31st KSCAA Annual Conference 2019

Bunt Sungha Auditorium, Bengaluru – March 15, 2019

SKILL GAP : ARE YOU EQUIPPED FOR FUTURE ?

Presented by:
Vinod Kashyap
NextGen Knowledge Solutions Private Ltd.

Agenda

- The Fourth Industrial Revolution
- Future of work
- Emerging Technologies
- Preparing for the future of work
- Q & A

The Fourth Industrial Revolution

“We stand on the brink of

of a technological revolution that will fundamentally alter the way we live, work and relate to one another. In its scale, scope and complexity, the transformation will be unlike anything humankind has experienced before.”

Klaus Schwab on The Fourth Industrial Revolution
World Economic Forum

The 4th Industrial Revolution

1st Industrial Revolution
18th Century

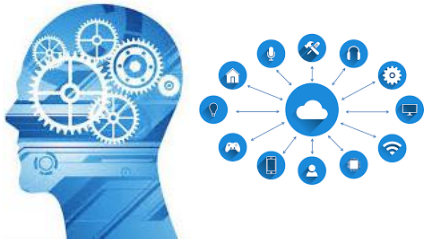
Steam-based
Machines

2nd Industrial Revolution
19th – 20th Century

Electrical
Energy-based
Mass Production

3rd Industrial Revolution
(1st Information Revolution)
Late 20th Century

Computer and
Internet-based
Knowledge



4th Industrial Revolution
(2nd Information Revolution)
Early 21st Century

Artificial Intelligence
Information Technology

Intelligence
AI SW

Information
Big Data
IoT
Cloud

Source : World Bank

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"During the fourth industrial revolution, we will experience endless waves of disruption, and complacency can be kiss of death."
Miki Tsusaka, CMO, Senior Partner & Managing Director, The Boston Consulting Group
TED@BCG

In the digital age, the largest corporations now need to rapidly innovate not only to stay ahead but simply to survive

Corporates in the digital age

- Rapid digital disruption will **displace 40% of incumbent companies** across 12 industries in 5 years (1)
- Since 2000, **52% of the companies in Fortune 500** have either gone bankrupt, been acquired or ceased to exist (2)
- **Lifetime expectancy of the companies in Fortune 500** list has fallen from **23 years in 1965 to 15 years in 2014** (3)
- The average age of the company in S & P 500 was 60 years in 1960; **it will be 12 years by 2020** (4)

1 Digital Vortex : How digital disruption is redefining industries (Global center for Digital Business Transformation

2 Darwinian Digital Disruption : Survival of the fittest, 2015 (Capgemini Consulting)

3 Based on A T Kearney analysis of Fortune 500 data

4 Lifetime expectancy has been derived from the five year moving average of the turnover rate of the year (for example a 10% turnover rate implies a 10 year-expectancy)

5 Don't get cozy, Fortune 500 : It's a Do-or-Die time for digital disruption (Upstart Business Journal)

Source : A T Kearney analysis

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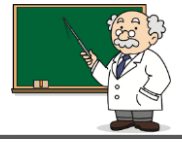
What The 4th Industrial Revolution Will Mean For Your Career ?

	First Industrial Revolution	Fourth Industrial Revolution
Learning Objectives	Mastery of basic skills and knowledge (reading, math etc.)	Development of whole person across multiple intelligences (emotional, intellectual, social etc.)
Role of Educator	Expert 	Facilitator
Learning Experience	'Factory model'- passive, structured, directed en masse	'Custom model'- active, self-directed, exploratory
Target Age	K - 12	Life long learning
Expertise	"Teacher knows best"	"Anyone can teach"
Access	Physical class room	Anytime, anywhere, any device

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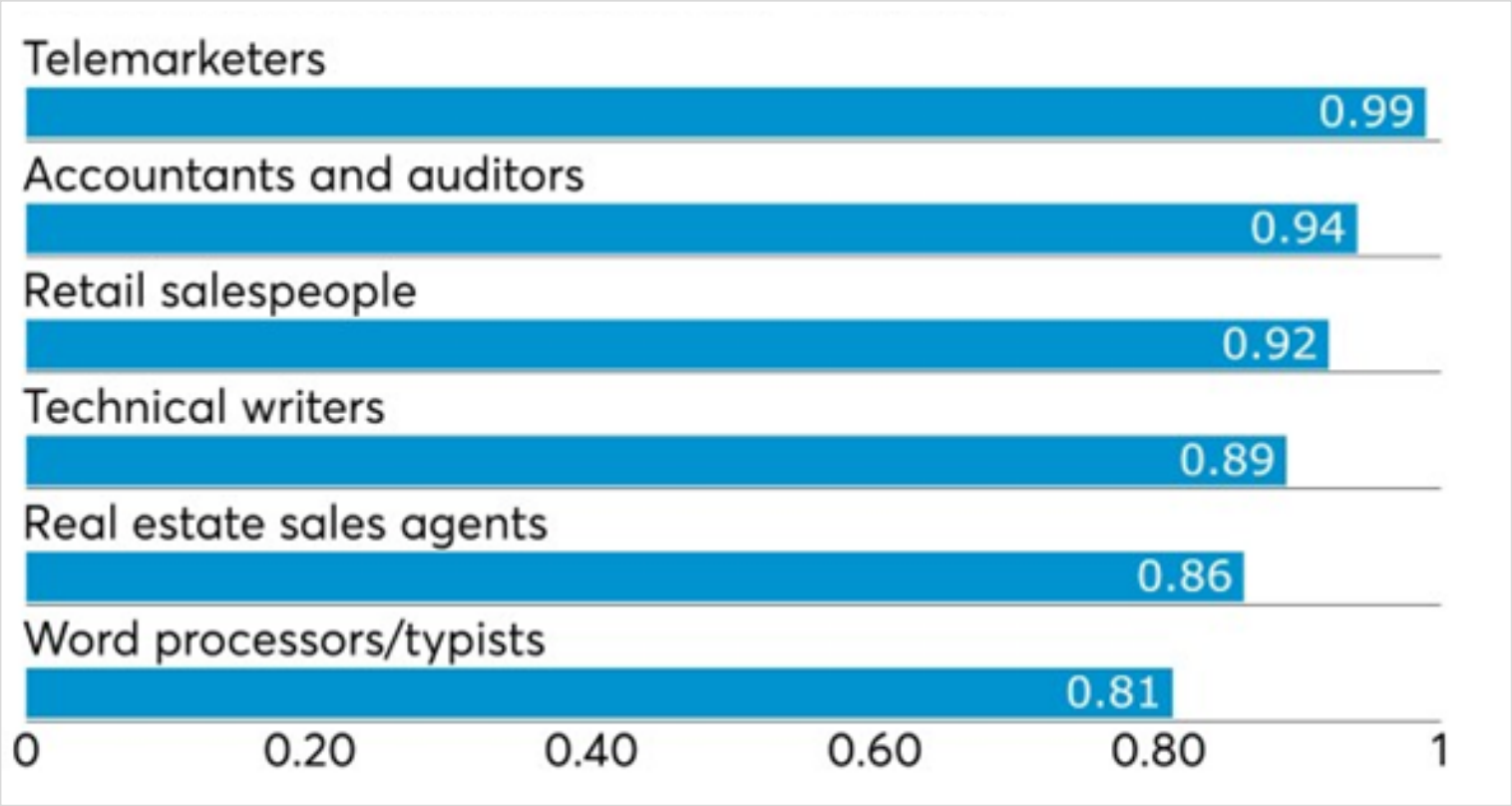
Future of Work

The computers are coming

Probability of computerization (1 = certain)



Source : The Economist / “The Future of Employment” by C. Frey/M. Obsorne (2013)

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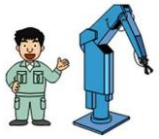
AI Will Most Affect 9.2 Mn. Working Class Jobs

Machine- centric

Machine and human collaboration



Human-centric

Office and administrative

Sales and related

Cubical Jobs

Professional and Related

Management, Business and Financial

Freelance Graphic Designers

The Gig-economy

Bitcoin minors

Uber Drivers

Robot Services Technicians

Robotic Automation Jobs

Knowledge based curators

App Developers
Data Scientists

Highly Skilled Digital Jobs

Cloud Engineers

Walters Nurses

In-person Service Jobs

Funeral Directors

Cubical Parolee

Insurance agents

Obsolescence queue

Billing Specialists

Maintenance Schedulers

Contingent Entrepreneurs
Social Minimalists

Emerging Roles
Pink Collar Workers

Digital Outcasts

Existing Jobs

Transitional Employment

Digital-age Jobs

Growth

Decline

"Only 42% Americans with a high-school diploma or less say they have the right skills to succeed in the 21st centaury."

