The Pakistan
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The Institute of Chartered Accountants of Pakistan

CA PAKISTAN

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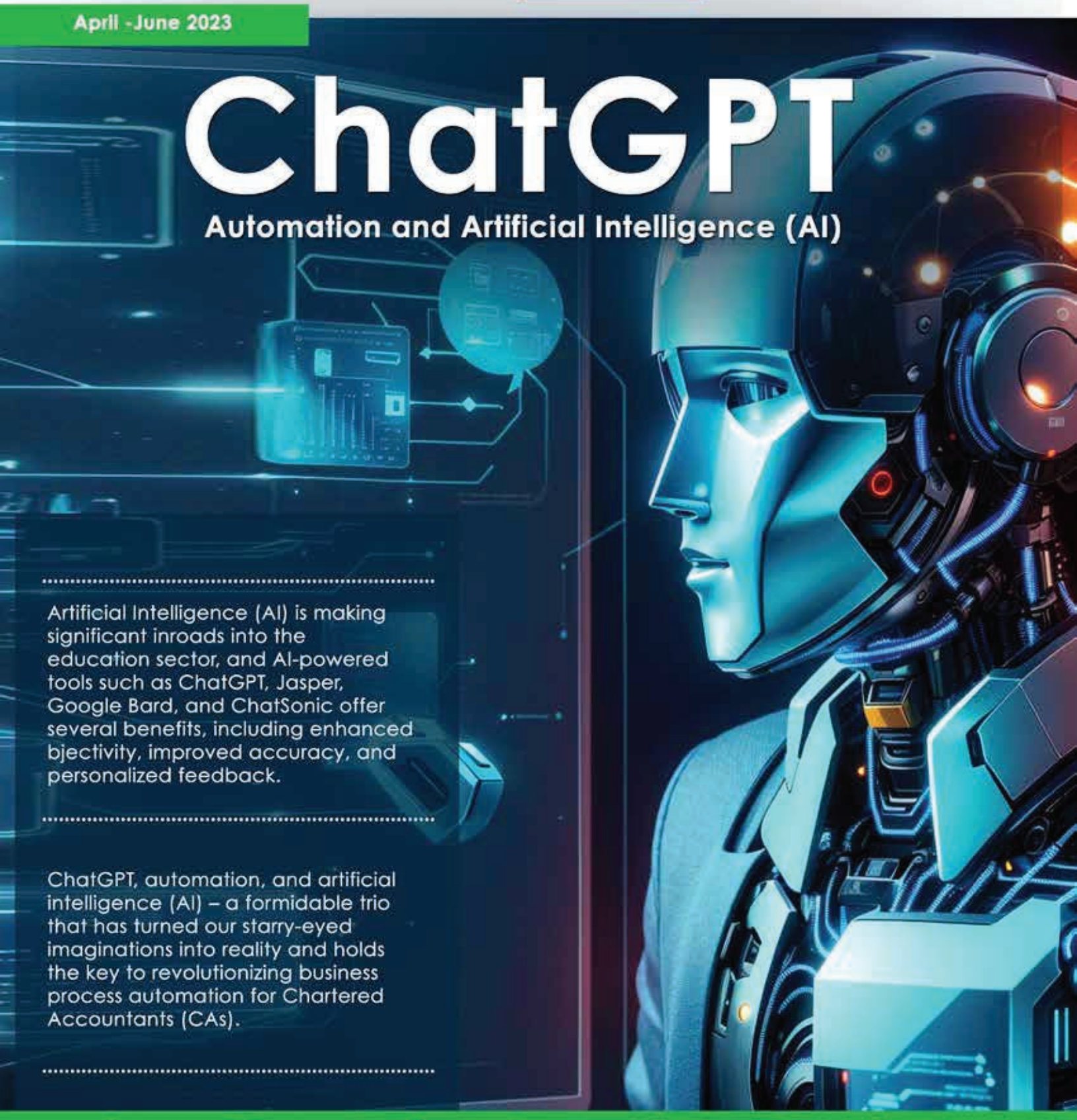
ChatGPT

Automation and Artificial Intelligence (AI)



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ChatGPT, automation, and artificial intelligence (AI) – a formidable trio that has turned our starry-eyed imaginations into reality and holds the key to revolutionizing business process automation for Chartered Accountants (CAs).

The Institute of Chartered Accountants of Pakistan

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Inside

Message from President ICAP

Mr. M. Ali Latif, FCA
President, ICAP

I am delighted to have the opportunity to share with you the contents of this issue of the Pakistan Accountants magazine, which explores a topic of tremendous significance in our ever-changing world: "ChatGPT, Automation, and Artificial Intelligence (AI)." This theme brings to the forefront the immense transformative power of technology and its profound implications for the field of accounting.

The emergence of automation and AI has brought about a paradigm shift in the way we approach various sectors, and accounting is no exception. As President of the Institute of Chartered Accountants in Pakistan (ICAP), I believe it is crucial for us to embrace these advancements and explore their potential to enhance our profession.

ChatGPT, powered by OpenAI's state-of-the-art language model, has revolutionized the way we communicate and interact with technology. Its natural language processing capabilities have opened up new avenues for accountants to engage with clients, colleagues, and stakeholders. Through chat-based interfaces, accountants can now efficiently address queries, provide guidance, and offer real-time support to ensure accurate financial reporting and compliance.

Automation and AI have also revolutionized the realm of data analysis. With the ability to process vast amounts of information in a fraction of the time, AI algorithms can extract valuable insights, detect patterns, and predict trends with remarkable accuracy. By leveraging these capabilities, accountants can make more informed decisions, improve risk management, and enhance the overall efficiency of financial operations.

Furthermore, the integration of AI into accounting systems has significantly streamlined repetitive tasks, such as data entry and reconciliation, reducing the likelihood of errors and freeing up valuable time for accountants to focus on more strategic and analytical work. This not only enhances productivity but also enables professionals to contribute more effectively to business growth and value creation.

While we celebrate the incredible advancements brought forth by ChatGPT, automation, and AI, we must also recognize the importance of upholding ethical standards and safeguarding data privacy. As accountants, we have a responsibility to ensure that the technologies we adopt adhere to stringent security measures and comply with regulatory frameworks. Trust and transparency must remain at the core of our profession, even as we embrace the benefits of automation and AI.

The transformative power of ChatGPT, automation, and AI presents us with an opportunity to redefine the role of accountants in the digital age. By leveraging these technologies responsibly, we can elevate our profession and create value for our clients and organizations. The Institute of Chartered Accountants in Pakistan (ICAP) remains committed to supporting its members in navigating this evolving landscape, equipping them with the necessary knowledge and skills to thrive in the era of automation and AI.

I extend my gratitude to the editors and contributors of the Pakistan Accountants magazine for showcasing this vital theme, and I encourage all readers to delve into the articles and engage in thoughtful discussions. Together, let us harness the potential of ChatGPT, automation, and AI to shape the future of accounting and drive sustainable growth.

Message from Chairman MARCOM

As we embark on this new issue of the Pakistan Accountant magazine, I am honored to address you as the Chairman MARCOM, bringing forth a captivating topic that resonates deeply with the ongoing advancements in our profession: "ChatGPT, Automation, and Artificial Intelligence (AI)." This theme encapsulates the boundless potential of technology and its profound impact on the realm of accounting.

In today's fast-paced world, where innovation and digitalization reign supreme, it is imperative for us to explore the transformative power of ChatGPT, automation, and AI. These cutting-edge technologies have revolutionized the way we approach our work, opening up new vistas of efficiency, accuracy, and strategic decision-making.

ChatGPT, with its exceptional language processing capabilities, has redefined the way we communicate and collaborate. The ability to engage in natural conversations with technology has ushered in a new era of interaction, enabling accountants to seamlessly address queries, offer real-time support, and foster stronger relationships with clients and stakeholders. This enhanced communication channel empowers us to provide comprehensive financial guidance and ensure compliance with ease and agility.

Automation and AI have emerged as indispensable allies in the realm of data analysis. With their ability to process vast amounts of information swiftly, these technologies extract invaluable insights, identify patterns, and predict future trends. By harnessing the power of AI, accountants can make data-driven decisions, enhance risk management strategies, and optimize financial operations. These advancements not only improve efficiency but also elevate the overall quality and relevance of financial reporting.

Furthermore, the integration of AI into accounting systems has paved the way for streamlining repetitive tasks and reducing manual errors. By automating mundane processes such as data entry, reconciliations, and routine calculations, accountants are freed from the shackles of monotonous work and can redirect their focus toward more strategic endeavors. This shift empowers professionals to delve into complex analysis, drive innovation, and play a pivotal role in shaping the financial landscape of businesses.

However, as we navigate this technological revolution, we must remain steadfast in upholding ethical standards and safeguarding data privacy. I emphasize the importance of responsible implementation of these technologies. We must ensure that AI systems adhere to rigorous security protocols and comply with regulatory frameworks, upholding trust and transparency in our profession. I encourage you to immerse yourself in the articles and insights within this issue of the Pakistan Accountants magazine. Together, let us embrace the transformative potential of these advancements and strive for excellence in our profession.

Mr. Husnain R. Badami, FCA
Chairman - Marcom Committee

Opportunities and Challenges of Implementing AI Tools in Education and Assessment: A Focus on Developing Countries, with an Emphasis on Pakistan's Unique Challenges

Mr. Muhammad Irfan Ghaziani, FCA

Artificial Intelligence (AI) is making significant inroads into the education sector, and AI-powered tools such as ChatGPT, Jasper, Google Bard, and ChatSonic offer several benefits, including enhanced objectivity, improved accuracy, and personalized feedback. However, the implementation of AI tools in education also presents challenges, particularly in developing countries like Pakistan, where infrastructure and related resources are often limited.

Opportunities:

AI tools can provide enhanced objectivity in imparting knowledge and the grading/assessment system, overcoming resource shortages, and eliminating subjective biases. This is particularly important in Pakistan, where there may be a shortage of qualified teachers and a higher likelihood of human error and bias while grading students' examination papers. Well-planned use of AI tools may help unlock the following benefits/opportunities for educators:

Saving time and effort in the quick development of customized learning and assessment material, allowing educators to focus on other aspects of teaching and learning.

Faster grading of students' assessments by significantly reducing the need for a high number of human experts to complete the assignment.

Maintaining consistency in marking large-scale assessments by eliminating the personal heuristic judgment of examiners engaged in completing the assignment.

Maintaining accuracy in marking assessments by eliminating the probability of human error or perception in judging answers.

Providing personalized feedback to students on their performance, helping them identify their strengths and weaknesses and develop strategies to improve.

Helping bridge the educational gap between developed and developing countries. In Pakistan, where there is a shortage of qualified educators, AI tools can be used to provide quality education to students.

Helping overcome language barriers and promote access to education for students who speak different languages.

Challenges:

Despite the numerous benefits of AI tools in education, their implementation also presents several challenges. One of the significant challenges is the lack of human interaction. AI tools lack the human touch and cannot provide the same level of emotional support that human educators can. Moreover, AI tools may not be able to handle tasks that require human judgment or evaluation, which can limit the range of skills and abilities that are evaluated and potentially stifle creativity and innovation in assessment design.

Another potential drawback of using AI tools in education is technical errors. AI tools are not perfect and can make mistakes, which can impact the accuracy of assessments and evaluations. Additionally, the use of AI tools in assessments and examinations may raise concerns about data privacy and security, which can impact the confidentiality and integrity of student data.

Specific challenges for Pakistan:

The implementation of AI tools in education presents unique challenges for Pakistan. Access to reliable internet connectivity is one of the most significant challenges. The digital divide between developed and developing countries has widened over the years, making it difficult for educators and students in developing countries like Pakistan to access and use AI tools effectively. To address this challenge, Pakistan must invest in reliable and stable internet infrastructure to ensure that educators and students can access and use AI tools effectively.

Moreover, Pakistan also faces challenges related to the availability of necessary hardware and software for AI tools. The cost of implementing and maintaining AI tools may also be prohibitively expensive, especially for under-resourced schools and institutions in Pakistan. To address this challenge, Pakistan must also invest in the necessary hardware and software to support the use of AI tools in education.

Furthermore, Pakistan also faces challenges related to the availability of data and the ability to train AI tools on diverse and representative datasets. The quality and availability of data are essential for the development and training of AI tools, which can be limited in Pakistan, where more than 90% of essay-type exams are conducted in a paper-based environment. To train an AI-based system, the hand-written data obtained from paper-based exams is not suitable. Unless the majority of exams are migrated to a computer-based environment, diverse and representative datasets to train AI-based systems cannot be generated.

Conclusion and the way forward

In conclusion, AI tools in education present both opportunities and challenges for Pakistan and other developing countries. The benefits of AI tools include enhanced objectivity, time and effort savings, improved consistency and accuracy, and personalized feedback, which can help bridge the educational gap and provide quality education to students. However, the implementation of AI tools also presents challenges, including the lack of human interaction, technical errors, migration to computer-based exams, managing users' resistance, users' training, and ethical concerns. To ensure the successful integration of AI tools in education, Pakistan and other developing countries must address the above challenges by investing in reliable IT infrastructure, including internet connectivity, necessary hardware and software, and diverse and representative datasets for the development and training of AI tools. Additionally, they must consider incorporating ethical principles into their AI policies and practices and promote responsible AI practices through education and awareness campaigns. The government should also consider developing legislation for the secure implementation and operations of AI-based systems in accordance with international laws and regulations.

Overall, AI tools have the potential to revolutionize education, but it is crucial to ensure that the benefits of AI tools are balanced with addressing the challenges and concerns associated with their implementation. By doing so, developing countries like Pakistan can provide their students with quality education and promote their development in the global digital age.

Mr. Irfan is a Senior Director Examinations at ICAP.

Ethical and responsible utility of ChatGPT? The all-pervasive question!

Mr. Hamza Hasan, ACA

Since the beginning of time, civilizations have been comprised of two roles: doers and thinkers. The industrial revolution of the 1700s witnessed the empowerment of the doer role, as the introduction of machinery minimized the need for manual labor. Nowadays, the stakes are even higher with the emergence of Artificial Intelligence (AI), as it poses a risk to automate the role of thinkers as well. Whether AI is a curse or an opportunity remains to be seen, but one thing is certain: these are exciting times.

The importance of ChatGPT as a revolutionary AI tool cannot be overstated. Its unparalleled efficiency and insights have the potential to completely transform how we handle financial data. However, the advent of this groundbreaking technology is not without its risks. It is crucial to strictly adhere to values and maintain a commitment to ethical considerations when using this tool.

As representatives of a trusted profession, it is important for us to keep in mind several essential points, which are as follows:

1. Data Privacy & Security: As the utilization of ChatGPT becomes more common in organizations, it is important to note that data input into ChatGPT may be stored on the platform temporarily or permanently. Professionals must ensure that appropriate controls are in place to mitigate the risk of unauthorized access and breaches. Furthermore, efforts should be made to minimize the risk of exposing Personally Identifiable Information (PII) or other confidential data during interactions with ChatGPT.
2. Review ChatGPT-generated results for biases and inaccuracies: Using ChatGPT as a tool does not absolve us of our responsibility to maintain professional skepticism and a neutral standpoint. As professionals, it is of paramount importance to fact-check every assertion made and assess the tone of the results we intend to use in our work.
3. Stay informed about the latest trends, developments, and current events in the field of Artificial Intelligence as professionals. Being aware of the potential effects of AI is essential.

As professionals, we should strive to learn as much as possible about the ethical and responsible use of AI tools in order to harness their true potential and add maximum value to our respective professions.

Mr. Hamza Hasan is a merit-certified Chartered Accountant and Certified Internal Auditor, serving as a Senior Consultant at A.F. Ferguson & Co. (a member firm of the PwC network), with a keen interest in AI and prompt engineering.

ChatGPT, Automation, and Artificial Intelligence (AI): Use Cases for Chartered Accountants

Ms. Farheen Shehzad, FCA

Automation and Artificial Intelligence (AI) technologies have revolutionized various industries worldwide, including the field of chartered accountancy. These advancements have the potential to streamline processes, enhance accuracy, and provide valuable insights for chartered accountants in Pakistan. One of the significant developments in AI is ChatGPT, a language model capable of engaging in human-like conversations. In this article, we will explore the intersection of ChatGPT, automation, and AI and discuss how

One of the significant developments in AI is ChatGPT, a language model capable of engaging in human-like conversations.

ChatGPT and automation technologies can significantly improve the efficiency of routine tasks traditionally performed by chartered accountants. These tasks include data entry, bookkeeping, payroll processing, and auditing. By automating these processes, accountants can save substantial time and redirect their efforts towards more value-added activities such as financial analysis, strategic decision-making, and client advisory.

these technologies can benefit chartered accountants in Pakistan.

1. **Improved Efficiency through Automation:**
ChatGPT and automation technologies can significantly improve the efficiency of routine tasks traditionally performed by chartered accountants. These tasks include data entry, bookkeeping, payroll processing, and auditing. By automating these processes, accountants can save substantial time and redirect their efforts towards more value-added activities such as financial analysis, strategic decision-making, and client advisory.

2. **Enhanced Accuracy and Reduced Errors:**
AI technologies excel at handling large volumes of data and performing complex calculations with minimal errors. ChatGPT, combined with automation tools, can ensure accurate data processing, reducing the risk of human errors associated with manual data entry. This accuracy is crucial in financial reporting and compliance, where even a small mistake can have significant consequences. Chartered accountants can rely on ChatGPT to verify calculations, identify anomalies, and generate error-free financial statements.

3. **Intelligent Data Analysis:**
The vast amount of financial data available to chartered accountants can be overwhelming. AI technologies can help analyze this data effectively and extract valuable insights. ChatGPT, with its natural language processing capabilities, can interpret complex financial data and provide meaningful analysis, allowing accountants to identify trends, detect risks, and make data-driven decisions. For example, ChatGPT can analyze financial ratios, compare performance across periods, and highlight areas for improvement.

4. **Streamlined Auditing Process:**
Auditing is a critical function for chartered accountants, requiring meticulous attention to detail. ChatGPT can play a significant role in streamlining the auditing process by automating several tasks. It can perform risk assessments, sample selection, and document review more efficiently. Additionally, ChatGPT can assist in identifying patterns and anomalies in financial data, enabling auditors to focus their attention on high-risk areas. This technology can lead to faster and more accurate audits, ultimately benefiting both the accountants and their clients.

5. **Real-time Financial Reporting:**
Timely financial reporting is essential for businesses to monitor their performance and make informed decisions. ChatGPT, combined with automation tools, can facilitate real-time financial reporting by automating

data extraction, analysis, and report generation. Chartered accountants can leverage ChatGPT to create customized financial reports tailored to specific client requirements. This capability ensures prompt delivery of accurate financial information to stakeholders, enabling proactive decision-making and improved financial management.

6. Mitigating Fraud and Risk:

The detection and prevention of fraud are critical aspects of chartered accountancy. AI technologies can help identify potential fraud indicators and assess financial risks. ChatGPT can analyze vast amounts of financial data, flag suspicious transactions, and highlight patterns that may indicate fraudulent activities. By leveraging AI-powered algorithms, chartered accountants can implement proactive measures to mitigate risks and protect their clients' financial interests.

7. Client Interaction and Support:

ChatGPT can also assist chartered accountants in enhancing their client interactions. With its natural language processing capabilities, ChatGPT can engage in human-like conversations, providing clients with immediate responses to their queries and concerns. Accountants can use ChatGPT as a virtual assistant to provide real-time support, guidance, and advice to clients, improving overall client satisfaction and fostering stronger professional relationships.

8. Intelligent Tax Planning and Compliance:

Tax planning and compliance are essential aspects of chartered accountancy. ChatGPT and AI technologies can assist accountants in navigating complex tax regulations and optimizing tax strategies for their clients. By analyzing historical financial data, ChatGPT can identify potential tax deductions, exemptions, and credits. It can also stay updated with the latest tax laws and provide real-time advice on tax compliance, helping accountants ensure that their clients meet their tax obligations while maximizing tax efficiency.

9. Financial Forecasting and Predictive Analysis:

Chartered Accountants often engage in financial forecasting to estimate future performance and make informed business decisions. ChatGPT can contribute to this process by leveraging historical data and performing predictive analysis. It can analyze various factors such as market trends, economic indicators, and financial metrics to generate accurate forecasts. By incorporating AI into financial forecasting, accountants can provide their clients with valuable insights into potential risks and opportunities, enabling them to make proactive decisions.

10. Knowledge and Resource Repository:

ChatGPT can serve as a centralized knowledge and resource repository for chartered accountants. It can store vast amounts of accounting and financial information, including regulations, accounting standards, industry benchmarks, and best practices. Accountants can access ChatGPT to quickly retrieve relevant information, obtain answers to specific queries, and stay updated with the latest developments in the field. This centralized knowledge base can serve as a valuable reference tool, enhancing the efficiency and effectiveness of accountants' work.

11. Continuing Professional Development (CPD) Support:

Continuing Professional Development is crucial for chartered accountants to maintain their professional competency and stay abreast of industry changes. ChatGPT can assist accountants in their CPD efforts by providing access to relevant training materials, online courses, webinars, and industry publications. It can recommend personalized learning paths based on individual accountants' areas of interest and development needs, facilitating their continuous growth and professional advancement.

Ethical Considerations:

While the integration of ChatGPT, automation, and AI brings numerous benefits to chartered accountants in Pakistan, it is essential to address potential ethical considerations. Accountants must ensure the confidentiality and security of client data when leveraging AI technologies. They should also exercise caution in relying solely on AI outputs and use their professional judgment to validate and interpret the results generated by ChatGPT.

In a nutshell:

The fusion of ChatGPT, automation, and AI technologies presents a transformative opportunity for chartered accountants in Pakistan. By harnessing the power of automation and AI, accountants can streamline their processes, improve efficiency, enhance accuracy, and deliver value-added services to their clients. However, it is crucial for accountants to understand the limitations and ethical considerations associated with these technologies. With the right approach, chartered accountants can embrace ChatGPT and AI as powerful tools that augment their skills, enabling them to adapt to the evolving needs of the profession and drive positive change in the accounting landscape of Pakistan.

Ms. Farheen Shehzad is a Fellow Member of the Institute of Chartered Accountants of Pakistan.

Is ChatGPT really a Disruptive Technology

Mr. Waqass Ahmad, FCA

If we go by the general notion, any technology that is new, replaces the existing technology, and creates a new market is disruptive. Going by these words, a new technology itself can't be disruptive, but its application can. Based on this, we establish a notion here that for now, ChatGPT is not a disruptive technology, and we have a few reasons why.

