



THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

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ARTIFICIAL INTELLIGENCE (AI) AND THE ACCOUNTANCY PROFESSION: *THE THREATS OF OBSOLESCENCE*

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Learning Outcome

At the end of the session, participants should be able to:

- **Explain the current state of the Accountancy Profession**
- **Describe the emergence of Artificial Intelligence (AI)**
- **Evaluate AI and its applications to the Accountancy Profession**
- **Discuss the Opportunities and Threats created by AI in Accounting**
- **Identify the ethical issues and new skills for Accountants**

Content

We will be discussing the following key areas:

**The Current
State of the
Accountancy
Profession**

**Emergence of
Artificial
Intelligence
(AI)**

**Application of
AI in
Accounting**

**Benefits of
Using AI in
Accounting**

Content

We will be discussing the following key areas:

Challenges of
Adopting AI in
Accounting

Dealing with the
Challenges of
Adopting AI in
Accounting

Ethical Issues
of AI and New
Skills
Requirements

Concluding
Thoughts
& Questions

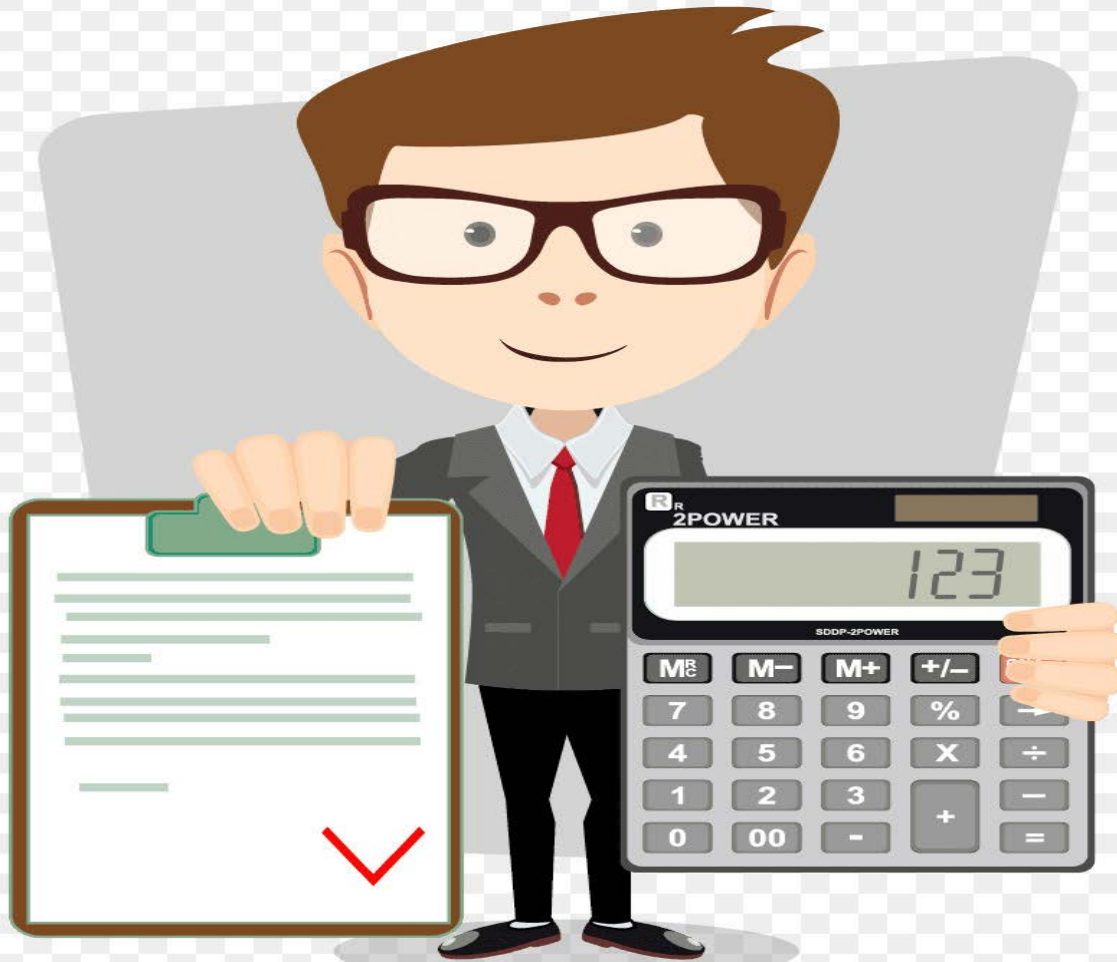
The Current State of Accountancy Profession

Identify,
Measure, Verify
and Report



One cannot overemphasize the important role accountants play in the business world, instilling confidence in the quality of financial reporting.

