

# Desmistificando a Inteligência Artificial Desafios, realidade e perspectivas

Onde podemos chegar?



CEZAR TAURION



Kick

YOUR IDEA  
OUR CHALLENGE



JAN  
2018

# DIGITAL AROUND THE WORLD IN 2018

KEY STATISTICAL INDICATORS FOR THE WORLD'S INTERNET, MOBILE, AND SOCIAL MEDIA USERS

TOTAL  
POPULATION



**7.593**  
BILLION

URBANISATION:  
**55%**

INTERNET  
USERS



**4.021**  
BILLION

PENETRATION:  
**53%**

ACTIVE SOCIAL  
MEDIA USERS



**3.196**  
BILLION

PENETRATION:  
**42%**

UNIQUE  
MOBILE USERS



**5.135**  
BILLION

PENETRATION:  
**68%**

ACTIVE MOBILE  
SOCIAL USERS



**2.958**  
BILLION

PENETRATION:  
**39%**

we  
are  
social



we  
are  
social



# 2017 This Is What Happens In An Internet Minute



Created By:  
@LoriLewis  
@OfficiallyChadd

Your life in

The ultimate



your pocket

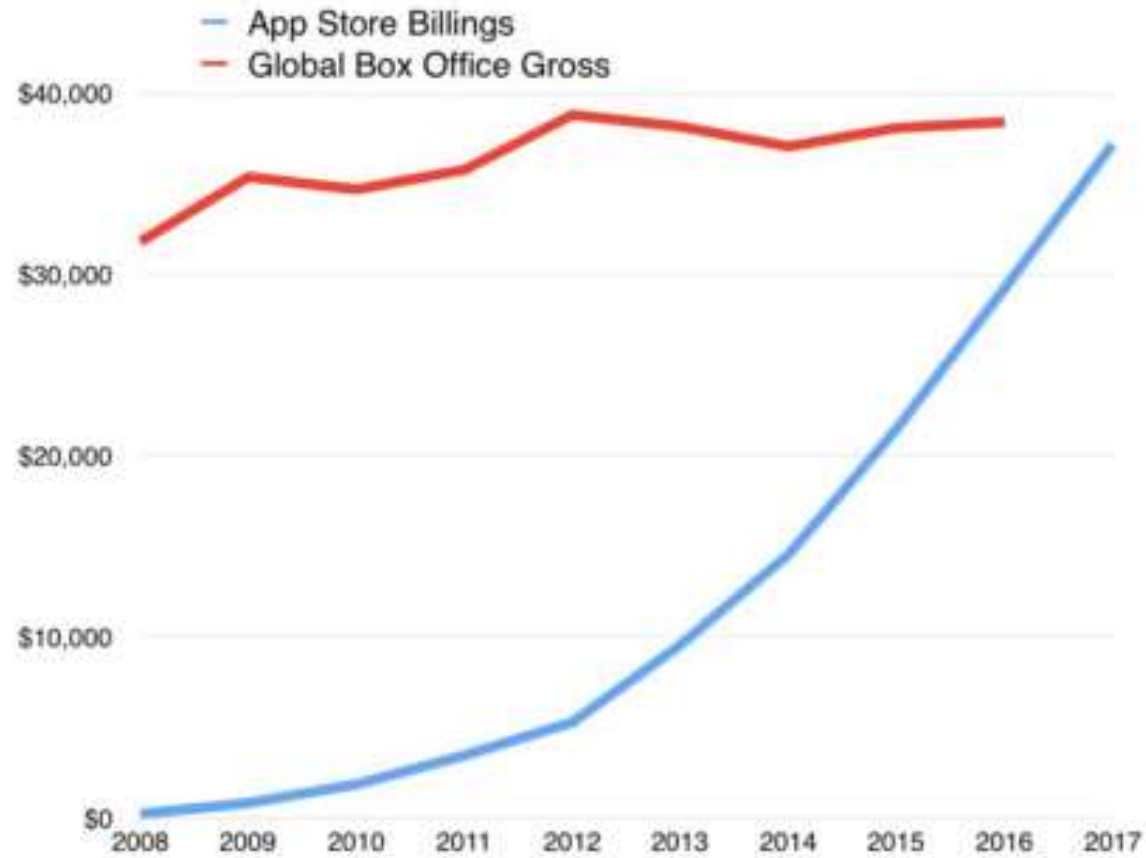
digital device



**Kick**

YOUR IDEA  
OUR CHALLENGE

## Apple's App Store Revenues Could Top Global Box Office in 2018



 <b>Space Shuttle</b>	 <b>Ariane 5</b>	 <b>Soyuz-FG</b>	 <b>H-II/B</b>
			
<p><b>19,824\$/kg</b>            Cost per flight: 450M\$            Payload (LEO): 22 700kg            Ref.: wikipedia (Space Shuttle program)</p>	<p><b>10,313\$/kg</b>            Cost per flight: 165M\$+            Payload (LEO): 16 000kg            Ref.: wikipedia (Ariane 5)</p>	<p><b>7,246\$/kg</b>            Cost per flight: 50M\$            Payload (LEO): 6 900kg            Ref.: wikipedia (Soyuz FG)</p>	<p><b>7,104\$/kg</b>            Cost per flight: 135M\$            Payload (LEO): 19 000kg            Ref.: asia.nikkei.com/print/article/5563            + wikipedia (H-II/B) + yen-usd conv.</p>
 <b>Long March 3B</b>	 <b>Polar Satellite</b>	 <b>Falcon 9</b> <small>SPACEX</small>	 <b>Falcon 9 (reuse)</b> <small>SPACEX</small>
			
<p><b>5,833\$/kg</b>            Cost per flight: 70M\$            Payload (LEO): 12 000kg            Ref.: wikipedia (Long March 3B)</p>	<p><b>3,947\$/kg</b>            Cost per flight: 15M\$            Payload (LEO): 3 800kg            Ref.: wikipedia (Polar Satellite Launch Vehicle)</p>	<p><b>2,719\$/kg</b>            Cost per flight: 62M\$            Payload (LEO): 22 800kg            Ref.: spacex.com</p>	<p><b>1,930\$/kg</b>            Cost per flight: 44M\$            Payload (LEO): 22 800kg            Ref.: spacex.com + (-30% saving)</p>



# SPACEX PLANS

## Choose Your Plan

Compare plans and find the right one for you!

### StandardX

1000GB  
• 10000 Mbit/s

- Unlimited talk & text from wherever you are to all the planet
- Full access to the internet

**\$9.99** /mo

SELECT

### PremiumX

2000GB  
• 20000 Mbit/s

- Unlimited talk & text inside our solar system
- Full access to the internet

**\$19.99** /mo

SELECT

### ProfessionalX

Unlimited Data  
• 1000000 Mbit/s

- Unlimited talk & text from wherever you are to all the galaxy
- Full access to the internet

**\$29.99** /mo

SELECT





# 'AI IS THE NEW ELECTRICITY'



“Just as electricity transformed almost everything 100 years ago, today I actually have a hard time thinking of an industry that I don’t think AI will transform in the next several years.”