It is undeniable that ChatGPT has the power to create opportunities. This statement is subject to a due course of time since we are yet to see the opportunities it may create. The term caught fire the moment we heard it; it seemed like it came and conquered since people started using it for multiple purposes. You say it, and ChatGPT shows it. We foresee that there will either be a significant use case for it, or it will vanish with the same pace it appeared. Unsurprisingly, ChatGPT reached 1 million users within 1 week of its launch.

If we ask the same question to ChatGPT about why it is disruptive, it appears on the screen that ChatGPT has led conversational AI to become more human-like, which is disrupting the traditional market landscape. To understand this, let's take a look at what Artificial Intelligence is. AI is able to perform tasks that are generally linked with the human cognitive system. It can process a large amount of information and make its own decisions using suitable patterns. It is programmed to think and act like humans, but the problem lies here. Do we really need artificial humans, and is it really possible for them to coexist with real humans?

Let's consider two polar situations. One is that ChatGPT is truly revolutionary and makes life easier. It interprets data on its own and provides a decision that you are highly likely to agree with since it is based on data, helping us answer a few questions: Faster? - Yes. Is it human-like? We highly doubt it.

Let's put it another way. A candidate wants to write a resume. ChatGPT is there to assist. The user just has to add the requirements, and it will generate a custom-made resume. However, will ChatGPT be able to capture the essence of an individual that goes beyond the words written in the resume? We think - No.

Now let's suggest a contrary view. If ChatGPT is used as a search tool by the masses, it means it has replaced Google, in other words, it has created a new equilibrium - a shift from Google to ChatGPT, leading to a major behavioral change. Hence, if ChatGPT becomes a de facto standard, we can consider it a disruptive technology.

We are not denying the fact that ChatGPT has the potential to replicate human brain to some extent in future years, if not today, and become more efficient and helpful. But are we ready to risk our idiosyncratic and unique selves in pursuit of getting machines to dance to our tunes while we sit back and watch?

Another reason why we still can't be completely dependent on it, and why a large section of the masses still hesitates to use it, is the lack of reliability. The technology uses content from the internet, and not everything on the internet is verified and authenticated. Thus, relying on internet data is its biggest setback. Moreover, developers have now generated algorithms that can detect machine-generated content. The use of idioms is very human-like. They create expressions, which is one of the ways of communicating feelings and thoughts. We use them in our daily lives, while, to the dismay of many users, ChatGPT struggles with metaphors and idioms, making the content sound unnatural. The information produced is also overly formal, whereas humans use colloquial style.

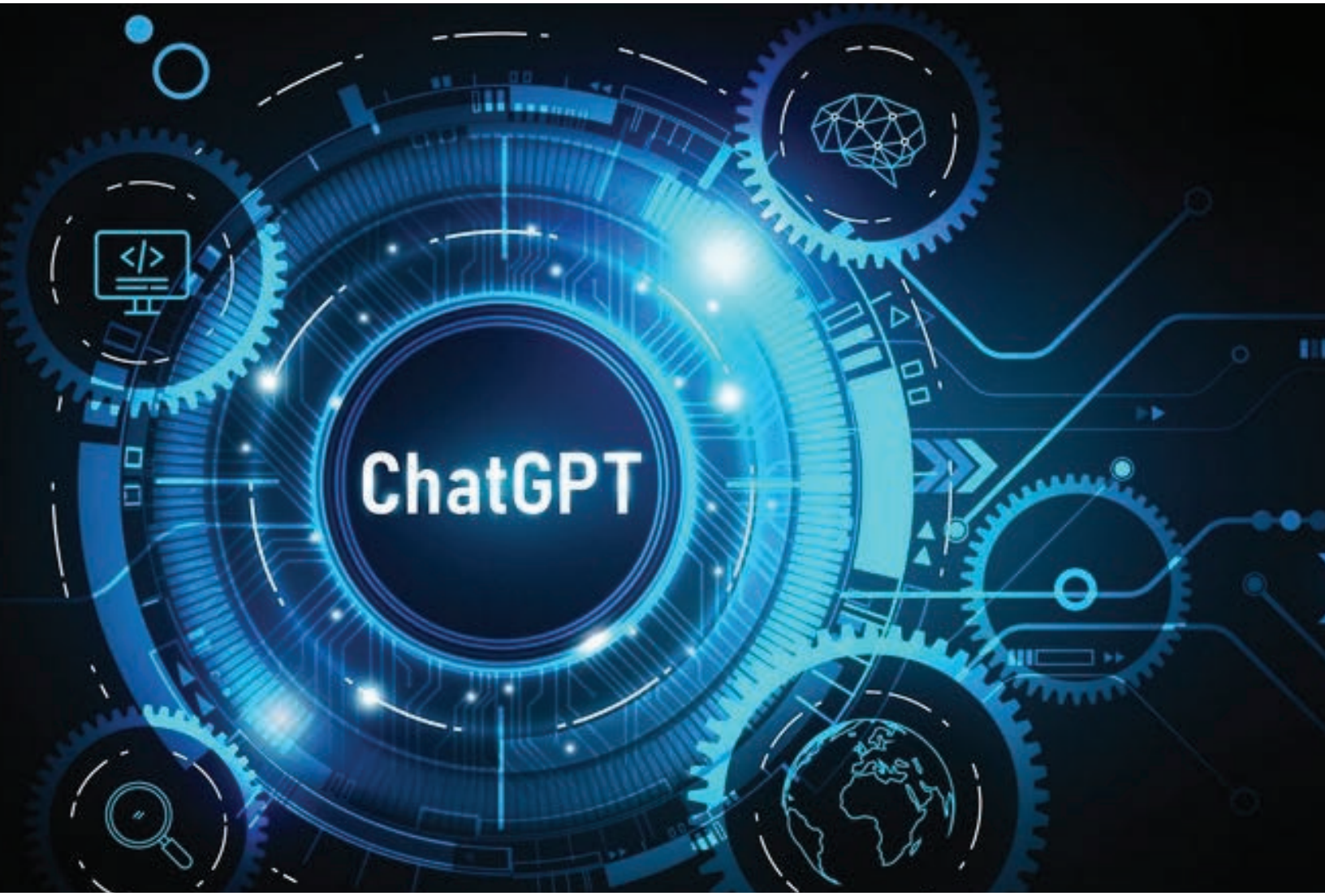
Despite not being attracted to it, the hype behind the technology compelled me to try a few topics, and the first verdict I got from my human brain is that ChatGPT is very verbose, comprehensive, and overly detailed, which makes it very artificial. It lacked depth, which may cause the user to completely zone out while reading.

The enthusiasm is misplaced. Languages evolve over time. They have meanings, metaphors, etc. that make them complex, while this version of AI is just trained in a way that it generates words based on the input we provide, lacking the ability to comprehend the meaning of those words, resulting in shallow responses. Humans are social animals, and as per Maslow's hierarchy of needs, connecting with others is one of the fundamental aspects of humans. With ChatGPT, we fear the possibility of losing human connections with each other as we outsource it to other man-made technology. I would also like to conclude here that for now, ChatGPT is not something that can understand human knowledge; rather, it's a tool to play with the existing knowledge already available on the internet. It is currently a research experiment since the developers and users are testing it for various domains. The tests we have run have resulted in some uninspiring paragraphs that we feel bored to read. In an attempt to make the software "all in one" and a "one-stop shop," it has been constructed in a way that it can fabricate answers as well, which may look persuasively correct. Ironically, it always admits its mistakes instantly every time I challenge the answer it formulates, citing the reasons why the response was incorrect. We are in a difficult situation if we need to already have expertise in the information we are asking ChatGPT to help with, in order to identify the problems. This also supports the idea that it only reproduces textual material while lacking quality and substance.

The above analysis converges our thoughts to a point that it's too soon to declare ChatGPT a disruptive technology. While the advocates are in a hurry to make the software a revolution, we suggest waiting, seeing, and also pondering upon the potential disastrous impact it may have in the long term before jumping on the bandwagon. Additionally, the existing competitors will continue to challenge ChatGPT, which requires this AI technology to be ahead of them and be able to precisely impersonate the human brain. According to us, this sounds more philosophical than practical, making it a tug of war. Time will decide whether ChatGPT is here to stay or not. This piece of article, written with the use of idioms, is a deliberate attempt to distinguish it from ChatGPT and to make readers realize the difference between a human-generated product and a human-like software-generated product.

We are already playing with words and drowning in a sea of content. We don't need that anymore. We have greater expectations, and ChatGPT currently lacks ambitious goals. Computers are meant to be used as tools to help solve human concerns, but ironically, they have been perceived and used just as instruments for structuring human experiences through symbol manipulation. We fear it will be a source of destruction since delusions are bound to be destructive if it continues to be a brute force and people blindly become puppets of such inventions. To prevent it from becoming destructive, the hype needs to be redirected towards real reasons. The technology needs to create awareness of how AI can assist humans in fields like medicine, finance, strategy, etc., where it can serve humanity instead of being presented as a human replacement since we don't need that. Calling it a brute force also suggests that it is creating an unnatural demand the world neither asks for nor requires. Moreover, we suggest that if we want to see a change in the market, we need ChatGPT to be properly trained using Strong AI, which is currently only fictional. Otherwise, it will end up providing zero value to the existing systems. We would have good, grammatically correct passages, shallow analysis, and nothing more than that.

Mr. Waqass Ahmad is a fellow member of ICAP and currently working as Chief Internal Auditor for Zarai Taraqiati Bank Limited. While considering himself a strong proponent of modern emerging technologies, he suggests a moderate and effective use of such innovations.



ChatGPT – Are We Ready to Embrace Change

Mr. M. Asad Mirza, FCA

"The greatest danger in times of turbulence is not the turbulence; It is to act with yesterday's logic" - Peter Drucker

Foreword:

It is a natural phenomenon that as human beings, we resist change (as it is difficult for us to come out of our comfort zone) and forget the opportunity that the change carries and the benefits that can be achieved from the implementation of the initiative or any other program related to the change, irrespective of the fact that we have read several books on change management, taken several courses, and read numerous blogs on the subject.

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ChatGPT is not an exception, and there is a lot of discussion going on in different circles about its unprecedented potential and impact on the job market. It is estimated that it has the potential to eliminate many back-office roles as well as other major roles (including many related to accounting and finance).

ChatGPT is not an exception, and there is a lot of discussion going on in different circles about its unprecedented potential and impact on the job market. It is estimated that it has the potential to eliminate many back-office roles as well as other major roles (including many related to accounting and finance). The million-dollar question is: as a finance fraternity, are we ready for this change, and in order to cope with it, are we working on our skill set to remain competitive?

What is ChatGPT?

ChatGPT is an AI-based chatbot that allows users to have human-like conversations. It is established on the GPT (Generated Pre-trained Transformer) architecture. This natural language processing tool can perform a number of tasks ranging from answering your questions to drafting emails and much more.

The chatbot is pre-trained and obtains its data from websites, textbooks, and articles. The information gathered is then processed by the chatbot to promptly respond to human interactions.

ChatGPT is currently available free of cost to everyone as this tool is in its initial phase and research and development work on it is still ongoing. However, a premium paid subscription of ChatGPT Plus is also available now.

Who Launched ChatGPT and When?

ChatGPT is the brainchild of an AI and research company named OpenAI. The company launched ChatGPT in November 2022. Earlier, OpenAI had successfully created tools like DALL-E 2 (an AI art generator) and Whisper (an automatic speech recognition system - ASR).

How Are Users Responding to ChatGPT?

According to OpenAI's CEO Sam Altman, in the first five days, ChatGPT garnered more than one million users. Swiss Bank UBS has already declared ChatGPT as the fastest-growing application of all time. Just two months after the launch, ChatGPT had 100 million active users, whereas it took TikTok nine months to achieve the same numbers.

How to Access ChatGPT?

All you have to do to access ChatGPT is create an OpenAI account by visiting their website. You can also access it via the old URL, which is chat.openai.com/chat.

Once you have logged in, you can start communicating with the chatbot and ask as many questions as you want, as it is currently available free of cost.

How is ChatGPT Different from a Search Engine?

ChatGPT is designed as a language model to have two-way communication with the user. However, a search engine indexes webpages available on the internet to find out the information a user has asked for. The free version of ChatGPT, which is available globally, is unable to access the information on the internet. Instead, it responds to a query based on the information it learned during the training.

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One more thing that differentiates the two is access to the latest information. While a search engine will immediately tell you the latest happenings around the world, ChatGPT would not be able to do so. In fact, ChatGPT has access to information only until September 2021. So, if you ask ChatGPT about the winner of the FIFA 2022 World Cup, it would not be able to answer you, but Google (a search engine) would be able to do so.

ChatGPT Plus chatbots have access to the information available on Bing. With its ability to index webpages, a chatbot is able to access the latest information as well. However, what differentiates a chatbot from a search engine is the chatbot's ability to process information and communicate it to the end user in a conversational tone.

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Are There Any Limitations to ChatGPT?

Though ChatGPT looks like an amazing addition to technology, there are certain limitations to it. For example, the chatbots are only able to understand questions that are asked in a particular way. Unless you reword what you have asked, you will not get the desired answer. Instead, you will be presented with answers that do not make any sense or are excessively verbose.

The language model also does not ask for any clarifications and instead guesses the possible answers. This is one of the major reasons why Stack Overflow (a question and answer website) temporarily banned ChatGPT.

The Stack Overflow moderators said, "The primary problem is that while the answers that ChatGPT produces have a high rate of being incorrect, they typically look like they might be good, and the answers are very easy to produce."

Another drawback of ChatGPT is overreliance on training data. The responses are based on training data, and if there is a flaw or unfairness in the training data, the same effect will be replicated in the responses.

Time limitation (as also discussed above) is another pitfall of this technology. If you require any information after September 2021 (i.e., training data cutoff), you cannot obtain it from ChatGPT.

Implementation of ChatGPT in Accounting, Finance & Other Related Areas:

ChatGPT technology will transform the accounting field, making it much more effective and efficient. Several manual tasks and processes can be automated with ChatGPT, and more time can be spent on analytical and other productive topics. Some of the topics in which this technology can be used are as follows:

a) Invoice processing and categorization of expenses
b) Automation of data analysis
c) Financial planning/projections and forecasting
d) Bookkeeping assistance/dealing with repetitive accounting tasks
e) Tax planning & compliance
f) Financial risk assessment
g) Investment analysis

It can be seen that the potential of technology is enormous, and many of the tasks can be automated or performed by ChatGPT, thereby reducing the need for finance professionals unless they upgrade themselves.

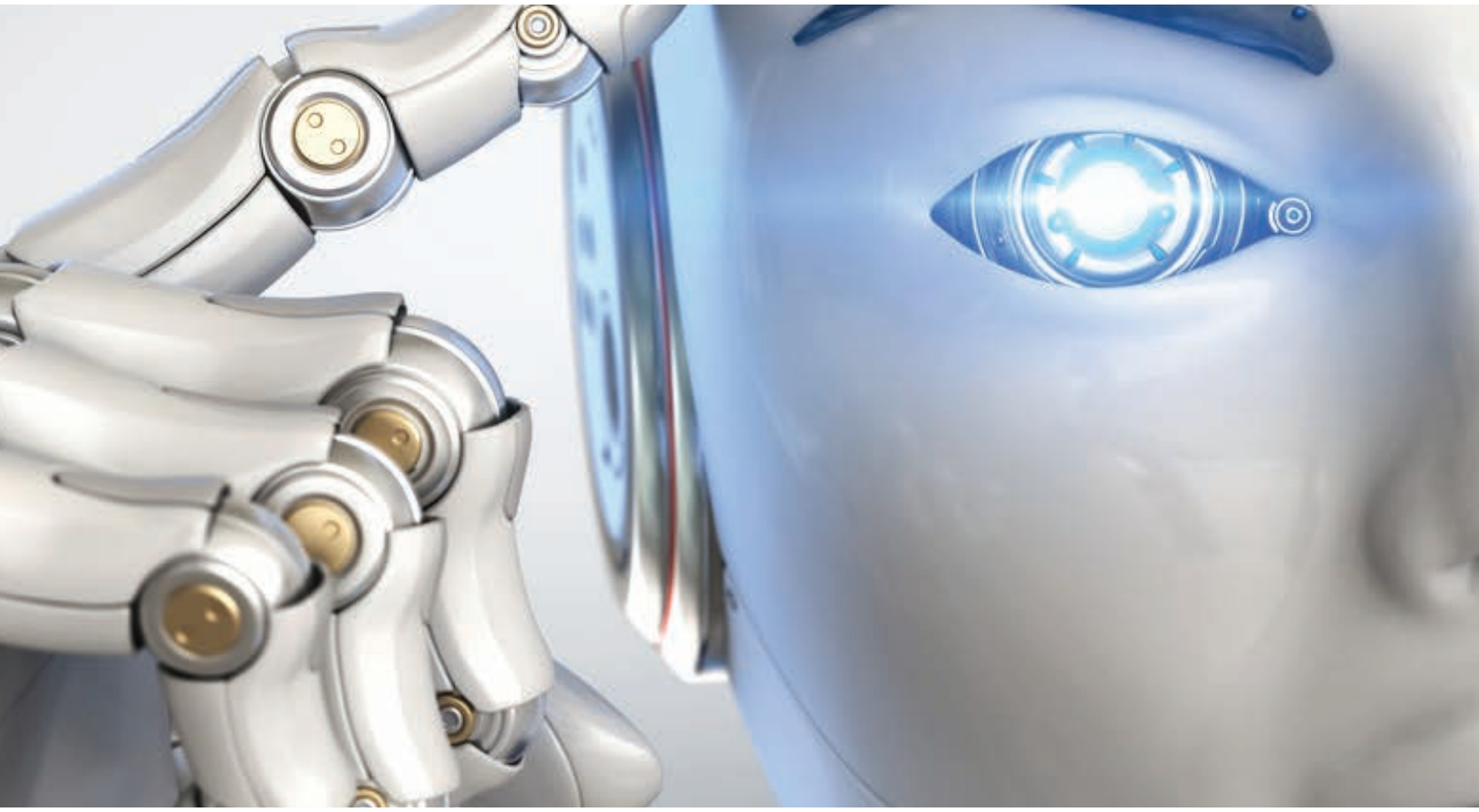
Conclusion:

"The only easy day was yesterday" – US Navy Seals

The debate is still ongoing whether ChatGPT will eliminate all the jobs and reduce the need for human intelligence or not. Different people have different perspectives, but one thing that is widely accepted is that there is massive potential in the technology in different areas, including accounting and finance, and that potential is still not fully determined. Research is still ongoing, and we may see something different and bigger in the AI domain or related field in the coming days. So, we must prepare ourselves to the extent possible rather than thinking that what we have learned yesterday will be applicable for the foreseeable future.

As we can see, there are so many changes each day in the tech arena as well as other fields. The concept of survival of the fittest becomes more relevant with each passing day. As finance professionals, we should embrace the change and accept the challenge in order not only to remain competitive in the market but also to unleash our hidden potential. Learning should not be stopped, and we should be open to accepting challenges and broadening our skill set to cope with technological and other changes. With each passing day, difficulty will arise, and it is rightly said that the only easy day was yesterday!

The author is a Chartered Accountant and working as Group Financial Controller, in a diversified local group of business.



The Impact of AI On Human Jobs: Navigating Opportunities and Challenges

Mr. Muhmmad Shehzad Dhedhi, FCA

Introduction:

The rapid advancement of artificial intelligence (AI) has sparked discussions and analyses regarding its impact on human jobs. While early predictions may have underestimated the magnitude of this impact, recent studies highlight the potential disruption that AI, including language models like OpenAI's ChatGPT, can have on various industries. In this article, we will explore the evolving landscape of AI's influence on employment, examining both the opportunities and challenges it presents. We will also delve into specific job sectors to highlight examples of roles that could be affected by AI automation.

The Changing Dynamics of AI and Jobs:

The relationship between AI and human jobs is multifaceted, with certain roles being more susceptible to automation than

"The relationship between AI and human jobs is multifaceted, with certain roles being more susceptible to automation than others. Recent research from Goldman Sachs suggests that generative AI tools have the potential to impact approximately 300 million full-time jobs globally, indicating significant changes in the job market."

others. The relationship between AI and human jobs is multifaceted, with certain roles being more susceptible to automation than others. Recent research from Goldman Sachs suggests that generative AI tools have the potential to impact approximately 300 million full-time jobs globally, indicating significant changes in the job market. This realization emphasizes the need for a deeper understanding of how AI technologies are reshaping industries and employment prospects.

Examining Jobs at Higher Risk:

Specific job sectors face varying levels of vulnerability to AI automation. Let's explore some examples:

1. **Accounting Jobs:** AI algorithms can automate repetitive and rule-based accounting tasks such as data entry and bookkeeping. However, accountants can leverage AI tools to enhance their analytical capabilities and provide strategic financial insights. According to a report by Deloitte, AI-powered accounting systems can improve efficiency by automating data extraction, reducing errors, and providing real-time financial insights.
2. **Tech Jobs:** While AI can automate certain coding and software development tasks, it also creates new opportunities for tech professionals. AI can assist in software testing, optimization, and cybersecurity, enabling tech experts to focus on complex problem-solving and innovation. According to a study by Accenture, AI is expected to create new job roles in the tech sector, such as AI trainers and explainability experts.
3. **Media Jobs:** AI algorithms can analyze extensive datasets to generate personalized content recommendations, impacting traditional media roles like content curation. However, media professionals can harness AI to enhance content creation, data-driven storytelling, and audience engagement. The Associated Press uses AI to automate news articles about financial earnings reports, freeing up journalists to focus on investigative reporting and in-depth analysis.
4. **Legal Jobs:** AI-powered legal research tools can assist lawyers in analyzing case law and legal documents more efficiently. This automation streamlines aspects of legal work, although lawyers will still need to focus on complex legal analysis, negotiation, and client counseling. For example, ROSS Intelligence utilizes AI to provide legal research support, allowing lawyers to access relevant case law and legal insights more quickly.
5. **Research Jobs:** AI expedites data analysis and pattern recognition in research fields. Researchers can utilize AI to process large datasets, uncover insights, and identify new research areas. However, human expertise remains essential in interpreting and applying research findings. AI tools like Google's DeepMind have been used to assist in medical research, helping researchers analyze vast amounts of patient data to identify potential treatment options.
6. **Teaching Jobs:** AI-powered educational tools and adaptive learning systems can support teachers in personalized instruction and assessment. Educators can collaborate with AI to create engaging content, offer individualized feedback, and optimize learning experiences. For instance, Carnegie Learning's AI-enabled math tutoring system provides personalized support to students, enabling teachers to focus on higher-order cognitive skills and individualized student support.
7. **Finance Jobs:** AI algorithms can automate tasks in financial analysis, risk assessment, and algorithmic trading. However, finance professionals can leverage AI to enhance data-driven decision-making, portfolio management, and strategic financial planning. Investment management firms like BlackRock utilize AI-powered algorithms to analyze market data and make investment decisions, augmenting the expertise of human portfolio managers.
8. **Graphic Design Jobs:** AI-powered design tools can automate repetitive graphic design tasks such as template creation. Graphic designers can focus on ideation, creativity, and refining visual aesthetics to meet clients' specific needs. Tools like Canva and Adobe Sensei offer AI-powered features that assist graphic designers in streamlining their workflow and exploring new design possibilities.
9. **Customer Service Agent Jobs:** AI-powered chatbots and virtual assistants can handle routine customer inquiries, but human agents remain crucial for complex problem-solving, empathetic communication, and building customer relationships. A study by IBM found that customers prefer interacting with human agents when dealing with complex issues, highlighting the continued importance of human touch in customer service.

