Chart 1: Average Company Lifespan on S&P 500 Index

Years, rolling 7-year average

Data: Innosight analysis based on public S&P 500 data sources. See endnote on methodology. [www.innosight.com](http://www.innosight.com)
Center for The Future of Work
Artificial Intelligence
Artificial Intelligence is the great story of our time
The robot’s aren’t coming ... they’re here!

x.ai is a personal assistant who schedules meetings for you.
Lee Sedol Vs. Alpha Go – Game Over ...

“I apologize for being unable to satisfy a lot of people's expectations. I kind of felt powerless...I was incapable of overcoming it.”
AlphaGo

Seemingly simple but deceptively complex, the game of "Go" serves as the backdrop for this battle between artificial intelligence and man.
The New Machine walked away with $1.76 MM of four humans’ money.
AI Accelerates across industry

8 / 10

99.6% vs. 82%

222 MM

2 Hrs. vs. 2 Wks.
One company example: JP Morgan Chase

1. **COIN: Contract Intelligence AI system**
   - Automated review of commercial loan agreements (12K+ / year)
   - Online Q4 2016
   - Platform = 360,000 hours of human effort (lawyers and loan officers)
     - 200 FTEs
     - Completed in seconds, error free

2. **InvestCloud: AI-enabled wealth management advisory**
   - ML-based recommendation engine for the trading floor
   - Smart-assist for salespeople to recommend trades to clients

3. **IT Helpdesk Management**
   - Granting access to SW systems, resetting passwords, etc.
   - AI platform now doing the work of 170 IT professionals
Artificial Intelligence and Robotics

AI Safety, Security and Standards

AI Ethics and Values

AI Education and Awareness

Machine Learning and Predictive Systems

Intelligence Augmentation

Robots at Work

Machine Cooperation and Coordination

Autonomous Transportation

Source: World Economic Forum
AI protein-folding algorithms solve structures faster than ever

Deep learning makes its mark on protein-structure prediction.

Matthew Hutson
Expect a future in which ...
Software Robots Do ALL Robotic Work
Human Heuristics are Exposed as Simply Rudimentary Algorithms
HIPPOs Die Out ...
THE 2010 – 2020 DATA EXPLOSION IS A PREVIEW OF COMING ATTRACTIONS
The Network is Ubiquitous
DIGITAL AROUND THE WORLD IN APRIL 2019

THE ESSENTIAL HEADLINE DATA YOU NEED TO UNDERSTAND GLOBAL MOBILE, INTERNET, AND SOCIAL MEDIA USE

CHANGES IN DATA PROVIDER METHODOLOGIES MEAN THAT DATA ON THIS SLIDE IS NOT DIRECTLY COMPARABLE TO DATA IN OUR PREVIOUS REPORTS

TOTAL POPULATION: 7.697 BILLION
URBANISATION: 56%

UNIQUE MOBILE USERS: 5.110 BILLION
PENETRATION: 66%

INTERNET USERS: 4.437 BILLION
PENETRATION: 58%

ACTIVE SOCIAL MEDIA USERS: 3.499 BILLION
PENETRATION: 45%

MOBILE SOCIAL MEDIA USERS: 3.429 BILLION
PENETRATION: 45%

SOURCES: WORLDOMETERS, UNITED NATIONS, U.S. CENSUS BUREAU, GSMA INTELLIGENCE, ITU, WORLD BANK, CIA WORLD FACTBOOK, EUROSTAT, LOCAL GOVERNMENT BODIES AND REGULATORY AUTHORITIES, WEARESMA.COM, REPORTS IN REPUTABLE MEDIA, SOCIAL MEDIA PLATFORMS' SELF-SERVE ADVERTISING TOOLS, PRESS RELEASES, AND INVESTOR EARNINGS ANNOUNCEMENTS. WORLDSMART MEDIA REPORT, TECHSALE, NIKI ASHBA, KOSO (ALL LATEST AVAILABLE DATA IN APRIL 2019)
There are no Jurisdictions in Cyberspace
Metcalfe’s Law is the Law

Metcalfe’s Law: The value of a network is proportional to the square of the number of users.