The Current State of Accountancy Profession



Services that are Threatened

- Generation of Invoices/Receipts
- Preparation of reports
- Consolidation of Accounts
- Computation of numerical data
- Reconciliation of accounts
- Funds transfer (Payments)
- Loan application appraisal
- Investment appraisal
- Verification of fin. transactions

The Current State of Accountancy Profession



60% of accounting errors are the result of simple bookkeeping mistakes

The illustration features a blue wooden-textured background. On the left, there is a stack of papers with a bar and line chart, a calculator showing '875.25', a yellow pencil, and a hand pointing at the calculator. On the right, there is a white coffee cup.



Accounting negligence is the common cause of failure among business start-ups

The Current State of Accountancy Profession



The Current State of Accountancy Profession

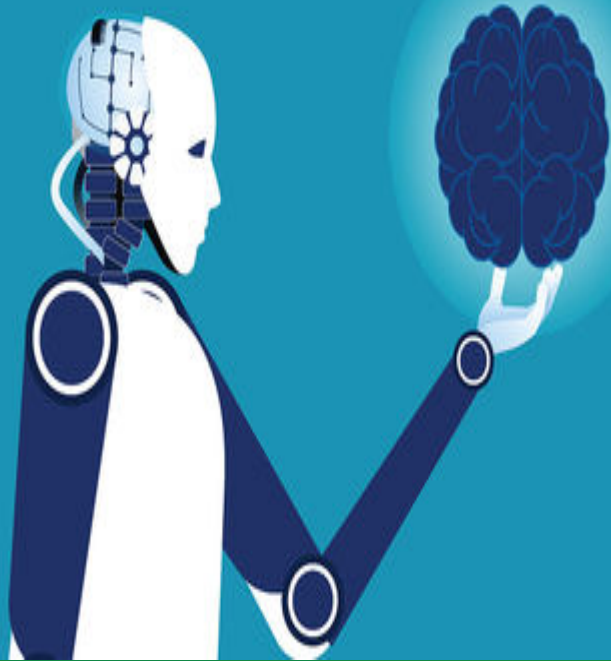
- **Human Error– The leading cause**
- **Lack of management Integrity**
- **Failure of new Accounting Rules & Regulations to curb Accounting frauds**
- **Traditional Accounting Roles unsuitable to new business models**

The Future of Accountancy Profession

Two Different Futures – Both Rest on Technology

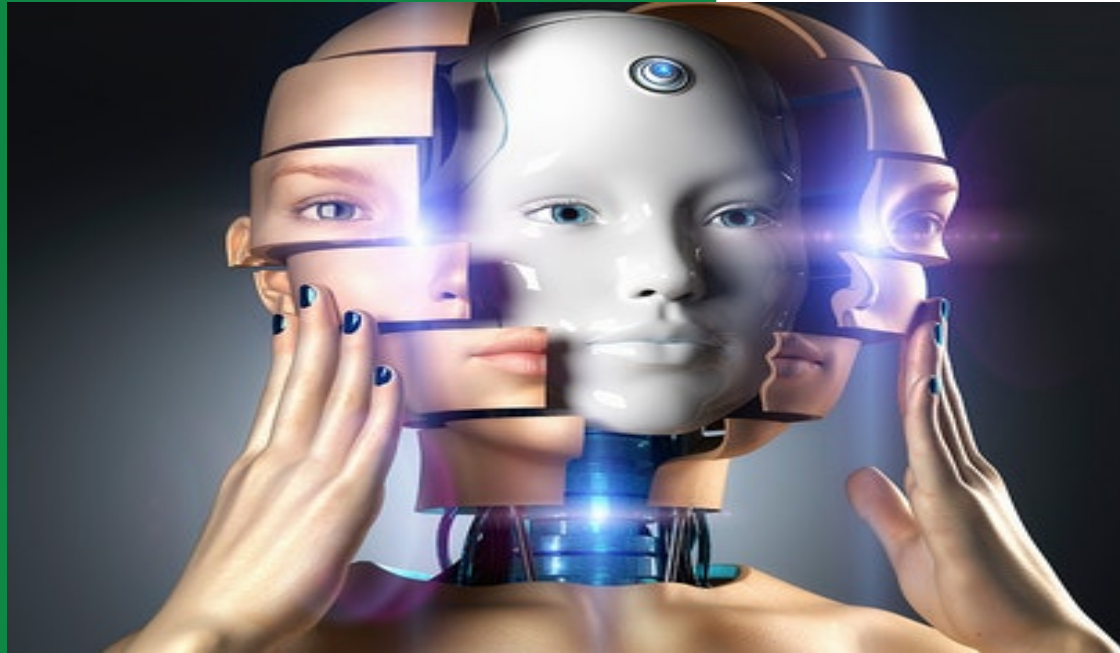
- **Increasing use of Digital Technology** – Professionals will use increasingly sophisticated technologies to enhance their traditional ways of working. Already happening today across the globe.
- **A Radical Shift (Total Takeover)** – Here, technology doesn't simply streamline and optimise that traditional approach, it actively displaces the work of traditional accounting professionals.