Navigating Opportunities and Challenges:

While AI automation may replace certain tasks within job sectors, it also creates opportunities for skill enhancement, job transformation, and innovative collaboration between humans and AI systems. The key lies in embracing AI as a productivity-enhancing tool rather than viewing it as a complete replacement for human expertise. Continuous learning, adaptability, and responsible AI implementation are crucial in navigating the evolving job market and shaping a future where humans and AI coexist to achieve greater productivity and prosperity.

Conclusion:

The impact of AI on human jobs extends across various sectors, with specific roles being susceptible to automation while others experience transformation and new opportunities. The disruptive potential of AI, as exemplified by language models like ChatGPT, demands a proactive approach in understanding its implications and leveraging its capabilities. By fostering adaptability, continuous learning, and responsible AI implementation, we can navigate the evolving job market and shape a future where humans and AI coexist to achieve greater productivity and prosperity.

Mr. Muhmmad Shehzad Dhedhi is fellow member ICAP. He is a finance business partner for information technology in a large-size financial institution.

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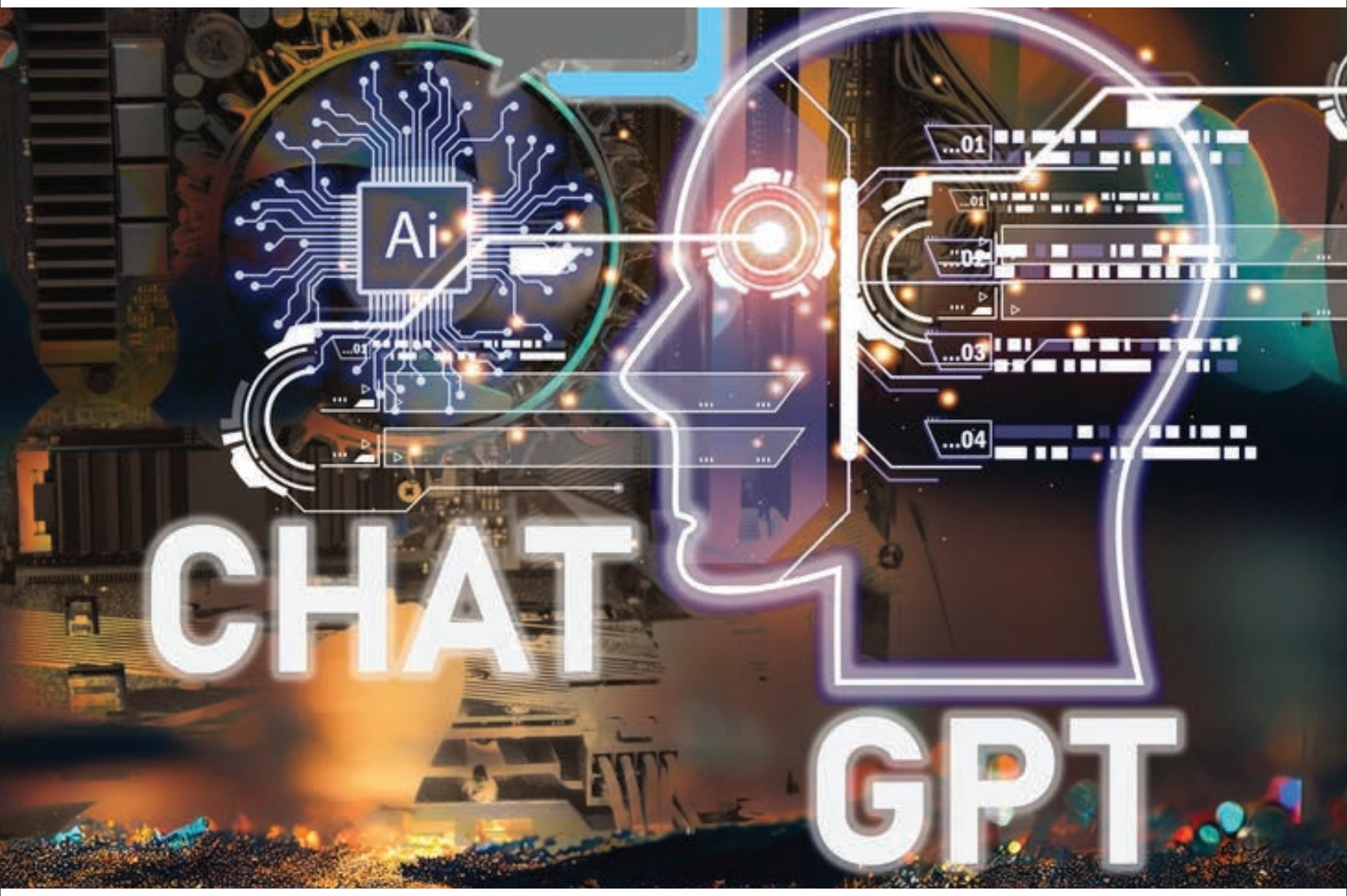

Automated ChatGPT – an AI tool, affects jobs susceptible to data and information, but still depends on human judgment and Intelligence

Syed Imtiaz Abbas Hussain, FCA

ChatGPT (Chat "Generative Pre-trained Transformer") is a natural language processing tool driven by AI technology that allows you to have human-like conversations and much more with the chatbot. The language model can answer questions and assist you with tasks such as composing emails, writing essays, writing code, creating apps, creating children's books, building resumes, writing Excel formulas, summarizing content, writing cover letters, starting an Etsy business, and more.

In today's society, where human beings generate more than 2.5 quintillion bytes of data daily, ChatGPT, an AI-powered language model, benefits from the availability of structured and language-oriented data through data analytics. It supports and simplifies various human-based activities in society and businesses. Some of its incredible functions include:

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1. Fastest-growing app of all time.
2. Excellent at crunching numbers with relative accuracy.
3. Can produce code faster than humans, leading to increased efficiency with fewer employees.
4. Proficient at analyzing data and predicting outcomes.
5. Can identify trends in the market, assess investment performance, and utilize various other forms of data to forecast better investment options.

However, the availability of vast amounts of data and information in AI also poses a risk to certain jobs that rely heavily on data and information, making them more susceptible to replacement. These jobs include:

1. Tech jobs such as software developers, web developers, computer programmers, coders, data scientists, and software engineers.
2. Media jobs including those in advertising, content writing, technical writing, journalism, and any role that involves content creation.
3. Jobs in the legal industry such as paralegals and legal assistants.
4. Market research analysts responsible for data collection and trend identification for marketing campaigns.
5. Teaching roles, as ChatGPT has the potential to teach classes.
6. Jobs in personal finance that require manipulating large amounts of numerical data.
7. Trading and brokerage jobs in stock exchanges.
8. Excel modeling and related tasks in investment banks.
9. Graphic designers, as generative AI can quickly generate images.
10. Accounting professions, as AI can handle data and information in this field.
11. Customer service roles that can be automated by ChatGPT and similar technologies.

While ChatGPT and other AI technologies can make jobs more efficient and reduce workload, they should not be seen as direct replacements. They still depend on human judgments, intelligence, and the ability to come up with new ideas, innovations, and creative work that professionals such as lawyers, consultants, engineers, surgeons, doctors, and chartered accountants provide to clients and employers.

Despite its impressive capabilities, ChatGPT has limitations, including:

1. Potential spread of misinformation as it is not connected to the internet.
2. Inability to answer specific worded questions without rewording.
3. Incorrect coding problem answers.
4. Lack of quality in responses, sometimes making no practical sense or being excessively verbose.
5. Bugs, inaccuracies, and limited knowledge.
6. Need for human supervision and control.
7. Lack of source attribution for responses.
8. Possible loss of access if the server is overloaded.
9. High rate of incorrect answers that may sound plausible but are statistically generated and not verified for accuracy.
10. Limited data up to 2021, with no awareness of events or news that have occurred since then.

In conclusion, while ChatGPT has its limitations, there are alternative tools available that can be used to overcome them. These alternatives include Microsoft Bing, Perplexity AI, Google Bard AI, Jasper Chat, Chatsonic, Pi-your personal AI, GitHub Copilot X, Amazon Codewhisperer, DialoGPT, OpenAI playground, Character AI, Replika, Chai AI, YouChat, Claude, and Quora Poe. It's important to note that ChatGPT is currently free for public use with limited capacity and features as it is still in the research and development phase. Better results can be obtained by adopting these alternatives at a cost ranging from $13 to $59 per month.

It is estimated that AI could automate over 300 million jobs globally, which raises concerns for middle-class workers. However, AI and machine learning models require extensive training and fine-tuning to reach ideal performance levels. Rather than completely replacing jobs, ChatGPT and similar tools can be seen as productivity-enhancing tools, similar to the introduction of computerization and mobile devices in the past.

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The Art of Equilibrium: Achieving Harmony Between Automation and Professional Judgment

Mr. Muhammad Hunain, FCA

In the fast-evolving world of chartered accountancy, the integration of automation and artificial intelligence has brought about a revolutionary transformation. These technologies offer undeniable efficiencies and improved decision-making capabilities, but striking a delicate balance with professional judgment is the key to success.

Automation is like a precision instrument in a symphony, with its lightning-fast speed, powerful data analysis capabilities, and task automation. However, it is the application of professional judgment that adds depth, interpretation, and the ability to navigate complex financial scenarios. Just like a

"Automation is like a precision instrument in a symphony, with its lightning-fast speed, powerful data analysis capabilities, and task automation. However, it is the application of professional judgment that adds depth, interpretation, and the ability to navigate complex financial scenarios."

> **Elon Musk, CEO of Tesla, SpaceX, and OpenAI, eloquently captures the significance of this harmonious interplay when he states, "So the rate of improvement is really dramatic. We have to figure out some way to ensure that the advent of digital superintelligence is one which is symbiotic with humanity. I think that is the single biggest existential crisis that we face and the most pressing one." Musk's words serve as a powerful reminder of the critical role that humanity plays in ensuring the responsible and symbiotic integration of technology.**

skilled conductor harmonizes an orchestra, chartered accountants must skillfully orchestrate the interplay between automation and professional judgment to achieve maximum efficiency and expertise.

When we view automation and professional judgment as complementary forces, akin to the Yin and Yang philosophy, we begin to appreciate their distinct strengths. Automation brings efficiency, scalability, and exceptional data processing capabilities (Yin), while professional judgment offers critical thinking, contextual understanding, and the moral compass for ethical decision-making (Yang). By embracing this duality, chartered accountants unlock the full potential of their profession.

Discovering the right balance necessitates understanding when to leverage automation's strengths and when to exercise professional judgment. Relying too heavily on automation alone can lead to the oversight of critical nuances and risks, while an overreliance on professional judgment might hinder efficiency. Striking the perfect equilibrium ensures accuracy, integrity, and provides strategic insights. Chartered accountants have the power to transform raw automation data into valuable insights and wisdom. Automation provides a wealth of objective data that can be harnessed, but it is the alchemy of professional judgment that uncovers meaningful information, actionable insights, and strategic recommendations. By harnessing both automation and professional judgment, accountants unlock new dimensions of value.

Elon Musk, CEO of Tesla, SpaceX, and OpenAI, eloquently captures the significance of this harmonious interplay when he states, "So the rate of improvement is really dramatic. We have to figure out some way to ensure that the advent of digital superintelligence is one which is symbiotic with humanity. I think that is the single biggest existential crisis that we face and the most pressing one." Musk's words serve as a powerful reminder of the critical role that humanity plays in ensuring the responsible and symbiotic integration of technology. By embracing the duality of automation and professional judgment, chartered accountants can help shape a future where digital superintelligence aligns with human values and serves as a catalyst for progress and prosperity.

Amidst the ever-changing landscape of automation, chartered accountants must maintain their professional skepticism. Questioning assumptions and challenging the models provided by AI systems is essential to ensure accuracy and reliability. Furthermore, accountants can play a significant role in fostering trust in technology by serving as trusted data guardians, providing assurance on the quality and integrity of critical decision-making data. Their professional skepticism plays a vital role in questioning assumptions and challenging the models used in automation and AI.

By striking the right balance between automation and professional judgment, accountants continue to provide valuable insights, strategic recommendations, and ethical decision-making, ultimately driving success for their clients and organizations.

In conclusion, the integration of automation and professional judgment is an art form, requiring finesse and understanding. It is through this harmonious interplay that chartered accountants bring the best of both worlds together, combining the efficiency of automation with the depth of human judgment to deliver exceptional value and shape a prosperous future.

Mr. Muhammad Hunain is a chartered accountant working as CFO at Pakistan International Container Terminal Limited.

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AI toolbox for Accountants

Mr. Sohail Saleem, FCA

> **Generative AI is a powerful new technology that can automate many tasks that are currently done by humans. This technology is likely to have a major impact on the workplace, particularly for high-earning knowledge workers. McKinsey, a global management consulting firm, predicts that half of today's work activities could be automated at some point between 2030 and 2060. In fact, Accountancy as we know it, is among the top 10 professions at risk at the hands of generative AI**

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It's no wonder that the big players in the Accountancy profession have up their ante in recent times:

https://www.pwc.com/us/en/about-us/newsroom/press-releases/pwc-us-makes-billion-investment-in-ai-capabilities.html

https://www.thenationalnews.com/business/technology/2023/05/18/deloitte-opens-ai-institute-in-saudi-arabia/

We already know the importance; so let's cut to the chase and open the AI toolbox to see what it offers to us Accountants.

Prompt Engineering

Generative AI tools such as ChatGPT require specific style of querying in order to be more effective; this is what Prompt Engineering is all about. Let's see key concepts of Prompt Engineering. (I have used bard.google.com for following prompts; you may go with any other chat tool such as ChatGPT, obviously, the results will vary)

Zero-shot prompt:

Zero-shot prompt is just simple question like we do in search engine or a single task instruction. For example, we can execute following commands at chat prompt to accomplish single task in one-go;

Please correct spelling and grammar mistakes in the following: (insert your poorly written paragraph)

Kindly summarize the following paragraphs:
(insert your long text)

Few-shot prompt:

Few-shot prompting can be used as a technique to enable in-context learning where we provide demonstrations in the prompt to steer the model to better performance. Here, we use a few explicit examples (or shots) to guide the AI to respond in a specific way.

Rephrase the following paragraph:

Rate of tax is to increase from 7% to 8%

Example 1:

The Finance Bill proposes to increase rate of tax from 7% to 8%

Now rephrase:

The initial allowance will be 50% instead of 30%

Chain-of-Thought prompt:

It is the prompt technique where we give one instruction after another to fine tune or enhance the result based the already provided context. Let's understand this with an example.

First, enter following:

Write draft for a directors report.

Then, enter:

Figures for year ended 30 June 2022: Revenue Rs. 2,000,000,000; Cost of sales Rs. 1,200,000,000; Fixed assets increase Rs. 80,000,000; Long term loans increase Rs. 150,000,000; now update the above directors report with this data.

Next, enter:

Increase future plans in above directors report by inserting 2 paragraphs covering; expansion in new markets, increasing capital and assets.

Amazing! Isn't it?
Directional Stimulus technique:

This technique is useful when we seek an output that has to be in certain format, structure or tone, such as 'in 5 sentences', 'in columnar form', '30 rows' etc. Let's enter following into prompt to see the exact results:

Please generate 10 rows of fake data in tabular form having columns: invoice number, customer name, amount

Few-shot prompting can be used as a technique to enable in-context learning where we provide demonstrations in the prompt to steer the model to better performance.

Persona Pattern:

The is a very useful pattern where we let the AI know firsthand as to which role it has to mimic. For example:

You are a practicing chartered accountant. Explain to your client, the disclosure requirements of International Financial Reporting Standard 9 in simple words.

How to chat over your data

Data analytics is the field which has gathered a lot of hype during last few years. It's more of hybrid between data-oriented fields such as accountancy and computer programming. Normally some IT personnel is hired to fill this role, who in turn utilizes tools like Python programming language and its related libraries i.e. Pandas to produce algorithms in order to organize and analyze data.

However, with the advent of another library known as PandasAI, data analytics has changed forever. Through PandasAI, natural language is used to query large datasets such as full-fledged database. By employing PandasAI, we no longer need to get some qualified IT personnel to perform the role of data analyst – now anyone can be a good data analyst without being a tech wizard and can get the required info from vast ocean of data by just asking question in natural language.

Just to give an idea how easy data analysis can be using PandasAI, following is the example snippet of Python code which performs a simple query on supplied data using natural language;

```
import pandas as pd
from pandasai import PandasAI

df = pd.DataFrame({ "YOUR_DATA_HERE" })
from pandasai.llm.openai import OpenAI
llm = OpenAI(api_token="YOUR_API_TOKEN")

pandas_ai = PandasAI(llm)
pandas_ai(df, prompt="How many payments in this ledger are above 50000?")
```

The above 'prompt' can contain any kind of query in natural language to extract the required info from the data source. For actual example and further details refer to following URL:

https://pypi.org/project/pandasai/

How to chat over everything we know!

Now comes the million-dollar question, how can we feed our technical material such as IFRS, ISA, local statute, pronouncements, case studies, corporate annual reports, even our own technical correspondences such as compliance letters against tax notices, and then chat over that data! For that purpose, there are two kind of solutions. First, we can utilize certain programming solutions to achieve this goal. One such solution is LangChain which is a framework for developing applications powered by language models. LangChain makes LLM custom Data-aware; in simple words it connects a language model to custom sources of data. However, this approach require a bit of coding and comprise of following steps:

- Loading your data from arbitrary sources (pdf, docx, ebooks, websites, databases etc.) to text in a form that can be used downstream.
- Chunking the loaded text into smaller digestible contents.
- Creating a numerical embedding for each chunk of text.
- Load embeddings to vectorstore.
- Finally, querying of data.

For further details, visit following URL:
https://python.langchain.com/docs/get_started/introduction.html

Secondly, we can opt for ready-made solutions. A number of customized offerings are popping up at very rapid speed. However, these solutions have a hefty cost attached to them. One of these cutting edge solutions is Anthropic's Claude 100K context window. With Claude 100K, you can drop multiple documents or even a book into the prompt and then ask Claude questions that require synthesis of knowledge across many parts of the text. With 100K context windows, you can:

- Digest, summarize, and explain dense documents like financial statements or research papers
- Analyze strategic risks and opportunities for a company based on its annual reports
- Assess the pros and cons of a piece of legislation
- Identify risks, themes, and different forms of argument across legal documents.

For further details, visit:
https://www.anthropic.com/index/100k-context-windows

The above tools are just some of the vast options which have been made available to us within the short period of few months. We can only imagine how the future of accountancy and our practice will evolve in these exciting and equally concerning times.

Mr. Sohail Saleem is a Partner (Audit & IT) at Muniff Ziauddin & Co. Chartered Accountants.

AI in GRC and Auditing Activity

Mr. Azher Faizullah Kapadia, FCA

The internal audit in many companies is still viewed as a policeman activity, where it is seen as a manual, subject-matter-driven, tedious, and sometimes highly subjective practice. With companies adopting ERP systems and digitizing their daily activities, the GRC (Governance, Risk, and Compliance) profession, along with internal audit, has also evolved. As a professional in internal audit for more than twenty years, I have witnessed this evolution over time. Now, with the digital disruption that surrounds IT professionals, it is time to explore how the next generation of artificial intelligence (AI), natural language processing (NLP), and machine learning (ML) techniques can assist the GRC profession.

The types and methods of auditing have evolved over time, and the auditor community has faced significant problems, including improper audit planning, ignorance towards

Now, with the digital disruption that surrounds IT professionals, it is time to explore how the next generation of artificial intelligence (AI), natural language processing (NLP), and machine learning (ML) techniques can assist the GRC profession.

In the Digital Age, GRC and audit need to evolve and adapt to the changing world. AI is currently used by advanced companies' professionals as a mechanism to identify patterns and trends from large data sets. These insights support risk assessments, project scoping, and the proactive and early identification of potential issues, among other things.

changing and evolving risks, auditor bias, misalignment with auditees, and skewed data samples. In the Digital Age, GRC and audit need to evolve and adapt to the changing world. AI is currently used by advanced companies' professionals as a mechanism to identify patterns and trends from large data sets. These insights support risk assessments, project scoping, and the proactive and early identification of potential issues, among other things. For example, in today's rapidly evolving technology landscape, existing AI and ML techniques are not only used to detect fraudulent transactions and identify high-risk issues such as unknown system activity from user endpoints but also to build learning models from such interventions.

Recent developments in AI point to massive disruptions in the operational and governance model. Microsoft has announced its implementation of AI capabilities into its information security services and tools, and more changes will follow from other vendors and service providers. With advances in server capabilities and improvements in local AI performance, local AI bots could eliminate the need for many current cyber tools and management functions. They could manage cyber information directly, negating the need for dedicated log capture and log analysis. Similar changes could also occur in the current cybersecurity tools models. These insights support risk assessments, project scoping, and the proactive and early identification of potential issues, among other things. Recent developments and enhancements in AI performance show that many, if not most, of the current cyber functions could be encoded into AI frameworks and decision trees. Generative AI services could perform these functions faster, more consistently, and more accurately than most professional cyber and GRC practitioners, causing massive disruptions in employment.

The key AI enablers in the audit process are:

Predictive analysis: Predicting trends based on data or evidence samples while auditing a specific area. For example, predicting noncompliance with user payment behavior based on yearly data.

Robotic process automation (RPA): Semi - or partially automating auditing steps, such as data extraction from datasets into Word/Excel as part of large audits and risk assessments.

Natural Language Processing (NLP): Automating repetitive tasks through voice commands targeted at manual and repeat checks.

Natural language generation and processing: Using AI programming to produce written or spoken narratives from a dataset. Creating an NLP-based bot that can learn new commands based on checklists if the type of audit varies.

Some of the use cases for Chat GPT include: Knowledge Amplifier: Staying up-to-date with regulations and standards, asking relevant questions, and improving communication and critical thinking abilities.