**Andrew Ng**

Former chief scientist at Baidu, Co-founder at Coursera



# Google DeepMind Challenge Match

8 - 15 March 2016



AlphaGo



ALPHAGO  
00:12:30

LEE SEDOL  
00:34:31

AlphaGo



Lee Sedol





Self-Driving

48  
mph

100%



# Amazon's robot army grows by 50 percent

Originally published December 28, 2016 at 12:55 pm | Updated December 29, 2016 at 12:38 pm



*An Amazon worker removes packages from a container on top of a Kiva robot. (Ellen M. Banner/The Seattle Times)*

The world's largest e-commerce retailer said it employed 45,000 robots in some 20 fulfillment centers. That's a cool 50 percent increase from last year's holiday season, when the company had some 30,000 robots working alongside 230,000 humans.

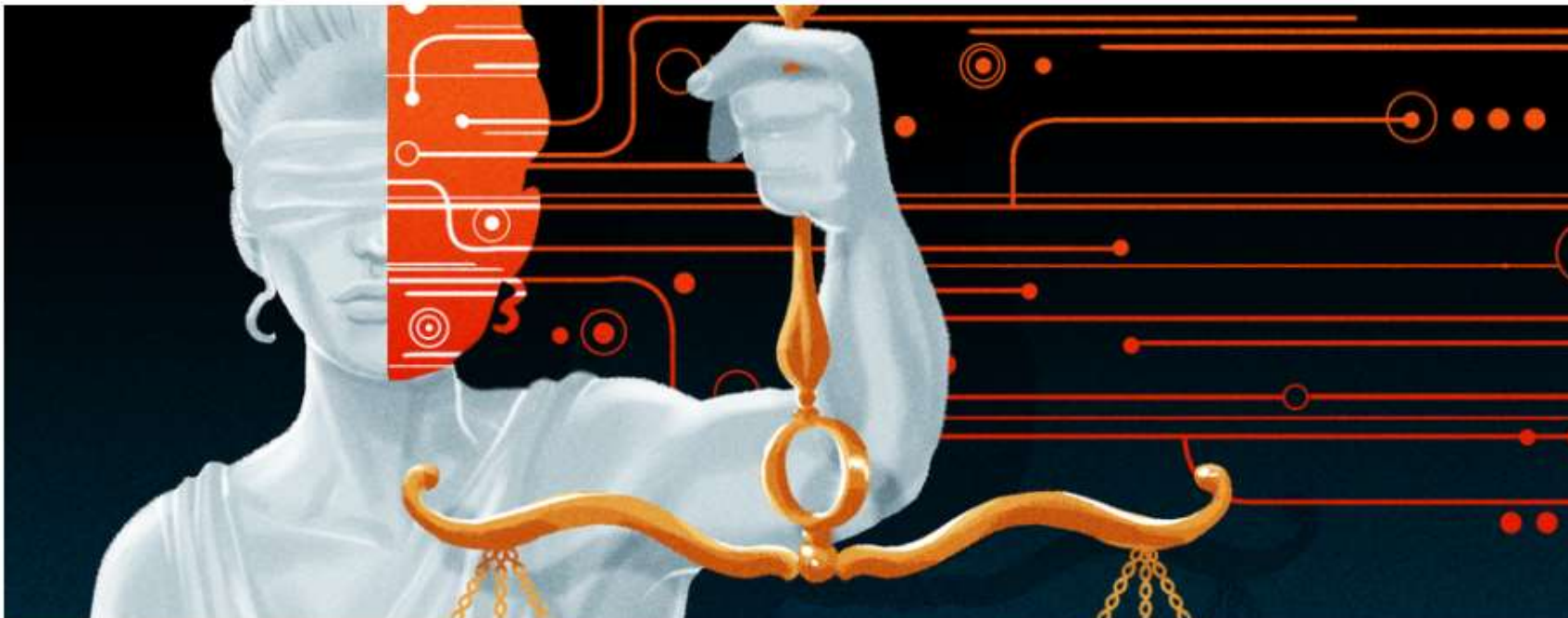
The world's largest e-commerce retailer said it employed 45,000 robots

# An AI just beat top lawyers at their own game

[Share on Facebook](#)[Share on Twitter](#)

Competitors were given four hours to review five non-disclosure agreements (NDAs) and identify 30 legal issues, including arbitration, confidentiality of relationship, and indemnification.

The human lawyers achieved, on average, an 85 percent accuracy rate, while the AI achieved 95 percent accuracy. The AI also completed the task in 26 seconds, while the human lawyers took 92 minutes on average.



It will no longer be a question of whether a physician should be using AI, but whether it is ethical if a doctor doesn't

◀ return to good.is

**GOOD**

What's  
this?

# GOOD HEALTH



Being Dr. AI

# AI learns to write its own code by stealing from other programs



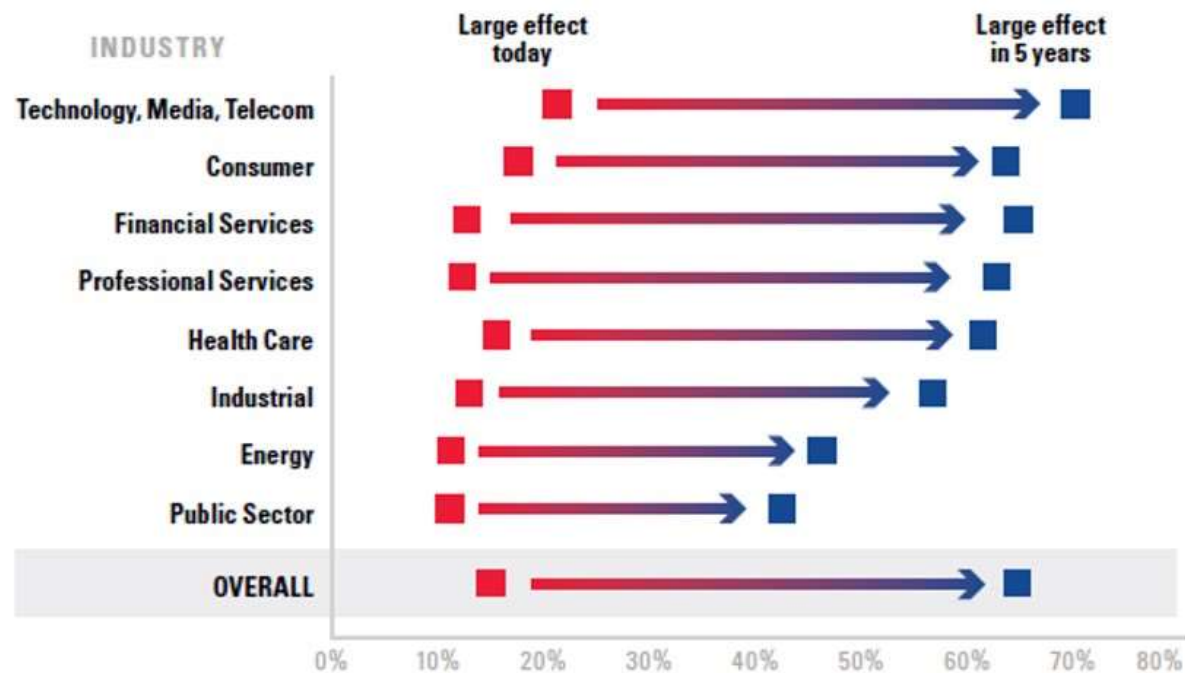
*DeepCoder* uses a technique called program synthesis: creating new programs by piecing together lines of code taken from existing software – just like a programmer might...