EMERGENCE OF ARTIFICIAL INTELLIGENCE



Artificial intelligence is the capability of a computer system to learn from its experiences and simulate human intelligence in decision-making.

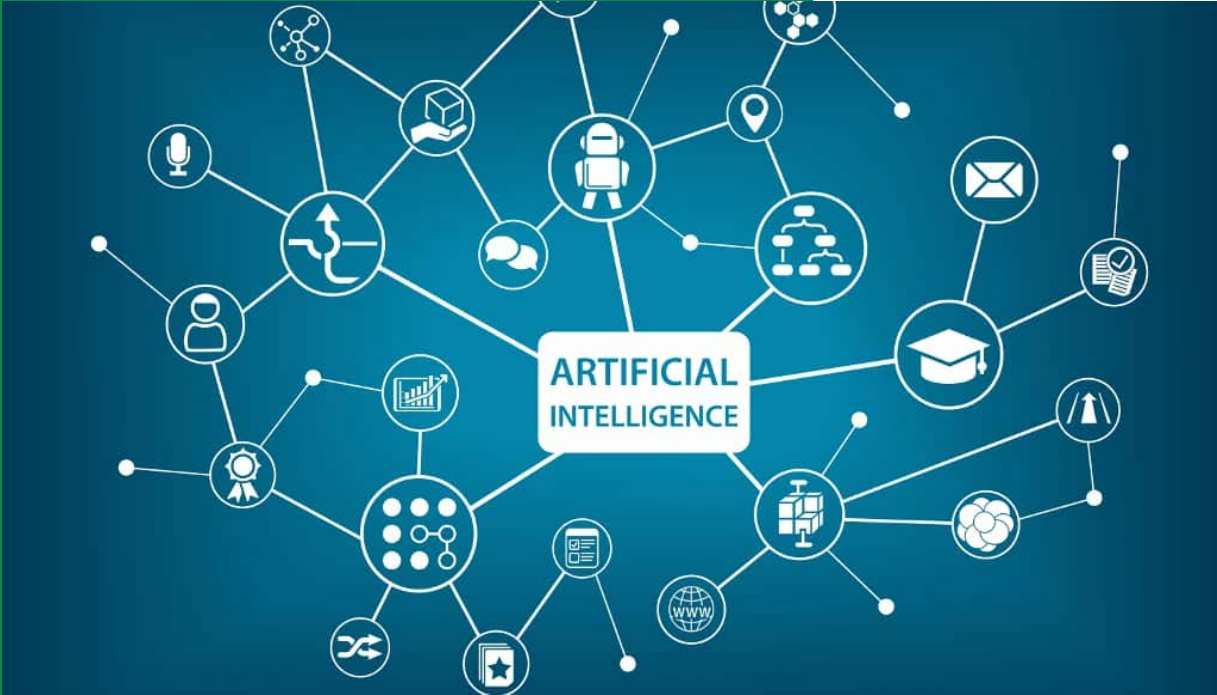
EMERGENCE OF ARTIFICIAL INTELLIGENCE



Artificial Intelligence is a method of making a computer, a computer-controlled robot or a software think intelligently in a manner similar to the human mind.

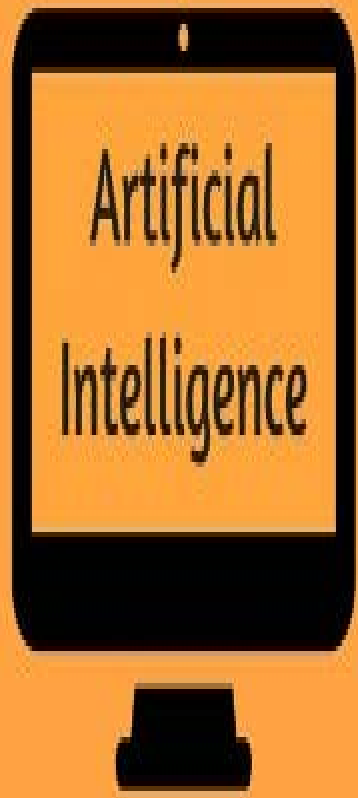
Artificial intelligence and robotics have enjoyed a resurgence of interest, and there is renewed optimism about their place in our future. But what do they mean for us?

EMERGENCE OF ARTIFICIAL INTELLIGENCE



There are many truths and half-truths out there concerning the impact that AI will have across a range of industries and professions. Given the hype surrounding AI, we can be certain that there will be a significant impact on many areas in the business world for the foreseeable future.