- Robert Metcalfe

If each new node connects to all the existing nodes, the number of connections starts to increase rapidly.
In Networks, Rewards Trickle Up

The Out-Performance of (F)AANG Stocks Since 2009

- Apple Inc Total Return Price % Change
- Amazon.com Inc Total Return Price % Change
- Netflix Inc Total Return Price % Change
- Alphabet Inc Total Return Price % Change
- S&P 500 Total Return Level % Change

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A Story That Generates Mixed Emotions

EXCITEMENT
- Technical wonder
- Art of the Possible

FEAR
- Layoffs
- Company Structures
- Industries of the Future
47% of Jobs Will Disappear in the next 25 Years, According to Oxford University
Societies have always adapted to changes in tools – but many individuals along the way haven’t …
Cognizant’s View of Jobs and AI

Replaced: 12%
Enhanced: 75%
Invented: 13%
LOCATION
LOCATION
LOCATION
LOCATION
AVAILABILITY
AVAILABILITY
AVAILABILITY
AVAILABILITY
AVAILABILITY
AVAILABILITY
AVAILABILITY
Groups  Contacts

D
David Kennedy

E
Elizabeth Santon
Ellen Fitzpatrick

G
Gordon Walis
Gordon
Gregory House

H
Hugh Hefner

J
Jesse Pearsons
Design makes anything possible

Get a custom design you’ll love with our global creative platform. 99designs is the best place to find and hire talented designers to grow your business.

Get started
Built for developers

GitHub is a development platform inspired by the way you work. From open source to business, you can host and review code, manage projects, and build software alongside 36 million developers.
Red Hat and IBM join forces

Read the press release ➔  Learn more ➔
Discover/Invent The Future
Dateline 2025: Scale industries born of the new machine

Virtual & Augmented Reality
Biotechnology
Wellness
Space
E-Sports
The Experience Economy
Smart Infrastructure
Next Generation IT
the future of your work
from to
everything you wanted to know but were afraid to ask

Cognizant

Center for The Future of Work
Dateline 2025: Scale industries born of the new machine

Virtual & Augmented Reality
Biotechnology
Wellness
Space
E-Sports
The Experience Economy
Smart Infrastructure
Next Generation IT
Dateline 2025: Scale industries born of the new machine

Virtual & Augmented Reality

Biotechnology

Wellness

Space

E-Sports

The Experience Economy

Smart Infrastructure

Next Generation IT
Biotechnology
From humble beginnings to a coming revolution …
As amazing as *information* technology has been, it may pale into insignificance against what *biotechnology* will be
A job Bill Gates would drop out of Harvard for today …

“It’s a thrilling time in biology … developments in biosciences are moving faster than ever”.
Virtual and Augmented Reality
Virtual Reality - early days; incredible possibilities and promise

The Oculus Acquisition May Cost Facebook $3 Billion, Not $2.3 Billion

Virtual Reality - incredible possibilities and promise.

Apple VR Project
Apple is rumored to have a secret team of hundreds of employees working on virtual and augmented reality projects.

Holographic computing made possible
Specialized components—like multiple sensors, advanced optics, and a custom holographic processor—are variable so as to go beyond the screen.

RUMORED PRODUCTS
- VR headset

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Could the Lumiere Brothers have imagined ...
... and the six million direct jobs and many millions more ancillary jobs around the world in the “film business”
How big could VR be? Very big …

In an analyst note published on Wednesday, Goldman Sachs predicted that the virtual reality (VR) market will outpace the TV market in annual revenue by 2025, making VR bigger than TV.

The banking firm writes that the VR market will generate $110 billion dollars compared to TVs $99 billion in 10 years.

This will happen if VR adoption follows their “Accelerated Uptake” projection, in which virtual reality becomes more commonplace through advances in battery and
But Augmented Reality could be even bigger …

Tim Cook says augmented reality will be bigger than virtual reality

by Jacob Kastrenakes | Sep 14, 2016, 10:12am EDT
This may seem like a joke … but then so was Cloud Computing 20 years ago
Emerging Augmented Reality use cases

- Object identification and information
- In context 3D modelling
- In Screen collaboration
- Intra building navigation
- Maintenance and repair instructions (videos, FAQs)
- In teaching material multi-media resources
- Surgery assistance
- Historical recreations
- Clothes show rooming
- Self branding and status posting
- Calorie scanning
Next Generation IT
IT is reinventing itself (again!!!) & continuing to grow

1946
A cottage industry
0.00001% of the worldwide working population

2016
$3 trillion worldwide industry
20% of the worldwide working population

2046
$10 trillion worldwide industry
45% of the worldwide working population
Quantum Computing – a “strange and exciting new world”

100 Million times faster than your PC
Cyber security – the new endless war

“If you want a job for the next 10 years, work in IT. If you want a job for life, work in cyber security”.