A BURSON-MARSTELLER/PSB SURVEY – JUNE 2017

Source : Forrester

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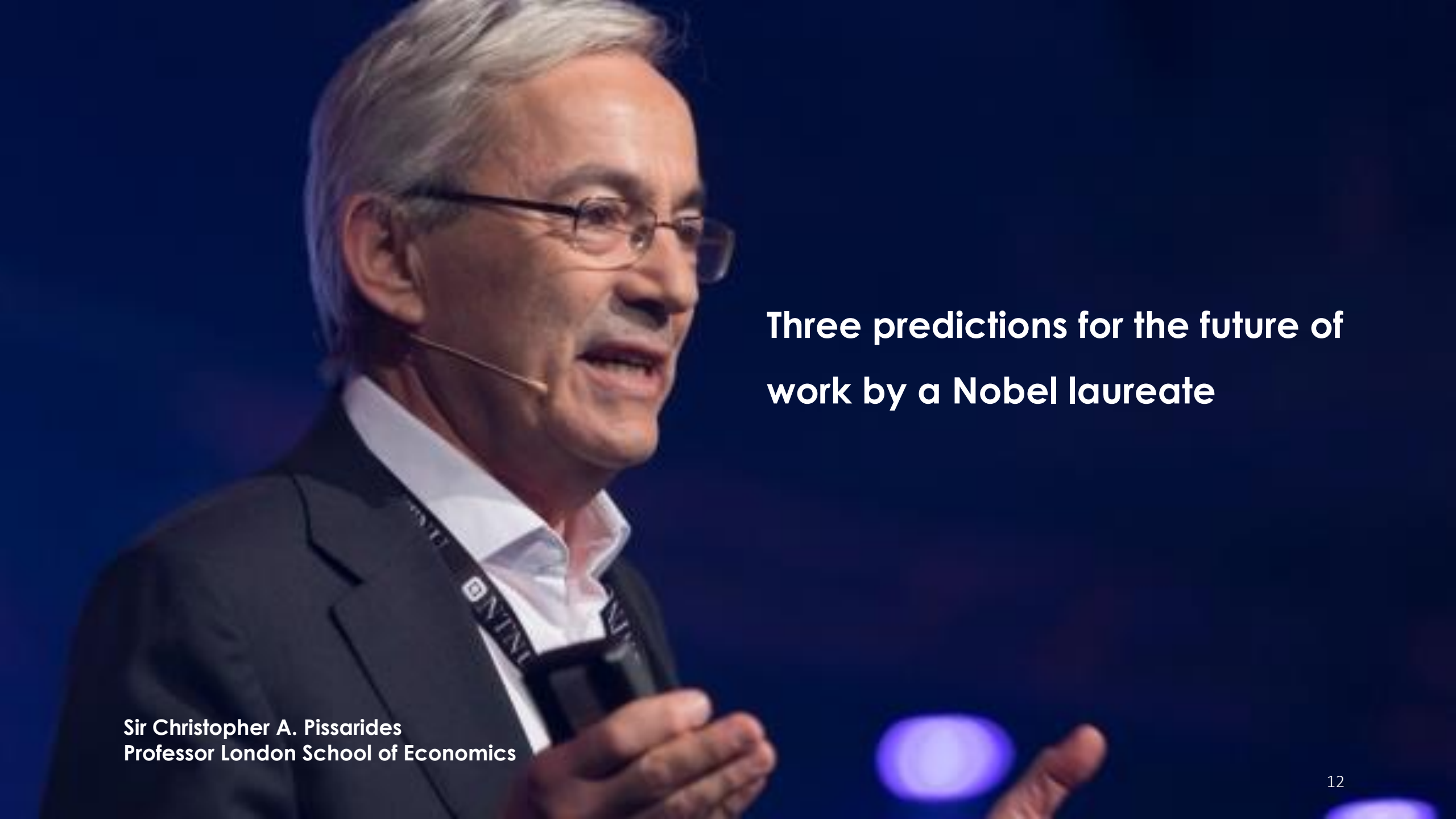


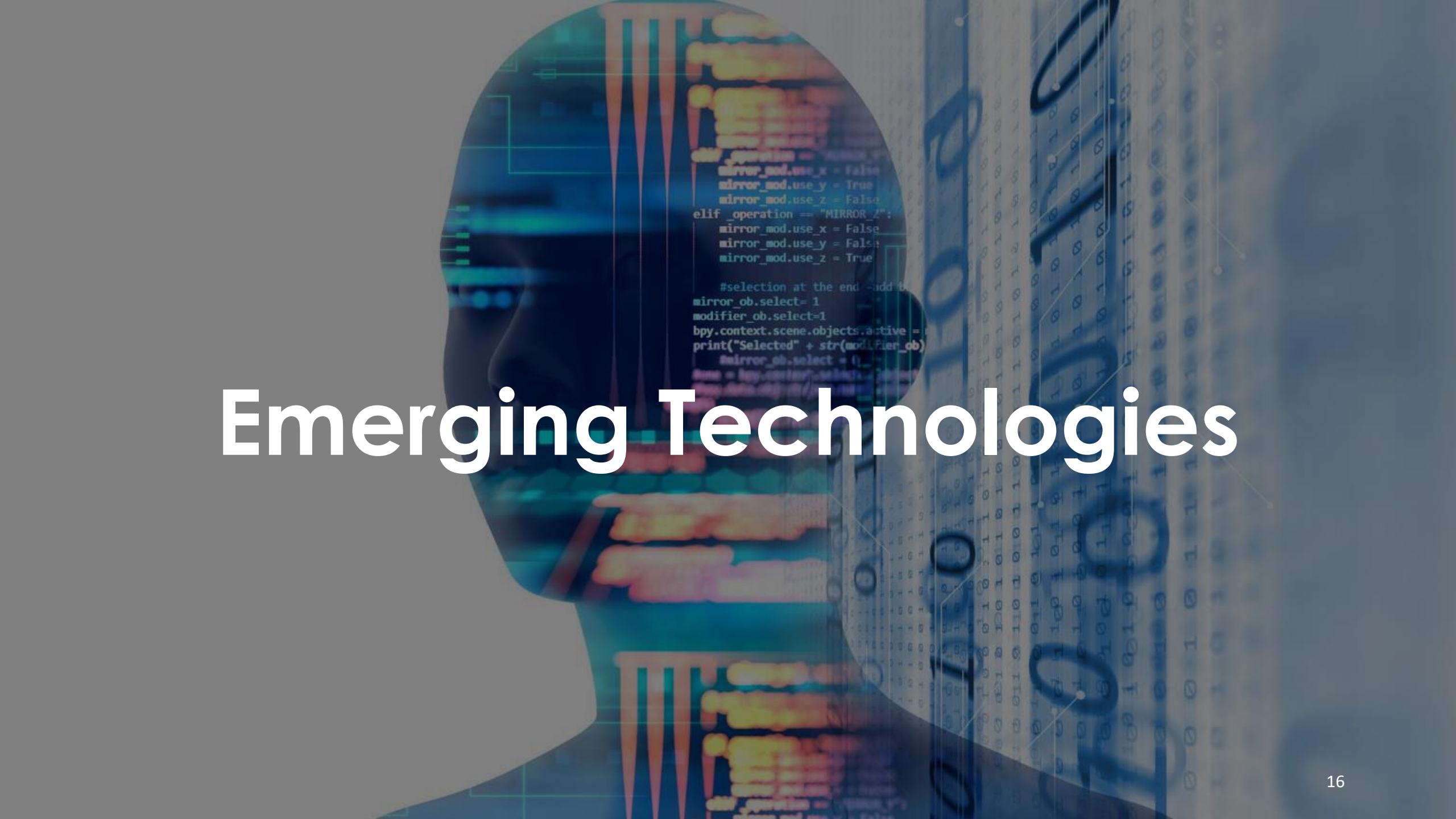
Three predictions for the future of work by a Nobel laureate

Sir Christopher A. Pissarides
Professor London School of Economics

We will work less and enjoy ourselves more.

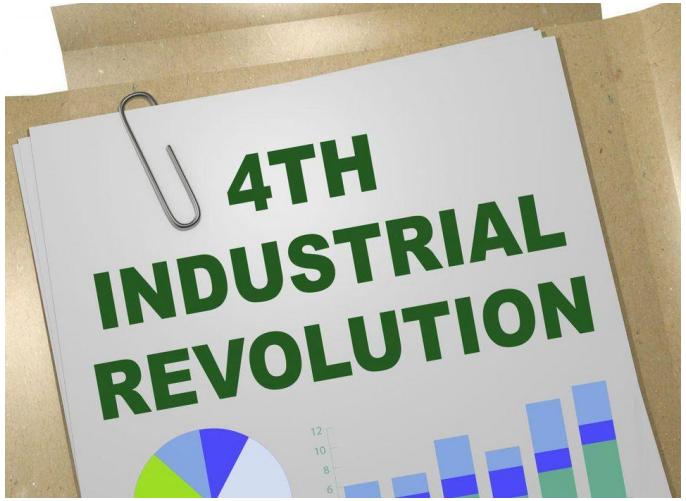
Manufacturing will shrink, and the care economy will grow more.