EMERGENCE OF ARTIFICIAL INTELLIGENCE



VS

Human Intelligence

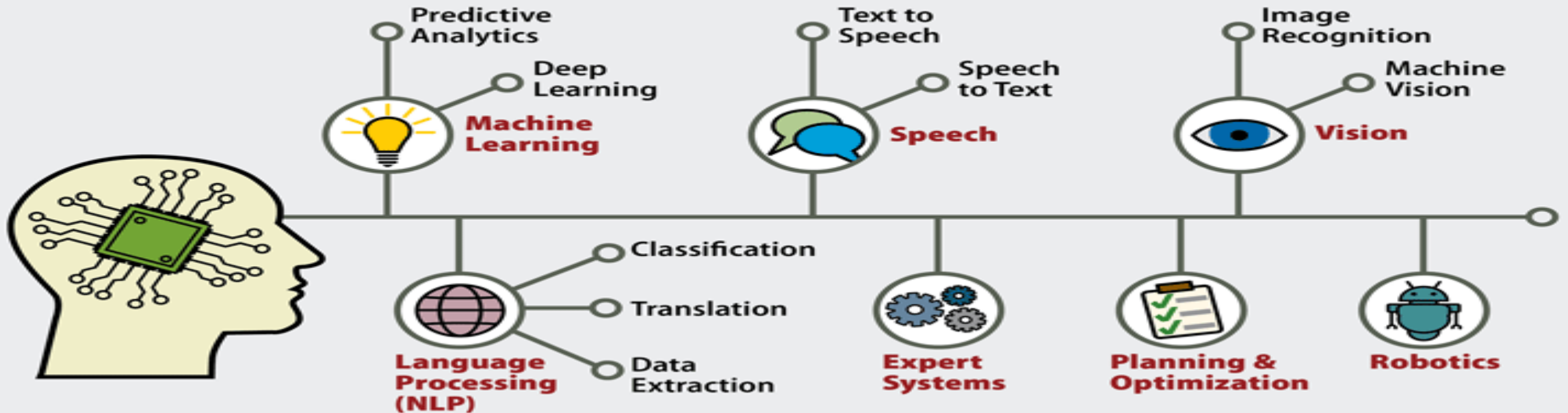


The ultimate goal of AI is to create smart systems that can:

- Think and see
- Learn from experience
- Solve Problems and make decisions
- Adapt to changing environment
- Act independently and rationally

EMERGENCE OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence



Artificial intelligence is an umbrella term that refers to any and all machine intelligence. However, there are several distinct and separate areas of AI research and use – though they sometimes overlap.

EMERGENCE OF ARTIFICIAL INTELLIGENCE



According to Kai-Fu Lee, a pioneer in AI
AI is going to change the world more than anything in the history of mankind. He predicted that artificial intelligence will automate and potentially eliminate 40 percent of jobs within 15 years.

In fact, experts anticipate that as many as 800 million jobs could be replaced with AI technology by the year 2030.

ARTIFICIAL INTELLIGENCE MILESTONE

- 1956 – The term AI was coined and used for language translation with limited progress
- 1997 – IBM's Deep Blue defeated Garry Kasparov in a Chess game
- 2008 – Google Speech-to-Search App
- 2009 – Google showed self-driving Toyota Prius completing 10 journeys of 100miles each
- 2011 – IBM Watson beating two Jeopardy Champions – Quiz competition
- 2012 – Apple launched Siri – an Intelligent personal assistant
- 2014 – Facebook develops DeepFace, near human accuracy
- 2015 – Google trained a system that could recognise an internet favourite – pictures of cats
- 2016 – AlphaGo AI beating a Human Go player – an ancient Chinese game. Recently it has been trained to master the game of Chess.
- 2016 – Uber pilots Self-driving car

ARTIFICIAL INTELLIGENCE MILESTONE

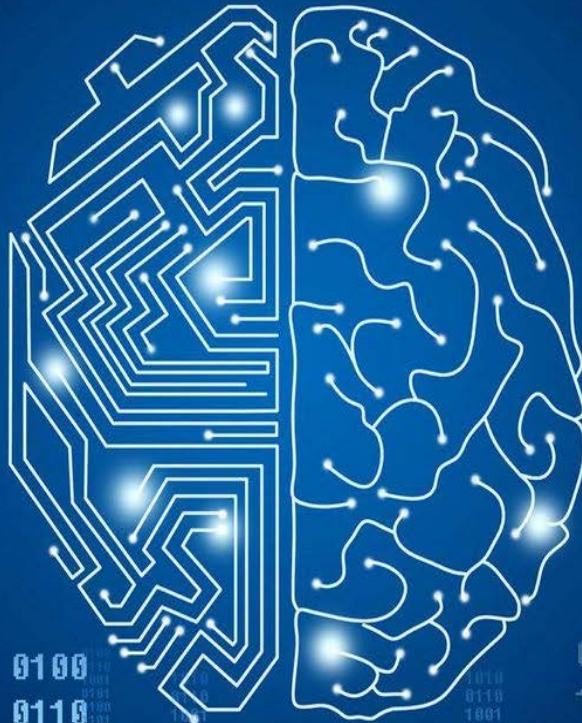
The image shows a Jeopardy! game board during a special event. Three contestants are standing behind their respective podiums: Ken on the left, Watson in the center, and Brad on the right. The background features a blue screen with the word 'THINK' and various German words like 'PIENSE', 'SITACHTIS', 'DENKE', and 'PENSEN'. The game board displays the following information:

Contestant	Score	Current Question
Ken	\$200	Maxwell's silver hammer
Watson	\$4,000	FRANK SINATRA
Brad	\$600	Brown

Below the question, a progress bar shows the percentage of correct answers for each contestant:

Contestant	Percentage
Ken	96%
Watson	11%
Brad	7%

AI IS THE FUTURE



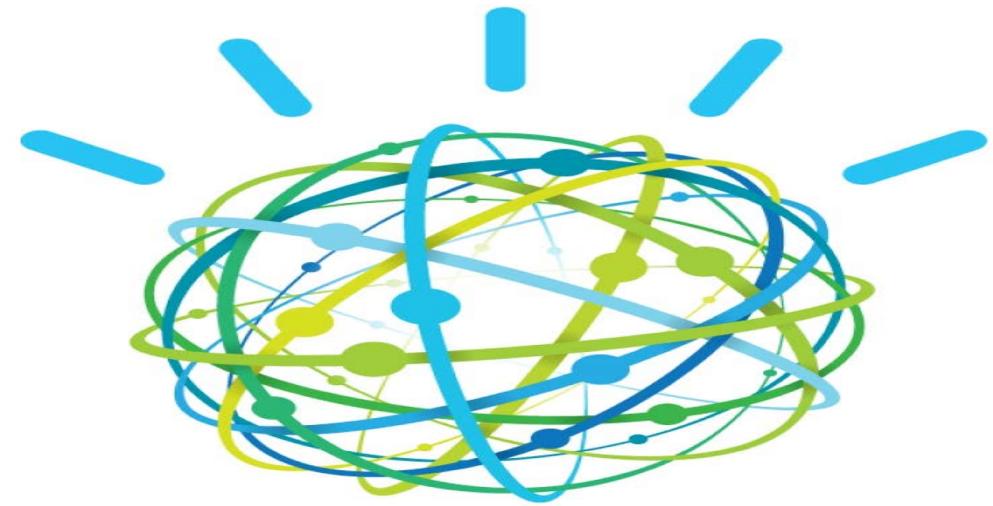
Hear From the Big Players on YouTube

<https://youtu.be/wTbrk0suwbg>

<https://www.youtube.com/watch?reload=9&v=wTbrk0suwbg&feature=youtu.be>

EMERGENCE OF ARTIFICIAL INTELLIGENCE

Artificial
Intelligence



IBM Watson™

KPMG has partnered with IBM's Watson platform - which is capable of reading 800 million pages per second

ACCOUNTING TASKS AI CAN HANDLE

- Bank Reconciliation
- Audits
- Monthly/Quarterly/Yearly processing
- Accounts Payable/Receivable processing
- Supplier vetting and set up
- Evaluation of bids/proposals
- Expense management
- Responding to queries from other functions (AI Chatbots)



TOP ACCOUNTING JOBS UNDER THREAT

- Compilation/
Bookkeeping

“I will happily pay for my daughter’s university education, provided she won’t pursue a degree in Accounting” ----Why?



TOP ACCOUNTING JOBS UNDER THREAT

- Financial Analysts

Human financial analysts can no longer compete with artificially intelligent financial analysis software that can read and recognize trends in historic data to predict future market moves.



TOP ACCOUNTING JOBS UNDER THREAT

- Inventory Managers & Stockists

The supermarket employee restocking the cans in the aisle may soon no longer be a person. A robot called the Tally is designed to audit shelves for out-of-stock items, misplaced items, and pricing errors



TOP ACCOUNTING JOBS UNDER THREAT

- Bank Tellers
and
Representative

First it was the ATM that ate into human banking jobs, then the smartphone app. It's likely that many of the remaining human-based teller and representative banking jobs will be finished off by AI.

AI won't just be able to conduct cash transactions, it will be able to open accounts and process loans at a fraction of the cost and time it takes for human employees.

TOP ACCOUNTING JOBS UNDER THREAT

- Tax Consulting

If your role as a tax consultant is limited to tax computations and filing of tax returns, then you are at the risk of becoming redundant in future. Even resolution of tax disputes is being automated through AI.

The aspect of Tax consulting job that seems a bit safe for now is Tax Planning & Advisory Service.