Risk Assessment tool: Predicting potential risks and their outcomes, making well-informed decisions, evaluating risks and controls objectively, and prioritizing resources based on potential impact.

Report writing enhancer: Utilizing Chat GPT's templates, guidance, and suggestions to improve efficiency and consistency in reporting, enhance the quality of reports, incorporate best practices and standardized formats, and ensure clear and concise communication of findings.

Continuous monitoring: Implementing continuous monitoring and auditing, seeking guidance from Chat GPT on selecting appropriate tools, developing automated controls to streamline processes, maximizing efficiency and effectiveness in audits, designing data-driven audit procedures, and focusing on high-risk areas and continuous improvement.

With the advent of the new era of Artificial Intelligence and Machine Learning, I believe that AI and ML will not replace the human workforce entirely. However, those who adopt these technologies will replace those who do not keep abreast with them.

Mr. Azher Faizullah Kapadia is a Fellow member of the Institute of Chartered Accountants of Pakistan.

Human Resource Accounting

Ms. Farheen Mirza, FCA

What is Human Resource Accounting?

Human resource accounting is the process of recognizing and evaluating the value of a company's human capital assets. It is done by measuring the cost of recruiting, training, developing and maintaining human resources (employees) to achieve cost-effective organisational objectives and then attributing a monetary value to them.

The primary purpose of Human Resource Accounting system is to provide an accurate and reliable record of how well its employees are performing, how to improve employee morale and satisfaction and how successful is the employee's selection and retention process.

Objectives of Human Resource Accounting

- To inform general public how far the company is successful in fulfilling the human contributions also come to light through Human Resource Accounting;
- To provide cost-value data for managerial decision regarding acquiring, developing, allocating, and maintaining human resources so as to attain cost effective organizational objectives;
- To provide information for determining the status of human asset whether it is conserved properly or appreciating or depleting;
- To evaluate the return on investment (ROI) on human capital;
- To knows whether the human resources are properly utilized and allocated.

Seven HR basics

- Recruitment & selection
- Performance management
- Learning & development
- Succession planning
- Compensation and benefits
- Human Resources Information Systems

Key Features of Human Resource Accounting

- Human Resource involves everything from hiring and firing to training and development.
- Recruitment & Selection including screening job applicants to recruiting new employees that fit into the organisation's culture.
- Employee Benefits like health insurance and retirement benefits.
- Payroll: includes employee overtime costs, payroll taxes, and other expenses related to compensation and payroll processes
- Compensation: includes salary, bonuses, stock options, and other forms of payment that employees receive.
- Human Capital: includes employee work hours, absenteeism, turnover rates
- Benefits Administration: like keeping track of benefits provided by employers to employees, such as vacation days or paid time off.
- Records Management of employees

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Benefits of Human Resource Accounting

The key benefits of Human Resource Accounting are explained here under:

1. Human resource accounting helps the company in ascertaining how much investment it has made on employees and how much return is expected from this investment.
2. It provides quantitative information about the cost and value of human resources in an organization.
3. A human cost/ budget for performing human resource functions such as acquisition, development, and compensation of employees can be prepared.
4. It helps management in improving managerial decision for implementing the best methods of salary, wages, overtime administration and other HR Policies.
5. Methods and standards for evaluating the worth of people to the organization can be devised.
6. This helps the managers decide how much they need to spend on human resources to maximize ROI.
7. It can help in increasing human resource productivity by analyzing human asset, whether such assets are conserved, depleted or appreciated.
8. It helps in locating the real cause for low return on investment, like improper or under-utilisation of physical assets or human resources or both.
9. It helps the management to reward the employees according to their performance and also aids management in deciding transfers, promotions, training & development and cost-cutting of human resources.
10. The ratio of human capital to non-human capital computed as per the Human Resource Accounting concept indicates the degree of labor intensity of an organization.
11. It helps to identify the causes of high labor turnover at various levels and taking preventive measures to contain it.
12. Employees are motivated to better themselves when they are aware of their value to the Human Resource Accounting system within the organization. The amount the company invest on them will encourage them to boost their output, in line with the investment made by the company.

Methods of Human Resource Accounting

There are two approaches to Human Resource Accounting, cost approach and value approach:

1. Cost Based Models
   a. Historical Costs Model
   b. Replacement Costs Model
   c. Opportunity Cost Model
2. Value Based Models
   a. Present Value of Future Earnings Model/ Lev and Schwartz Model
   b. Reward Valuation Model/ Flamholtz Model
   c. Valuation on Group Basis

Disclosure of Human Resource Accounting

Companies nowadays like to gain a competitive advantage, for this number of factors are required. This, however, cannot be achieved without efficient human resources. Consequently many companies give value to their human resources and disclose the information about human resource accounting in their annual report.

This practice also prevails in the annual reports of listed companies of South Asian Federation of Accountants (SAFA) member bodies, including India, Bangladesh, Sri Lanka, Pakistan and Nepal, where companies are giving disclosure of Human Resource Accounting.

The latest evaluation criteria of ICAP-ICMAP 'Best Corporate Report Awards' also requires the disclosure of Human Resource Accounting in the corporate annual reports.

Ms. Farheen Mirza is a Deputy Director, Technical Services of ICAP.

FROM DATA ENTRY TO BUSINESS INSIGHTS: HOW CHATGPT IS TRANSFORMING THE WAY CHARTERED ACCOUNTANTS WORK

Mr. Saad Jahanzeb Khan, FCA

Automation and Artificial Intelligence (AI), including ChatGPT, are revolutionizing the work of Chartered Accountants (CAs). Accounting firms and CAs are increasingly leveraging automation and AI to streamline their processes and improve efficiency. ChatGPT, an AI-based language model, is gaining popularity among CAs. Trained on diverse texts, it comprehends and generates natural language responses to queries in various formats and styles.

CAs can employ ChatGPT to automate tasks like data entry, report writing, and generating financial statements. It assists in data and trend analysis, as well as financial forecasting. A key benefit is that ChatGPT saves time and minimizes errors, enabling CAs to perform complex tasks more accurately and rapidly. This frees up time for other essential activities such as client communication, business development, and strategic planning.

ChatGPT also facilitates personalized client service by analyzing substantial data sets and generating tailored insights. This enhances client relationships and adds value to the services provided.

Nevertheless, using AI tools like ChatGPT presents challenges. Ensuring accuracy and reliability is paramount, as AI systems perform based on their training data. Biased or inaccurate data may result in biased or inaccurate outcomes. Additionally, transparency and explainability are vital. CAs must understand the decision-making process of AI systems and communicate this effectively to clients, particularly in fields like auditing that demand transparency and accountability.

Despite these challenges, the use of automation and AI in accounting is projected to grow significantly. Robotic Process Automation (RPA) automates tasks such as data entry and invoice processing, while Machine Learning (ML) analyzes vast data sets to identify patterns and trends. AI tools are also driving new business models and service offerings. Some firms provide real-time financial advice using AI, and others develop innovative audit methodologies.

As an accountant writing about AI's applications in the profession, it is fitting to use AI to draft this article. Utilizing ChatGPT, I produced a complete draft within a short timeframe, showcasing how AI tools enhance productivity.

In conclusion, automation and AI are transforming the work of CAs. Those who embrace these technologies will be well-positioned to thrive in the changing landscape of the profession.

Mr. Saad is based in Dubai, working as a regional CFO for a multinational group. He is passionate about football and reading books on history & self-development.

The Impact of ChatGPT, Automation, and AI on Business Process Automation

Mr. Muhammad Awais, ACA

Enter ChatGPT, automation, and artificial intelligence (AI) – a formidable trio that has turned our starry-eyed imaginations into reality and holds the key to revolutionizing business process automation for Chartered Accountants (CAs).

Predictive Analytics for Proactive Planning: ChatGPT uses AI and machine learning to analyze financial data, identify trends, and provide predictive insights. CAs can make informed decisions based on these insights. By analyzing historical data and market trends, these tools can provide valuable insights enabling proactive financial management, risk mitigation, strategic planning, and precise budgeting.

In the ever-evolving world of finance, accounting, and auditing, the intersection of cutting-edge technologies has ushered in a new era of business process automation. Imagine a future where repetitive tasks vanish, data processing becomes a breeze, and personalized client interactions thrive. Enter ChatGPT, automation, and artificial intelligence (AI) – a formidable trio that has turned our starry-eyed imaginations into reality and holds the key to revolutionizing business process automation for Chartered Accountants (CAs).

Business Process Automation

1. Data Analytics and Decision Support

The integration of ChatGPT, automation, and AI enables accountants to extract valuable insights from data and make informed decisions. Let's explore the benefits of data analytics and decision support in a simple manner:

Predictive Analytics for Proactive Planning: ChatGPT uses AI and machine learning to analyze financial data, identify trends, and provide predictive insights. CAs can make informed decisions based on these insights. By analyzing historical data and market trends, these tools can provide valuable insights enabling proactive financial management, risk mitigation, strategic planning, and precise budgeting.

Fraud Detection and Risk Assessment: ChatGPT's analytical capabilities are instrumental in detecting anomalies, identifying unusual patterns, and assessing potential fraud within financial data. By leveraging AI-powered tools, CAs can efficiently mitigate risks and ensure the integrity and security of financial processes.

Data-Driven Decision Making: Data analytics and decision support tools provide accountants with quantitative information to support their decision-making process. By analyzing data, generating reports, and visualizing trends, these tools enable accountants to make evidence-based decisions that align with their clients' goals and objectives.

AI's advanced analytical capabilities enable professionals to conduct comprehensive ratio analysis and apply other analytical procedures to identify patterns, trends, and anomalies in financial statements. These technologies can quickly calculate and interpret various financial ratios. Furthermore, AI algorithms can compare the calculated ratios against industry benchmarks and historical data, highlighting any deviations or areas of concern. This assists in identifying potential risks, such as liquidity issues, excessive debt levels, or declining profitability, and helps in assessing the preliminary risk of material misstatement of an audit client.

Likewise, the analysis of expired and slow-moving products, crucial for identifying provisions related to slow-moving inventory, or the examination of sales and customer receipts data to recognize provisions for doubtful debts, becomes significantly simplified with the aid of ChatGPT and automation.

2. Efficient Data Processing:

ChatGPT, combined with automation technology, streamlines data processing, saving time and effort. Its NLP capabilities extract information from documents, invoices, and receipts, reducing manual tasks. Here's how it works:

Data Entry: Automated data processing eliminates manual data entry by accountants from various sources into spreadsheets or accounting software. ChatGPT can extract relevant information from documents, invoices, and receipts automatically. This reduces errors and saves time.

Data Validation: Automated data processing employs AI algorithms to validate data by comparing it against predefined rules or patterns. This ensures that the data you work with is reliable, accurate, and consistent, saving you from the tedious task of manually reviewing each entry.

Data Processing: Once data is entered and validated, AI-powered algorithms can perform calculations, generate reports, and execute financial transactions based on predefined rules or instructions. This enables faster and efficient processing of Big Data, allowing you to focus on analyzing the results rather than getting lost in the details.

Data analytics and decision support tools provide accountants with quantitative information to support their decision-making process. By analyzing data, generating reports, and visualizing trends, these tools enable accountants to make evidence-based decisions that align with their clients' goals and objectives.

Envision a scenario where an audit junior can effortlessly present a voucher's image to an AI-powered assistant like ChatGPT. With a simple command, the AI swiftly assesses the presence of specific control signs within the images, marking ticks or crosses accordingly. In the blink of an eye, it generates a comprehensive test of control vouching for a cash payment system. This seamless integration of advanced technology revolutionizes the speed and efficiency of the process, saving valuable time and effort.

3. Personalized Client Interaction and Support

In the world of business process automation, personalized client interaction and support play a pivotal role for CAs. With the integration of ChatGPT, automation, and AI, accountants can deliver tailored and exceptional experiences to their clients. Let's explore how these technologies simplify and enhance client interactions in a simple manner:

Virtual Assistant Capabilities 24/7: With ChatGPT, CAs can offer personalized support and handle client queries effectively round-the-clock. Imagine having a tireless virtual assistant available at your disposal. ChatGPT can provide information on financial matters, respond to client inquiries promptly, and assist in addressing their concerns, freeing up time for accountants to focus on complex tasks. This automation enhances client satisfaction and strengthens client relationships.

Personalized Support: ChatGPT's capabilities extend beyond generic responses. It can be trained to understand clients' specific needs and preferences, enabling personalized support. By leveraging past interactions and client data, ChatGPT can offer tailored recommendations, insights, and guidance. This level of personalization enhances client satisfaction, as they feel valued and understood.

ChatGPT and AI play a crucial role in the development of intelligent tax software. These technologies enable intelligent data analysis, tax rule interpretation, and deduction optimization. ChatGPT can engage in interactive conversations with accountants or clients, clarifying specific tax-related queries and providing real-time guidance. AI algorithms can analyze complex tax laws and regulations, identifying potential deductions and ensuring accurate calculations, thereby maximizing tax benefits for clients 24/7.

The synergy of ChatGPT, automation, and AI supports company secretaries in achieving precise and punctual statutory compliance. By leveraging GPT's capabilities and integrating automation, these technologies recognize notices from statutory bodies. Through the utilization of an up-to-date database of laws and regulations, accurate interpretations of such notices can be made, empowering the drafting of precise responses. Consequently, this streamlines operations and optimizes the valuable time of a company secretary. Moreover, the system can effortlessly decipher newly issued circulars or notifications from government bodies, providing insightful recommendations for adapting existing operations to align seamlessly with the updated regulations. The amalgamation of ChatGPT, automation, and AI empowers company secretaries to ensure comprehensive compliance and operate efficiently.

Considerations and Challenges

While the integration of ChatGPT, automation, and AI presents numerous benefits, it is essential to address certain considerations and challenges. CAs deal with sensitive financial information, making data security and privacy paramount. Implementing robust security measures and encryption protocols is crucial to protect clients' sensitive financial data from unauthorized access.

ChatGPT should be seen as a tool to assist CAs rather than replacing their professional judgment. CAs must exercise critical thinking and review the outputs generated by ChatGPT to ensure accuracy and compliance.

In conclusion, the convergence of ChatGPT, automation, and AI presents a game-changing opportunity for CAs in the realm of business process automation, including increased efficiency, streamlined operations, and enhanced client experiences. By automating routine tasks, accountants can focus on strategic decision-making and provide personalized support. The future prospects of this integration are promising, with advancements in data analytics, real-time monitoring, fraud detection, and personalized financial planning. However, it is crucial to recognize that while automation and AI bring numerous advantages, the expertise and judgment of CAs remain indispensable in interpreting results, ensuring ethical practices, and providing valuable insights to clients. By harnessing the power of ChatGPT, automation, and AI, CAs can lead the way to optimize business processes, deliver exceptional value, and stay at the forefront of their profession in an automated and data-driven world.

Mr. Muhammad Awais is a chartered accountant working as Executive Manager at Ferozsons Laboratories Limited.

The Role of Automation in Accounting through ChatGPT: Leveraging Tools for Continuous Improvement

Mr. Muhammad Rafi, ACA

Executive Summary

The accounting landscape has undergone a transformative shift with the advent of automation, enabling accountants to redirect their focus from mundane tasks like data entry and transaction processing towards more strategic activities that demand advanced analytical skills. To fully capitalize on these opportunities, accountants must embrace continuous learning, enhancing their proficiency in areas such as data analytics, machine learning, and process automation.

The Imperative of Continuous Learning

Some individuals may question the practicality of utilizing ChatGPT for accountants lacking a background in information technology unless the aim is to assist with tasks such as rephrasing emails in a professional manner, obtaining key insights on accounting principles, or seeking guidance in composing accounting-related papers for boards or committees. However, it is worth noting that as part of continuous professional development, accountants may find it beneficial to acquire a basic understanding of coding tools such as Excel VBA and Python. This knowledge can be further enhanced through the utilization of ChatGPT, as demonstrated in a real-life example discussed later in this article.

Regardless, in today's rapidly evolving business environment, accountants must recognize the paramount importance of continuous learning as an integral part of their professional journey. The proliferation of automation and the wide array of accessible learning tools have revolutionized the accounting profession, necessitating accountants to adapt and proactively stay ahead of emerging trends and technologies.

Furthermore, the accessibility of diverse learning tools has made it exceedingly convenient for accountants to acquire valuable resources and expand their skill sets. Online courses, webinars, and e-learning platforms offer flexible learning options, enabling accountants to acquire new knowledge and expertise at their own pace. These tools also facilitate the accountants' ability to stay up-to-date on regulatory changes, accounting standards, and industry best practices.

The Role of Excel VBA in Automation

Drawing from my experience working with a media intelligence business in Australia, I encountered the opportunity to bridge

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By leveraging Excel VBA, we successfully automated daily tasks, significantly reducing days of workload. Extensive data crunching was required, such as presenting the data in a particular format, excluding some publishers and customers for internal use only, and conducting customer and publication-wise analysis to provide insights into customer profitability across numerous hybrid arrangements with publishers and broadcasters.

the gap between businesses and copyright content providers. The vast volumes of data stored in CSV files from various websites presented challenges when exporting them to Excel files and performing copyright calculations and analysis. Excel's inherent limitations in handling large datasets and executing complex formulas prompted the exploration of Excel VBA (Visual Basic for Applications).

By leveraging Excel VBA, we successfully automated daily tasks, significantly reducing days of workload. Extensive data crunching was required, such as presenting the data in a particular format, excluding some publishers and customers for internal use only, and conducting customer and publication-wise analysis to provide insights into customer profitability across numerous hybrid arrangements with publishers and broadcasters. Manual execution of these tasks within Excel was laborious, given the extensive monthly datasets involving thousands of customers and hundreds of publisher deals, which would often overwhelm both human capacity and Excel's performance.

Recognizing the immense value, I proactively enrolled in an online learning course on Excel VBA when I realized its significant usefulness in streamlining and automating complex tasks.

The Integration of ChatGPT in Excel VBA

The introduction of ChatGPT in our automation endeavors gained prominence when we encountered challenges related to international publishers and their currency conversions. It came to our attention that it could aid in writing Excel VBA code by presenting a specific scenario to generate the required code. The potential for ChatGPT to further streamline complex tasks into simple code is remarkable. However, it is crucial for accountants to possess a foundational understanding of Excel VBA's operations to effectively leverage ChatGPT's capabilities (continuous learning is inevitable).

To illustrate this point, one can easily experience it by creating an account with Open AI and in the chatbox requesting assistance in generating code that summarizes country-wise sales data. Specifically, the objective is to transfer the raw sales data, organized in a tab named "Data," into a new tab called "Summary." The data is structured with countries listed in Column A and corresponding sales figures in Column B. Upon submission, the system will not only provide the VBA code but also guide the user through a step-by-step process of copying and pasting the code into an Excel file, as well as executing it. It is important to create the two required tabs, "Summary" and "Data," and populate them with relevant rows of data containing country and sales information.

The applications of ChatGPT extend beyond Excel VBA, as it also facilitates code generation for Python, JavaScript, SQL, and other programming languages. This versatility demonstrates how ChatGPT can significantly alleviate accountants' daily workload by streamlining processes.

Additionally, there have been notable breakthroughs where ChatGPT transforms text-based instructions into PowerPoint presentations. While ChatGPT's functionality is limited to textual instructions, it proves invaluable in automating processes by generating VBA code for PowerPoint presentations, thus enhancing efficiency and productivity.

The Synergy of Tools: VBA and ChatGPT

The collaboration between VBA and ChatGPT presents an excellent opportunity for accountants to showcase their value in providing insights into business performance and analytics. In the current data-rich environment, where decisions rely heavily on vast datasets, the combined power of code-based programs (VBA, Python, etc.) and ChatGPT enables accountants to streamline processes efficiently and effectively extract valuable information from CSV data stored in various systems.

Conclusion

In this era of rapid automation and evolving learning tools, accountants acknowledge that continuous learning is indispensable for professional growth and success. By remaining updated on emerging technologies, honing their skills, and embracing lifelong learning, accountants can adeptly navigate the evolving demands of the profession, deliver higher value to their organization, and seize new opportunities that arise in the dynamic world of accounting.

Mr. Muhammad Rafi is a chartered accountant working as Financial Lead at Isentia, Australia.

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CHATGPT, Automation and Artificial Intelligence

Mr. Muhammad Faizan, ACA – ICAP & ICAEW

Albert Einstein defined Artificial Intelligence (AI) as "The true sign of intelligence is not knowledge but imagination."

Artificial Intelligence is essentially the evolution of computer systems that operate based on defined algorithms and models, empowering machines to perceive, learn, and execute tasks. It demonstrates the ability to operate and perform tasks more efficiently and accurately than human beings. AI encompasses various subfields such as machine language, natural language processing, robotics, expert systems, computer vision, and ChatGPT, enabling machines to understand commands, analyze data, make forecasts, and interact in a way that resembles human intelligence. The goal of AI systems is to mimic human cognitive functions like perception, decision making, forecasting, and problem solving using defined mechanisms.

"Artificial Intelligence is essentially the evolution of computer systems that operate based on defined algorithms and models, empowering machines to perceive, learn, and execute tasks. It demonstrates the ability to operate and perform tasks more efficiently and accurately than human beings."

> **"AI encompasses various subfields such as machine language, natural language processing, robotics, expert systems, computer vision, and ChatGPT, enabling machines to understand commands, analyze data, make forecasts, and interact in a way that resembles human intelligence. The goal of AI systems is to mimic human cognitive functions like perception, decision making, forecasting, and problem solving using defined mechanisms."**

Chat Generative Pre-Trained Transformer (ChatGPT) is a specific AI system and language designed by OpenAI for chat-based interfaces. It is designed to respond to human queries in a conversational manner using a transformer architecture that generates coherent replies based on predefined inputs. ChatGPT is trained on vast amounts of internet data, enabling it to perform a wide range of activities, including answering questions, engaging in conversation, providing detailed explanations, making recommendations, and exploring opinions. ChatGPT offers open-ended conversations on various topics with tailored replies based on its extensive corpus of text data learned from the internet, giving it an advantage over other AI tools.

In the Atlantic Magazine's 'Breakthroughs of the Year 2022,' Derek Thompson discussed ChatGPT as "The generative AI eruption that may change our mind about how we work, how we think, and what human creativity really is."

Advancements in Models from GPT-1 to GPT-4

ChatGPT initially utilized the Microsoft Azure infrastructure powered by Nvidia GPUs, specifically built for OpenAI by Microsoft. It underwent a significant upgrade in 2023. The advancements in ChatGPT versions occurred as follows:

- OpenAI introduced the first model of Chat GPT in 2018, GPT-1, deploying a transformer for language generation proficient in processing vast volumes of internet text.
- In 2019, a more advanced version, GPT-2, was launched but not fully released due to concerns over potential malicious use. In 2020, GPT-3 was introduced, boasting an impressive 175 billion parameters, making it the largest language model of its time.
- In 2021, ChatGPT was structured into a model capable of engaging in interactive conversations, appealing to users through dialogue and providing coherent responses to inquiries. Additionally, in 2021, OpenAI launched the ChatGPT API, allowing programmatic access for integrating ChatGPT into their own applications and services.

