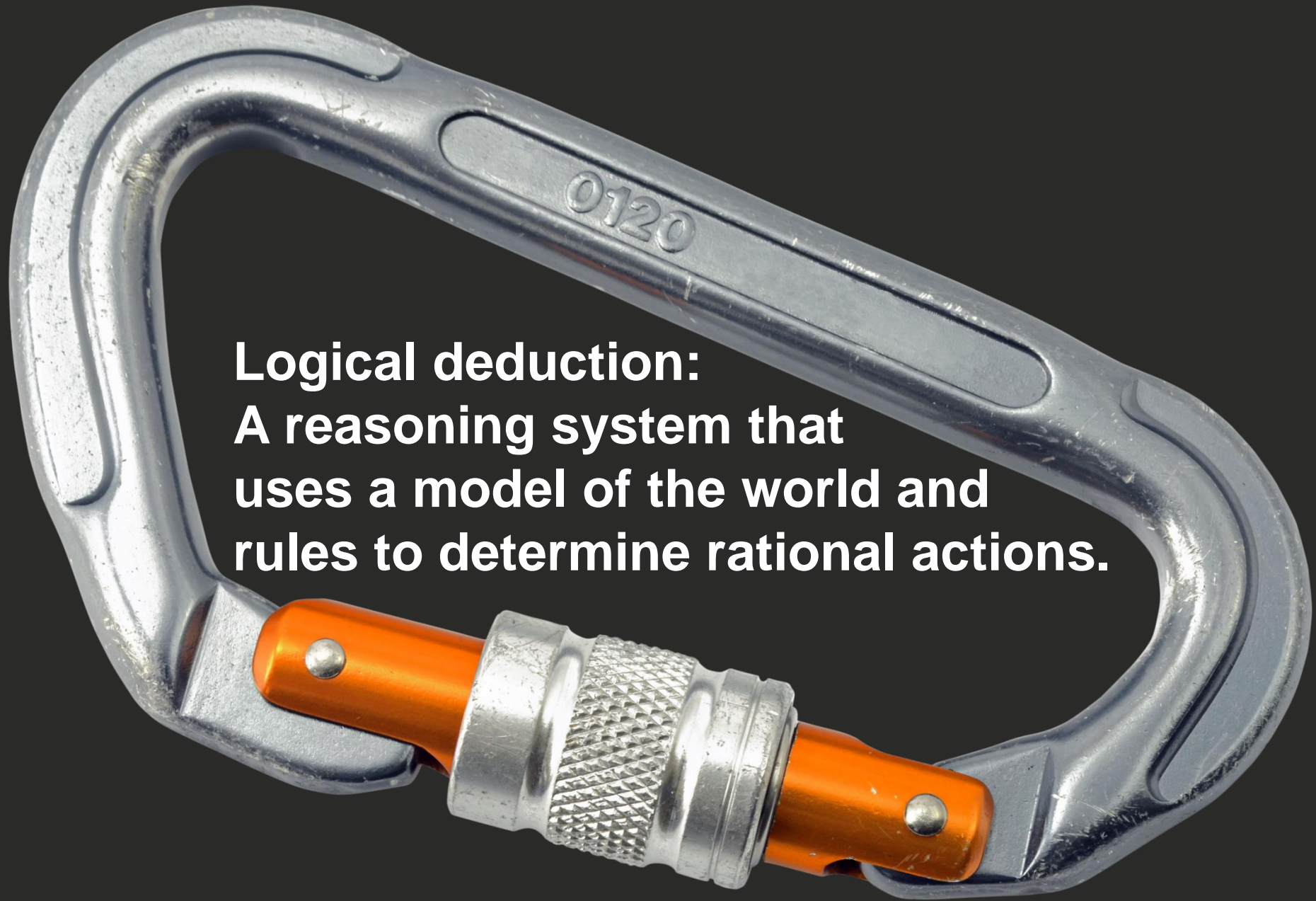






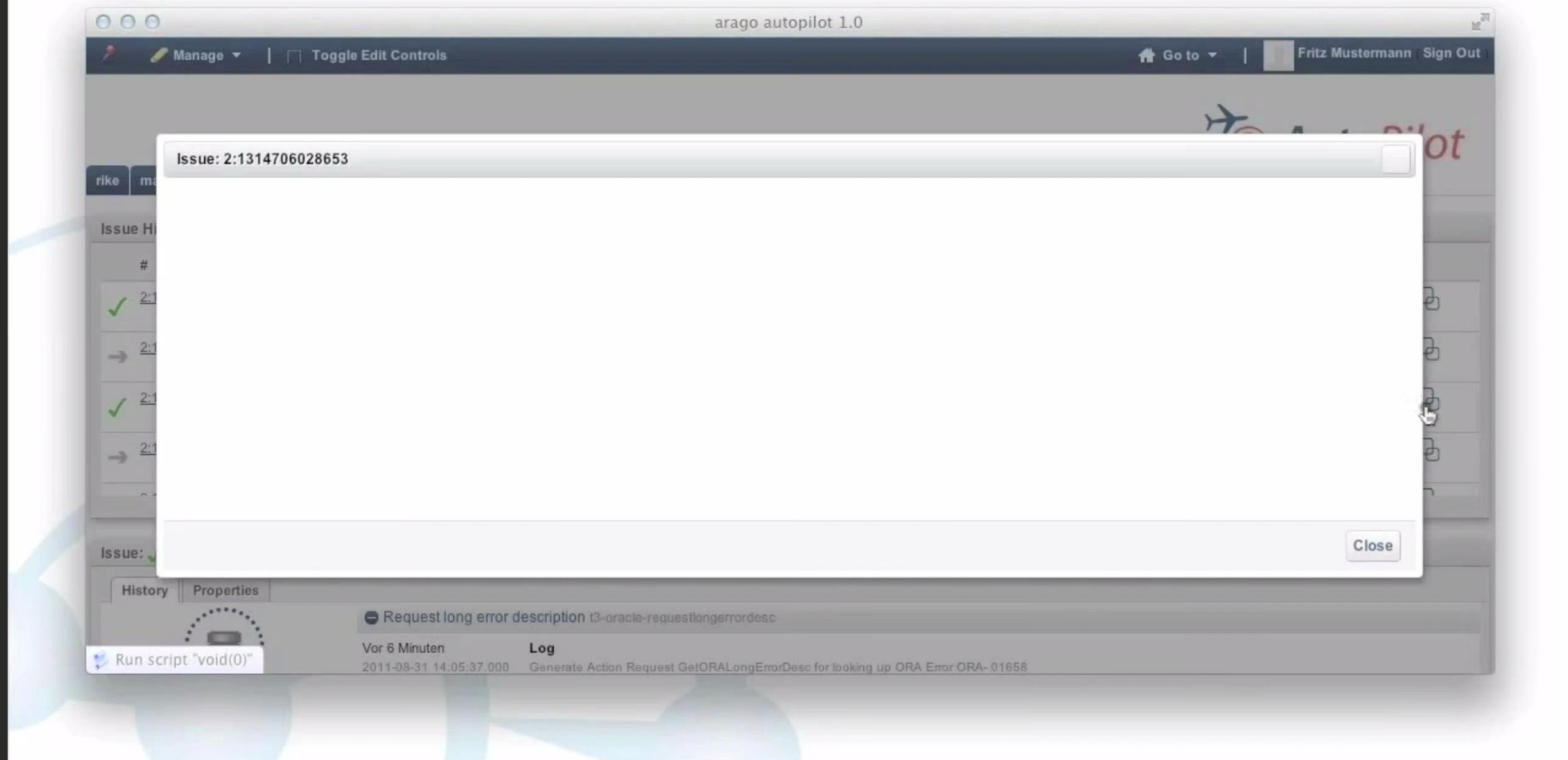
**We use the same technology to have a machine learn from experimentation – from experience**