FURTHER IMPACT ON THE ACCOUNTANCY PROFESSION

- Removal of the “Middleman” - The Accountant.
- The Consolidation of firms as the ‘Big Four’ begin to target smaller businesses.
- Opportunity for junior level Accountants to learn likely to be eroded with automation of low-level tasks.
- Complex business models – more accounting standards



BENEFITS OF AI APPLICATIONS IN ACCOUNTING

Accenture Consulting estimates RPA to yield the following benefits:

- 80% Cost Reduction
- Task Performance Time Reduction of 80% – 90%
- Increase in output quality by human error elimination
- Scalable solutions unlike human-based teams
- Integration to existing Accounting ERP systems
- Allowing for local competency and control
- No employee holidays
- No sick leave
- No disciplinary issues
- No wage pressure – no industrial strike
- Easy to replace
- No Redundancy cost
- Low cost in the long term
- Consistent output

SOME INTERESTING STATISTICS

A recent report by Sage revealed that the average small business, including smaller consultancies, spends 120 days per year on admin tasks– time which would otherwise be spent growing their client base and creating new opportunities.

Many companies are increasingly thinking about integrating AI into their operations. According to a study by *Narrative Science*, the number of companies implementing AI, within the space of one year, nearly doubled with an increase from 38% to 61%.

SOME INTERESTING STATISTICS

In [PwC's 2019 AI survey](#) of US executives, financial services executives said they expect their AI efforts to result in increased revenue and profits (50%), better customer experiences (48%), and innovative new products (42%).

37% of organizations have implemented AI in some form. That's a 270% increase over the last four years. ([Source: Gartner](#))

SOME INTERESTING STATISTICS

Japanese auto giant Toyota Motor Corp. is planning to spend \$1 billion during the next four years through a research institute that will develop AI systems to help motorists avoid accidents.

German athletic equipment giant Adidas has completed a successful test of an automated factory and plans to open a second one next year.

SOME INTERESTING QUOTES

“Artificial Intelligence could add huge value to the professional services sector.”

– **Euan Cameron**, PwC's UK AI Leader

“Adopting AI into the heart of firms will not occur effectively without significant structural changes.”

– **Shamus Rae**, KPMG's UK Head of Innovation and Investment

AI APPLICATIONS IN PROFESSIONAL SERVICES



AI APPLICATIONS IN ACCOUNTING

Data Collection

Accountants deal with a lot of data. AI technology can process, handle, and analyse massive amounts of data far more efficiently and faster than the average human.

Streamline Admin Tasks

Probably one of the most tedious aspects of any Accountant's job is processing routine paperwork. Whether it relates to manually creating client invoices, processing payroll or creating progress reports for clients, admin tasks can slow down a consulting business.

AI APPLICATIONS IN ACCOUNTING

Decision Making

Can AI Give Better Advice Than Management Accountants?

Some, more high-end AI devices, can even make more logical and consistent business decisions

Compliance

AI to bolster legal compliance efforts, amid a shifting regulatory environment. As they handle an increasing amount of data, firms have become especially vulnerable to major legislation changes, such as the Tax laws; GDPR and NDPR.

AI APPLICATIONS IN ACCOUNTING

Prevention & Detection of Fraud

Consultants can use scalable AI investigation tool to prevent & detect fraud and revenue leakages

Customer Service

Clients to consulting outfits desire instant responses to their enquiries. This can be achieved through AI-powered Chatbots

OPPORTUNITIES FROM AI APPLICATIONS IN ACCOUNTING

- Finance Professionals to focus on higher level jobs - Service more clients
- Offer personalized services to clients
- Adapt to change & offer new services
- Save Time – Become more efficient & focus on relevant data
- Save Cost (Long term)
- Mobility of service – Geography unimportant
- Enhanced visibility
- New Skills for Accountants – Beyond number crunching

CHALLENGES OF ADOPTING AI IN ACCOUNTING

While AI opens the opportunity for many exciting possibilities across industries, many implementation challenges arise.

- High Set-up Cost
- Lack of skill and experience
- Data (lack of actionable or suitable data)
- Hidden bias in people and data
- Regulatory constraints – No framework
- Privacy and Security concerns