The model was limited to knowledge up until 2021. However, with the addition of web-browsing and code interpretation capabilities, along with external plugins from developers like Expedia, Zapier, Slack, Shopify, OpenAI modernized ChatGPT and released it in November 2022. This version was transformed using both managed and reinforcement learning techniques. Later, in 2023, the latest version, GPT-4, was launched on March 14, 2023, available to paid subscribers on a restricted basis. Following the launch of the latest version, OpenAI's valuation was estimated to be around USD 29 billion.

Success Stories - Using ChatGPT

It is noteworthy that various multinational companies have implemented chatbot solutions to provide improved customer service, virtual assistance, and effective services. Some prominent examples utilizing chatbot technology include:

- Google: Implemented AI chatbot systems, including Google Assistant, integrated with devices such as smartphones and smart displays.
- Microsoft: Utilized the Microsoft Bot framework for delivering excellent services and support. They have also implemented virtual assistants like 'Cortana.'
- Amazon: Deployed chatbot solution Amazon Alexa for voice-based interactions.
- IBM: Developed Watson Assistant, an AI-powered chatbot intelligence used for better customer service and technical support.
- Facebook: Integrated AI capabilities into the Messenger platform for customer interaction and support.
- Bank of America: Deployed AI-powered chatbot Erica to provide virtual financial services, including financial advice and account information.
- Mastercard: Developed a chatbot to allow customers to inquire about their transactions, receive personalized offers, and manage their accounts.

Competition - ChatGPT with Other AI Technologies

With the advent of ChatGPT, competition in the field has significantly increased. Several similar models have recently been launched globally, alongside the success of ChatGPT, including:

> **Chat Generative Pre-Trained Transformer (ChatGPT) is a specific AI system and language designed by OpenAI for chat-based interfaces. It is designed to respond to human queries in a conversational manner using a transformer architecture that generates coherent replies based on predefined inputs.**

- Bard: Introduced by Google, using the LamDA language model released for US and UK users on March 21, 2023, with certain limitations.
- LLaMA: Released by Meta in February 2023, featuring a 65 billion parameter LLM.
- Ernie Bot: Chinese corporation Baidu launched a ChatGPT-style service in March 2023.
- Search GPT: Announced by South Korean company Naver, aiming to launch a similar search engine in the first half of 2023.
- YaLM 2.0: Announced by Russian company Yandex, planning to launch a similar service by the end of 2023.
- Hugging Chat: An open-source alternative launched by Hugging Face, allowing users to interact and engage in dialogue with an open-source chat assistant named 'Open Assistant.'

Way Forward - ChatGPT's Inclination

The future of ChatGPT and conversational AI is highly promising, with advancements focused on enhancing accuracy, handling more complex activities, and delivering more personalized experiences. There is potential for further growth by developing domain-specific models to provide more relevant and precise answers to inquiries in fields such as medicine, law, or finance.

Advancement in Automation and Artificial Intelligence

There have been numerous success stories and advancements in various fields where AI has brought revolutionary changes. Health, finance, automation, and multinational companies, including banks, have incorporated AI into their daily operations to accomplish different tasks.

- Autonomous vehicle companies now utilize AI techniques to manufacture cars and automobiles. AI algorithms process sensor data from lidar and cameras, enabling vehicles to observe the environment, make decisions, and control their movement. Waymo and Tesla are leading examples of this automation.
- Healthcare industries have also benefited greatly from AI. Deep learning algorithms have been developed to recognize and scan radiology reports, improving the accuracy of diagnoses.
- Multinational companies and banks are using AI techniques and models to automate complex activities related to financial analysis, modeling, and reporting. AI models, particularly ChatGPT, can compute various financial ratio analyses based on inputted data from balance sheets, income statements, and cash flows, providing insights into a company's financial performance. AI models are also used to detect fraud by analyzing transaction patterns of customers.
- Companies like Amazon, Spotify, and Netflix utilize AI tools to analyze customer preferences and behavior, making personalized product recommendations that are relevant to individual users.
- Virtual Assistants like Apple's Siri, Amazon Alexa, Google Assistant, and now ChatGPT have become integral parts of our daily lives, interacting with users through voice commands to assist in performing routine operations.
- Google's AI-based 'Help Me Write' option in Gmail can now draft emails based on desired outcomes inputted by the user.

Human Brain vs. Artificial Intelligence

The human brain possesses distinctive qualities and capabilities that outweigh the proficiencies of AI. The human brain is a complex organ comprising billions of interconnected neurons, whereas AI responds based on training on vast amounts of text data. The human brain can generate creative ideas based on past learning, knowledge, and experience, while AI lacks subjective experience. The human brain has the ability to learn, adapt to changes, form complex associations, and connect data and information, whereas AI can only provide exact information based on inputted data. The human brain is vulnerable to biases and preconceptions, which can influence decision-making, whereas AI also has the potential for bias and prejudgment.

It is important to note that AI has the potential to bring about significant improvements and groundbreaking changes in various areas of life. However, it is crucial to ensure the ethical use of AI, address concerns related to bias, protect data privacy, and consider job security. The aim should be to leverage AI advancements for the benefit of society without creating obstacles for others.

The future of AI does not involve replacing human brain's creative thinking but rather empowering humans, enhancing their abilities, and allowing them to focus on more artistic activities.

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Vehicles of older model than 24 months but not exceeding 36 months	30%	15%
Vehicles of older model than 36 months but not exceeding 48 months	40%	20%
Vehicles of older model than 48 months but not exceeding 60 months	50%	25%
Vehicles of older model than 60 months but not exceeding 66 months	55%	27.50%
Vehicles of older model than 66 months but not exceeding 72 months	60%	30%

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BEYOND FEAR: A CHARTERED ACCOUNTANT'S JOURNEY INTO AI

Mr. Muhammad Yassar Hayat, ACA

> **"Whenever I catch up with my professional colleagues these days, whether at rare face-to-face gatherings (thanks to technology) or over the phone, the conversation inevitably turns to AIs, ChatGPT, and the negative impact of these technologies on job markets. One day, after receiving an "overdose" of such talk, I came home and sat on the balcony, pondering the idea of AI robots joining me on my CA journey."**

Whenever I catch up with my professional colleagues these days, whether at rare face-to-face gatherings (thanks to technology) or over the phone, the conversation inevitably turns to AIs, ChatGPT, and the negative impact of these technologies on job markets. One day, after receiving an "overdose" of such talk, I came home and sat on the balcony, pondering the idea of AI robots joining me on my CA journey.

Eager to share this amusing idea, I decided to imagine what it would have been like to have AI-powered robots as my CA peers. Let me walk you through a few of these comical, sarcastic scenarios that played out in my mind.

Scene 1 (CA articles trainee):

I'm waiting in the reception area of a medium-sized firm for an interview for my articles. To my surprise, two AI-powered robots are also in line. Seizing the opportunity to 'chat' with robots, I asked them, "Who are you, and what are you doing here?" Except for their names 'Finbot' and 'Acctbot,' their replies were the same. They mentioned that they recently passed their Inter exams after "multiple" attempts and were advised by their algorithms to try a medium-sized firm, for obvious reasons.

Thanks to their face recognition technology, they interpreted the quizzical expression on my face and simultaneously replied in a robotic tone, "Well, by the time we could understand the ICAP exam question papers, half of the time was already gone, and we could not attempt even 40% of the paper. That is why multiple attempts!" This revelation reassured me that I was at least on equal footing with these CA-inter robots.

Scene 2 (Junior Trainees):

As newly recruited juniors, Finbot, Acctbot, and I had our first assignment: attending physical stock counts. After the two-day assignment, I returned to the office and filed the necessary documents, but my robotic peers were nowhere to be found. It turns out they had to go for emergency maintenance, leaving me to redo their assignments.

Acctbot's hardware circuits couldn't survive the rough travel conditions in rural areas of Punjab, where he had to take a jam-packed "Tiyara" bus followed by a bumpy ride on a "Chingchi" motorcycle rickshaw to the client's remote location. Meanwhile, Finbot's hardware failed while climbing the highest stack of raw cotton bales at a textile client. His AI had suggested a higher number of samples based on risk assessment, but the hot and humid conditions in the warehouse only worsened the situation.

In that moment, I felt superior to my AI colleagues.

Scene 3 (Senior Level Auditors):

It's peak audit season, and we're working hard to meet deadlines for listed clients. Suddenly, my manager walks in and notices the fierce look in my eyes. He politely asks me to take over Finbot and Acctbot's clients, explaining that their batteries had drained from working late nights and couldn't be recharged due to power outages. This was another occasion that made me proud to be human.

Scene 4 (After a few years of completing articles):

Now a manager at my old firm, I decided to reconnect with my robot colleagues and invite them for a get-together. To my surprise, 'Finbot' had given up on his CA career and was teaching English at a private school. After promising to keep his secret, he revealed that his CA algorithms had been irreparably damaged when he tried to explain basic accounting concepts to his employer, 'Seth Sahab.' No matter how hard he tried, 'Seth Sahab' couldn't grasp the difference between profit & loss and cash flow, tax evasion and tax avoidance, and dividends and salary, among other concepts. Ultimately, Seth Sahab fired Finbot with just half an hour's notice. Meanwhile, 'Acctbot' was still struggling with his final exams, just like me!

Reentering reality from my imagined journey alongside AI accounting automatons, I decided to gather some insights from common sense and data.

A Common-Sense Perspective:

Common sense tells us that machines and technology are made by humans, so the way they affect our future is really

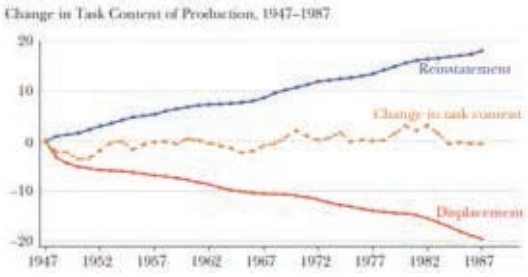
up to us. If we look back 20 to 30 years, when the internet was in its infancy and social media was primarily used for sharing photos and status updates, we had similar fears. People worried that jobs in post offices and the telecom industry would disappear. But what happened? These platforms didn't just take away jobs; they created millions of them. Not only for freelancers but for people who operate and maintain these platforms as well. This demonstrates that our future largely depends on how we utilize these machines and technologies.

A Data Perspective:

Looking at the data, PWC's research report "The Macroeconomic Impact of Artificial Intelligence" discusses AI's impact on jobs. They argue that AI will generally have a positive effect on jobs due to two reasons: (a) increased labor demand from AI's productivity and consumer demand boost and (b) new roles needed to explain, train, and maintain AI technologies.

I found more information in an article from the Journal of Economic Perspectives. The authors analyzed the impact of technology on job displacement and reemployment in two phases: 1947-87 and 1987-2017. The data demonstrates that technology adoption has replaced jobs but also created new ones.

"Between 1947 and 1987, the displacement effect reduced labor demand at about 0.48 percent per year, but simultaneously, there was an equally strong reinstatement effect, equivalent to an increase in labor demand of 0.47 percent per year with net impact close to zero"



"Between 1987 and 2017, the displacement effect reduced labor demand at about 0.7 percent per year, but there was not an equally strong reinstatement effect, equivalent to an increase in labor demand of 0.35 percent per year with net impact of negative, owing to rapid automation that is not being counterbalanced by the creation of new tasks".

"Looking at the data, PWC's research report "The Macroeconomic Impact of Artificial Intelligence" discusses AI's impact on jobs. They argue that AI will generally have a positive effect on jobs due to two reasons: (a) increased labor demand from AI's productivity and consumer demand boost and (b) new roles needed to explain, train, and maintain AI technologies."

The World Economic Forum's (WEF) "Future of Jobs Report," published in May 2023, supports this data and states that most technologies will have a net positive impact on jobs over the next five years. However, they mention that roles like Data Entry Clerks, Bookkeeping, and Payroll Clerks may decline rapidly. The report also lists the top three future skills as creative thinking, analytical thinking, and technology literacy.

PwC's Global Artificial Intelligence Study, "Sizing the Prize," predicts that global GDP could be 14% higher in 2030 due to AI, amounting to an additional $15.7 trillion. This suggests that AI presents a significant commercial opportunity. Considering the top skills from the WEF study and PwC's GDP prediction, we should look beyond traditional employment and explore new opportunities by developing the right skills, especially as Chartered Accountants, a profession that extends beyond conventional job roles.

Looking ahead, in a letter to the Financial Times, Professor Martin Mulyadi urges accountants not to fear AI. Instead, we should see it as a tool to help us do our jobs better, much like spreadsheets did in the 80s. As AI improves data analysis, we can focus more on strategic thinking and decision-making, enabling us to provide even more valuable advice to our clients in this changing world.

I hope this perspective is helpful for my colleagues!

Mr. Muhammad Yassar is a Chartered Accountant working as Group Financial Controller at a Public Sector Group of Companies involved in Recycling, Waste Management, Construction, Asphalt Production, and Agriculture.

ChatGPT, Automation and Artificial Intelligence (AI) – The New Normal

Mr. Usman Farooq, ACA

ChatGPT is one of the remarkable advancements in Artificial Intelligence (AI), derived from the human tendency to explore efficient and effective smart options in every aspect of their lives. This has led to a humongous potential in AI and automation in our modern world, transforming industries and reshaping the way we live and work. It is a powerful language model in the form of a chatbot that enables natural language conversations and solutions based on the available database. It has emerged as a game-changer in automation, leveraging its ability to comprehend and generate human-like responses to enable advanced conversational interactions. With its deep learning algorithms, it has found applications in various areas such as customer support, virtual assistants, content generation, and revolutionizing the automation horizon.

Usually, customer support involves human agents responding to inquiries and addressing customer concerns. Automating customer support services with the help of ChatGPT can handle common customer queries, provide instant responses, and offer relevant information, resulting in improved efficiency, faster response times, and reduced costs for businesses.

In today's era, virtual assistants have become indispensable in our daily lives, assisting us with tasks ranging from scheduling appointments to answering queries. AI-powered virtual assistants excel in simulating human-like conversations, understanding user intents, and delivering personalized responses. These intelligent virtual assistants continuously learn and adapt to user preferences, enhancing their capabilities over time.

While writing a thesis, essay, or article about a topic with a scattered knowledge base, drafting a quality cover letter before applying to a job, collating important data about a customer base and product line, having difficulty in drafting a programming language, or creating high-quality content can be a challenging and time-consuming task. ChatGPT turns out to be a big relief and rescuer. It can generate drafts, provide ideas and suggestions, and assist writers in brainstorming. While human creativity remains crucial, its automation capabilities free up time for content creators to focus on refining and adding their personal touch.

At the heart of ChatGPT's capabilities lies the power of Artificial Intelligence (AI). AI enables ChatGPT to understand and generate human-like language, learn from extensive datasets, and adapt to diverse contexts. Deep learning techniques, such as transformer-based architectures, have played a vital role in training ChatGPT on massive amounts of data, equipping it with a broad knowledge base.

When talking about the limitations of ChatGPT, clarity and conciseness of data when dealing with AI and lack of up-to-date knowledge and a small memory buffer come into play, which can affect its accuracy. While it generates coherent responses, it is essential to review and refine its output to avoid confusion or misinterpretation. Continuous evaluation and improvement can address any limitations or biases in AI-generated content.

Automation is often described as the use of technology and machinery to perform tasks or processes with minimum human intervention. It is dependent on systems and processes that can operate automatically, eliminating or reducing the need for human involvement in repetitive or mundane tasks.

Automation aims to streamline operations, improve efficiency, and enhance productivity by leveraging various technologies such as robotics, artificial intelligence, machine learning, and computer programming. It can be applied across different industries and sectors, including manufacturing, logistics, healthcare, finance, and customer service.

Automation can be physical, involving the use of machines, robots, or mechanical systems to perform physical tasks, such as robotic assembly lines in manufacturing, autonomous vehicles in transportation and logistics, and robotic surgery systems in healthcare.

Automation can also be in software form, involving the use of software applications and algorithms to automate digital processes. It can include tasks like data entry, report generation, data analysis, and decision-making, for example, Robotic Process Automation (RPA).

The major benefits of automation include cost reduction, increased productivity, enhanced capacity, increased reliability, and optimized performance. However, automation also raises concerns about job displacement and the need for upskilling and reskilling the workforce to adapt to changing roles and responsibilities. It is important to carefully assess the impact of automation and ensure a balance between technology and human involvement to maximize its benefits.

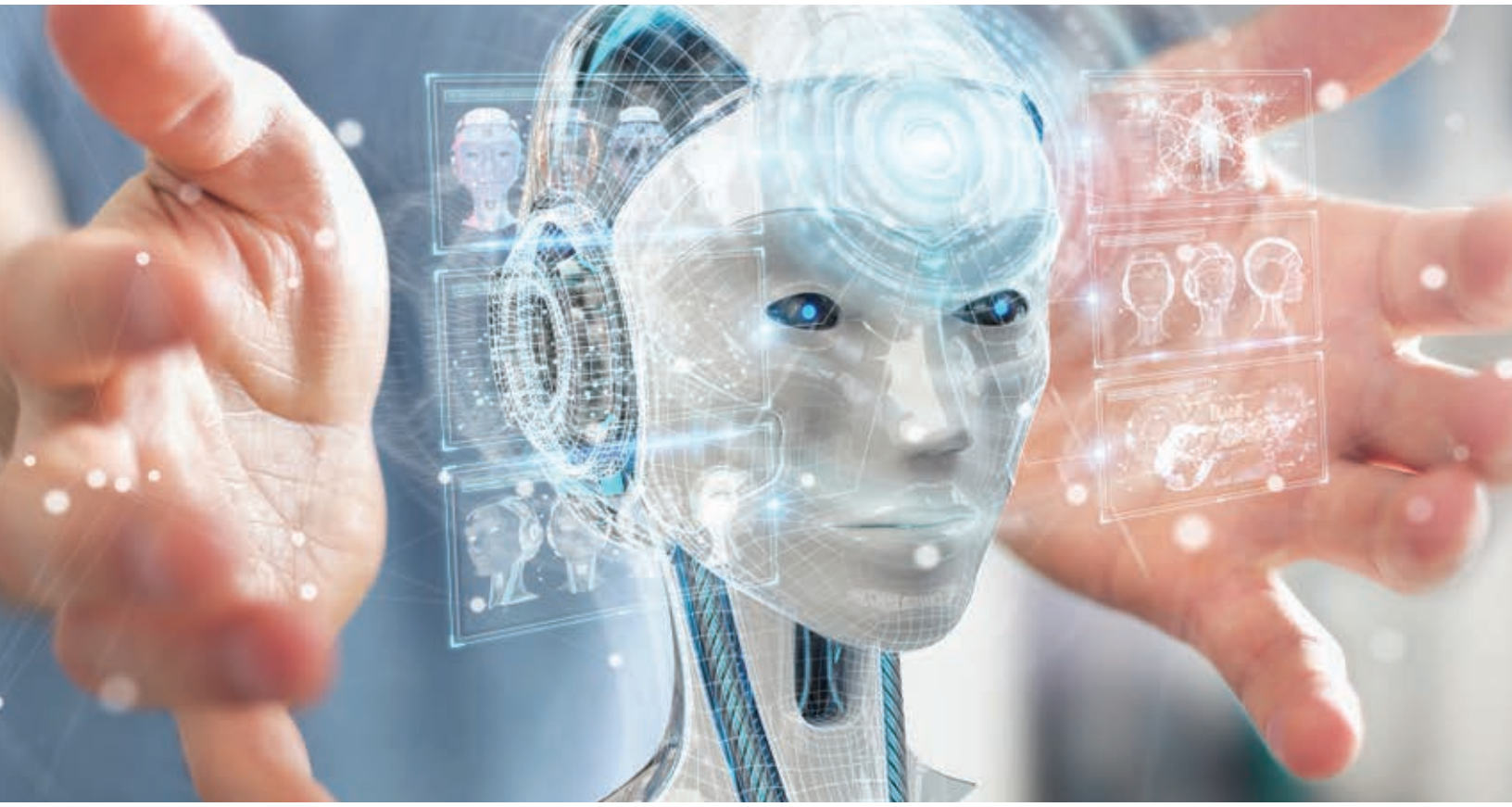
Artificial Intelligence (AI) is a broad field of study that encompasses various techniques, algorithms, and technologies aimed at creating intelligent machines capable of simulating human-like intelligence and behaviors. AI systems are designed to perceive their environment, understand and interpret complex data, reason and make informed decisions, learn from experience, and interact with humans in natural and meaningful ways. The goal of AI is to replicate or exceed human cognitive abilities, enabling machines to perform tasks autonomously and effectively.

One type of AI is "Narrow AI," which is designed to excel in a particular domain, such as voice recognition, image classification, recommendation systems, or language translation. They operate within predefined boundaries and do not possess general intelligence. The second type is "General AI," which aims to possess the same level of intelligence and understanding as humans across a wide range of tasks and domains. This type of AI would be capable of reasoning, learning, adapting, and performing any intellectual task that a human can do. Achieving general AI is a long-term and complex goal that researchers and scientists are actively pursuing.

AI has a wide range of applications across various industries, including healthcare, finance, transportation, customer service, manufacturing, and more. It is used for tasks like natural language processing, autonomous vehicles, fraud detection, drug discovery, personalized recommendations, and predictive analytics. While AI brings numerous benefits and opportunities, it also raises ethical considerations, such as privacy, bias, transparency, and accountability. Ensuring responsible AI development and deployment is crucial to harness its potential for the benefit of society while addressing potential risks and challenges.

Hence, the trio of ChatGPT, Automation, and Artificial Intelligence (AI) has become the new normal in every aspect of our lives, which everyone has to accept and embrace!"

Mr. Usman Farooq is a chartered accountant working as Senior Consultant in the FAAS department at EY UK&I.



THE ERA OF ARTIFICIAL INTELLIGENCE

Mr. Mubeen Akhtar, ACA

Cybernetics is a diverse field of scientific education that has evolved with the concept of communication between animals and machines. Based on the book written by Norbert Weiner in 1948, the foundation was laid for using cybernetics to maneuver and empower different systems by incorporating technology. To maintain the affirmation and acclamation that the concept received, a department of Machine Intelligence and Perception was formed at the University of Edinburgh, United Kingdom. Turing, the pioneer of building stored program-based electronic machines that could decode symbols and interpret them in words, as well as store information, stated that machines could possess the ability to understand and solve problems using experience based on installed principles. In 1948, Turing also submitted a proposal based on this notion titled "Intelligent Machinery."