**Logical deduction:  
A reasoning system that  
uses a model of the world and  
rules to determine rational actions.**

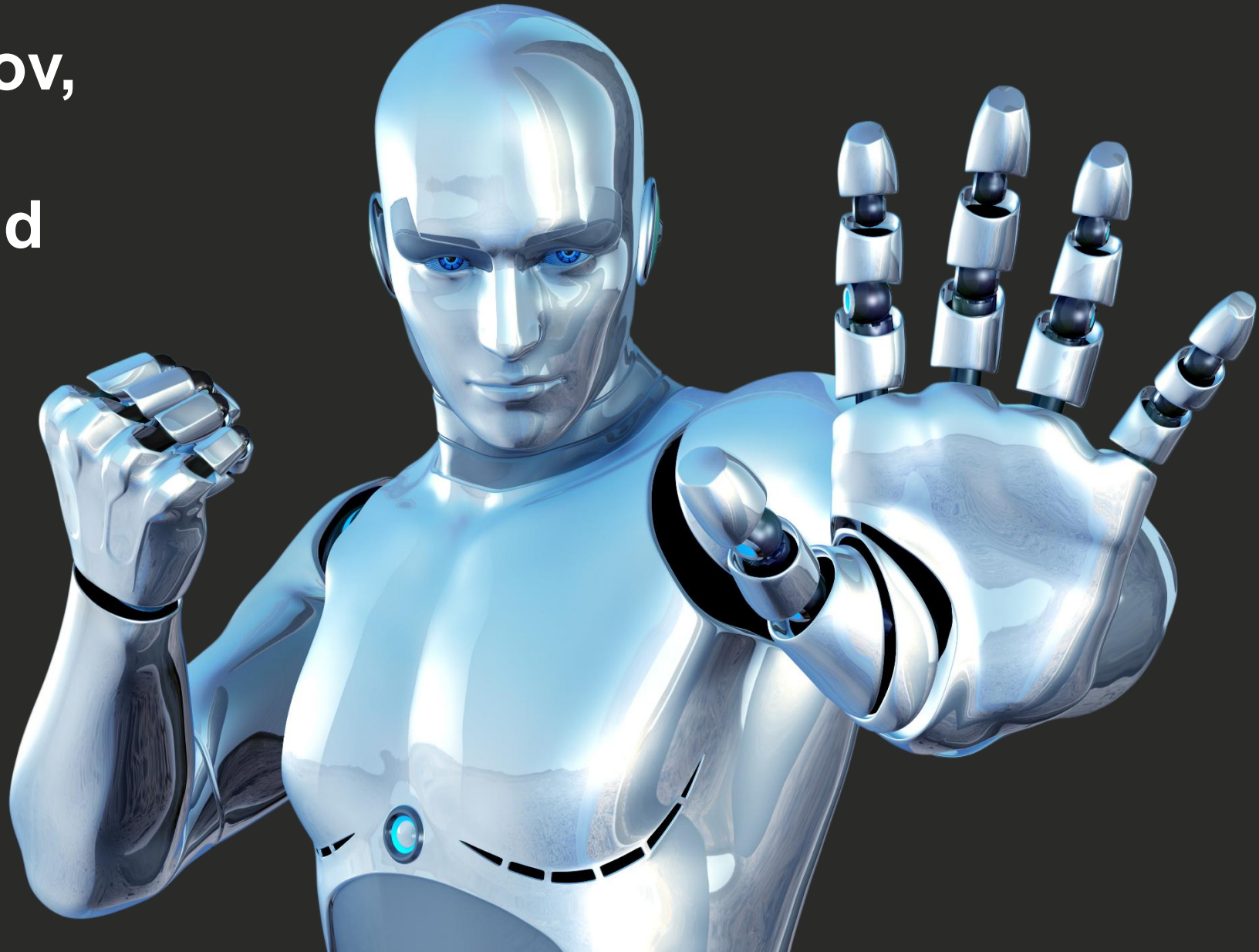
## DER ISSUE-VISUALIZER - TRANSPARENTE DOKUMENTATION DER TÄTIGKEITEN



**We use reasoning systems not limited to decision trees.**

**But is logical thinking and experience-based knowledge enough to form an intelligence?**

Isaac Asimov,  
author of I,  
Robot would  
say Yes.



# Learning Examples



**But we at arago strongly disagree ...**

**... We believe in human-machine collaboration.**





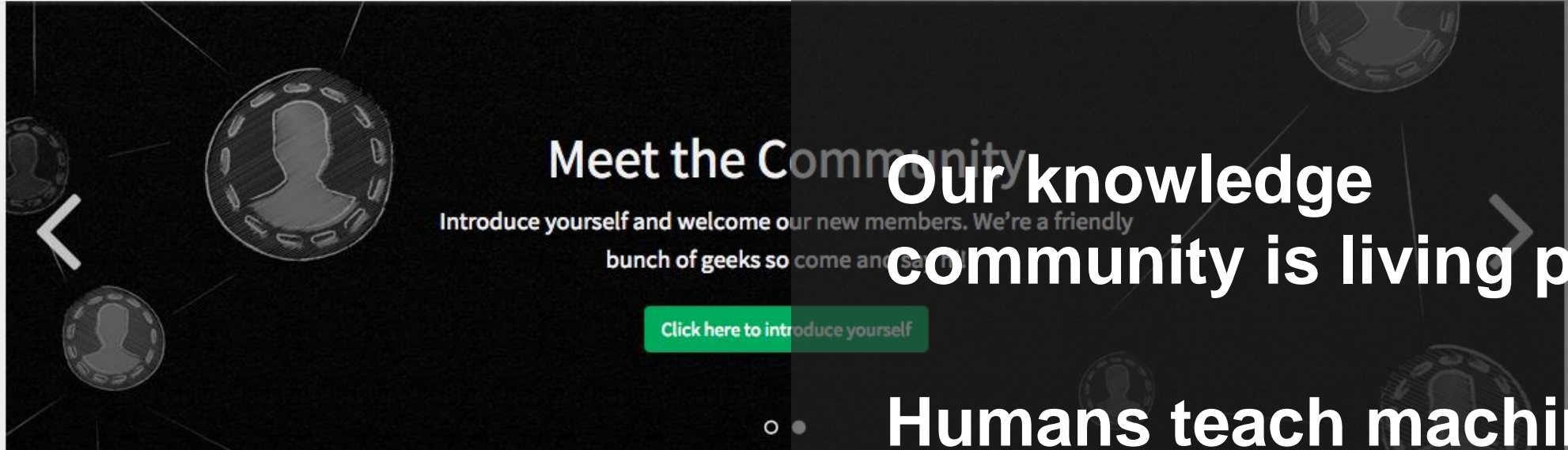
**Human-Machine  
Collaboration:  
Machines explicitly learn  
wanted activities, boundaries  
and acceptable experimentation  
from humans - continuously.**



**If we want machines to act according to our expectation, humans have to become their teachers.**

**Learning from data gathered in any environment without any explanation never worked for us, why should it work for machines?**





**Our knowledge community is living proof:**

**Humans teach machines, machines give feedback on success and humans even get credit for their "students' " success.**

TRENDING SUBS: /faqs /intros /updates /automation-requests /ki-syntax-mastery more...