# IA vai afetar todos setores de negócios!

**FIGURE 1:** Expectations for AI's effect on businesses' offerings in five years are consistently high across industries.

## Expectations for AI adoption across industries: impact on offerings

To what extent will the adoption of AI affect your organization's offerings today and five years from today?

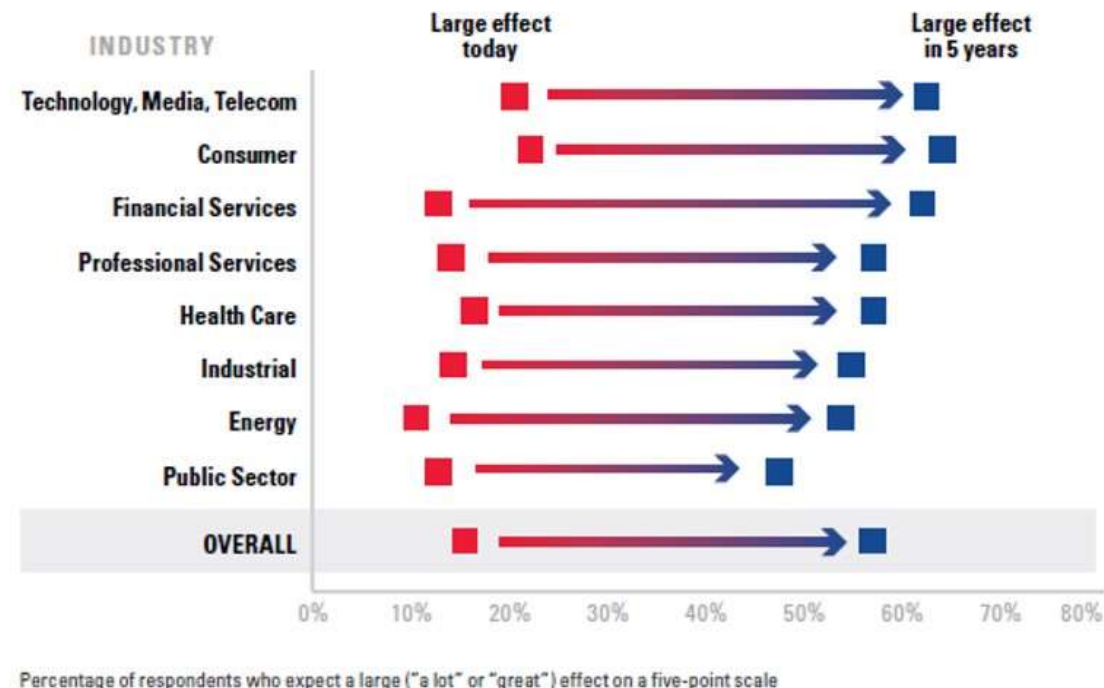


Percentage of respondents who expect a large ("a lot" or "great") effect on a five-point scale

**FIGURE 2:** As with offerings, organizations expect AI to have a great impact on processes within the next five years.

## Expectations for AI adoption across industries: impact on processes

To what extent will the adoption of AI affect your organization's processes today and five years from today?



Percentage of respondents who expect a large ("a lot" or "great") effect on a five-point scale



BELFER CENTER STUDY

# Artificial Intelligence and National Security

Greg Allen

Taniel Chan

A study on behalf of Dr. Jason Matheny, Director of the U.S. Intelligence Advanced Research Projects Activity (IARPA)

Future progress in AI has the potential to be a transformative national security technology, on a par with nuclear weapons, aircraft, computers, and biotech.

Advances in AI will affect national security by driving change in three areas: military superiority, information superiority, and economic superiority.

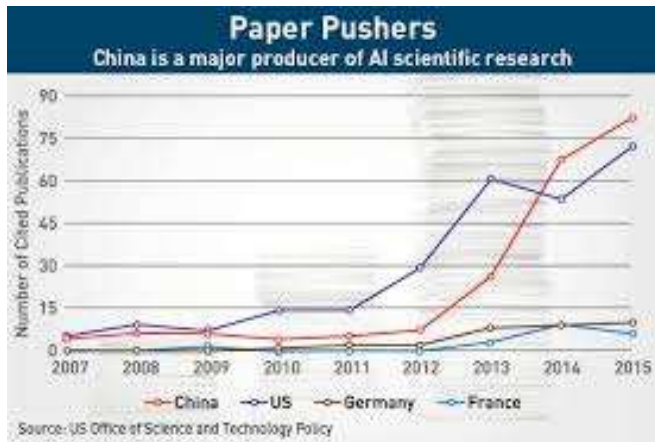


## Artificial Intelligence, Automation, and the Economy

Executive Office of the President

December 2016

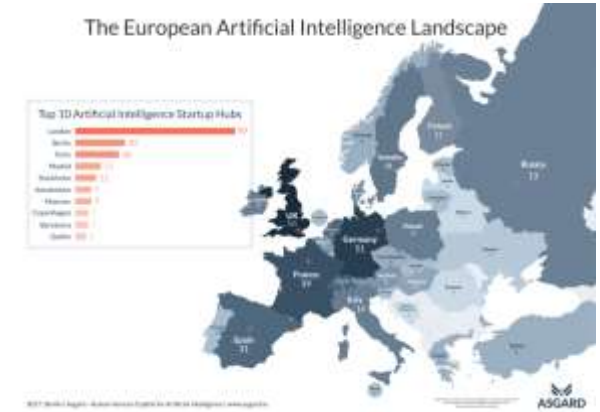




**In July, China's State Council released a detailed strategy designed to make the country "the front-runner and global innovation center in AI" by 2030. It includes pledges to invest in R&D that will "through AI elevate national defense strength and assure and protect national security."**