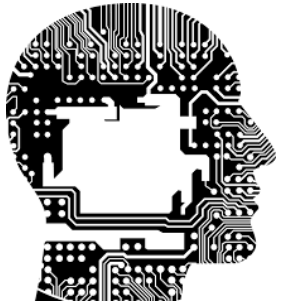
Farewell white collar, hello white coat.



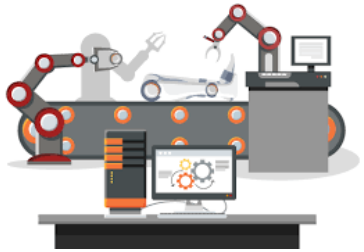
Emerging Technologies

Emerging Technologies : Challenges and Opportunities





Artificial Intelligence (AI)



Robotic Process Automation (RPA)

Blockchain

Data Analytics

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"**Artificial Intelligence** (**AI**, also Machine Intelligence, **MI**) is Intelligence displayed by machines, in contrast with the Natural Intelligence (**NI**) shown by the human beings."

- Wikipedia

"**AI** is about making Computers that can help us that can do the things that humans can do but our current computers can't."

- Yoshua Bengio

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Examples of Artificial Intelligence (AI)

Spotify

is a digital music service that gives you access to millions of songs.

Alexa

is an intelligent personal assistant developed by Amazon.

Siri

is an intelligent personal assistant, part of Apple's iOS, watchOS, macOS & tvOS systems.

Cortana

Is a virtual assistant created by Microsoft for Windows 10, Windows 10 Mobile, Windows Phone 8.1

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Artificial Intelligence is becoming ubiquitous intelligence with the ability to see, hear, speak, smell, feel, understand gestures, interface with your brain, and dream

AI that can See

AI that can Speak

AI that can Hear

AI that can Feel

AI that can Smell

AI that can Move

Source : PWC

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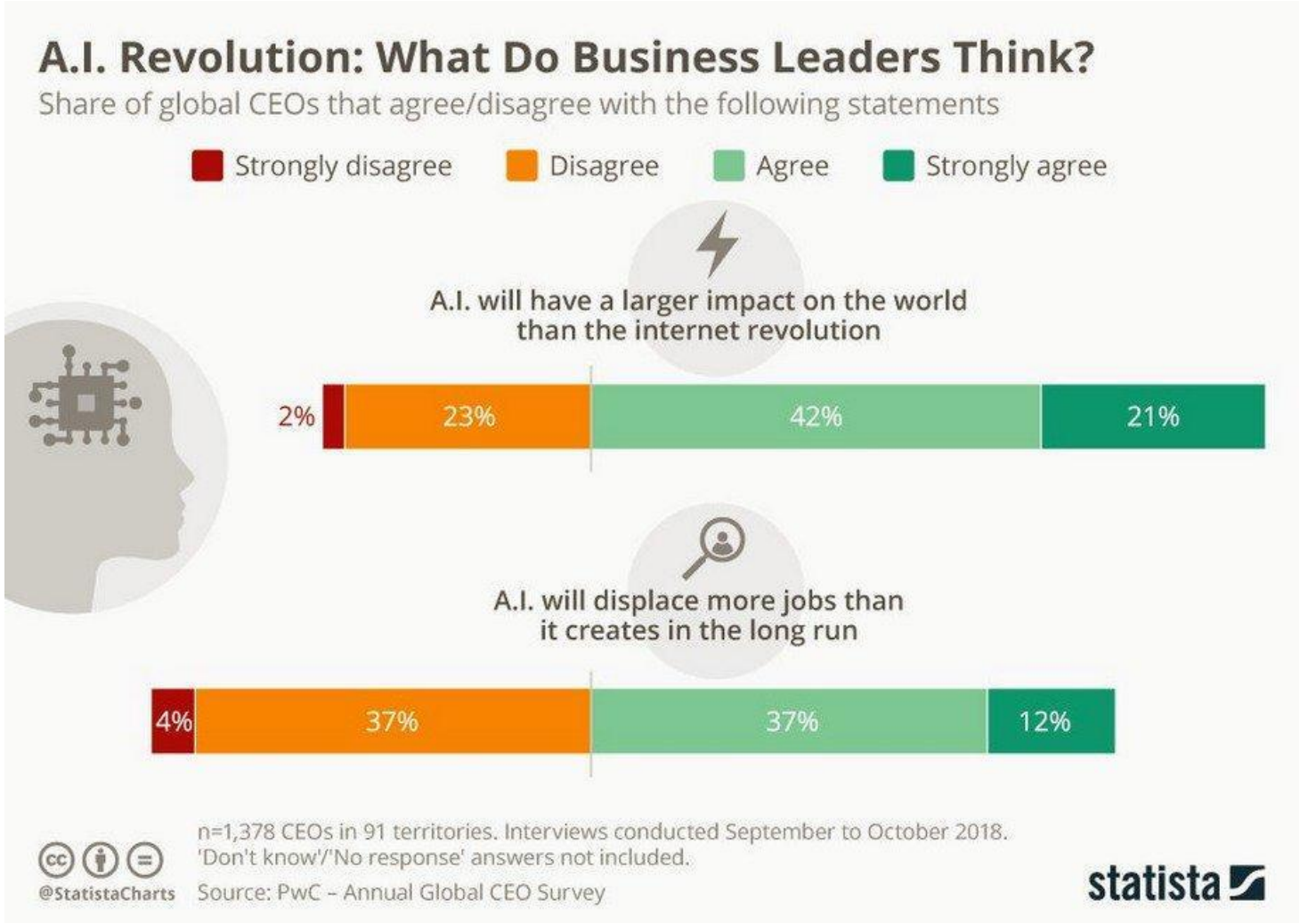
A.I. Revolution: What Do Business Leaders Think?



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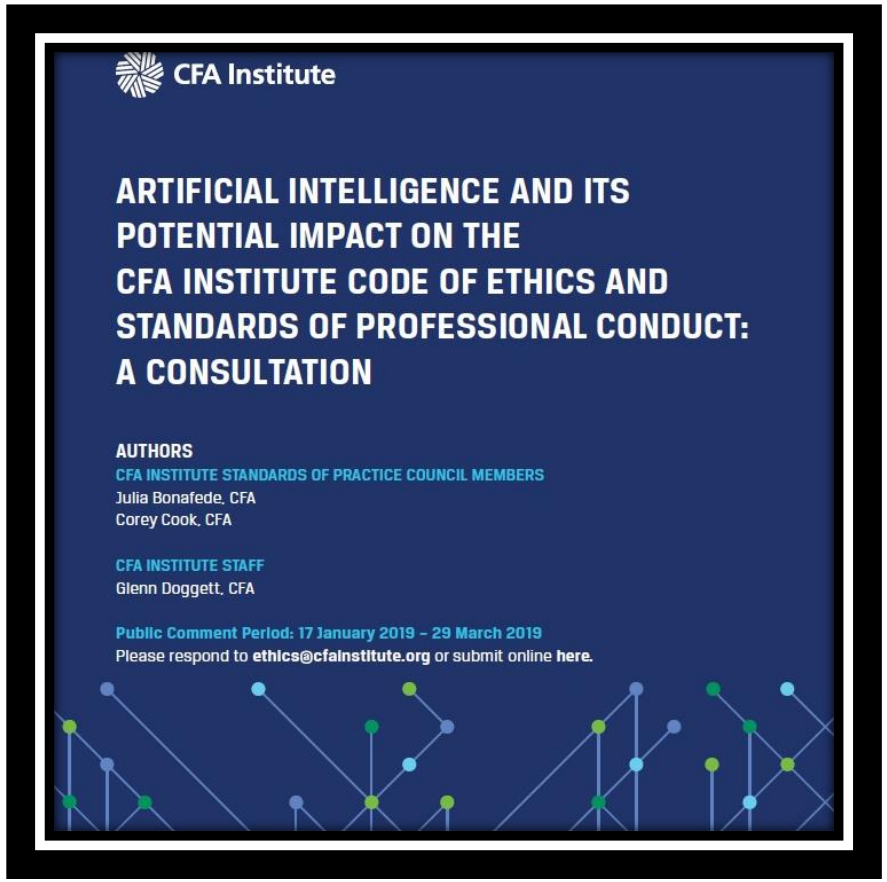
Artificial Intelligence: Impact on CFA Institute



CFA Institute

ARTIFICIAL INTELLIGENCE AND ITS POTENTIAL IMPACT ON THE CFA INSTITUTE CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT: A CONSULTATION

AUTHORS
CFA INSTITUTE STANDARDS OF PRACTICE COUNCIL MEMBERS
Julia Bonafede, CFA
Corey Cook, CFA

CFA INSTITUTE STAFF
Glenn Doggett, CFA

Public Comment Period: 17 January 2019 – 29 March 2019
Please respond to ethics@cfainstitute.org or submit online here.