Beginning of the New Era

The beginning of a new era came with Turing's forecast that a machine could be developed to play chess with humans and make moves based on guided principles. Subsequently, 50 years later, IBM created the first computer titled DEEP BLUE in 1997, which won against the reigning chess champion, Garry Kasparov, in a set of six games.

This marked the start of a new era of artificial intelligence. It is worth noting that artificial intelligence gained fame globally, and researchers and linguists began thinking of designing technology-based machines capable of performing human functions. In the United States, the first checkers game-playing computer was created by Arthur Samuel for IBM in 1952.

As computing and artificial intelligence advanced over the years, there was an ideation of using algorithmic computation to solve complex issues. Mathematicians started understanding how to use computational machines for problem-solving and logical reasoning.

Two of the earliest forms of AI programs were Aliza and Parry, devised in 1966. Aliza was created by the AI Department of the Michigan Institute of Technology (MIT) as a human-simulated therapist, while Parry was devised by Stanford University as a human-simulated paranoiac patient. Simple sentences and limited structures were constructed and stored in their memory for reviewing artificial intelligence markers.

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In 1972, programs based on Micro world were suggested and experimented with, where AI-based programs could communicate in human form in artificial environments. This led to the design of expert systems by researchers and specialists in certain fields. These expert systems incorporated all input data and knowledge related to a specific field and could provide solutions for various situations. These solutions, which would take an expert in the specific field days to seek, could be found by the machine in less time. The applications ranged from diagnosis to financial management, corporate sector-based planning, and routing financial documents.

All of this laid the foundation for the beginning of a new era of technology, transitioning from binary-based huge machines to handheld devices like laptops and tablets. The advent of robotics is also based on artificial intelligence.

Biggest Revolution of Artificial Intelligence

The biggest revolutionary impact of artificial intelligence came with the invention of Chat GPT, a chatbot based on large language models. The entire technology world was surprised at the fact that machines could be tailored to "learn" and respond to human interactions without reflecting any errors. The ability to feel and communicate through words and sentence structure revolutionized the industry.

The Role of Chat bots in Automation

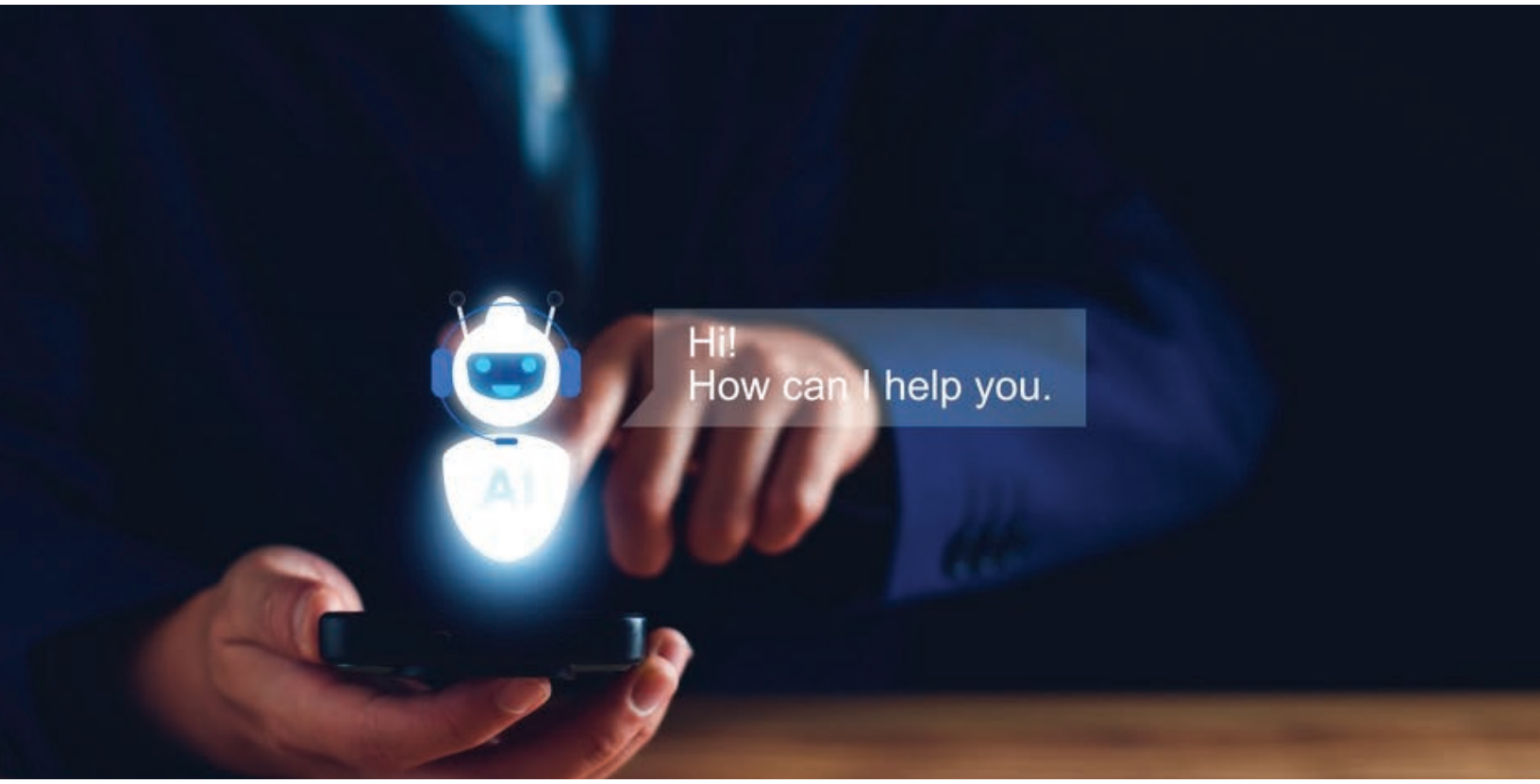
Chatbots have been adopted by numerous industries such as pharmaceuticals, the design world, and the corporate banking sector for official usage where one-to-one correspondence in written language is needed. While chatbots bring ease, they also come with negative aspects such as job loss and unemployment worldwide. One of the main benefits of chatbots is their ability to handle requests such as changing or resetting passwords and providing product information. However, this automation can also impact the world economy, affecting the rise of civilizations and nations in trade and management. Chat GPT is a powerful AI chatbot that can help automate conversations with customers and other stakeholders, offering several ways to improve businesses:

1. **Creating leads:** Chat GPT can generate leads by engaging potential customers and providing them with pertinent information about products and services, thereby increasing sales and expanding the business.
2. **Personalizing customer demand:** Chat GPT can engrave the customer experience by providing personalized content and endorsements based on their interests and preferences, leading to stronger customer relationships and increased loyalty.
3. **Automating customer service:** Chat GPT can automate customer service investigations, answering questions, providing technical support, and resolving complaints, saving time and money while improving customer satisfaction.
4. **Investigating customer data:** Chat GPT can analyze customer data and provide insights into behavior, enabling better understanding of customers and informed decisions to improve products and services.
5. **Automating marketing campaigns:** Chat GPT can automate marketing campaigns by sending personalized messages to customers and prospects, increasing engagement and driving more sales.

Chat GPT and Banking Sector

In the banking sector, Artificial Intelligence-based Chat GPT has improved customer response but has also led to a reduction in employment ratios, benefiting the banking sector. Chat GPT can assist in common tasks such as inquiring about banking products, balance inquiries, financial transactions, and upcoming mutual finance certificates. However, it may have limitations in clarifying detailed versions of these tasks. Due to the rigorous impact of automation, human needs in pursuing educational skills will require understanding information technology and finding unique ways to analyze data for further feasibility forecasting in the finance sector. Apart from that, changing views on educational skills will focus on building key specializations that no artificial intelligence can perform. There will be a rush in the global world to understand and adapt to the shift from bookish knowledge to street-smart knowledge. To make a place in finance and generate financial revenues, feasibility reports could be seconded and proofread by hired financial agents of the corporate and banking sector. Moreover, individuals with certification in IT should preview the usage of digital communication for marketing banking products. While chatbots can never be innovators or thinkers, financial programmers will evolve and create guided instruction-based programs that banks can utilize for marketing, just as calculators require manual programming by a human being to find solutions to algebraic problems.

Mr. Mubeen Akhtar is a young qualified chartered accountant working as Senior Manager in Bank Alfalah's Internal Audit Setup.



ChatGPT, Automation and Artificial Intelligence (AI)

Mr. Hamza Bilal, ACA

ChatGPT and other artificial intelligence (AI) systems are tools that can process human language, enabling people to communicate with the system. These systems can respond and assist people in various tasks such as drafting standard operating procedures, providing guidance on technical questions by fetching relevant content, composing emails, articles, and even system codes. OpenAI, an artificial intelligence company, launched ChatGPT in 2022.

There are primarily four types of AI systems that replicate human functions and can be categorized as follows:

a) **Reactive AI:** These systems provide specific output based on input and react in the same manner to configured scenarios. They lack the ability to learn new actions based on trends, data, or future predictions. An example is spam filters that keep certain types of emails out of our inbox, offering limited solutions.

b) **Limited Memory AI:** These systems can learn and make predictions based on past data and trends. For instance, certain AI-equipped cars can observe other vehicles' speed and direction, predict road conditions, and adjust accordingly. However, the information is stored for only a limited duration and not in long-term memory.

c) **Theory of Mind AI:** This concept involves interacting with an intelligent machine that can understand human emotions and adjust its behavior accordingly. These machines possess decision-making skills like humans. However, replicating human responses accurately is challenging due to variations based on different situations and variables.

d) **Self-aware AI:** This concept involves configuring advanced systems that can understand human emotions, adjust their responses, and even have their own emotions. However, developing a self-aware machine remains a challenge for AI researchers.

Artificial Intelligence - Shaping the Future

Artificial intelligence is shaping the future and making various impacts, including:

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that can understand human emotions and adjust its behavior accordingly. These machines possess decision-making skills like humans.

a) **Automation:** AI technology enhances business processes by eliminating manual and repetitive tasks performed by machines at a faster rate with greater accuracy. This enables humans to focus on value-added roles. Robots can handle data entry, customer queries, and other repetitive tasks.
b) **Improved Customer Experience:** AI systems can study potential customers' preferences and provide personalized solutions related to products or services. They enable businesses to execute targeted and effective marketing strategies by analyzing vast amounts of data.
c) **Healthcare Advancements:** AI systems provide improved scanning and analysis services, leading to more accurate diagnoses, analysis of test reports, and better medical research. They assist medical professionals in delivering better services to patients and storing medical histories.
d) **Smart Cities:** Intelligent systems facilitate better traffic management, efficient electricity supply, and reduced wastage by analyzing supply and demand. They analyze vast amounts of data to enable informed decision-making.
e) **Decision Making:** AI systems store, process, and analyze data to facilitate human analysis and decision-making. Machines with learning capabilities can predict the future, aiding in forecasting, budgeting, and decision-making.
f) **New Job Opportunities:** AI systems create new job opportunities such as AI specialists, data scientists, and machine learning professionals. As AI technology evolves, there will be a need for professionals to regulate AI and develop ethical codes of practice.
g) **Recruitment and Talent Sourcing:** AI systems analyze a vast pool of candidates through online questions and provide analysis of the most suitable candidates for specific job descriptions. They can streamline the hiring process and provide useful insights for better decision-making.

Limitations of Artificial Intelligence (AI)

While artificial intelligence has significant impacts, there are limitations to machine intelligence, including:

a) **Only Configured Intelligence:** Machines lack common sense and may produce inaccurate results when faced with unknown scenarios. They rely on configured responses and cannot intuitively adapt to new situations.
b) **Dependent on Input:** Machines rely on accurate and sufficient data input. If inaccurate or limited data is entered, they may produce inaccurate results.
c) **Lack of Creativity:** Machines can only respond in a configured manner and are unable to think of novel methods for process improvement.
d) **Limited Emotional Intelligence:** Machines have limited capabilities in responding to human emotions and analyzing soft skills. They may not be effective for counseling or demonstrating empathy.
e) **Limited Word Count:** The ChatGPT system can produce text up to a word count limit of 600-800 words. If you require text beyond this limitation, you will need to request the system to produce it in multiple sections.

The Need to Regulate Artificial Intelligence

With the rapid development of technology and machine intelligence, there is an increased need to regulate artificial intelligence. The reasons for regulation include:

a) **Ethical Considerations:** Defining a code of ethics and distinguishing acceptable from unacceptable machine behaviors is crucial to protect human rights.
b) **System Controls:** AI systems should be auditable, possess necessary controls to maintain confidentiality of personal and financial information, and be transparent to enable users to understand their functionality. Accountability is also important.
c) **Economic Impacts:** Policies should be developed to address the retention of human resources and monitor job displacement caused by machine intelligence.

Conclusion

AI systems have the potential to significantly shape the future by replacing repetitive manual jobs with efficient machine intelligence. However, regulation is necessary to ensure that essential elements are addressed and appropriate boundaries are set.

Mr. Hamza Bilal is a qualified chartered accountant with post qualification experience of 8 years and currently working as Head of shared Services department for CCL pharmaceuticals.

Transformative Technologies- ChatGPT, Automation and Artificial Intelligence (AI)

Mr. Adnan Mehmood Khan, ACA

Artificial Intelligence (AI)

Artificial Intelligence (AI) is a specialized domain within computer science that aims to develop systems capable of performing tasks that require human intelligence. These tasks include learning from exposure, pattern recognition, comprehending complex data, problem-solving, and decision-making. AI encompasses various technologies and scientific disciplines, such as machine learning, deep learning, computer vision, natural language processing, and

Artificial Intelligence (AI) is a specialized domain within computer science that aims to develop systems capable of performing tasks that require human intelligence.

robotics, rather than being a single technology. It is a rapidly advancing field with significant implications for all aspects of society and the economy.

The concept of artificial intelligence can be traced back to ancient times, with mythologies often depicting inanimate objects endowed with life or intelligence. However, contemporary AI began to take shape in the mid-20th century. The term "artificial intelligence" was coined by John McCarthy in 1956 at the Dartmouth Conference, where he defined it as "the science and engineering of making intelligent machines." Since then, AI has experienced periods of optimism and disappointment known as AI winters. In recent years, advancements in big data, computational power, and algorithms have propelled significant progress in AI.

AI can be categorized into three types: Narrow AI, General AI, and Superintelligent AI. Narrow AI, also known as weak AI, is designed to perform specific tasks like voice recognition or image recognition. General AI, also known as strong AI, can perform any intellectual task that a human can. It possesses understanding, learning, adaptation, and implementation capabilities similar to humans. Superintelligent AI, although currently theoretical, refers to AI that surpasses human intelligence across all tasks, implying it could outperform the best human brains in virtually every field.

Machine learning is a fundamental concept in AI. It involves algorithms that improve automatically through experience, enabling computers to learn from data. Deep learning, a subset of machine learning, is based on artificial neural networks that can learn complex representations of data. These neural networks, inspired by the human brain, consist of layers of interconnected nodes or "neurons." Deep learning forms the foundation for processing intricate data patterns.

AI offers numerous benefits, including improved efficiency and productivity, enhanced decision-making, and the creation of new services and products. However, it also poses challenges, such as job displacement due to automation, privacy concerns related to data usage, and the potential misuse of AI systems. Ethical considerations, such as fairness and transparency in AI systems, are also crucial.

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Automation

Automation involves the use of technology to perform tasks without human intervention, ranging from simple mechanical devices to complex software systems powered by AI. Automation can be applied to a wide range of tasks, from mundane and repetitive activities like factory assembly line work to complex tasks such as data analysis and customer service. The goal of automation is often to enhance efficiency, minimize errors, and free human workers to focus on more sophisticated tasks.

Automation refers to the utilization of machines or computer systems to perform tasks that would otherwise require human intervention. It can be classified into fixed automation, programmable automation, and flexible automation. Fixed automation is suitable for high-volume, simple tasks. Programmable automation is designed for batch production, while flexible automation is ideal for low-volume, high-variety production.

AI and automation are closely intertwined. AI acts as a catalyst for automation by providing the intelligence necessary to perform tasks without human involvement. AI empowers machines to learn from experience, adapt to new inputs, and perform tasks traditionally requiring human intelligence. This enhances the versatility and capabilities of automation.

Automation finds application in various sectors. In manufacturing, it is used for tasks such as assembly and packaging. In healthcare, it assists with patient scheduling, medication management, and data analysis. In transportation, automation enables self-driving cars and automated logistics. It is also prevalent in the service sector, powering chatbots and personal assistants.

Automation has profound economic implications. On one hand, it can lead to job displacement as machines replace human labor. On the other hand, it can generate new jobs and increase productivity. The overall impact of automation on employment remains a subject of ongoing debate. Economically, automation can drive increased productivity and economic growth, but it also raises questions about income distribution and inequality.

ChatGPT and its Role in AI and Automation

ChatGPT is an artificial intelligence chatbot developed by OpenAI, released in November 2022. It combines the functions of a chatbot with the capabilities of a generative pre-trained transformer (GPT) model, a type of large language model. ChatGPT employs machine learning to generate text that simulates human communication. It serves as a prime example of how AI can be applied to automation. By generating text based on input, ChatGPT can automate various tasks involving written communication, from drafting emails to generating content. Although it produces text that closely resembles human style, tone, and context awareness, it is important to note that ChatGPT does not truly understand the content it generates.

ChatGPT is a product of OpenAI's work on Generative Pretrained Transformer (GPT) models. These models employ machine learning to generate text that closely resembles human writing. While the initial GPT model was relatively simple, subsequent iterations have become more sophisticated and capable. The current version, ChatGPT, has demonstrated impressive proficiency in generating coherent and contextually appropriate responses.
As a language model, ChatGPT generates text based on the input it receives. It is trained on a vast corpus of text from the internet, learning to predict the next word in a sentence based on the preceding words. However, it is important to understand that while ChatGPT can generate remarkably human-like text, it lacks genuine comprehension of the content it generates. Its responses are based on learned patterns rather than true understanding.

ChatGPT finds applications in a wide range of tasks, from drafting emails to writing code. It is used as a tool for automated customer service, content generation, and even creating conversational agents in video games. The diverse applications showcase the versatility of this AI model and indicate a future where AI can increasingly handle tasks involving natural language processing.

ChatGPT exemplifies AI in action. It employs machine learning, a subset of AI, to generate text based on learned patterns. Its ability to learn from extensive datasets and generate contextually appropriate responses is a prime example of how AI can mimic human-like capabilities.

Automation involves the use of technology to perform tasks without human intervention, ranging from simple mechanical devices to complex software systems powered by AI. Automation can be applied to a wide range of tasks, from mundane and repetitive activities like factory assembly line work to complex tasks such as data analysis and customer service.

ChatGPT holds immense potential for automation. Its capacity to generate human-like text makes it an effective tool for automating tasks involving written communication. This encompasses customer service, where it can respond to inquiries, and content creation, where it can automatically generate articles or reports.

ChatGPT has been successfully integrated into various automated systems. For example, it powers virtual assistants, automating the process of answering user queries. It is also employed in content generation systems, where it can automatically produce written content based on provided guidelines.

Looking ahead, ChatGPT shows immense potential. As the model continues to improve, it could become an even more powerful tool for automation. Future applications may include more sophisticated virtual assistants, automated content generation across a wider range of topics and styles, and roles in education and healthcare, where it could provide automated tutoring or health advice.

Summary

In summary, AI, automation, and ChatGPT are transformative technologies shaping our world. They offer significant benefits, such as increased efficiency and productivity, but also pose challenges, including job displacement and ethical considerations. As these technologies continue to advance, automation will become increasingly prevalent in our daily lives.

As we embrace these technologies, it is crucial to consider their broader implications. This includes assessing the impact on employment, addressing privacy concerns, and establishing ethical guidelines to ensure responsible and ethical usage of these tools.

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Artificial Intelligence: An aide for internal audit and risk managers

Mr. Sami Ullah Khan, ACA

As we are living in an era of disruptive technologies, accountants are equally exposed to the challenges and opportunities as any other professionals. Among these, Artificial Intelligence (AI) is considered the most significant (at least, as of today) in terms of opportunities and potential impact on business transformation. In this write-up, we will analyze the impact of AI on three core areas for accountants in business: internal audit, enterprise risk, and fraud risk management.

A) Internal audit:

Internal auditors have always tried to meet the expectations of the value they create for an organization. The recent advancements in AI, mainly through enhanced data analytics, have enabled internal auditors to more efficiently and effectively identify areas of risks.

One of the biggest challenges for auditors is sifting through large volumes of information/data in an organization. They often have to rely on sampling to carry out their assurance procedures. AI-powered data analytics techniques can help auditors determine where and what to focus on during the stages of audit planning or test of controls. This can also help identify unusual transactions, such as unreasonable or recurring reversals at period end, which auditors can focus on during substantive testing of details. AI tools can transform these audit procedures, for example, through automation,

leading to increased productivity and accuracy. Automating some of the key audit steps allows auditors to focus on tasks more suited to human cognition.

In today's emerging business and operating environment, external risks are more important than internal risks. Auditors can utilize AI tools to identify and analyze these emerging risks and threats. For example, if an organization intends to examine or analyze staff emoluments after an external factor, such as inflation, auditors can use AI to populate a dataset comprising details of staff emoluments from the previous period, factoring in inflation to compare with actual payments.

Another area where internal auditors are expected to add value is in strengthening and streamlining processes. Circumvention of controls has always been a challenge for organizations in streamlining their processes. Auditors can use AI tools to embed real-time review controls in accounting/transaction processing systems aimed at flagging transactions that violate pre-set rules, such as an invoice payment bypassing a certain approval threshold.

B) Enterprise Risk Management (ERM):

AI has revolutionized the traditional methods of risk identification, assessment, and proposing mitigation measures through complex algorithms and machine learning. As discussed earlier, AI is being globally used to transform the way businesses are managed. Risk managers are increasingly taking advantage of AI for ERM due to its strong prediction techniques and data analytics capabilities, enabling them to make effective business decisions. It helps improve business process efficiency, profit maximization, and overall productivity of an organization. AI analyzes large volumes of raw data, both internal and external, including historical and real-time data, at exceptional speed and accuracy. Additionally, AI can identify certain trends and patterns that are not visible to humans, enabling risk managers to take control measures to reduce risks. This information is considered in developing a risk register or risk management plan, which serves as the principal tool for an organization in its ERM. AI systems can automate this process to make it more accurate, efficient, and effective.