**"Artificial intelligence is the future, not only for Russia but for all humankind. Whoever becomes the leader in this sphere will become the ruler of the world."**





ebay

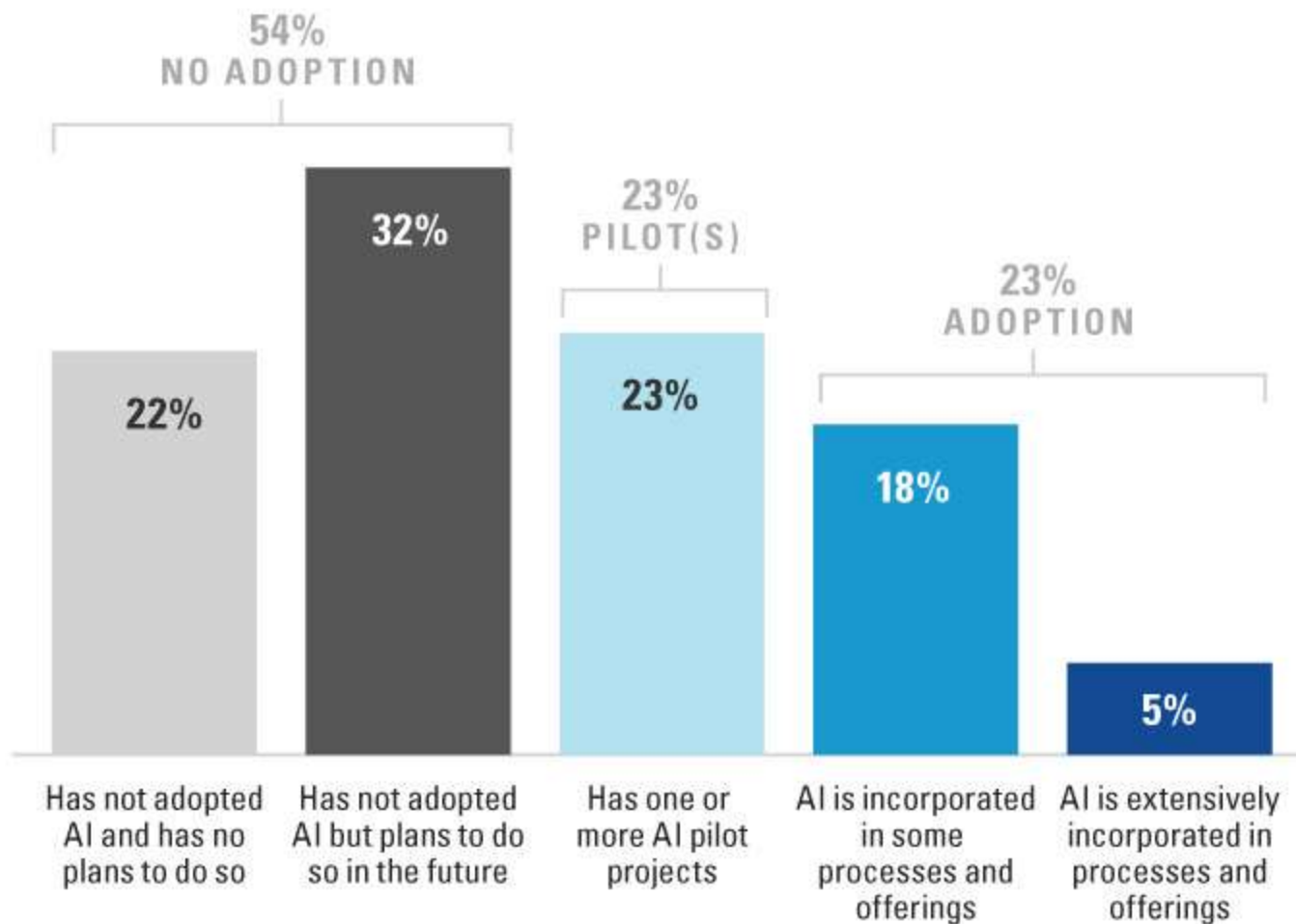
- “If you don’t have an AI strategy, you are going to die in the world that’s coming.”

Devin Wenig

CEO, eBay

## Adoption level of AI

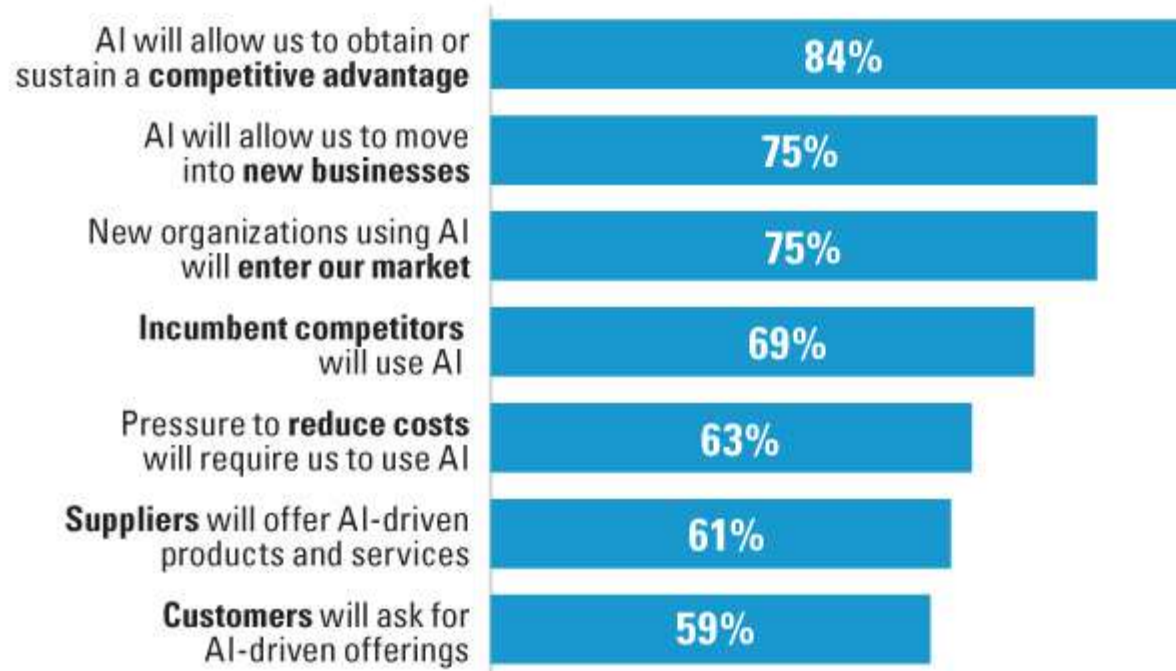
What is the level of AI adoption in your organization?