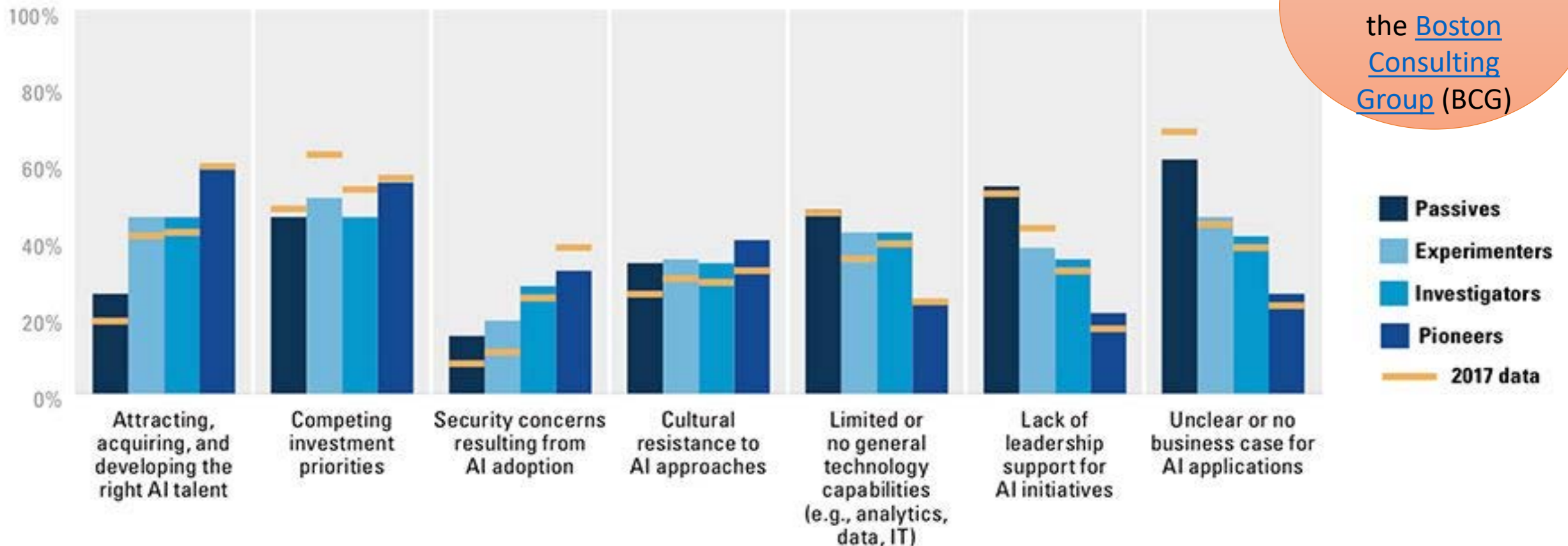
CHALLENGES OF ADOPTING AI IN BUSINESS

COMMON AND UNCOMMON BARRIERS TO AI

Respondents ranked top barriers to AI adoption in their companies for the second year in a row.

MIT Sloan
Management
Review and
the [Boston
Consulting
Group](#) (BCG)

What gets in the way of AI adoption?



DEALING WITH THE CHALLENGES OF ADOPTING AI IN BUSINESS



- Pro-active planning
- Invest in capabilities
- Partnerships/Collaborations
- Train all Accountants on opportunities
- Monitor and market

ETHICAL CHALLENGES OF AI APPLICATION



Tech giants such as Alphabet, Amazon, Facebook, IBM and Microsoft – as well as individuals like Elon Musk – believe that now is the right time to talk about the nearly boundless landscape of Artificial Intelligence.

ETHICAL CHALLENGES OF AI APPLICATION

Top Ethical Considerations:

- **Possible Job Losses** - Look at trucking: it currently employs millions of individuals in the United States alone. What will happen to them if the self-driving trucks promised by Tesla's Elon Musk become widely available in the next decade? But on the other hand, if we consider the lower risk of accidents, self-driving trucks seem like an ethical choice.
- **Wealth Inequality** - **How do we distribute the wealth created by machines?** - But by using artificial intelligence, a company can drastically cut down on relying on the human workforce, and this means that revenues/profits will go to fewer people. Consequently, individuals who have ownership in AI-driven companies will make all the money.

ETHICAL CHALLENGES OF AI APPLICATION

Top Ethical Considerations:

- **Artificial stupidity. How can we guard against mistakes?**

Intelligence comes from learning, whether you're human or machine. Once a system is fully trained, it can then go into test phase, where it is hit with more examples and we see how it performs.

Obviously, the training phase cannot cover all possible examples that a system may deal with in the real world. These systems can be fooled in ways that humans wouldn't be. For example, random dot patterns can lead a machine to "see" things that aren't there.