While all businesses are taking advantage of AI, financial institutions are particularly leveraging AI to enhance the accuracy of credit decisions while reducing operational and other costs. Financial institutions have excelled in developing or tailoring AI solutions to generate large volumes of timely and accurate data, increasing their capacity for customer intelligence. These AI solutions have proven effective in risk management and offer the following benefits:

- Improved accuracy of forecasting techniques by capturing effects on scenario-based variables and associated risk factors, enabling companies to understand the relationships between the macroeconomy and its financial indicators.
- Big data-enabled analytics platforms can process large volumes of data across multiple variables. Coupled with pre-captured broad-based risk factors, this allows for a robust risk management system.
- Objective segmentation of data through various attributes is crucial in portfolio management. Additionally, combining distance and density-based models for grouping further enhances the accuracy of the risk model.

Other industries can also benefit from AI in their risk assessment through trend analysis, helping to identify potential hazards before they become actual risks. One common use of risk management in industries is data analysis from sensors installed across factories to identify deviations from standard operating procedures. These systems identify potential hazards and notify the relevant staff to take appropriate mitigation measures. Big data can also help identify potential risks, for instance, by monitoring social media trends about consumer preferences. In conclusion, the use of AI and big data in enterprise risk management has the potential to completely transform business management. As AI technology evolves at a staggering rate, business consultants expect and even predict more advanced solutions with the capabilities to identify potential risks that business managers have not yet imagined today.

C) Fraud risk management:

Artificial intelligence (AI) has substantially evolved fraud management procedures through the use of technologies such as algorithms, data analytics (big data), and fraud pattern analysis. These AI-powered systems can now identify and prevent frauds such as payment fraud, identity theft, and other cyber-attacks. These systems have the ability to adapt and learn from new patterns, thus improving fraud detection over time. Advanced examples of these systems include Robotics Process Automation (RPA), which works efficiently in a structured data environment.

In cases where fraud is suspected, AI systems can help reject transactions or flag them for investigation by dedicated counter-fraud teams. Additionally, AI has the capacity to learn from investigation results, reinforcing the system's knowledge and focusing on trends that lead to fraud.
The benefits of using AI in fraud detection are as follows:

- AI algorithms' ability to learn from data increases accuracy through the analysis of large volumes of data and identification of patterns that humans are unable to detect.
- Real-time audit of transactions through AI techniques enables timely detection and correction of attempted frauds.
- Increased accuracy of AI algorithms reduces the risk of genuine transactions being flagged as fraudulent.
- Effective fraud detection reduces the number of fraudulent cases, resulting in a reduction in financial and reputational risks.
- Substantially reducing the time spent on fraud investigations, as AI solutions take care of fraud detection through real-time reviews.

Mr. Sami Ullah Khan is a chartered Accountant working as Head of Risk & Compliance at Save the Children International, Pakistan Office.

Harnessing the Power of AI in Fraud Risk Management for Non-Profit Organizations

Mr. Sami Ullah Khan, ACA

Introduction:

Fraud risk management is a critical concern for non-profit organizations (NPOs) as any financial loss due to fraudulent activities directly impacts their ability to fulfill their missions. To strengthen their defenses against fraud, NPOs are increasingly turning to advanced technologies like artificial intelligence (AI). By leveraging AI-powered solutions, NPOs can enhance their fraud detection capabilities, mitigate risks, and protect their resources and donor contributions. This article explores the application of AI in fraud risk management specifically tailored to the unique needs of NPOs.

Understanding Non-profit Fraud Risk:

NPOs face unique fraud risks due to the nature of their operations and funding sources. These risks include misappropriation of funds, fraudulent financial reporting,

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collusion, and conflicts of interest. Detecting such fraudulent activities can be challenging as limited resources often restrict the implementation of robust internal controls and monitoring systems. AI offers a promising avenue to bridge this gap, providing non-profits with advanced tools to effectively combat fraud.

AI Applications in Non-profit Fraud Risk Management:

Anomaly Detection: AI algorithms can analyze financial transactions, donor patterns, and operational data to establish baseline behavior and identify anomalies. By flagging unusual activities or deviations from established norms, AI systems can promptly alert NPOs to potential fraud risks. This enables proactive investigation and mitigation, reducing the impact of fraudulent activities.

Behavioral Analysis: AI has the potential to dramatically revamp fraud risk management owing to its ability to perform advanced behavioral analysis. It does so by defining a baseline for normal behavior, and AI algorithms can then pinpoint deviations from the baseline showing potentially fraudulent activities. For instance, AI can identify unusual transaction patterns, suspicious account behavior, or abnormal activities that may indicate fraudulent intent. This proactive approach enables organizations to promptly investigate and mitigate risks before they escalate.

Grant Monitoring: Non-profits often rely on grants and funding from external sources. AI can assist in monitoring compliance with grant requirements, ensuring that funds are utilized for the intended purposes. By automatically analyzing financial data and comparing it against grant guidelines, AI systems can identify discrepancies, potential misuse of funds, or non-compliance, enabling non-profits to address issues promptly and maintain transparency with grantors.

Social Media Monitoring: AI-powered tools can monitor social media platforms for mentions, discussions, or complaints related to the NPOs. This proactive approach helps identify any potential reputational risks, false representations, or fraudulent schemes targeting the organization. By monitoring online conversations, AI can provide early detection of fraud-related activities and allow non-profits to take appropriate actions.

Data Analytics and Visualization: AI systems can process large volumes of financial and operational data, enabling non-profits to gain insights into potential fraud risks. By visualizing complex data patterns and relationships, AI facilitates the identification of irregularities and hidden connections that might otherwise go unnoticed. These insights can guide proactive decision-making, strengthen internal controls, and aid in fraud prevention efforts.

Predictive Analytics: AI's predictive capabilities have revolutionized fraud risk management. By analyzing historical data and identifying patterns, AI models can generate predictive insights on potential future fraud risks. These models can assign risk scores to transactions or activities, enabling organizations to focus their resources on high-risk areas. By adopting a proactive stance, businesses can prevent fraud before it occurs, mitigating financial losses and preserving their reputation.

Benefits and Considerations:

Implementing AI in fraud risk management offers several benefits to NPOs: Enhanced Detection and Prevention: AI enables non-profits to detect fraud in real-time, reducing the impact of financial losses and reputational damage. By automating fraud detection processes, AI systems provide continuous monitoring, improving the likelihood of early detection and prevention.

Resource Optimization: Non-profits often operate with limited resources, making it challenging to allocate sufficient personnel for fraud risk management. AI technology can automate manual and time-consuming tasks, freeing up staff to focus on more strategic initiatives and investigations.

Improved Compliance and Accountability: AI systems assist non-profits in maintaining compliance with regulatory requirements and grant guidelines, ensuring the responsible stewardship of funds. By enhancing transparency and accountability, non-profits can strengthen relationships with donors and other stakeholders.

While embracing AI in fraud risk management, non-profits must consider:

Ethical Use of Data: Non-profits must prioritize data privacy and ethical considerations when implementing AI systems. Adequate data protection measures should be in place to safeguard sensitive information and prevent misuse.

Cost and Resource Constraints: Non-profits need to assess the costs and resource requirements associated with implementing AI solutions. Collaborations with technology partners, grants, or donor support may be explored to address these financial limitations.

Conclusion:

Artificial intelligence holds tremendous potential in strengthening fraud risk management for NPOs. By leveraging AI-powered solutions, non-profits can enhance their ability to detect and prevent fraud, safeguard their resources, and maintain the trust of donors and stakeholders. It is imperative for non-profits to embrace this technology mindfully, considering the unique fraud risks they face and ensuring ethical use of AI in their operations. With AI as a valuable ally, non-profits can proactively combat fraud and focus on achieving their missions effectively.

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The evolving role of ChatGPT in Accounting and Finance profession

Mr. Muhammad Farooq, ACA

Artificial Intelligence (AI) refers to the simulation of human intelligence aimed at performing tasks without human intervention, even in complex and ever-changing environments. Despite challenges in common sense reasoning, contextual understanding, and ethical considerations, AI has achieved tremendous success in the last decade. One remarkable development in this field is ChatGPT, a unique chatbot capable of writing essays, providing diagnostic information, professional consultation, and more. Developed by OpenAI, ChatGPT is an advanced large language model that utilizes natural language processing to understand and generate human-like text. By enabling users to interact with the model using natural language, ChatGPT makes AI more accessible, particularly for individuals with limited technical expertise. This accessibility brings forth benefits such as improved efficiency and personalized recommendations. Moreover, ChatGPT's real-time text comprehension and response capabilities allow for seamless and intuitive human-AI interactions.

ChatGPT has the potential to revolutionize various aspects of our lives, including emerging technologies like the Metaverse, which promises to reshape the way we work and live.

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Embracing this change and adapting to it will be key.
The impact of AI on the accounting and finance industry is profound. Recent advancements in AI are rapidly transforming the accounting and finance landscape, revolutionizing the way professionals operate and develop products and services.

In the realm of advisory services, ChatGPT is a groundbreaking technology with game-changing potential. As an AI-driven conversational agent, it serves as a gateway for individuals to experience the power of this technology firsthand. ChatGPT can not only answer questions and provide advice but also automate complex tasks, create personalized client experiences, and save time on administrative activities. It can even assist in formulating marketing and branding strategies for firms.

In the realm of conventional accounting, ChatGPT serves as a transformative tool for mundane finance and accounting tasks such as audits, banking, tax preparation, bookkeeping, reporting, and payroll. These tasks can be successfully automated with the help of self-learning systems that are being integrated into main ERPs. These emerging self-learning technologies free up professionals' time from repetitive tasks, allowing them to focus on decision-making. Taxation, which is often a challenge for professionals and entrepreneurs alike, can benefit from AI as well. AI can provide real-time status updates on financial issues by processing documents and utilizing computer vision, enabling efficient and cost-effective daily reporting. This level of insight empowers accounting and finance teams to be proactive and make adjustments based on unfavorable trends, transforming the way the profession operates.

AI algorithms continuously improve as they receive more data, ensuring accuracy and minimizing human errors. Furthermore, AI operates around the clock without the need for rest. Accounting and finance professionals can leverage AI and machine learning platforms in three main areas: financial reporting and analytics, tax planning and advisory consultancy, and as a digital transformational tool. Adopting AI accounting software automates repetitive tasks, allowing professionals to contribute to strategic planning and company growth. AI revolutionizes tax consultancy by providing on-the-spot advice, and its integration into the accounting and finance industry enables automation, personalized client experiences, and improved decision-making.

In summary, ChatGPT has undeniably impacted the finance profession by empowering professionals with advanced analytics, automation, and real-time insights. It reshapes how accounting and finance tasks are performed. By embracing this technological revolution, accounting and finance professionals can navigate the complexities of the modern financial landscape, drive innovation, and deliver greater value to clients and organizations. Let's leverage the power of ChatGPT and other AI tools to shape the future of accounting and finance.

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"The Role of AI and RPA in Finance and Accounting in Increasing Competitive Advantage"

Mr. Shakil Khawaja, ACMA

We are living in a new era of Artificial Intelligence (AI) and Robotic Process Automation (RPA), with changes occurring on a day-to-day basis in this constantly evolving world. There is a flood of advancements in the field of Artificial Intelligence, with new and improved products/applications launching rapidly.

Artificial intelligence: Artificial intelligence, a commonly heard term nowadays, can be explained as machine intelligence or an imitation of human intelligence processes by machines. It focuses on handling technology that can independently learn to make decisions, achieve efficient and effective results, and perform actions similar to humans in their everyday lives.

Robotic Process Automation (RPA): Similarly, Robotic Process Automation (RPA) doesn't involve any physical or

mechanical robots in the automation process. Instead, it focuses on efficiency. RPA can be explained as a software technology that creates, deploys, and manages software robots that imitate human actions in performing tasks, but in a more efficient way. Software robots can understand what's happening on a screen, complete keystrokes, extract data, and perform various defined actions at a much faster speed and with more consistency than humans. Unlike humans, software robots don't require breaks while working on tasks.
AI and RPA play a significant role in Accounting and Finance, particularly in increasing competitive advantage. AI-enabled Finance and Accounting Systems provide a comprehensive view with valuable insights at a fast pace.

In the era of Industry 4.0, we are witnessing exponential growth in data generated by web management information systems and the Internet of Things. This growth has led to a boom in AI development. Industry 4.0, or the 4th Industrial Revolution, is disrupting processes in every aspect of life and changing the expectations of customers, suppliers, and vendors. Automation, especially in dissimilar and repetitive tasks, saves a significant amount of time (up to 80-90% time saved) compared to manual processes. Automation also reduces errors in output compared to human errors. Accounting tasks, including payroll, taxes, treasury, and audits, are now being automated with the help of AI, disrupting the traditional accounting industry and transforming the way business is done.

Benefits of AI and RPA in Accounting and Finance Functions:

1. AI offers new opportunities while minimizing outdated, time-consuming tasks, thus presenting new avenues for business development.
2. AI enhances the quality of output and productivity, providing better auditability and transparency.
3. AI helps in estimating and budgeting truthful financial statements. Machine learning enables accounting and finance professionals to forecast future developments based on historical data.

Examples of Application of AI and RPA in Accounting and Finance Functions: A) AI facilitates auditing and compliance with corporate, provincial, and regulatory bodies by checking related documents and highlighting applicable alerts. B) Machine learning algorithms scrutinize huge amounts of data, identifying potential fraud issues and raising flags for evaluation to prevent revenue loss. C) AI facilitates the handling and automation of authorization for relevant documents, improving internal accounting processes such as procurement, purchasing, invoicing, and accounts payable and receivables. D) AI handles documents in real-time using computer visualization and natural language processing, producing real-time reports and providing valuable insights for proactive actions.

How AI & RPA Influence Finance and Accounting Functions: Organizations that adopt AI and RPA gain a competitive advantage, as these technologies can influence all facets of accounting. They enhance operational efficiency, decrease costs, and result in significant ROI. Practical examples include:

1. Procurement Management: AI-enabled Supply Chain Management Systems process shapeless data, mitigate compliance risks, and improve governance.
2. Payables/Receivables Management: AI-based invoice processing systems increase the volume and speed of operations while ensuring error-free processing, thereby improving vendor relationships.
3. Better Supplier Interaction/Evaluation: AI-enabled systems increase customer reach and revenue while assessing suppliers with minimal human intervention.
4. Expenses Monitoring: Automation of expense-related processes eliminates complex documentation, reduces susceptibility to fraud, and improves data security.
5. Auditability of Documentation: Big Data analytics and RPA track routine transactions, predict risks, and facilitate the audit and assessment of complicated transactions.
6. Reconciling Monthly and Quarterly Cash Flows: AI-enabled systems reconcile financial activities rapidly, understand historical cash flows, and forecast future requirements while protecting financial processes.
7. AI-Enabled Chatbots Facilitation: AI-powered chatbots efficiently handle customer queries related to account balance, financial statements, and account status, enhancing customer relationships and delivering support.

Practical Applications of AI & RPA in Accounting and Finance Functions:

(Courtesy: https://www.entrepreneur.com/science-technology/how-ai-is-transforming-the-accounting-industry/452837) a. For Data Entry: Optical character recognition (OCR) technology enables AI algorithms to extract relevant information from invoices, receipts, and other financial documents, eliminating manual input. b. For Real-Time Data Processing: AI-powered bookkeeping systems integrate with various data sources, allowing real-time processing and analysis of financial data. c. Intelligent Financial Systems: AI algorithms analyze large volumes of financial data, identifying trends and irregularities, and delivering valuable insights to increase competitive advantage. d. Scalability & Cost Effectiveness: AI and RPA enable organizations to handle large amounts of data without sacrificing accuracy or efficiency, resulting in cost reduction and improved operational efficiency.

Conclusion:

Adopting AI and RPA automation tools into the Accounting and Finance Function, as well as throughout an organization, may present challenges. However, these challenges can be overcome by applying updated advancements in AI and RPA. Organizations that adopt AI and RPA early compared to their competitors gain a first-mover advantage and increase their competitive advantage, thereby increasing the value of their organizations over their competitors.

Mr. Shakil Khawaja is a Cost and Management Accountant and an Associate Member of ICMAP, He is currently working as Manager Finance at the Sui Southern Gas Company Ltd (SSGCL). He has an overall 19 years of experience in Accounting and Finance in the Industrial/Engineering and Utility sectors.

Machines – Computers & Automation

Mr. Safdar Ali, FCA

Historical Background:

Machines and wheels have an unknown history in time. The identity of the inventor of the first wheel and the creation of the first machine by humans remain unanswered questions. However, computers played a significant role in advancing machine technology. Charles Babbage, who conceptualized the computer in the 1800s, referred to it as the "Difference Machine." Therefore, a computer is also considered a machine by definition. In 1950, the "Turing Test" was introduced as an idea for computers to mimic human behavior. If a third person, unaware of the respondents, cannot distinguish between a computer and a human, it would indicate that computers can act like humans. However, the Turing Test has a flaw: not all humans are intelligent, whereas the simulated humans created by Chat GPT are exceptionally smart in specific fields. In reality, it would take billions of years for computer technologies to compete with the abilities of humans.

The Turing Test was not an Artificial Intelligence-based test but rather a mimicry of human behavior by machines (computers). Initially, computers were slow and had limited storage and processing capabilities. The invention of Integrated Circuits (ICs) revolutionized computer hardware. The introduction of Windows and advancements in telecommunication and mobile technologies, particularly their commercialization to the general public, further fueled progress in AI, eventually leading to Chat GPT. Chat GPT represents an advanced form of AI. Prior to the widespread adoption of mobile technologies by the middle class and low-income groups, computer technologies were not as prevalent. The global commercialization of mobile and communication technologies, possibly driven by globalization

> **"However, computers played a significant role in advancing machine technology. Charles Babbage, who conceptualized the computer in the 1800s, referred to it as the "Difference Machine".**

and the influence of powerful entities, contributed to their accessibility.

Artificial Intelligence: Artificial Intelligence (AI) involves simulating human intelligence. AI has now become a marketplace, with more significant adoption in sectors heavily reliant on computers and telecom technologies. Marketing companies and businesses that embrace concepts like paperless offices and trading can benefit greatly from AI techniques. Amazon serves as a prime example and is the largest player in the AI marketplace. Those with expertise in this field, like Mr. Shahid Anwar (Ghareebo) from Pakistan's Swat region, who became a billionaire through involvement in this paperless AI field and leveraging platforms like Amazon, can accumulate significant wealth. Many others in Pakistan may also profit through the freelancing marketplace, either on Amazon or other platforms.

Social media platforms are another sector that utilizes AI. These platforms often collaborate with marketing companies or organizational marketing departments to capitalize on user trends and preferences. Some countries have data privacy laws, but when international boundaries are involved, the country of origin of a social media platform may require the cooperation of other nations to enforce its own laws. Restricting social media platforms is not always a viable option, as it can attract negative media attention and criticism. Instead, countries should develop their own teams to monitor the behavior of social media platforms and users, with funding potentially derived from taxes imposed on these platforms for operating within their jurisdictions.

CHAT GPT: Chat GPT represents an advanced form of AI where the language module is an integral part. In Pakistan, Chat GPT provides human-like answers to questions. However, regardless of its efficiency or intelligence, Chat GPT can only provide human-like answers and has not yet passed the "Turing Test." In Pakistan, Snap Chat utilizes Chat GPT in its user surveys. The author of this article was approached by an AI automated software as part of a global outreach effort. The following question was posed to the Snap Chat chat assistant: Snap Chat User: "You, Artificial Intelligence and Chat GPT, have rendered humans redundant, making social life miserable for us. Can you please leave this earth so that we humans can live socially and peacefully here?" The automated answer, after a delay, was: "No, we are here to help you." (Accompanied by sorry emojis) For subsequent questions, the chat software responded in a timely manner, providing standard solutions as expected from a computer. However, the delayed response to the initial question created a sense of conflict between machines and humans.

Effect of AI and Chat GPT on the Job Market: In countries where laws are strictly enforced and people abide by them, AI will likely replace a significant number of jobs. In well-organized and centralized systems, AI can be fully utilized for automation. For example, in countries with comprehensive online road systems where administrative approval is required before creating new routes, AI could replace drivers for both short and long routes. In developed countries, professions such as truckers, which are highly paid, could be drastically affected by AI-based driving systems. This may prompt truckers to consider acquiring new skills, as well as challenging the Heavy Transport Vehicle (HTV) AI-based driving system.

White-collar jobs will also be impacted by AI technologies. Depending on the business setup, use of technology, automation, and business size, the following jobs are expected to be nearly 100% affected by AI:

i. Accountants
ii. Legal Assistants
iii. Admin Assistants
iv. Reporting and Journalism

By default, and under the law, all work done by an employee for an employer is already stored by the organization. Some large hospitals in Pakistan even utilize speech recognition technology to record doctors' diagnoses and proposed treatments based on clinical examinations and tests. In the future, such data can be used by hospitals to provide automated treatment to patients who are distant or unable to visit the hospital. Doctors have already received their share of fees from the customers, and under the law, hospitals have the right to maintain patient records in physical or digital formats. However, legislation in Pakistan is needed to prevent large hospitals from profiting further from the experiences of seasoned doctors. The same applies to all other organizations.

The Catastrophe: As AI and Chat GPT continue to advance and automate skills that are no longer needed, individuals in affected professions will likely leave those fields. Managers will still be necessary to oversee these systems. However, for every rise, there is a fall. The world has already reached its peak in various technologies, including AI and Chat GPT. If these advanced systems were to fail, there would be nobody left to maintain or understand them. In such a scenario, humanity would need to start afresh and learn in all the areas most affected by AI and Chat GPT.

Mr. Safdar Ali is a Chartered Accountant and working as a Chief Financial Officer (CFO) at Water & Sanitation Services Company Bannu (A Public Sector Company).

An open letter to CA Trainee Students

Mr. Inamul Haque, FCA

Dear Trainee Students,
I would like to share my thoughts with you that may be helpful in your pursuit of CA Qualification. As we all know, CA qualification consists of two aspects: exams and practical training in a training organization. To become a CA, you need to pass all exams and complete practical training. Both aspects hold their own importance.

During my 17 years of experience in managerial positions at Deloitte Yousuf Adil and RSM Avais Hyder Liaquat Nauman, I have supervised many CA trainee students who successfully completed their training. Some of them have become qualified chartered accountants, while others are still unqualified even after many years.

In the panel discussion at the first Training Organization inside Practice Convention 2023 held on May 12, 2023, at ICAP, Lahore, I shared my experiences and views on different aspects related to exams and training. I have both the perspective of CA trainee students and the perspective of training organizations, as I have been in the profession since completing my articles in October 2005. Based on my personal experience during my study days and post-qualification experience as an MRT, I am sharing my thoughts with you.

Here are some key points to consider:

The students pursuing their CAF exams should focus on learning the concepts and underlying knowledge, rather than just aiming to pass the papers. The acquired knowledge will be valuable in the future.