Fonte: Reshaping Business With Artificial Intelligence MIT Sloan/BCG

## Reasons for adopting AI

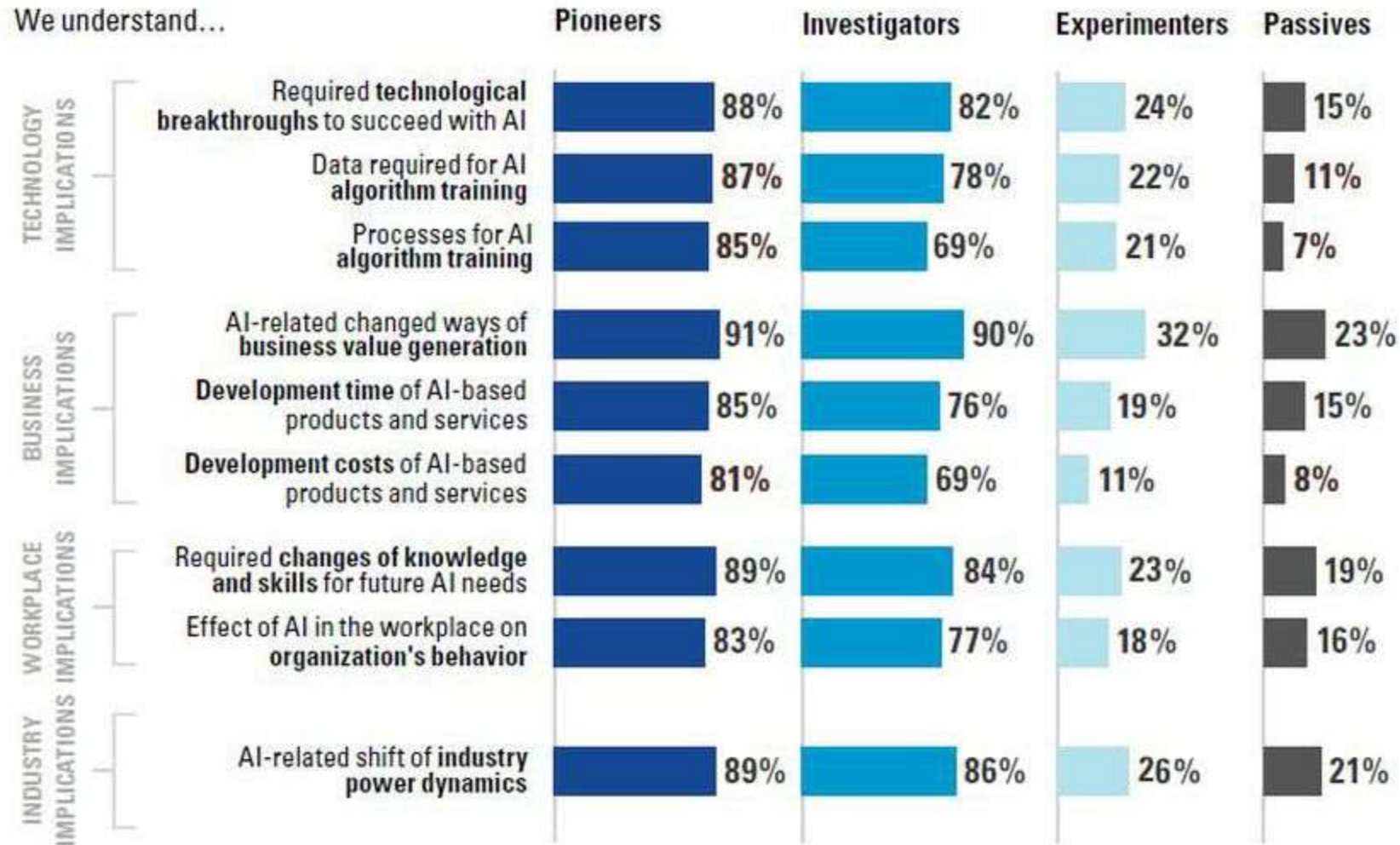
Why is your organization interested in AI?



Percentage of respondents who somewhat or strongly agree with each statement

## Levels of AI understanding

To what extent do you agree with the following statements about your organization?