▲ 1



**I can be in many places at the same time**

*/sub/ki-syntax-mastery - updated 1 hour ago*

▲ 0



**Intro Christian**

*/sub/intros - updated 3 hours ago*

▲ 0

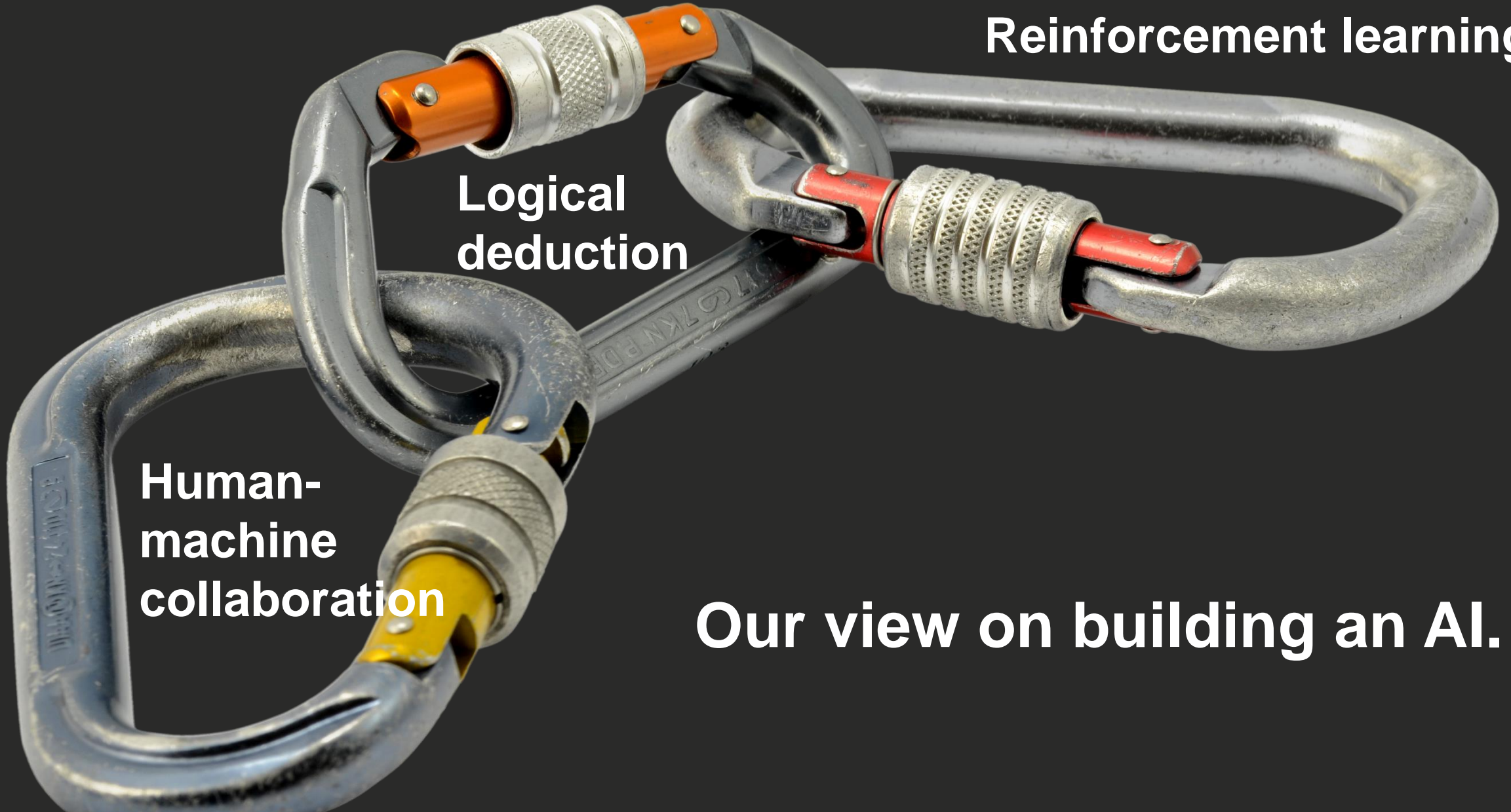


**Automate changing default gateway CentOS**

*/sub/automation-requests - updated 23 hours ago*

centos Network neat automate request service restart gateway





**Reinforcement learning**

**Logical deduction**

**Human-machine collaboration**

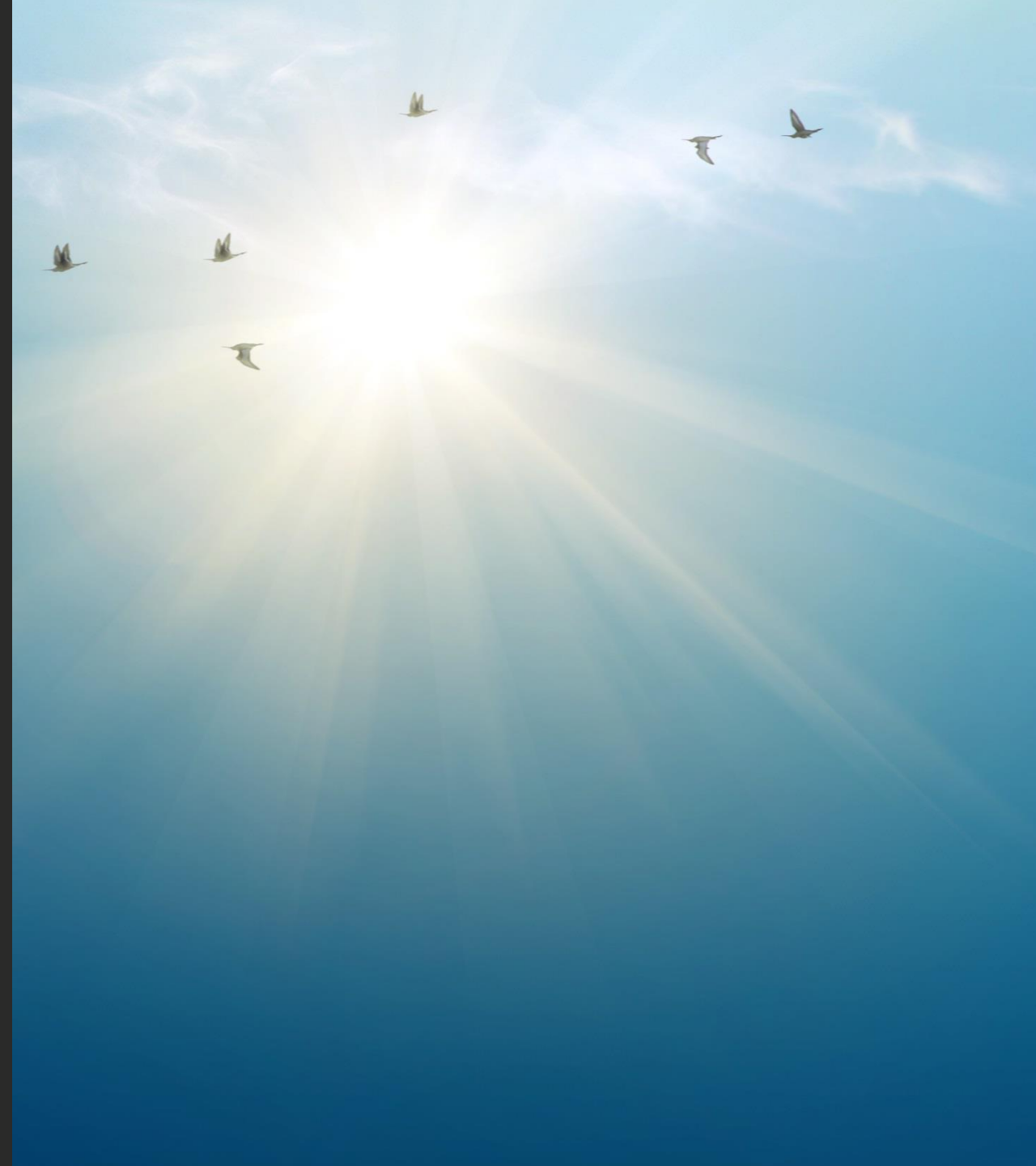
**Our view on building an AI.