Consultation Paper is available at: https://tinyurl.com/yyz6m45p

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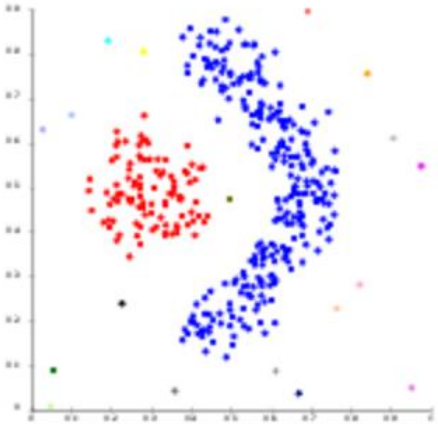
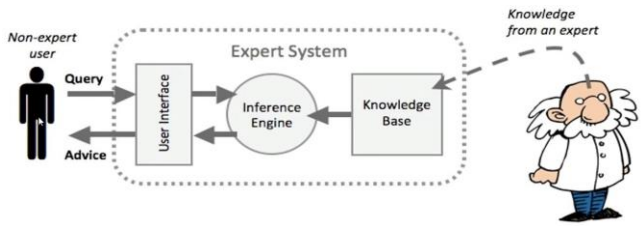
Artificial Intelligence (AI) in Taxation

Artificial Intelligence (AI) will reduce risk, increase value and help drive a cost effective approach to tax administration.





Predictive Analysis

Basic : Regression, rolling average, exponential average
Advanced : Trend analysis

Clustering & Classifying

AI & machine learning functionality can identify cluster of data points faster with higher accuracy, on vaster quantity of data and with a higher number of variables.

Expert Support System

In certain AI systems decision rules are encoded and later queried for accurate response.

Source : PwC

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Artificial Intelligence (AI) in Audit

Pre-planning

- AI collects and analyze Big Data
- Data related to the client's organizational structure, operational methods, and accounting & financial system fed into AI System.

Contracting

- AI uses the estimate of the risk level from phase 1 and calculate the audit fees and the number of hours
- AI analyzes the database of contracts and prepares the contract
- Auditor and client sign the contract.

Internal Controls & Risk Factor

- Feed flow chart, questionnaire answers and narratives into the AI system and use image recognition and text mining to analyze them
- Use visualization & pattern recognition to identify risk factors
- AI aggregates all the data to identify fraud & illegal-acts risk factors.

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Artificial Intelligence (AI) in Audit Cont….

Control Risk Assessment

- Continuous control monitoring systems examine controls continuously
- AI runs process mining to verify proper Internal Controls implementation
- Logs are automatically generated to ensure their integrity

Substantive Tests

- Continuous Data Quality Assurance ensures quality of data and assurance
- AI examines data provenance
- Continuous Test on details of transactions on 100% of the population
- Continuous Test on details of balance
- Continuous Pattern recognition, outlier detection and benchmarks

Audit Report

- AI uses a Predictive Model to estimate the various risks identified
- Audit Report can be continuous (grade 1-100 for example) rather than categorical (clean, qualified, adverse etc.

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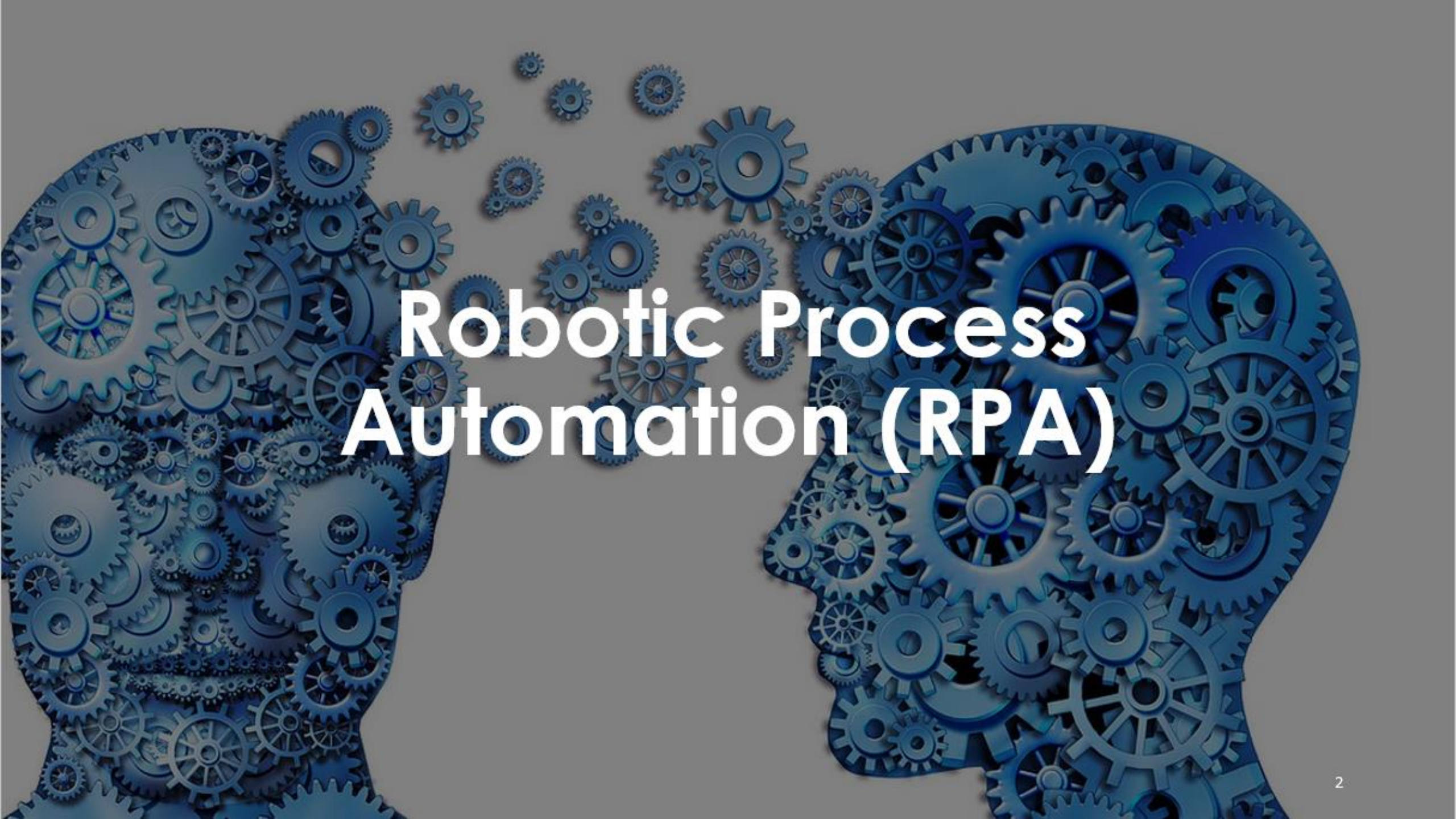
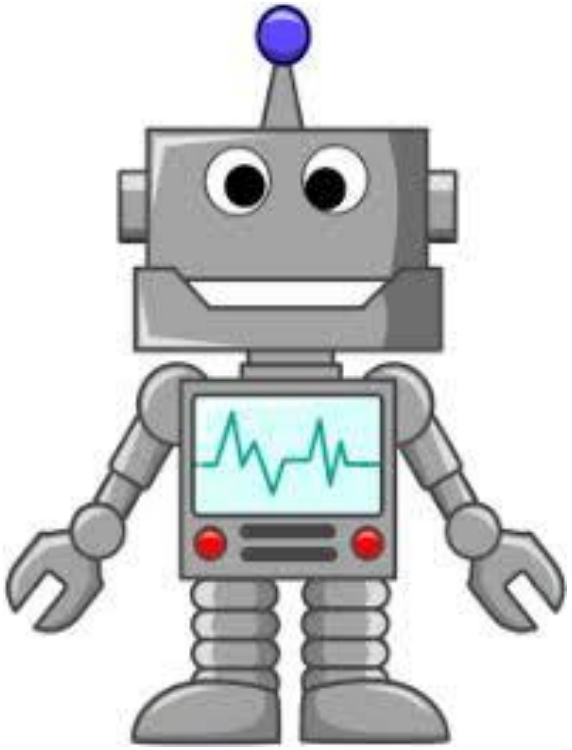


Robotic Process Automation (RPA)

Robotic Process Automation (RPA)

What is Robotic Process Automation (RPA)?