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Cognizant’s View of Jobs and AI

- Replaced: 12%
- Enhanced: 75%
- Invented: 13%
JOBS OF THE FUTURE
A GUIDE TO GETTING - AND STAYING - EMPLOYED OVER THE NEXT 10 YEARS

21 Jobs: The Road to 2028

High
- Quantum Machine Learning Analyst
- Augmented Reality Journey Builder
- Master of Edge Computing
- Genetic Diversity Officer
- AI-Assisted Healthcare Technician
- Cyber City Analyst
- Chief Trust Officer
- Financial Wellness Coach
- Genomic Portfolio Director

Tech-Centricity
- Bring Your Own IT Facilitator
- Man-Machine Teaming Manager
- AI Business Development Manager
- Ethical Sourcing Manager
- Highway Controller
- Virtual Store Sherpa
- Fitness Commitment Counselor
- Personal Memory Curator
- Walker/Talker
- Digital Tailor

Low
- Personal Data Broker
- Virtual Assistant
-較少使用
- Digitalizer

Within 5 years
- Low- to Mid-Tech
- Mid- to High-Tech

Within 10 years
- Low- to Mid-Tech
- Mid- to High-Tech

To learn more, visit Cognizant’s Center for the Future of Work: http://www.futureofwork.com/about
MORE JOBS OF THE FUTURE
A GUIDE TO GETTING AND STAYING EMPLOYED THROUGH 2029

21 Jobs: The Road to 2028
Click on the dots for a brief job description.

High
- Cyber Attack Agent
- Virtual Identity Defender
- Cyber Calamity Forecaster
- Augmented Reality Journey Builder
- Haptic Interface Designer
- Genetic Diversity Officer
- Voice UX Designer
- Smart Home Design Manager
- Machine Risk Manager
- Data Detective
- Algorithm Bias Auditor
- Chief Trust Officer
- Financial Wellness Coach
- Crisis City Analyst
- Genomics Portfolio Director

Tech-Centricity
High
- Tidewater Architect
- Esports Arena Builder
- Personal Data Broker
- Data Trash Engineer
- Mainframe Training Manager
- UniLife Coordinator
- Subscription Management Specialist
- Business Development Manager
- Head of Business Behavior
- Ethical Sourcing Manager
- VR Arcade Manager
- Vertical Farm Consultant
- Personal Memory Curator
- Juvenile Cybercrime Rehabilitation Counselor
- Maker/Trainer
- Low-to-Mid Tech within 5 years
- Low-to-Mid Tech within 10 years

Low
- Low-to-Mid Tech within 5 years
- Low-to-Mid Tech within 10 years
- Mid-to-High Tech within 5 years
- Mid-to-High Tech within 10 years

2018
Time Horizon
2028

Low
- Low-to-Mid Tech
- Mid-to-High Tech

Center For The Future of Work

To learn more, visit Cognizant’s Center for the Future of Work http://www.futureofwork.com/about.
Challenge: “No Black Boxes”

Algorithms are the key to commercial competitive advantage...

And they must be 100% ethical and are fair, legal and reflect company’s values.

Dateline 2021: the European Commission & US FTC established the ‘No Black Box’ Consortium”...
The Future Workforce: the *Fair* Workforce

You will establish an inventory system that logs and tracks each significant algorithm, its objectives, its input and output, related human value judgments and consequences. Skills needed are…

- Legal, compliance, IT or exec mgmt.
- Manage senior execs in cross-unit business functions
- Communication & commitment to diversity & inclusion
Machine Risk Officer

Sf

Security & Safety
We now face a moral dilemma: What to do when machines fail?
Building trust with machines

If you answered yes to either of these questions, then the role of machine risk officer is calling your name.....

Can you proactively address machine ethics issues and help people overcome fears by building human-machine trust?

What is your experience in developing risk-benefit matrices, training employees and vetting innovation initiatives?

Can we depend on you to protect company's brand, reputation, and finances from the unknown consequences of machines failures?
Flying Car Developer

Dr

Dreams
Flying cars are no longer science fiction.
Making the long-held dream of flying cars a reality

We’re looking for team members across every aspect of engineering, software development, aeronautics, battery technologies, materials development, etc. that can assist us in taking our prototypes into commercial development. Specific responsibilities

You need to muck-in and do what’s necessary!
So, the new machines and you
From 80% to 2% in the last hundred years
From 60% to 5% in the next fifty years
How do I beat the (ro)bots?
Don’t be a *bad* robot ...
Be a ... good human being
Many fear the new machines
Yet we are optimists ... 

And you should be too ...
We are on the cusp of a great “digital build-out”

Digital That Matters
We all have a lot of important work to do
A question or two ...