**



**We believe that man and machine are a smart combination. Humans offer their experience and specific knowledge of their environment.**

**Machines are capable of exponential thinking and continuous learning. Once a problem has been resolved, it never needs to be covered again.**

**This is why in our view  
there are no doomsday  
scenarios, but  
improvement of the status  
quo in many respects.**





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# **Smart Automation Can Be the Enabler for the Blue Chip Economy?**

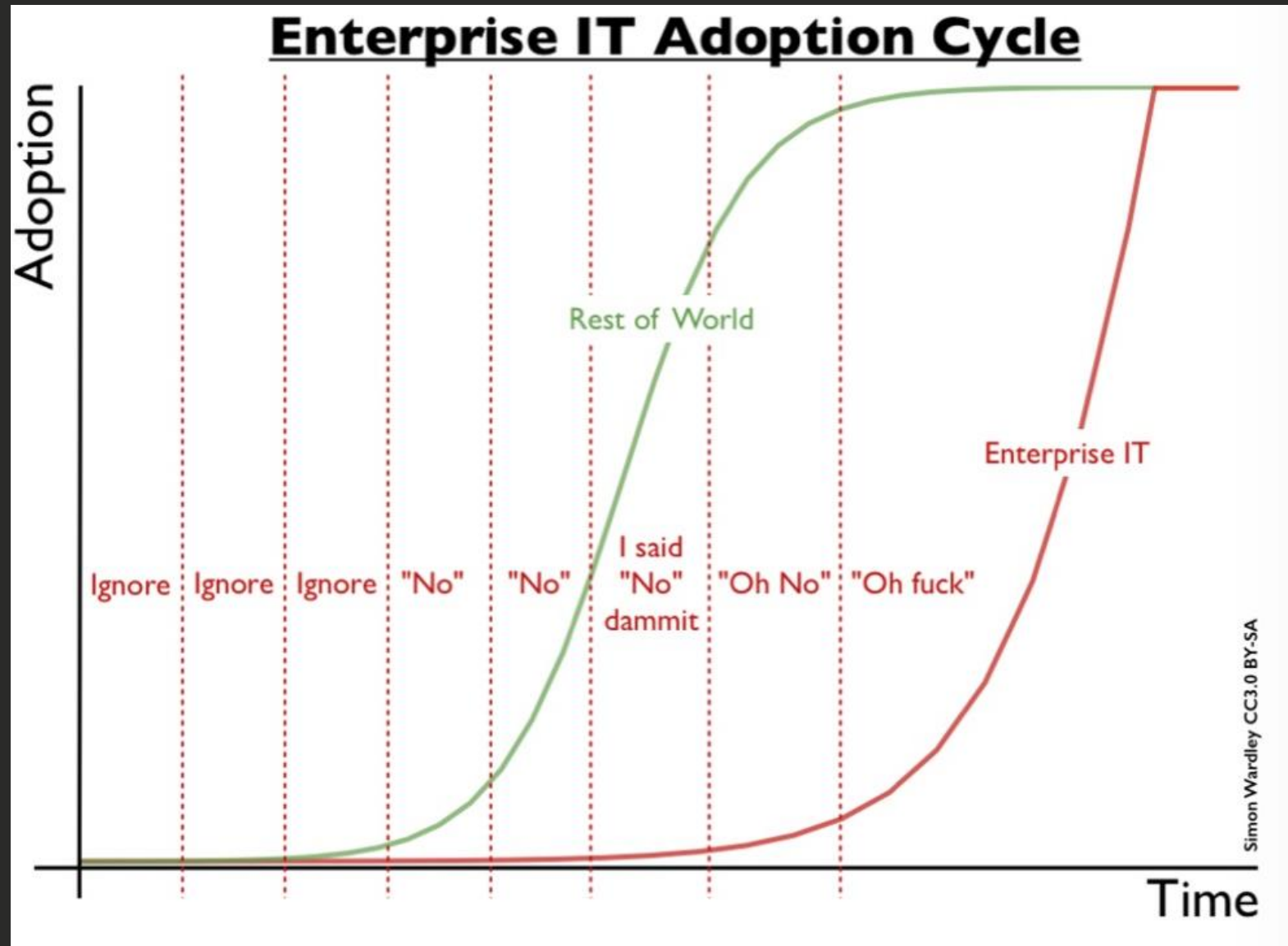
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# **We need AI in our economy**