RPA is a feature of intelligent process automation (IPA) that describes logic driven robots executing pre-programmed rules mostly on structured data. RPA takes productivity optimization to the next level by redefining work and reassigning employees to execute higher value activities. Process bots are capable of independently performing simple human-like functions such as interpreting, deciding, acting and learning.



Robots…

- are computer coded Software
- Enable the automation Of repetitive Rule-based processes
- Mimic interaction of users
- Work across functions & applications

Process Robots Capabilities…

- Automated data entry
- Multi-system integration
- Repetitive tasks
- Process Reconciliation
- Data validation / quality
- Processing simple business rules

Source : PWC

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Five Big Trends

How robots are changing the way Companies do business ?

- **Robots are working in more places than just factories**. At one time, robots could function only inside tightly controlled and structured environments. Now they can handle dynamic, less predictive settings.
- **Robots can work with people.** Thanks to sensors and smart technology, new generation robots no longer pose the same safety risks to their human “collaborators”.
- **Robots can learn.** The new robots can “learn” skills through trial and error, mimicking the way people learn new tasks.
- **Robots are no longer risk-task machines.** Robots can now be customized to fit the company’s specific needs.
- **Robots are moving to the front office.** Robots are working in positions where they interact directly with customers and employees.

Source : PWC

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World Economic Forum : The robots are coming…

WORLD ECONOMIC FORUM Agenda Initiatives Reports Events About TopLink

Global Agenda | Artificial Intelligence and Robotics | Workforce and Employment

The robots are coming – for as many as 800 million jobs

Rise of the robots ... More than a fifth of the human workforce could be replaced, says a new report. Image: REUTERS/Murad Sezer

15 Dec 2017

Alex Gray
Formative Content

More than a fifth of the global labour force - 800 million workers - might lose their jobs because of automation.

That's the alarming conclusion of a report by global management consultants

https://www.weforum.org/agenda/2017/12/robots-coming-for-800-million-jobs/

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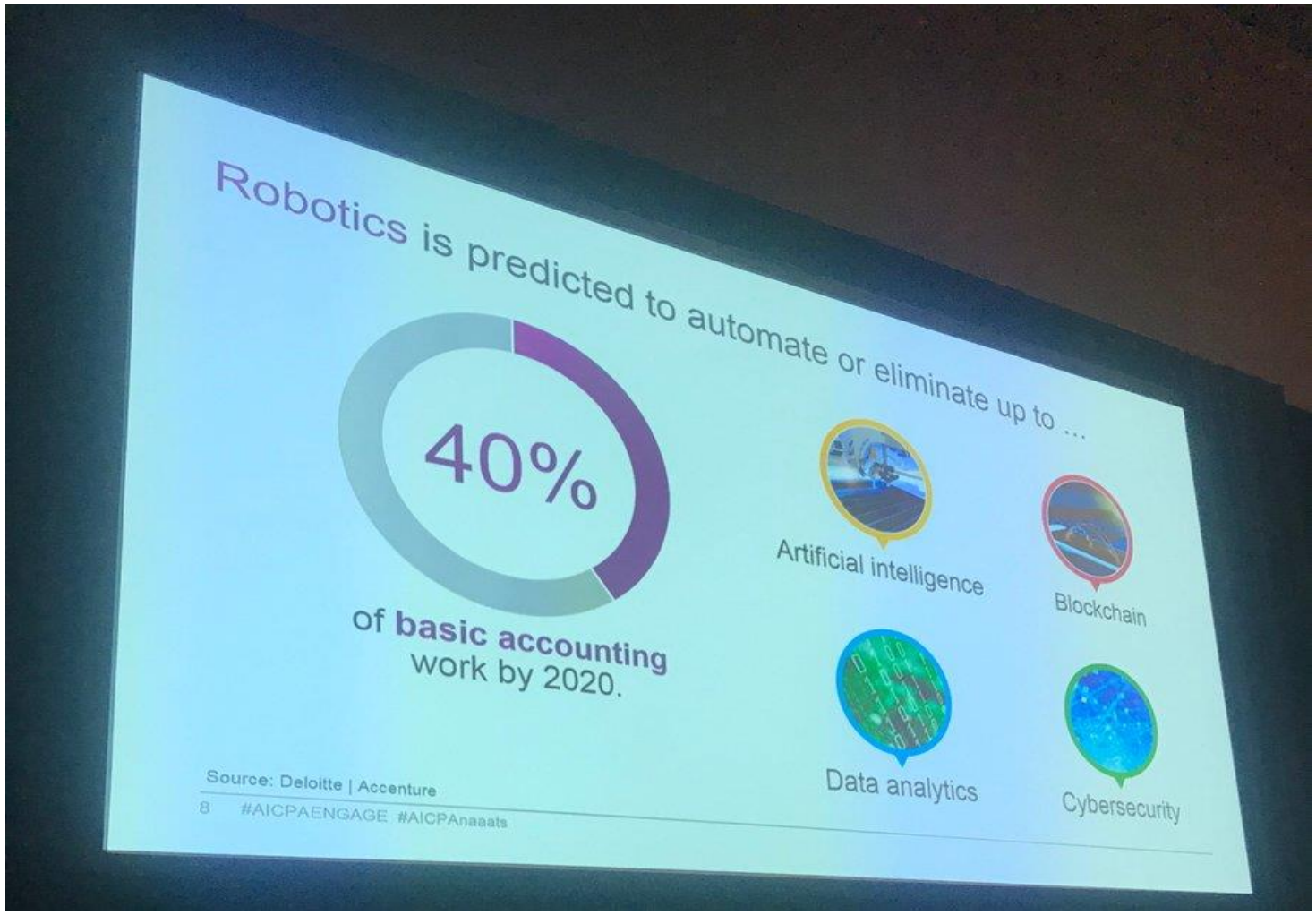
By 2020, RPA will eliminate 20% of non-value-added tasks within the office of finance.

Source: Gartner

Robotics is predicted to automate or eliminate up to…



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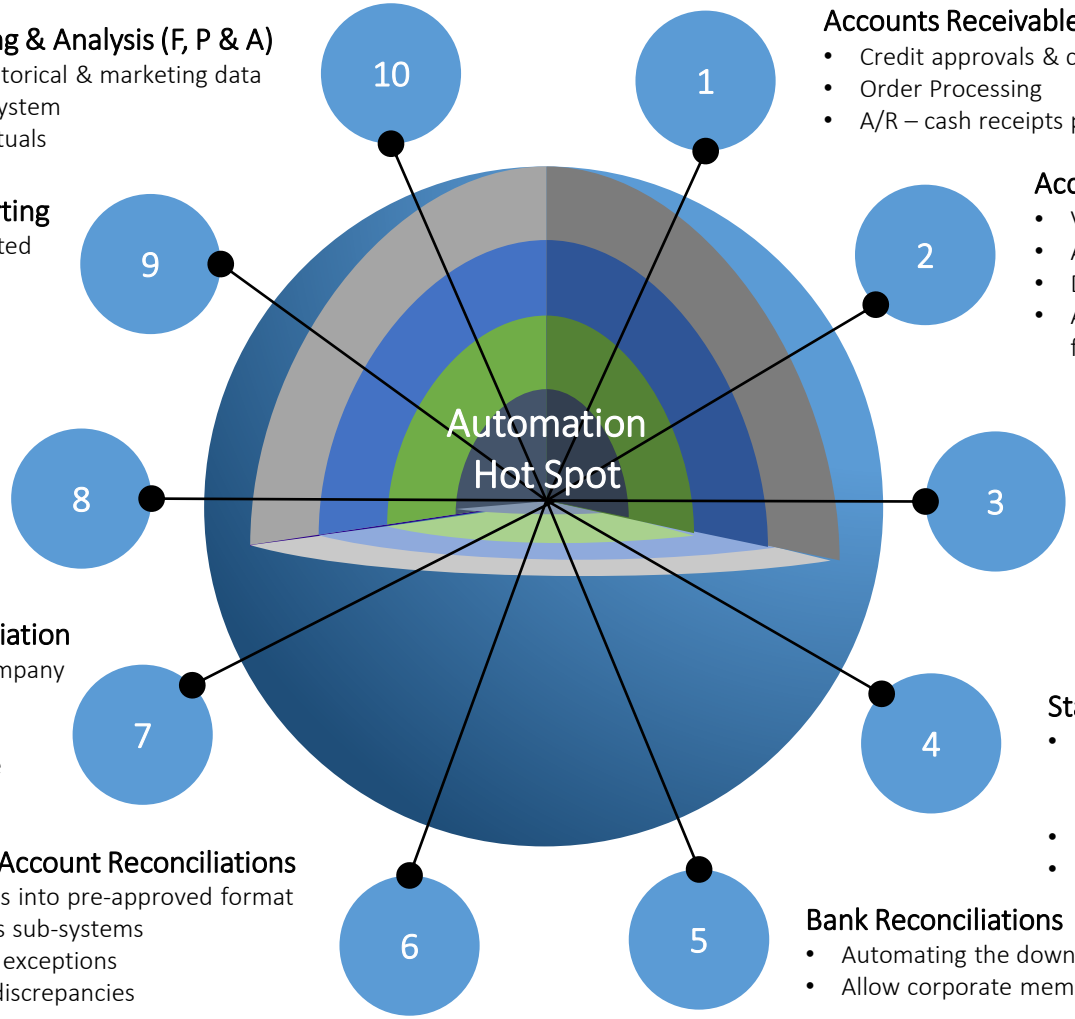
RPA in Finance Function