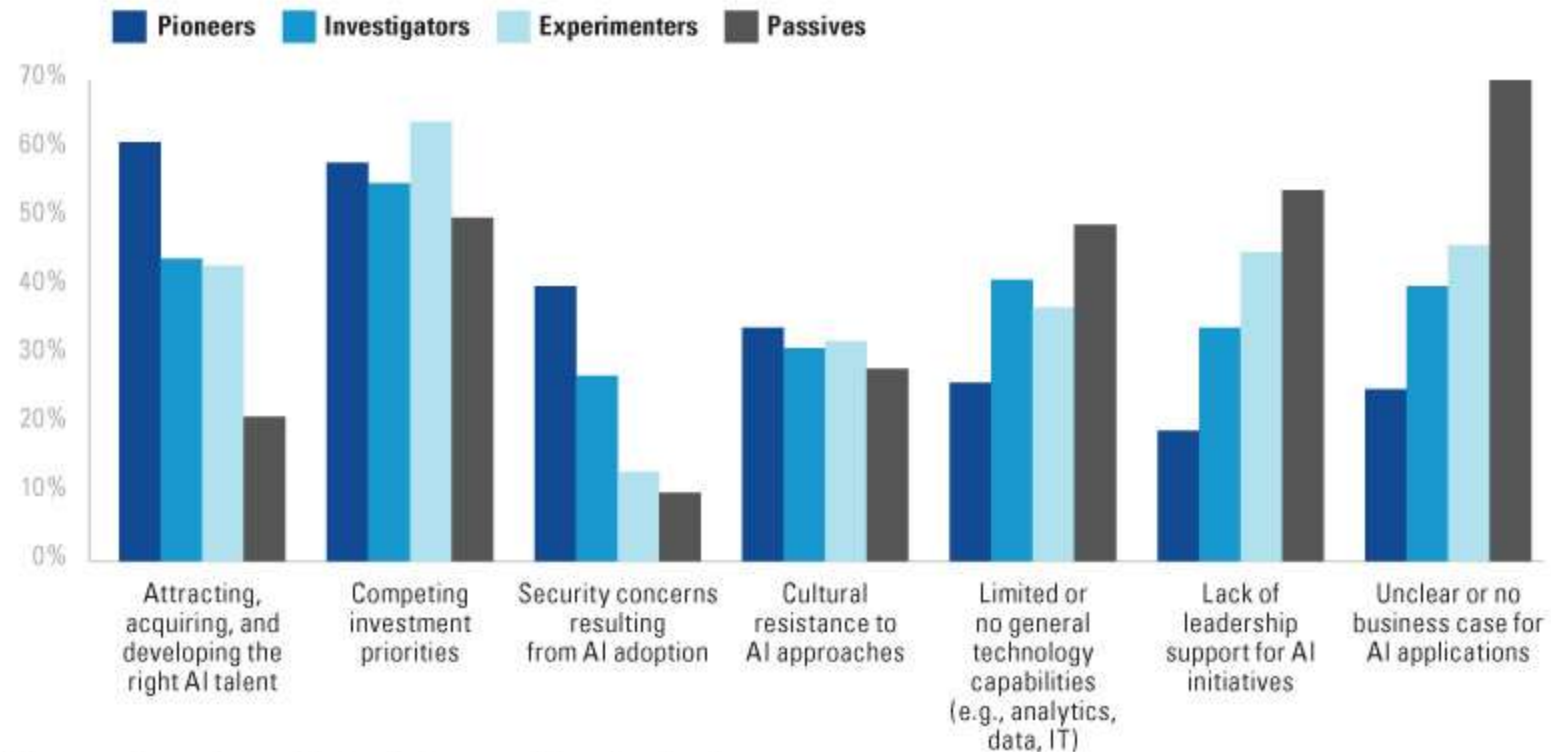


Percentage of respondents who somewhat or strongly agree with each statement

Fonte: Reshaping Business With Artificial Intelligence MIT Sloan/BCG

## Barriers to AI adoption

What are the top three barriers to AI adoption in your organization?



Percentage of respondents ranking the selection as one of the top three barriers

## Link between AI and general organizational capabilities

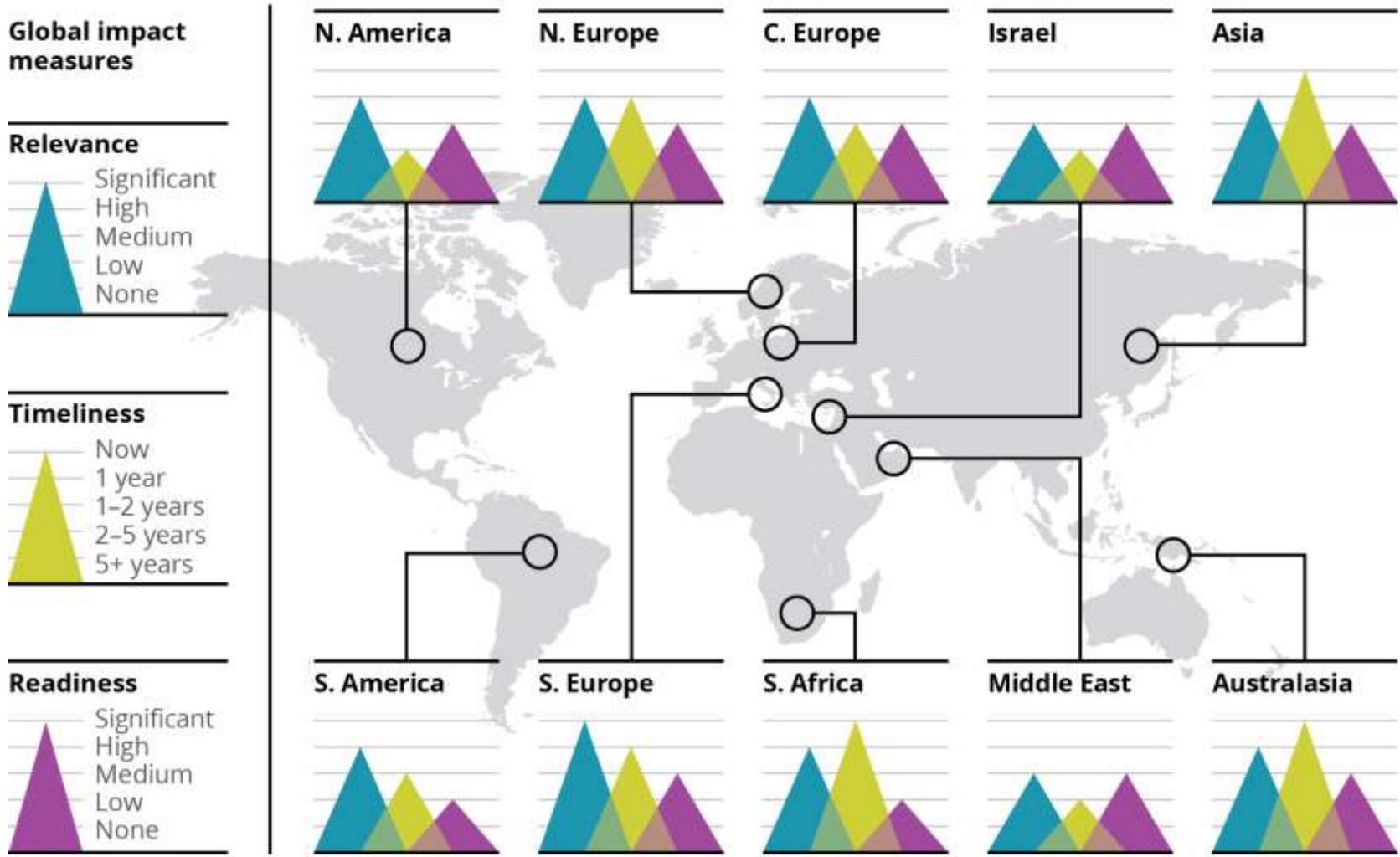
To what extent do you agree with the following statements about your organization?



Percentage of respondents who somewhat or strongly agree with each statement



**Figure 2. Global impact**



Source: Deloitte analysis.

Deloitte Insights | [Deloitte.com/insights](https://www.deloitte.com/insights)