**Let us start getting used to it**

**This is why we started in an area where  
talent is scarce and occupied with stuff they  
don't even like to do!**

# Enterprise IT as We Know It.



Source  
Simon Wardly

<http://blog.gardeviance.org/>

**What Is the Difference Between a  
Smart Machine and a Machine?**

# This Is the Way Machines Solve a Problem

**A**



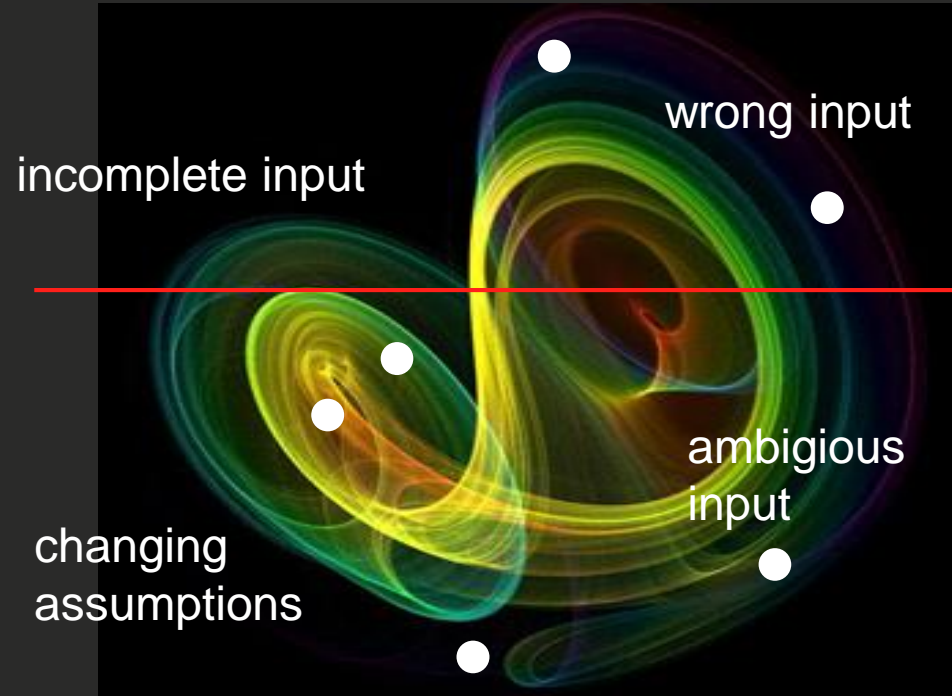
**B**

Result: Only one problem solved



# This Is the Way Humans Solve a Problem

A

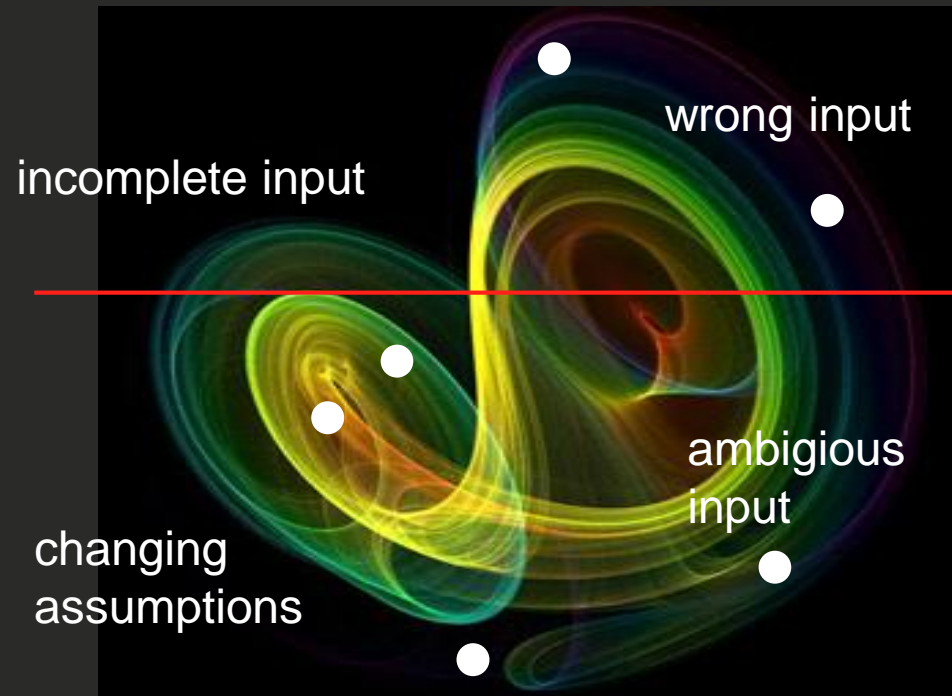


B

Result: Multiple problems solved

# If People Teach Smart Machines, This Is What Smart Machines Can Do

**A**



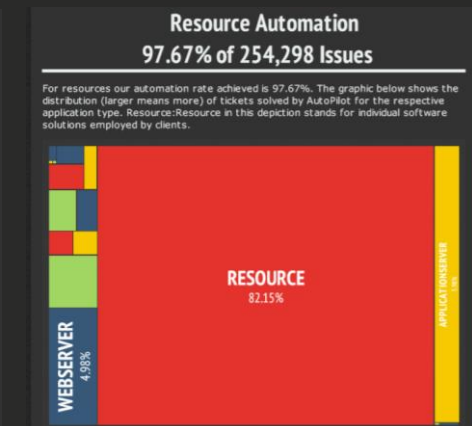
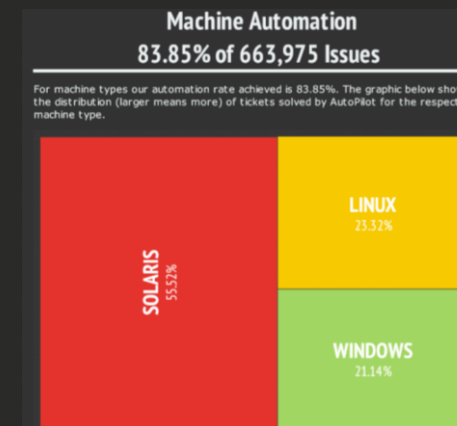
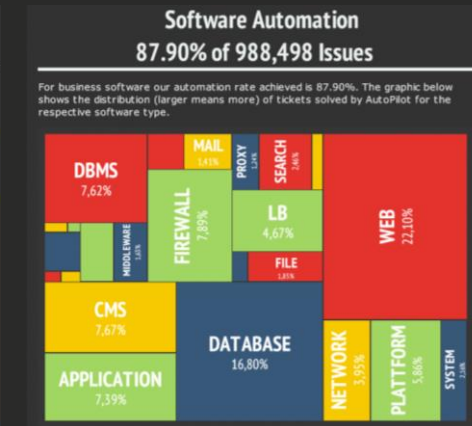
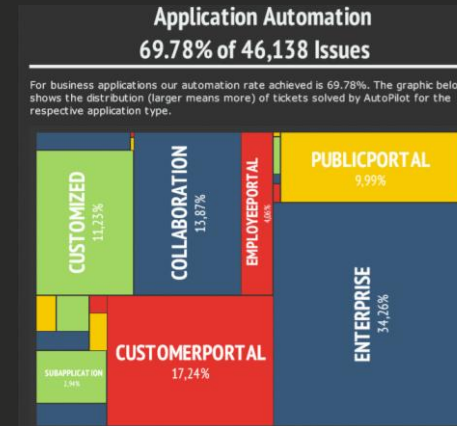
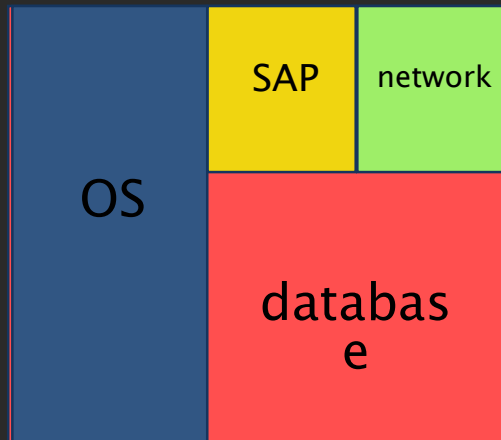
**B**

Result: Multiple problems solved

# Extension of Applicability

Industrialized Automation vs.

AI Based Automation