Financial Planning & Analysis (F, P & A)

- Automating the pre-population of forecast using historical & marketing data
- Loading pre-populated balances into the planning system
- Creating variance reports to pre-population & to actuals

Regulatory Reporting

- Data capture & cleansing to support automated generation of regulatory reports
- Pre-populated complex annual reporting

Financial Review Preparation

- Automating the preparation of management review slide decks by collecting data from multiple finance systems & reports

Inter-company Reconciliation

- Automated checking & reconciliation of Inter-company balances
- Basic research & reporting of exceptions
- Creating exception file & email report for finance review & approval

Account Reconciliations

- Automated download of sub-account balances into pre-approved format
- Upload detailed transaction data from various sub-systems
- Perform data validations & basic research for exceptions
- Creating balancing Journal entries to handle discrepancies

Accounts Receivable Processing

- Credit approvals & customer file maintenance
- Order Processing
- A/R – cash receipts processing & sending late notices via email

Accounts Payable Processing

- Vendor set-up & maintenance
- Automating the workflow processes & approvals
- Data entry & payment preparation
- Automating processing of payments & bulk payment files for Journal entries to sub-systems

Operational Finance & Accounting

- Automated price reviews based on customer contacts & pre-approved price lists
- Calculation & processing of rebates
- Downloading of monthly sales data and calculation of commissions
- Creating files & emails to get approvals
- Postings to detailed sub-systems & General Ledger

Standard Journal Entries

- Creation of standard monthly Journal entries using pre-populated templates provided by different business users
- Performing validation analytics
- Posting to ERP

Bank Reconciliations

- Automating the download of bank statements for individual accounts
- Allow corporate members to gain access to our consulting expertise

Source : E & Y

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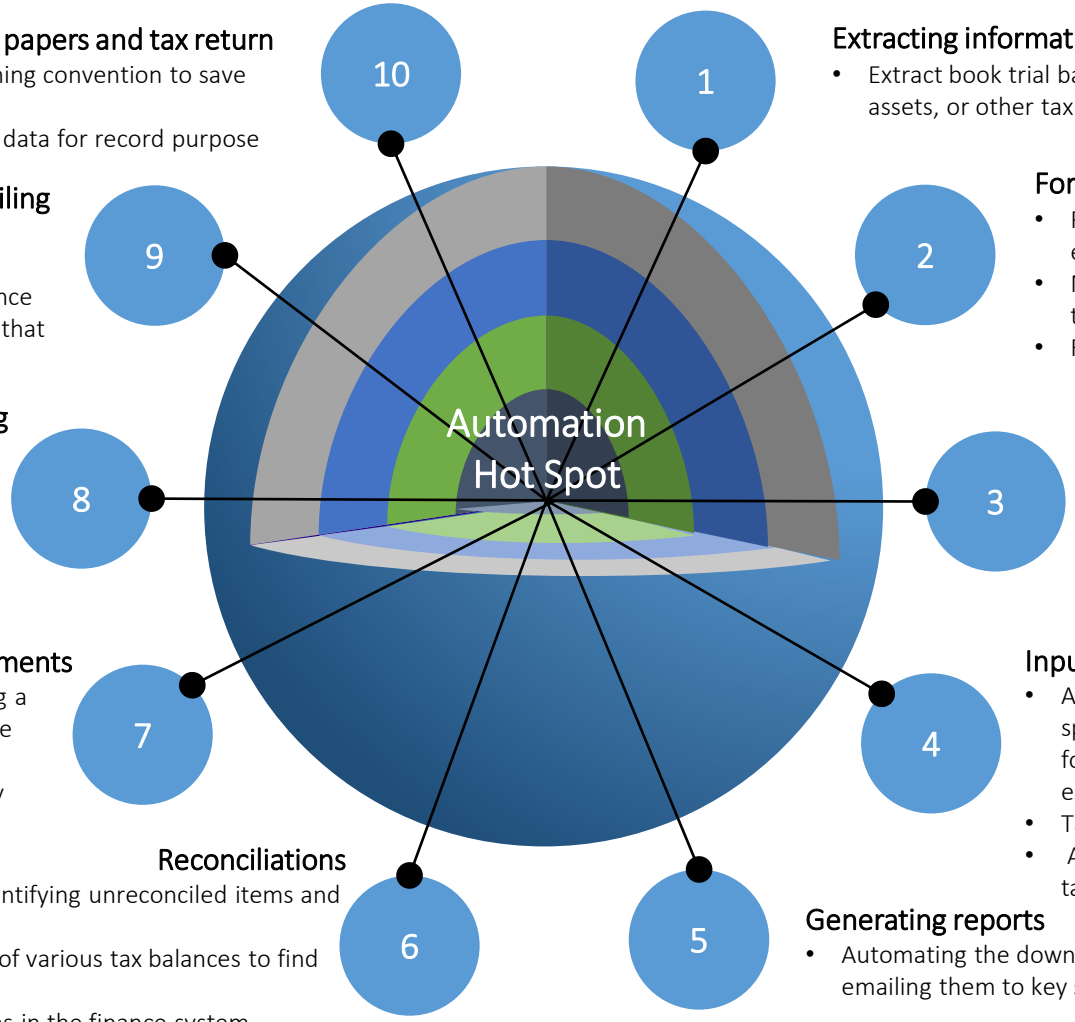
RPA Common Use Cases for Tax



Saving working papers and tax return

- Utilizing a standard naming convention to save required information
- Maintaining historic tax data for record purpose

e-Filing

- Clearing diagnostic for e-filing
- XML to return reconciliation
- Printing or emailing e-filing acceptance notification or rejection or emailing that to a person

Mailing and printing

- Certified mail – completing the forms needed and save the receipts in the right place
- Creating the labels for mailing
- Printing the returns and filing and saving the returns in right place

Disclosures and attachments

- Necessary disclosures are included and validating a return to ensure that the required disclosures are attached
- Validating that right attachments are included by referring to the matrix

Reconciliations

- Provision to return reconciliation and identifying unreconciled items and sending alerts
- Automated checking and reconciliations of various tax balances to find exception items for review
- Reconciliation of balance and transactions in the finance system

Extracting information from systems

- Extract book trial balance and key balances such as accruals, fixed assets, or other tax sensitive accounts

Formatting and work paper creation

- Formatting, cutting, pasting to get it ready to be entered into the tax computation system
- Manipulating trial balances before importing into tax tool
- Rollover balances and input into tool

Data validation and roll forwards

- Automating the process of validating information by referring to a checklist of items to ensure that the checklist is completed
- Self assuring data such as validating the book income in the P & L equals the book income in the equity roll forward

Inputting data into tax systems and forms

- Automating tax form data entry by “pushing” of tax specific data from a work paper into the tax application for federal, state, international extensions and estimates
- Tasks that require clicking through the system
- Automating the workflow processes associated with tax returns processing

Generating reports

- Automating the download of specific reports at specified times and emailing them to key stakeholders

Source : E & Y

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Blockchain

Blockchain
making
transactions
safer and faster
Nasdaq
REWRITE TOMORROW
Nasdaq
NEW YORK POLICE DEPT

Blockchain is the future….