ETHICAL CHALLENGES OF AI APPLICATION

Other Ethical Considerations:

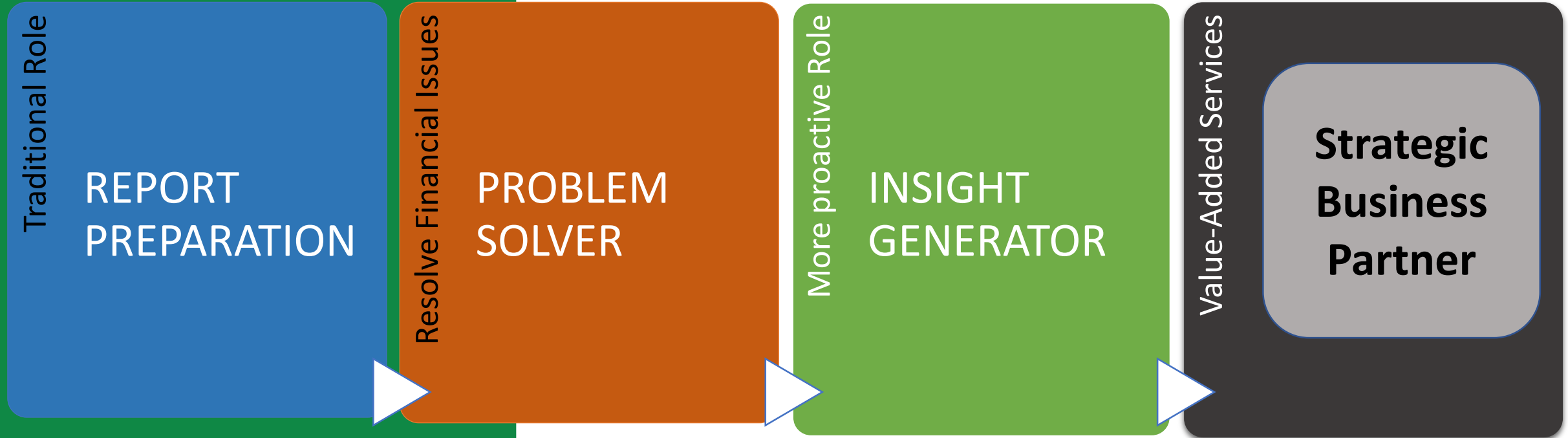
- Racist robots. How do we eliminate AI bias?
- Security. How do we keep AI safe from adversaries?
- Evil genies. How do we protect against unintended consequences?
- Technological Singularity and Keeping Control Over AIs

The Way Out For Accountancy Profession

**WHAT
CHARTERED
ACCOUNTANTS
HAVE TO DO?**



The Way Out For Accountancy Profession



Your real value as an accountant lies in the advice you offer on top of your technical expertise. Become the strategic business adviser in your organization or to your clients.

NEW SKILLS FOR ACCOUNTANTS

Skills in Demand	Meaning
Technical Skill	The ability to perform a task consistently to a defined standard while maintaining the highest level of integrity, independence and scepticism
Emotional Intelligence	The ability to identify your own emotions and those of others, regulate, manage and apply them to tasks reasonably
Digital Skill	The awareness and application of existing and emerging digital technologies, capabilities, strategies and practices
Creative Skill	The ability to use existing knowledge in a new situation, explore potential outcomes and generate new ideas
Vision	The ability to anticipate future trends accurately and fill the gaps in an innovative way
Experience	The ability to understand customer expectation and meet the desired outcome

TO BE RELEVANT

- Be The Value Intermediary



- Don't let "IT" be between YOU and the Business Logic
 - Be the master of Technology

CONCLUDING THOUGHTS

While AI and automation have significantly disrupted some industries, most notably manufacturing and customer service, they have also undeniably had an impact on Accounting firms. Generally, the effects are positive, and if harnessed correctly, AI and automation could significantly enhance how Accountants operate as well as the services they provide to clients.

Upgrade yourself as a future accountant with knowledge in digital technology, globalization and evolving regulations

CONCLUDING THOUGHTS

AI is no longer just for self-driving cars. Businesses of any size can use it to transform their sales, marketing, accounting and customer service without spending a fortune either. Don't be scared of this futuristic technology. Embrace it, and you'll see that your function will reach new heights.

Will AI replace Accountants? The answer is definitively “no.” It cannot replace the experience and judgement of Accountants, nor can it understand and manage the relationships between firms and clients.

CONCLUDING THOUGHTS

Technology advances have historically eliminated some jobs and created others. There's no reason to think that this trend won't continue regarding Accountancy. Jobs will continue to be created, enhanced and destroyed much as they have in the last 70 years.

Whilst there are undoubtedly a number of challenges facing the accounting industry, we can rise to them. If we're aware of any upcoming problems, we can take the necessary steps to support our clients with the new needs they might have.

Thank
you!!

TIME FOR QUESTIONS

My Contact

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REFERENCES

- <https://www.consultancy.uk/news/theme/artificial-intelligence>
- <https://www.techrepublic.com/article/ceos-5-areas-where-ai-will-drive-the-most-value-in-2018/>
- <https://www.zdnet.com/article/what-is-ai-everything-you-need-to-know-about-artificial-intelligence/>
- <https://www.weforum.org/agenda/2016/10/top-10-ethical-issues-in-artificial-intelligence/>
- <https://blogs.oracle.com/datascience/artificial-intelligence-use-cases-in-fintech>