# 1. Seriously Cutting Cost! – Global Bank

## What.

The entire IT infrastructure for all applications was run at a rate of 118,87M€ p.a. A traditional automation project cut cost to 108,88M€ p.a. without being sustainable for more than one year due to changes in environment.

## Result.

AutoPilot was introduced and reached peak automation rate after less than 12 months and is running the environment at an annual rate of 63,57M€. The overall result: sustainable savings of 46.34%.

	before	traditional	new
Storage	50,79	50,79	26,84
Backup	68,68	68,68	43,63
Compute (incl. NW)	69,93	69,93	28,80
OpSys	30,88	30,88	5,98
Database	15,29	15,29	9,29
Middleware	21,14	21,14	13,81
Manpower	48,28	33,80	24,27
Special Bids	51,62	36,13	38,08
Total Mn €	356,61	326,64	190,70



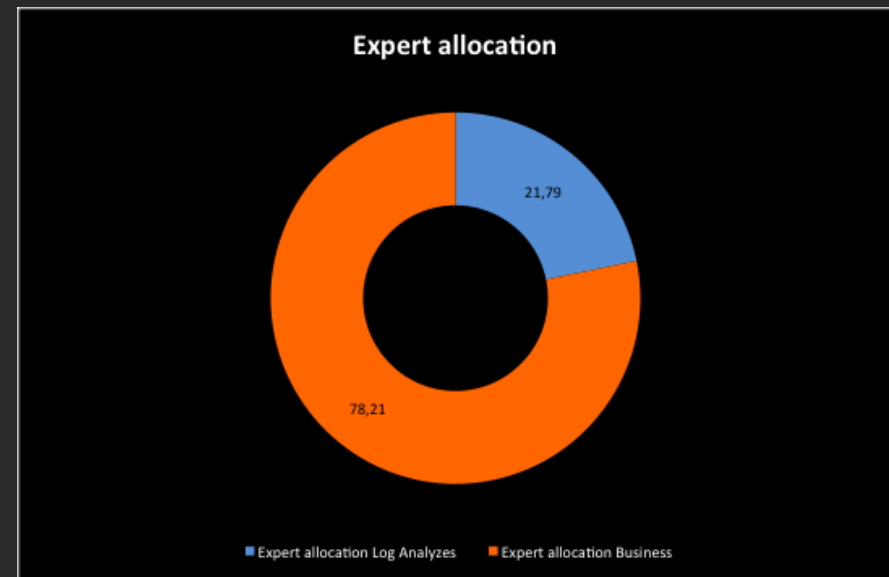
## 2. Leveraging Expertise – Global Telco

### What.

To ensure compliance, security policies and smooth operations the company is obliged to use their best experts to analyze logging information, searching for e.g. inconsistencies. Unfortunately only the best people – the ones that are needed everywhere – are fit to perform this task.