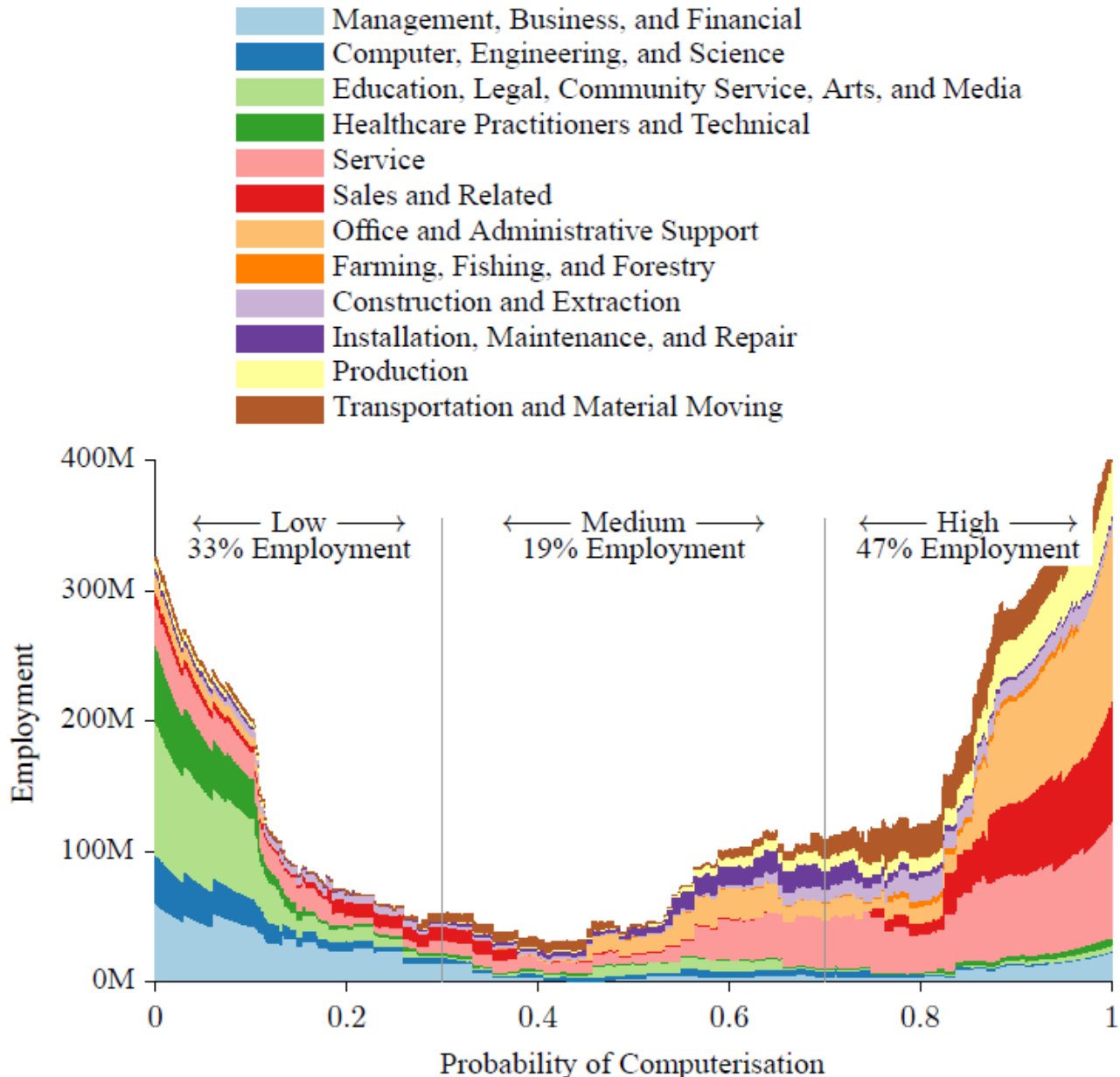
“Despite these astonishing advances, we are a long way from machines that are as intelligent as humans—or even rats. So far, we’ve seen only 5% of what AI can do.”

**Yann LeCun**

Director of research, Facebook



# Empregabilidade?



## Bring on the personal trainers

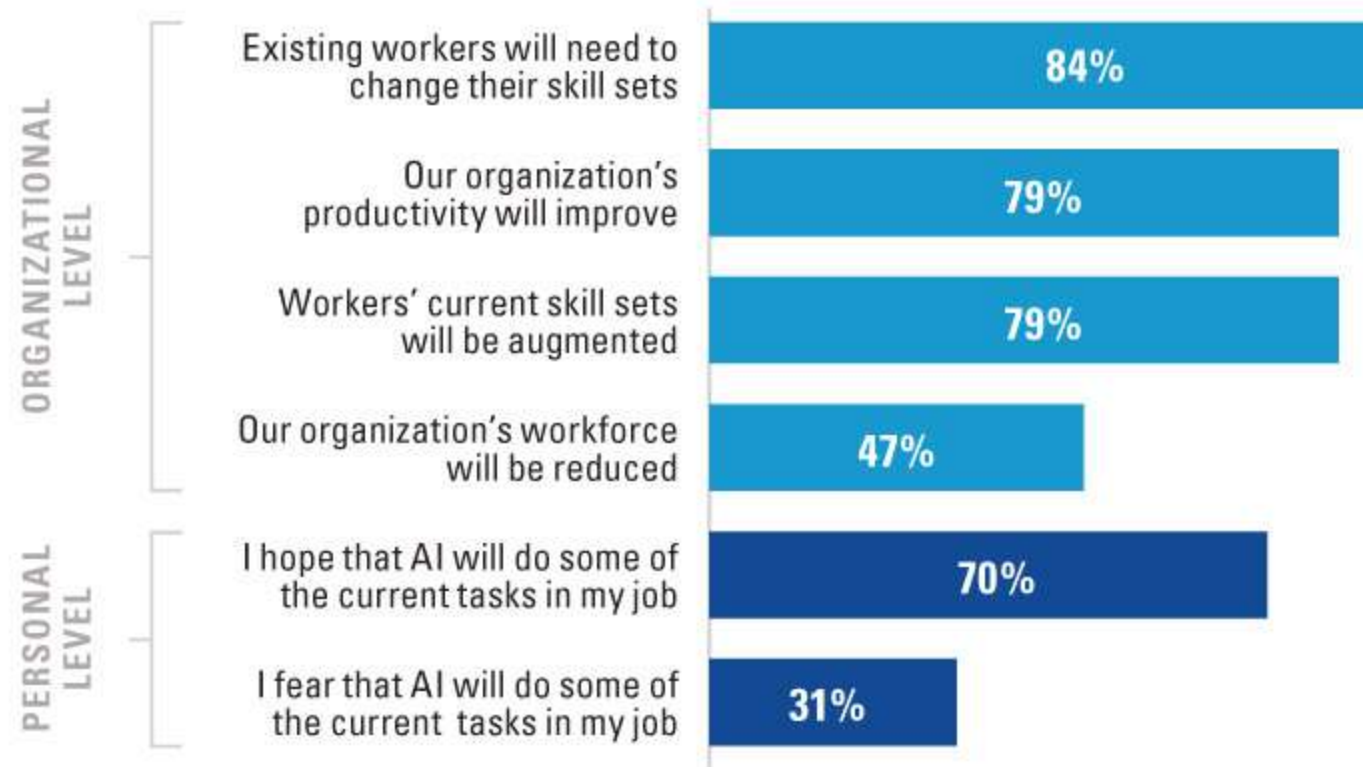
Probability that computerisation will lead to job losses within the next two decades, 2013 (1=certain)

Job	Probability
Recreational therapists	0.003
Dentists	0.004
Athletic trainers	0.007
Clergy	0.008
Chemical engineers	0.02
Editors	0.06
Firefighters	0.17
Actors	0.37
Health technologists	0.40
Economists	0.43
Commercial pilots	0.55
Machinists	0.65
Word processors and typists	0.81
Real estate sales agents	0.86
Technical writers	0.89
Retail salespersons	0.92
Accountants and auditors	0.94
Telemarketers	0.99

Source: "The Future of Employment: How Susceptible are Jobs to Computerisation?" by C.Frey and M.Osborne (2013)

## AI's effect on the workforce

How do you expect AI will affect the workforce in the next five years?