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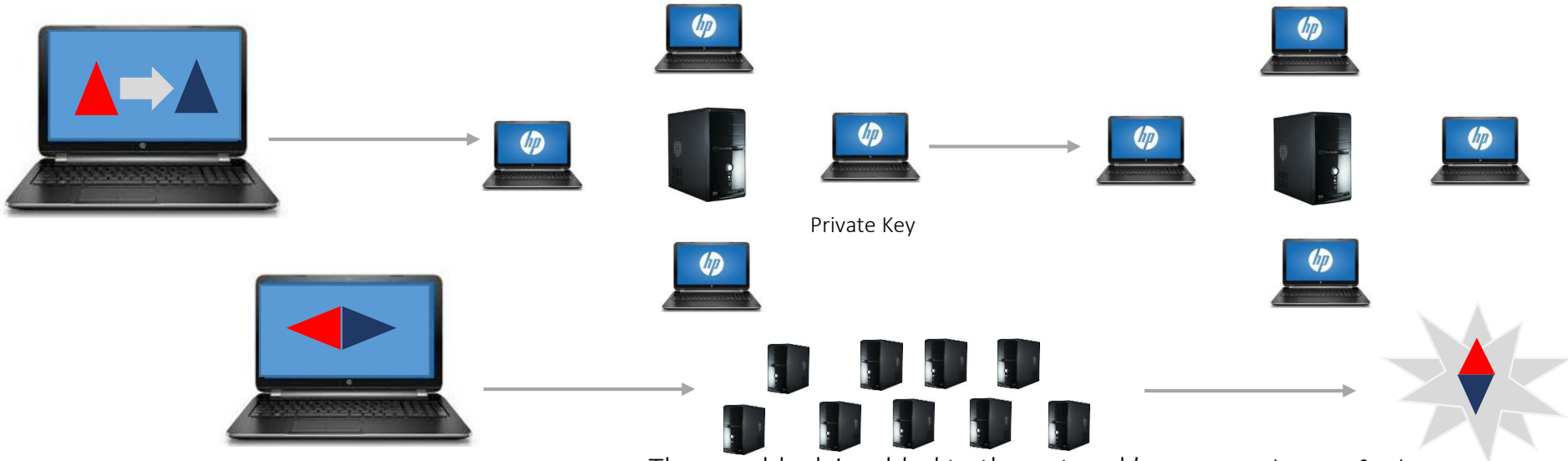
What is Blockchain ?

A Blockchain is a decentralized ledger of all transactions in the network. Using Blockchain technology, participants in the network can confirm transactions without the need for a trusted third party intermediary.

Someone in a network requests a transaction

The transaction is broadcast to other computers (nodes) in the network

The network nodes validates the transaction using agreed algorithms



Smart contacts (additional business logic) could be applied, if needed.

The transaction is complete

The new block is added to the network's Blockchain, in a way which is permanent and unalterable

The verified transaction is combined with other transactions to create a new block of data for the ledger

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From Luca Paciola to Satoshi Nakomota

Double-entry to Triple-entry Accounting

Bob Book

Debit	Credit
	5
2	
9	
	10

Alice Book

Debit	Credit
5	
	2
	9
10	

Public Book

Alice	Bob
-5	5
2	-2
9	-9
-10	10

Self-Auditing Books

It's tough to lie when everyone's watching…

Source: Blog of VillageMall CEO

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Global Knowledge Gateway™ | Audit & Assurance

Envisioning the Future—Survey on the IAASB's Future Strategy

by Beverley Bahlmann, Deputy Director, IAASB | July 9, 2018 |

As part of the development of its future Strategy and Work Plans, the International Auditing and Assurance Standards Board (IAASB) has published a survey to obtain stakeholder views about its future direction. The survey has been published in English, French and Spanish and responses to the survey will be used to assist the IAASB in identifying strategic themes to be addressed as it develops its formal consultation on its future Strategy and Work Plans later in 2018.

After completing its project to clarify the International Standards on Auditing (ISAs) and Quality Control standards in 2009, the IAASB has been focused on enhancing the relevance and quality of its standards on assurance, review and related services. In addition, the IAASB dedicated considerable time and resources to revising its auditor reporting standards, in light of calls for increased transparency about the audit. The IAASB also undertook a post-implementation review of the clarified ISAs, which highlighted several key ISAs where further consideration for effective and consistent implementation was needed by the IAASB. The IAASB's work from 2015 has been largely informed by the findings from this post-implementation review, and projects to revise various ISAs and ISQC 1 have been significantly progressed. Some of these significant projects will continue to be progressed in 2018 and 2019, with the intention to finalize the revised standards early in the IAASB's next Strategy period

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by Vita Ramanauskaite, Advisor, Accountancy Europe | October 22, 2018

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Read Now

Auditing Blockchains

What does this mean for Auditor?

...Is this the end of audit ?

…Am I going to be out of job ?

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Auditing Blockchain Transactions

Views Expressed in News Article on Audit of Blockchain Transactions

"The Blockchain concept will change the entire audit process. Third party verification will not be required when the data is converted to blockchain. In such a situation, certification will not be required from the auditor."

Our Views on Audit of Blockchain Transactions

"As long as judgement, and manual decision making and entry are part of the processes leading to business reports, auditing will be necessary. Blockchain can improve the reliability of audit trails and reconciliation; but that's just the starting point for audit, not the end point."

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Future Role of the Chartered Accountants in the Blockchain Ecosystem

Auditor of Smart Contacts and Oracles

- What type of skill sets the accounting profession need to remain relevant ?
- What factors would impact assurance engagement risk ?
- What would an assurance provider's ongoing responsibility entail once a smart contact is released into Blockchain ?

"Without an independent evaluation, the users of Blockchain technologies face the risk of unidentified errors or vulnerabilities."

Source : AICPA

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Future Role of the Chartered Accountants in the Blockchain Ecosystem Cont….

Service Auditor of Consortium

- When providing assurance across a Blockchain, who is the client ?
- How would a Chartered Accountant Auditor assess engagement risk for an autonomous system ?
- How would independence rules apply to the users of Blockchain ?

Source : AICPA

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Future Role of the Chartered Accountants in the Blockchain Ecosystem Cont….

Administrator Function

- By taking on such a critical role, is the assurance provider independent from the blockchain participants ?
- Could the Chartered Accountant Auditor conduct financial statements audit on those participants ?

Source : AICPA

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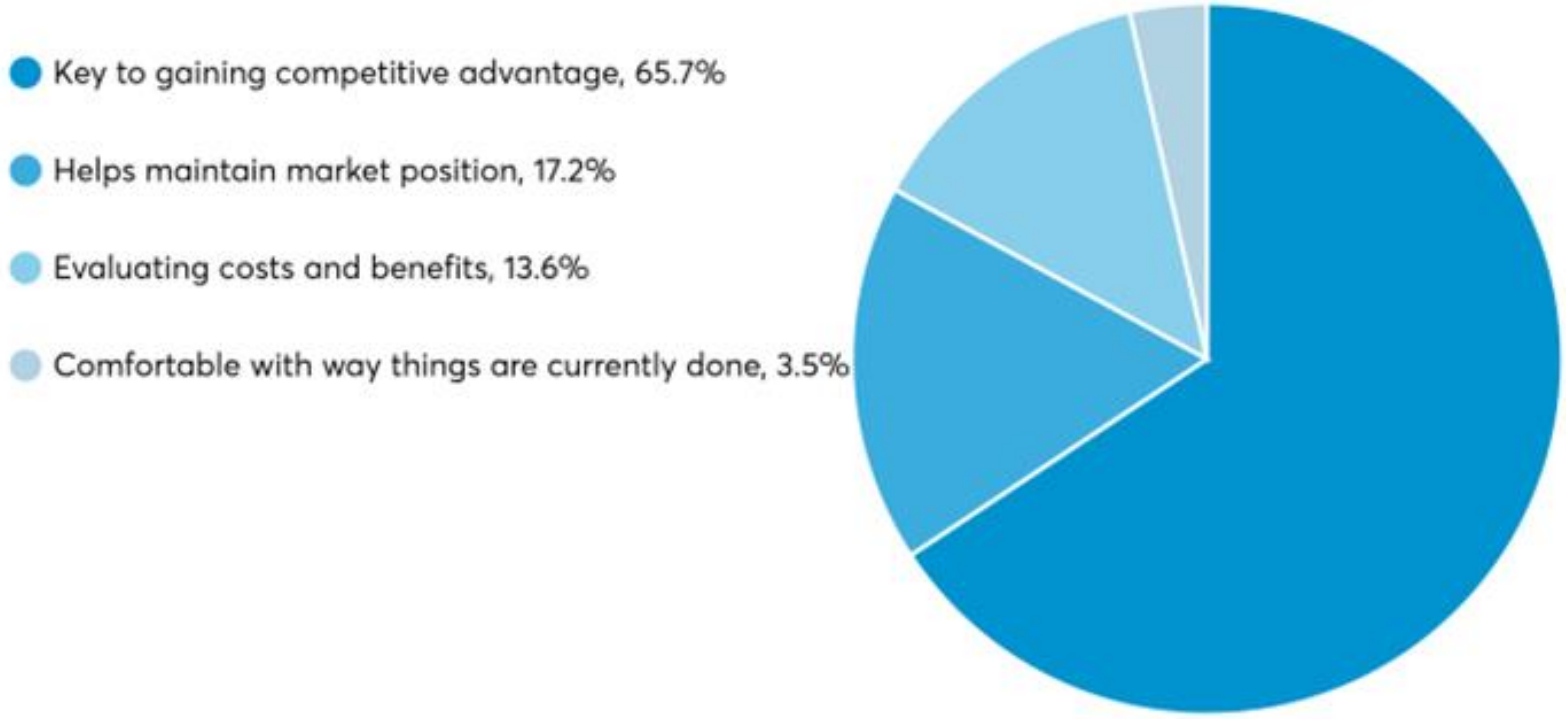
Data Analytics

Data Analytics Making Headway

Enhancing analytics capabilities is seen as a key to future success for 2/3 of respondents



Source : Institute of Management Accountants

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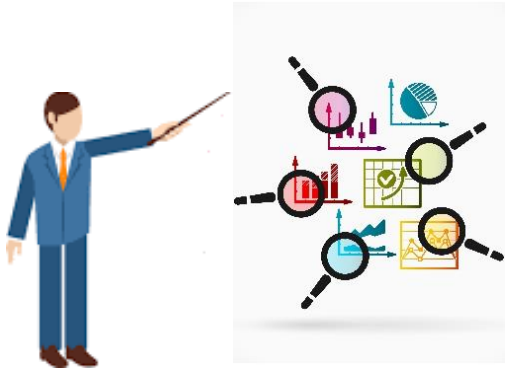
How does Data Analytics Work?