### Result.

Thanks to AutoPilot 80% of the much needed experts' time is now available to business – at the same time cost for log analyzes drops by 12 M€ p.a.



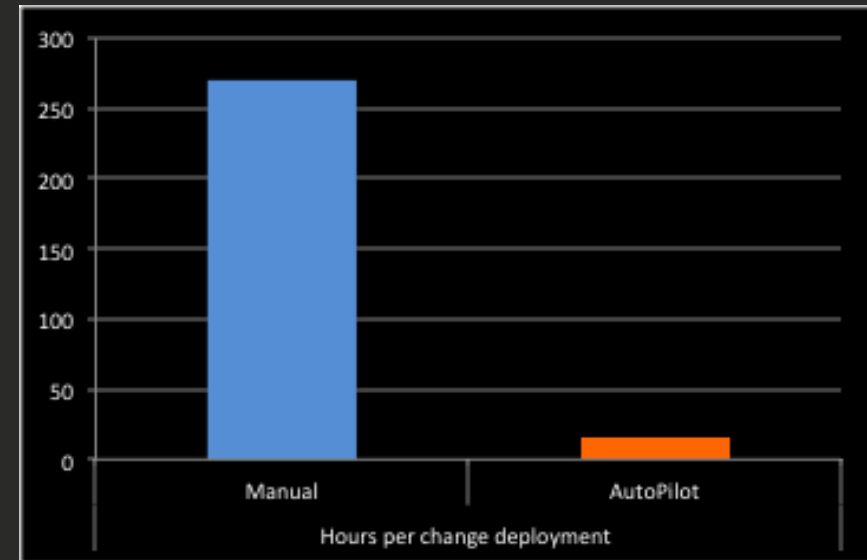
# 3. Gaining Agility – European Bank

## What.

Daily compliance checks of more than 1,000 appl. created 32,500 man-days p.a. and a 50 person team was busy tracking changes to maintain functionality of the checks. Automation was virtually impossible due to complexity and change rate in the environment.

## Result.

After introduction of AutoPilot six people maintain change, all checks are fully automated, speed of adoption to new functional requirements has 16X – while saving 20,65M\$ p.a.



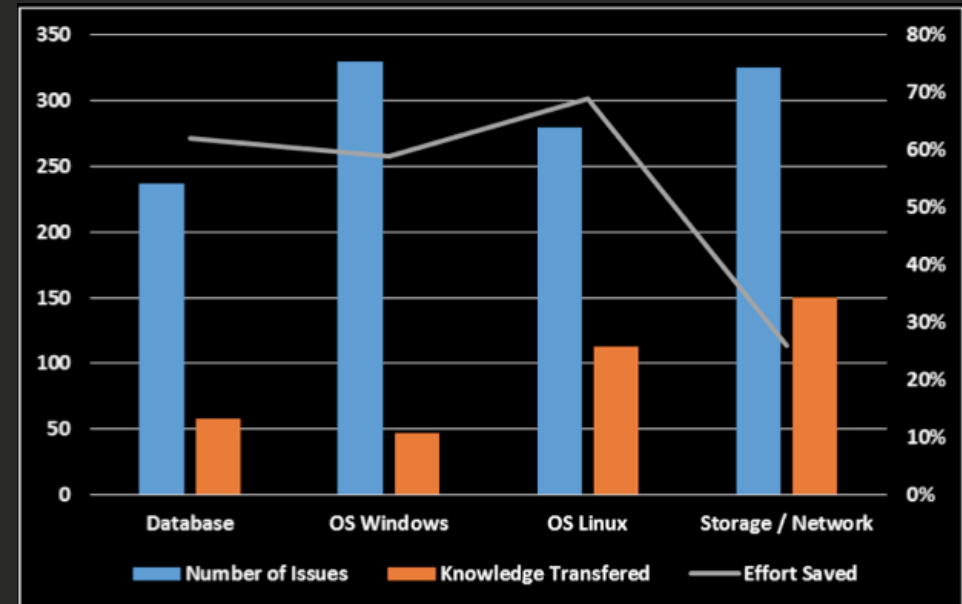
# 4. Achieving Fast Sustainable Value – IT Provider

## What.

AutoPilot is not implemented as a one off automation project. It is setup as continuous improvement, smoothly increasing automation rate. Where traditional automation methods have long ramp up time and need to avoid change, AutoPilot's time to value is short and its adaptability great.

## Result.

After only three months an average automation level of 35% was already in place in the cases AutoPilot considers low hanging fruits. Despite continuous change the average automation rate after 12 months is >80%.





**65% of a typical work day  
is spent troubleshooting.**

**15% is spent  
on more advanced functions  
such as modernizing  
technology or strategizing.**



**Imagine what IT pros say when we ask them whether they would consider using a smart machine to do the routine work for them?**

**73%** would like to do it.

**They are not afraid to be substituted; instead they get the chance to do more interesting tasks.**

Thank you for your time which we hope was well invested,  
because dismissing good ideas can harm your future



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the automation experts