Percentage of respondents who somewhat or strongly agree with each statement

# Artificial Intelligence Job Analysis

**2.535.009**

AI, automation and robotics jobs  
will be created by early 2030's

**13.375.363**

jobs are at risk from automation  
replacement by early 2030's

newly created positions can only fill

**19%**

of the jobs lost to robotics



# JPMorgan Software Does in Seconds What Took Lawyers 360,000 Hours

by **Hugh Son**

February 27, 2017, 6:31 PM CST *Updated on* February 28, 2017, 6:24 AM CST





#inovação  
radical

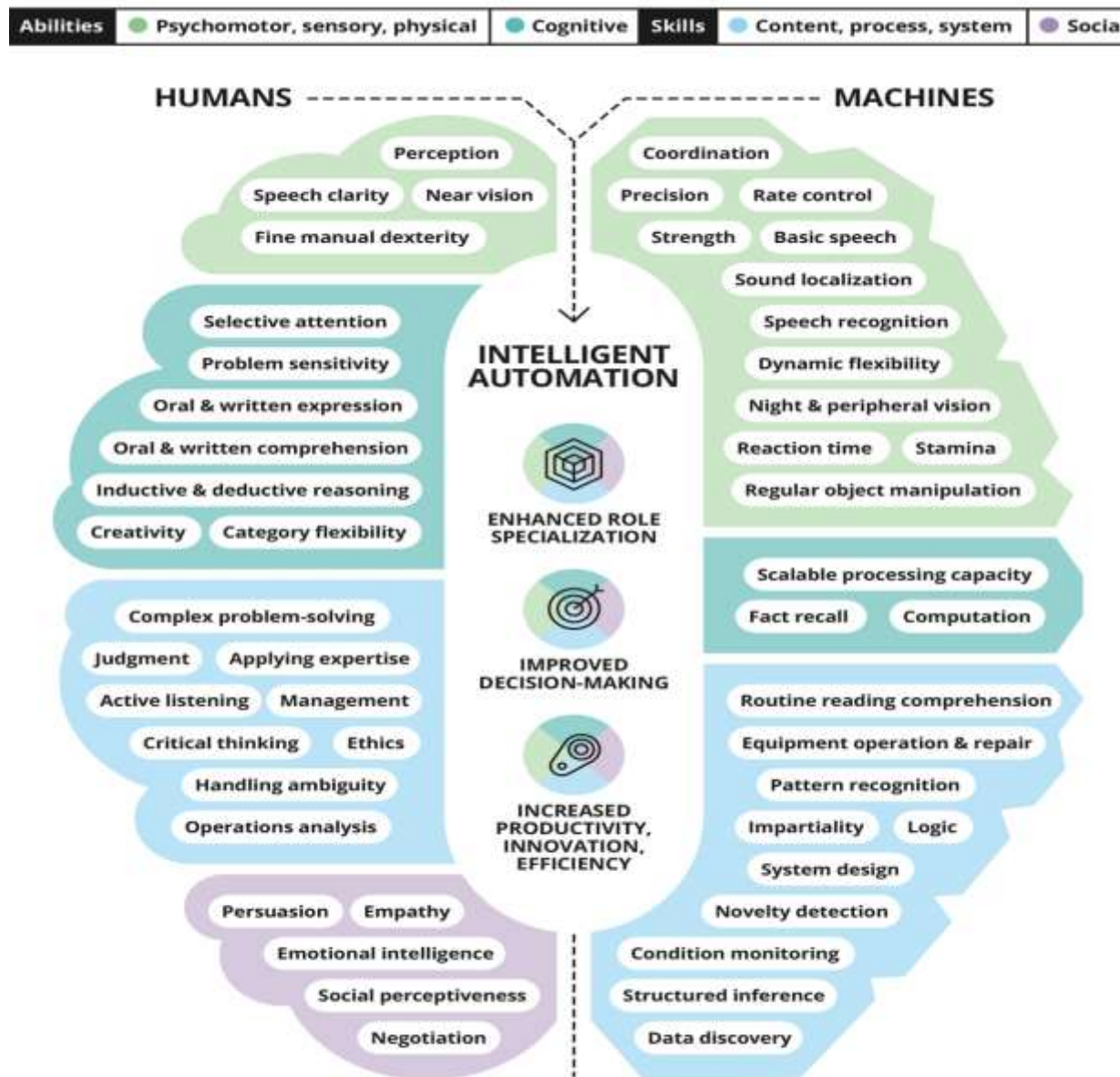
“

Os **empregos do futuro** serão aqueles que não poderão ser feitos por uma **inteligência artificial**

”

**Figure 1. A new mind-set for the no-collar workforce**

Humans and machines can develop a symbiotic relationship, each with specialized skills and abilities, in a unified workforce that delivers multifaceted benefits to the business.



Sources: Deloitte LLP, *Talent for Survival: Essential skills for humans working in the machine age*, 2016; Deloitte LLP, *From brawn to brains: The impact of technology on jobs in the UK*, 2015; Jim Guszcza, Harvey Lewis, and Peter Evans-Greenwood, *Cognitive collaboration: Why humans and computers think better together*, Deloitte University Press, January 23, 2017; Carl Benedikt Frey and Michael A. Osborne, *The Future of Employment: How Susceptible are Jobs to Computerisation?*, University of Oxford, September 17, 2013; O\*NET, US Department of Labor.





# Top 10 skills



COMMITTED TO  
IMPROVING THE STATE  
OF THE WORLD

## in 2020

---

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

Source: Future of Jobs Report, World Economic Forum



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YOUR IDEA  
OUR CHALLENGE

Article

# Facial recognition software is biased towards white men, researcher finds

← Research

---

via The Verge  
Feb. 11, 2018

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New research out of MIT's Media Lab is underscoring what other experts have reported or at least suspected before: facial recognition technology is subject to biases based on the data sets provided and the conditions in which algorithms are created

BUSINESS / INTELLECTUAL PROPERTY 2017

# Should a computer be recognised as an inventor?

The question of whether a computer should be recognised as the creator of a patentable invention is vexing intellectual property lawyers

BY MARK FRARY - APRIL 26, 2017

RCNT.EU/IXBDK



**MIT**  
Technology  
Review

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Intelligent Machines

## Robot Art Raises Questions about Human Creativity



*Nos próximos 20 -30 anos, não teremos apenas uma nova geração, teremos uma nova civilização.*





**COMO COMPETIR NESSA NOVA CIVILIZAÇÃO?**



# OBRIGADO!



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OUR CHALLENGE

I<sup>2</sup>.A<sup>2</sup>

Instituto de Inteligência Artificial Aplicada



<https://www.linkedin.com/in/ctaurion/>