Tax and data specialist extract data from business systems.

The data is cleansed, reconciled and loaded in data analytical tools.



Exception Testing, benchmarking, and trending is conducted to report results, detect anomalies, and visualize data.

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Tax Data & Analytics in Practice

Foreign Loans, Tax Credits & Losses

With Tax Intelligence Software, executives can view a global snapshot to review all loans associated with taxes.

Mining data from import declarations

Tax teams can get competitive advantage with insights into how much the company spends on custom duty globally, and by country, region, business unit, supplier & product.

Insights on global mobility

Management of global workforce, by gathering, centralizing and analysing employee and international assignment data from around the world, dash board can be created for managing regulatory and tax compliance of global employees.

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Predictive Analytics in Tax

Predictive Analysis provides analytical capability on Company, Taxation (Imports/Exports duties) data with multi-country routing, invoice, sale data etc.

Products
(Description / HSN Code)

Geography
(Country of Origin, Country of shipment)

Shipper / Handling Agency

Quantity / Price (e.g. MRP)

Notification No / Sl no for duties (alternatives)

Risk Profile of Vendors / Customers
(Based on Tax Compliance)

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GST Monitoring through Data Analytics

Process	GST Data Analytics	Control Objective
Sales	Sale of Taxable Goods / Services without GST	Minimize the risk of underpayment of output GST
Sales	Sale of Goods / Services without GST to customers without a valid GST Number	Minimize the risk of underpayment of output GST
Purchasing	Invoice from domestic supplier without Input GST posted	Recover potential domestic input GST that has not but should have been claimed
Purchasing	Tax Invoice from suppliers with exceptional HSN codes (deviating from standard pattern)	Minimize erroneous postings / coding errors

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Preparing for the future of work

A new era of working

What makes the dream team?

- Ensembles of autonomous and high-performing employees with diversified roles that dramatically resize and reform will change how team works in future
- The use of algorithms for collecting data, supervising actions and ensuring compliance will replace the need for middle management
- Teams will be deliberately kept small and flexible in response to fluctuating workloads, shrinking time frames and rising information exchange

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A new era of learning

Less doing and more thinking

- The digital economy will demand new ideas, new information, and new business models
- By 2027, more than two out of three jobs will likely be defined as non-routine, which requires thinking rather than doing
- To meet the rise in cognitive work, a growing proportion of jobs will require continuous upskilling to learn new skills and unlearn old ones

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A new era of opportunity

Broaden your horizons

- Digital business built on vast networks and ecosystems, will increase the distribution of work across communities and businesses globally
- Companies will be as likely to work with businesses in China, South Africa or Middle East as with those in North America and Europe
- Hybrid work place will combined technology and information to embrace the working style of different kinds of people
- We will have to try out new and different ways to generate value, tap into new talent ecosystems and market to other businesses

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A new era of motivation

It's not all about money – Is it?

- Gen Z are looking for work that gives them a sense of purpose and almost half of high school students today plan to work with businesses that demonstrate corporate social responsibility
- By 2027, employees will want to shape their careers in a meaningful direction and in response businesses will offer them not just money but also an opportunity to create social impact through work

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A new era of balance

Work to live or live to work?

- To fuel upskilling and handle bigger portfolios, employees will take on more assignments, so much so that they will feel as if they are working 24X7
- Technology will monitor when people have worked too much and need to re-charge by tracking our biorhythms, nutritional requirements and exercise needs
- Work-life balance will be harder to maintain as the new digital work place will force us to re-calibrate work arrangements

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A new era of co-worker

The robots are coming…

- AI, consumer technology, internet-based applications and greater computing power, in similar devices will change how we work as smart machines become our new co-workers
- By 2027, smart machines and extreme digital dexterity will be crucial to how we work
- Distributing tasks across smart machines, software and apps will help high performing workers achieve more

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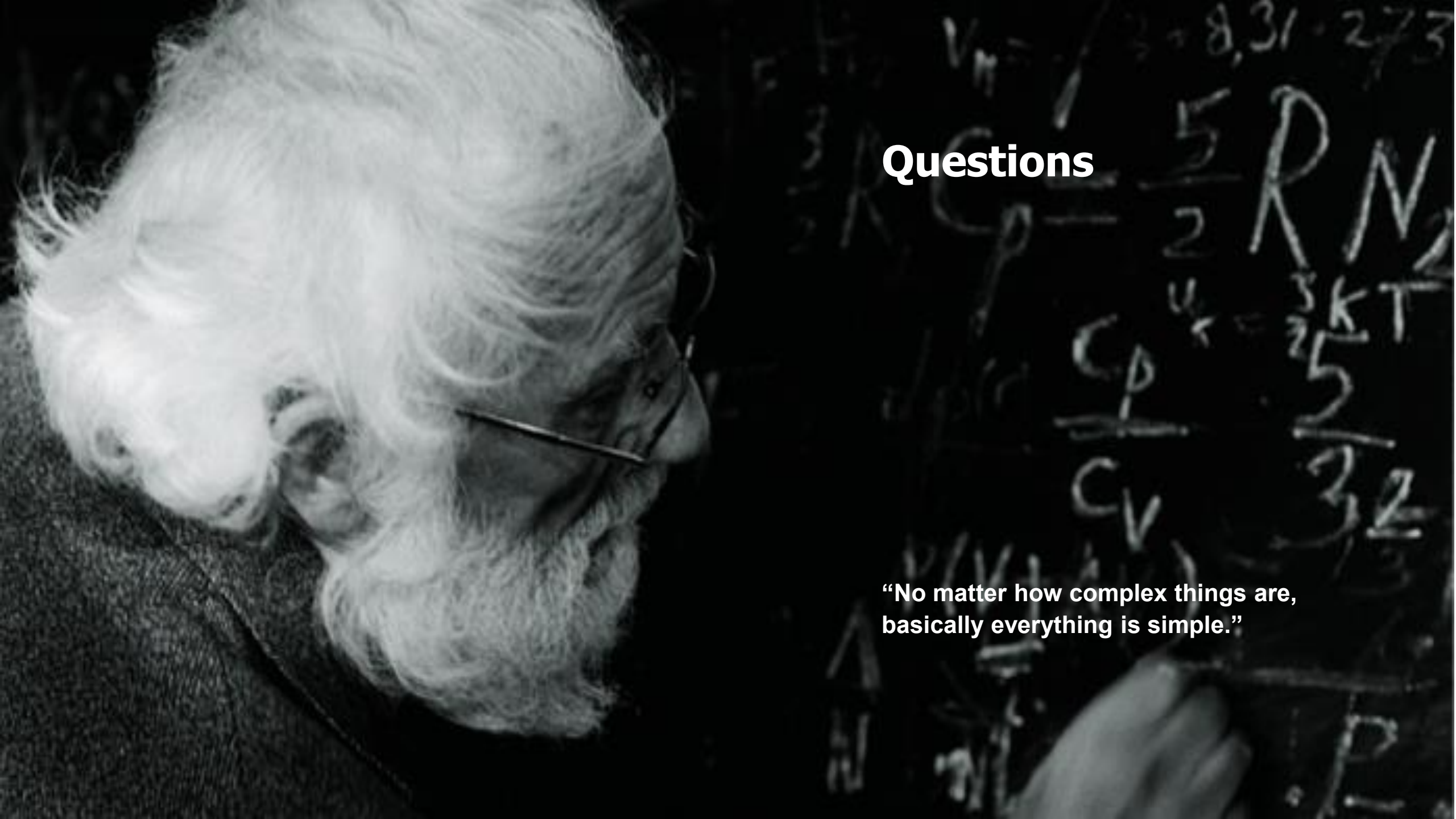
The future of work is built upon machine-human relationships where human focus on that is meaningful and real.



Questions

“No matter how complex things are, basically everything is simple.”

THANK YOU

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