CA trainee students should dedicate at least 2 hours daily to their studies from the day they join CA firms. Consistency plays a significant role in their success, as emphasized by three students who qualified as CAs with gold medals in their video message at the convention.

Leaves during articles should not be solely used for preparing from scratch. Trainee students should cover the syllabus of the papers they intend to take before the exam leaves. Leaves should be utilized for revision and practice.

During leaves, maximize your study time. Consider meal breaks, prayer time, and sleep as study breaks. Prioritize spending the majority of your time on studies during leave days. This approach helps reduce burden, keep you relaxed, and maintain good mental health.

Remember, the few hours on exam days are crucial for your results. Stay relaxed and mentally fit on the day. This was my personal approach during my study days.

To maintain interest and focus, it can be helpful to rotate subjects instead of studying one subject for too long. Incorporate a few favorite subjects in between others.

Many CA trainee students have a misconception that training is only needed for CA qualification and consider it fatiguing. However, they fail to realize that the work they do during training is relevant to their studies. Over the years, I have observed that trainee students who take their training seriously tend to perform better in their exams.

Training is essential not only for exam preparation but also for your future career. Its importance should never be underestimated. It is not only the best period to qualify for exams but also an opportunity to showcase your talent, apply the knowledge acquired, increase/update your knowledge, and develop valuable management and soft skills. These skills will benefit you throughout your life.

Your practical training should provide at least three takeaways: a knowledge bank (including knowledge of IFRSs, IASs, accounting and internal control systems, processes, SOPs, laws, and regulations), a solution-oriented professional working approach and style, and a skill set that is widely accepted and desired in the market.

The percentage of students who qualify after completing their articles is not very healthy. Many students with only a few papers passed during their articles stop attempting further exams due to their busy schedules. As a result, they are unable to write ACA or FCA after their names. Learn a lesson from such examples.

Remember that you have access to qualified chartered accountants, such as managers, directors, partners, and senior partners in your firms, who can provide guidance and support when needed.

The CA trainee students who qualify during their articles and those who achieve distinctions are among you. The only difference is their level of seriousness, consistency, and focus.

Timely qualification is not only in your interest but also in the interest of MRTs and firms. It enhances the reputation of both the firms and the MRTs. MRTs feel proud of all the students who qualify, especially within their articles.

Lastly, remember that this is an extraordinary profession that requires extraordinary effort. If you lack the aptitude to accept the challenge and put in extraordinary effort, you should reconsider your choice of profession and make adjustments. The sooner you make adjustments, the better it will be.

Looking forward to see very good results in the exams to come.
Best of luck for your preparation, exams and results.

Mr. Inam ul Haque is a Fellow Member of the Institute of Chartered Accountants of Pakistan. He joined RSM AHLN as a Partner in January 2013 after working as Senior Manager in Deloitte Yousuf Adil from December 2005 till December 2012.

Selecting an ERP system for Business: Build or Buy

Mr. Irfan Abdur Rehman

Introduction of ERP

Enterprise Resource Planning (ERP) programs are core software used by companies to co-ordinate information from all distinct domains of the business. In simple terms, it is a way of doing everyday business tasks in a more efficient manner. ERP can be termed as an Integrated System + Planning. If we remove the planning part from an ERP, it will simply become an Integrated System. ERP, (pronounced E-R-P), program helps to manage company wise business procedures and operations, using a common database and shared management reporting tools. A business process is a collection of activities that takes one or more kinds of input and creates an output. This concept is illustrated in Figure 1-1.

Input	Functional are a responsible for input	Process	Output
Request to purchase computer	Marketing and Sales	Sales order	Order is generated
Financial help for purchase	Accounting and Finance	Arranging financing in-house	Customer finances through the computer company
Technical support	Marketing and Sales	24-hour help line available	Customer's technical query is resolved
Fulfillment of order	Supply Chain Management	Shipping and delivery	Customer receives computer

ERP software supports the efficient operation of business processes by integrating business tasks related to finance, supply chain, human resource and customer relations.

The use of enterprise resource planning systems is present in all types of business organizations, from retailers, manufacturers, and service providers to even the small stores that we commonly see in our localities; its everywhere. It is an exceptional way to organize diverse departments and job roles into a single integrated system, with information easily available and verifiable. As a business grows, the use of enterprise resource planning systems becomes a significant necessity. The use of an organized system allowing departments and functions to coordinate real-time is a critical backbone of any company. Processes starting from sales, to order, to invoice, to receipt of payment all are often streamlined with the use of such systems. Increasing efficiency, decreasing potential for human error, and providing accurate and timely information are all benefits of having enterprise resource planning systems in place.

Selection of ERP system

After understanding the importance of ERP question arises which type of ERP is suitable, this is one of the most important decisions you'll make is whether to build or buy the software.

As a business owner, choosing an ERP system can be a daunting task. With the abundance of options available in the market, it's easy to feel overwhelmed and unsure of which one to choose. One option that may catch your eye is BUY an off the shelf ERP system, but before you make a decision, it's important to understand how BUILD ERP can make a difference.

Off the shelf ERP systems are pre-packaged software solutions that are designed to cater to the needs of a wide range of businesses. They come with standard features and functionalities that are meant to be a one-size-fits-all solution. However, this approach may not always be the best fit for your business, especially if you have unique requirements that the off the shelf ERP system cannot meet.

Each approach has its pros and cons, and it's important to consider them carefully before making a decision.
Build: Pros and Cons

Building an ERP system from scratch can offer several advantages. For one, it allows you to tailor the software to your specific business needs. You have complete control over the design and functionality of the system, and can ensure that it integrates seamlessly with your existing business processes.

However, building an ERP system can be time-consuming and expensive. You'll need to hire a team of system architects, developers, database administrators, with the skills and expertise to create a complex software system from the ground up. This can take months or even years, and requires a significant investment in time and resources.

Additionally, building an ERP system comes with the risk of delays and potential setbacks. If the development team encounters unexpected challenges or obstacles, the project timeline can be extended, leading to increased costs and frustration.

Buy: Pros and Cons

Alternatively, you can purchase an ERP system from a vendor. This can offer several advantages, including:

Cost savings: Purchasing a pre-built ERP system can be less expensive than building one from scratch. You'll pay for licensing and implementation, but this is often less expensive than the cost of hiring a team of technical persons.

Faster implementation: Since the software is already built, you can implement an ERP system much faster than building one from scratch. This means you can start seeing benefits sooner.

Lower risk: By purchasing an ERP system, you're relying on a vendor with a proven track record. You don't have to worry about unexpected delays or setbacks, as the software has already been developed and tested.

However, purchasing an ERP system also comes with some potential drawbacks. For one, you may need to compromise on certain features or functionality, as the software may not be customized specifically to your business needs. Additionally, you'll be reliant on the vendor for ongoing support and updates. Following is the Gartner magic quadrant for cloud ERP

Conclusion

In conclusion, while BUY ERP systems may seem like a convenient solution, they may not always be the best fit for your business. BUILD ERP can make a significant difference in your ERP system by tailoring it to your specific business needs, increasing efficiency, improving reporting, better integrating with other systems, and giving you a competitive advantage.

Ultimately, the decision to build or buy an ERP system depends on your business's specific needs and resources
If you're considering an ERP system for your business, we recommend exploring the benefits of customization and consulting with an experienced ERP provider to determine the best solution for your needs.

The writer is working as Deputy Manager IT at ICAP.

The Institute of Chartered Accountants of Pakistan
CA PAKISTAN

Foreign Aid is a curse in the long run

Mr. Zahid Farooq, FCA, FCMA LLB

There are many advantages and disadvantages of foreign aid, but in my view, the disadvantages are more dangerous and detrimental to the economy of any country, especially developing countries like Pakistan. Developing countries should always search for alternatives or substitutes against foreign aid. Before going into a detailed discussion, let us first understand what is meant by foreign aid.

WHAT IS FOREIGN AID?

- A monetary fund that is transacted from one source to another in the form of a loan, Grant or a Gift.
- Money transferred through countries by religious organizations, or NGOs such as Red Cross.
- Voluntary transfer of resources from one country to another country. This transfer includes any flow of capital to developing countries.

Types of Foreign Aid

Foreign aid can be broadly classified as follows:

- BILATERAL AID
- MULTILATERAL AID
- TIED AID
- PROJECT AID
- MILITARY AID
- VOLUNTARY AID

In a larger scale, it holds true that:

There are rich and highly developed nations, and then there are poor and less developed nations

This is also true that:

ADVANTAGES OF FOREIGN AID

- Foreign aid can be used for the following objectives:
- To save lives during calamities and disasters.
- To rebuild lives by providing livelihoods and housing right after a disaster.
- To provide medicines and healthcare products.
- To help farmers increase their production with high quality.
- For industrial development project support.
- To maximize the rich natural resources of a country.
- To promote sanitation by providing clean water and sanitation facilities.

DISADVANTAGES OF FOREIGN AID

- The dependence on donor countries in specific areas of donations can significantly increase for developing countries, allowing the donor country to impose its own terms and conditions for the aid received.
- There is a risk of corruption as the aid may not reach the intended recipients or the appropriate channels, leading to instances of corruption within the country.
- Donor countries may exert economic and political pressure on the receiving country, compelling them to reciprocate the favor in return for the aid provided.
- Hidden agendas of donors can create trouble for the receiving countries, as the assistance provided may serve the interests of the donors rather than the recipients.
- Receiving countries may be compelled to purchase more expensive commodities from the donor country, impacting their own economic sustainability.
- Foreign aid can be easily wasted, particularly when it is unwanted or invested in areas that generate economic instability, leading to a cycle of dependence on aid.
- The absence of a proper system of accountability or follow-up on aid utilization increases the probability that foreign aid may not deliver the intended benefits.
- Foreign aid can result in special interests of donors getting involved with the governance of the receiving country, exerting increased political pressure or seeking economic benefits, which can create complications for the recipient.
- Tied to specific regions, regimes, or structures, foreign aid may encourage conflicts within the receiving country.
- Donor limitations on foreign aid can disrupt market pricing in the recipient's economy, negatively affecting the competitiveness of local producers and resulting in lower quality of life and artificial competition in the marketplace.
- Often, foreign aid is under-utilized or diverted by corrupt officials, preventing it from reaching those who truly need it.
- Foreign aid can lead to donors exerting influence over the governing of the recipient country, potentially leading to political turmoil, revolutions, or civil unrest.
- By tying foreign aid to the stability of the government, there is a risk of perpetuating conflicts and creating a cycle of dependency on aid.
- Foreign aid generally does not consistently contribute to investment and growth within the recipient economy, potentially lowering levels of saving and investment as reliance on aid replaces the need for independent income generation.
- Conditions attached to foreign aid can eliminate free market price controls, reducing competition and hindering sustainable growth.
- Foreign aid can impact global trade, potentially functioning as a subsidy for the donor country's domestic organizations by requiring the recipient country to purchase goods from them. This can establish relationships that benefit the donor more than the recipient.
- Foreign aid may be utilized to gain future influence, even if not explicitly stated in the agreement, with the donor government or international organization expecting favors in return for the aid provided.
- While foreign aid can initially help with development projects and basic needs, once the situation stabilizes, it can result in increased costs for local supplies, burdening the population.

In conclusion, foreign aid is not advisable in the long run, and countries should explore alternative solutions. The advantages and disadvantages outlined highlight the potential for strife and conflict, particularly when the *distribution of aid lacks proper supervision. Ensuring accountability throughout the process is essential to maximize the potential benefits of foreign aid.*

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The Institute of Chartered Accountants of Pakistan
CA PAKISTAN

ASEAN Chapter of ICAP

Mr. Humayun Habib and Ms. Tahmeen Ahmad

ASEAN is a vibrant, multicultural economic powerhouse in Asia with significant growth potential. How can ICAP become a driving force in tapping this market for Pakistan, and what business and economic opportunities can be unlocked through Pakistan-ASEAN engagement?

What leaders are saying:

“I'm glad that the ASEAN Chapter of ICAP is contributing tremendously. In 2020, when I was Chair of OCC, on my proposition, the council approved the ASEAN Chapter, and I'm glad to convey that it took legal birth when I was President of ICAP. Well done, Team ASEAN, especially Humayun, for fabulous work.”

Mr. Ashfaq Yousuf Tola, FCA - Minister of State & Chairman, The Reforms & Revenue Mobilization Commission

"The establishment of the ASEAN chapter of ICAP is a welcome step. It will pave the way for establishing institutional linkages and sustained cooperation between ICAP and ASEAN CPA. The next step should be to initiate discussions for mutual recognition of ICAP and professional accounting bodies of ASEAN member countries. As Ambassador of Pakistan to ASEAN, I pledge my full support to this initiative." Mr. Muhammad Hassan - Ambassador of Pakistan to Indonesia, Timor Leste, and ASEAN

“The establishment of the ASEAN Chapter of ICAP is a remarkable achievement that will promote collaboration between ICAP and accounting bodies in ASEAN. I extend my appreciation to all those who have worked tirelessly to bring this to fruition.

ASEAN is a vibrant, multicultural economic powerhouse in Asia with significant growth potential. How can ICAP become a driving force in tapping this market for Pakistan, and what business and economic opportunities can be unlocked through Pakistan-ASEAN engagement?

"I strongly support exploring mutual recognition between ICAP and accounting bodies in ASEAN member countries, as this creates opportunities for Pakistani professionals. I am excited to work with my colleagues to achieve our shared goals."
Mr. Saifullah, FCA - Council Member and Chairperson Overseas Chapters/Coordination Committee of ICAP Members

Highlights:

- The Association of Southeast Asian Nations, or ASEAN, was established on 8 August 1967 in Bangkok, Thailand, with the signing of the ASEAN Declaration by the Founding Fathers of ASEAN: Indonesia, Malaysia, Philippines, Singapore, and Thailand. Brunei Darussalam joined ASEAN in 1984, followed by Viet Nam in 1995, Lao PDR and Myanmar in 1997, and Cambodia in 1999, making up the ten Member States of ASEAN today.
- ASEAN's population is over 600 million people, and its GDP is estimated to be over USD 3 trillion by 2021.
- ASEAN's total merchandise trade reached USD 3.3 trillion in 2021, with 21.3% within the region, while services trade reached USD 743 billion, with intra-ASEAN comprising 11.7%.
- The Institute of Chartered Accountants of Pakistan (ICAP) leads with the initiative to register the ASEAN Chapter of ICAP Members (ACIM) for institutional engagement with peer professional bodies and a platform for ICAP members and students in ASEAN.
- A government-backed, institutional ASEAN action plan can ensure market access for Pakistan, potentially cutting tariffs, opening its services markets, liberalizing visa conditions for business travelers, and more.

Pakistan is the fifth-largest young country in the world, currently having the largest generation of young people in its history, with about two-thirds of the total population under 30 years of age, according to the UNDP's second National Human Development Report 2017. Pakistan offers a sizable talent pool to ASEAN across industries.

About ASEAN:

The ASEAN Charter calls for ASEAN to develop friendly relations and mutually beneficial dialogue cooperation and partnerships with countries and sub-regional, regional, and international organizations and institutions. ASEAN External Relations sets out the framework for ASEAN to widen and deepen its relations with external parties through the conferment of the formal status of Dialogue Partner (DPs), Sectoral Dialogue Partner (SDPs), and Development Partner. The aims and purposes of ASEAN are:

1. Accelerate economic growth, social progress, and cultural development in the region through joint endeavors in the spirit of equality and partnership to strengthen the foundation for a prosperous and peaceful community of Southeast Asian Nations.
2. Promote regional peace and stability through abiding respect for justice and the rule of law in the relationship among countries of the region and adherence to the principles of the United Nations Charter.
3. Promote active collaboration and mutual assistance on matters of common interest in the economic, social, cultural, technical, scientific, and administrative fields.
4. Aid each other in the form of training and research facilities in the educational, professional, technical, and administrative spheres.
5. Collaborate more effectively to encourage further growth in the agriculture, industry, and trade sectors. This includes improving transportation and communications facilities and conducting studies on international commodity trade with the overarching goal of raising the living standards of ASEAN peoples.
6. Promote Southeast Asian studies.
7. Maintain close and beneficial cooperation with existing international and regional organizations with similar aims and purposes and explore all avenues for even closer cooperation among themselves.

Under the ASEAN Community Vision 2025, the ASEAN Political-Security Community Blueprint 2025 also highlights the importance of ASEAN deepening cooperation with Dialogue Partners, strengthening engagement with other external parties, reaching out to new potential partners for mutually beneficial relations, and responding collectively and constructively to global developments.

ASEAN Communities:

ASEAN continues to be the primary driving force in fostering regional collaboration and maintaining its central role in regional cooperation mechanisms. The leaders envision ASEAN as a peaceful, stable, and resilient region within a global community of nations while still maintaining ASEAN centrality. The ASEAN Community is envisioned as a community with enhanced capacity and capabilities to both respond effectively to challenges and seize opportunities.

1. **ASEAN Economic Community (AEC):** With a market

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size of over USD 2.3 trillion and a population of 600 million, the AEC aims to achieve a single integrated market through regional economic integration. It represents the realization of ASEAN's ultimate goal of economic integration, envisioning a single market and product base, a highly competitive region, equitable economic development, and full integration into the global economy. The AEC Blueprint 2025 aims to deepen economic integration and establish a more integrated economic community with the following characteristics:

a) A Highly Integrated and Cohesive Economy
b) A Competitive, Innovative, and Dynamic ASEAN
c) Enhanced Connectivity and Sectoral Cooperation
d) A Resilient, Inclusive, People-Oriented, and People-Centered ASEAN
e) A Global ASEAN

2. **ASEAN Socio-Cultural Community:** The ASEAN Socio-Cultural Community focuses on realizing the full potential of ASEAN citizens. The ASCC Blueprint 2025 was adopted by ASEAN leaders at the 27th ASEAN Summit on November 22, 2015, in Kuala Lumpur, Malaysia.

3. **ASEAN Political-Security Community:** The APSC aims to ensure that countries in the region live in peace with one another and the world, within a just, democratic, and harmonious environment.

4. **Sectoral Dialogue Partnerships with Pakistan:** Pakistan was granted the sectoral dialogue status with ASEAN at the 26th ASEAN Ministerial Meeting on July 23, 1993. The initial dialogue covered cooperation in trade, industry, investment, environment, science and technology, drugs and narcotics, tourism, and human resources development. The ASEAN-Pakistan Sectoral Dialogue Relations were institutionalized through the convening of the First Meeting of the ASEAN-Pakistan Joint Sectoral Cooperation Committee (APJSCC) in February 1999. In trade, ASEAN and Pakistan conducted a Joint Feasibility Study for an ASEAN-Pakistan Free Trade Agreement (FTA) to enhance and expand overall economic engagement. The study involved researchers from both sides: The Pakistan Institute of Development Economics (PIDE) and the Malaysian Institute of Economic Research (MIER).

5. **ASEAN Committee in Third Countries (ACTC):** ACTC has been established to coordinate and facilitate ASEAN matters in their respective host countries.

6. **ASEAN Committee in Islamabad (ACI):** The role of the ACI is to promote ASEAN and cooperation between ASEAN and host country organizations more effectively. Government-level and consistent institutional engagement are expected to help establish modern trade rules between ASEAN member countries and Pakistan. The Chairman of ASEAN Committee Islamabad (ACI), Ambassador Nguyen Tien Phong, shared in a press briefing in 2022 that Pakistan's trade with ASEAN reached approximately USD 11 billion in the fiscal year 2022. ACI Chairperson emphasized the need to promote and strengthen trade, economic, and investment relations between ASEAN and Pakistan through various means, including raising awareness, encouraging people-to-people contacts, and fostering expert-to-expert collaborations. Stability, consistency, and continuity in economic policies and implementation are crucial for economic integration between Pakistan and ASEAN.

The acting High Commissioner of Malaysia in Pakistan, Mr. Deddy Faisal, urged Malaysian and Pakistani businesses, chambers, and associations to have more frequent interactions and leverage Malaysia as a gateway to ASEAN for Pakistani exports.

ICAP's Presence in ASEAN:

Background: The ICAP Council, in its 330th meeting held on June 26-27, 2020, approved the proposals for forming the Southeast Asia – Coordination Committee of ICAP Members (SEA-CCIM). The purpose was to help the ICAP establish Overseas Chapters of ICAP Members in the ASEAN region. After three years of hard work and multiple initiatives of professional engagement by the four-member SEA-CCIM team, the goal of registering the "ASEAN Chapter of ICAP Members" (ACIM) was achieved in December 2022. This accomplishment was made possible through incredible support from Pakistan's diplomatic missions in Malaysia, Singapore, and Indonesia for necessary regulatory approvals, as well as final approval from the ASEAN Secretariat in Jakarta to use the moniker 'ASEAN.' The office of Dato' Sri Mohamed Nazir Meraslam, Chairman of Malaysia Pakistan Business Council, and his executive committee provided consistent support to showcase the brand CA Pakistan.

The purpose of ACIM is to create a platform to engage with ICAP members and professional bodies in ASEAN, enhancing collaborations for professional development and

well with ASEAN objectives and the Government of Pakistan's ASEAN Action Plan. We believe this platform will be a perfect enabler to accelerate economic growth within and with the ASEAN Economic Community.

The members of the ACIM managing committee have proactively driven various initiatives to promote the 'CA Pakistan' brand in the ASEAN region. They have undertaken more than 20 initiatives since 2020, including the preparation of a roadmap for the ICAP overseas coordination committee and ICAP leadership.

The benefits and goals of ACIM for its members in ASEAN include professional recognition and institutional collaboration opportunities, enhanced employability for members, business opportunities for accounting firms in the export of Business Process Outsourcing (BPO) services and job creation, the opportunity to play an active role in promoting Pakistan's business and investment opportunities in ASEAN countries, establishing Pakistan as a supply point for accounting technicians to meet the global needs of finance professionals.

Opportunities for businesses:

The government-backed ASEAN action plan can ensure market access that potentially reduces tariffs, opens services markets, and liberalizes visa conditions for business travelers, among other benefits. A stable Pakistan with a consistent policy framework would provide access for ASEAN member countries to South Asia's landlocked regional markets, which have a population of nearly 150 million people in Central Asian states and Afghanistan.

ASEAN is a mix of high-growth dynamic markets (such as Vietnam and Malaysia) and advanced economies with high GDP per capita (such as Singapore). These countries play vital roles in global supply chains. The agreement with ASEAN is conducive to the expansion of free trade and investment, strengthening the partnership's influence and reach, accelerating economic and trade integration, and boosting regional cooperation.

Export Growth: The rule of origin criteria would make it easier for Pakistani exporters to qualify for lower tariffs and drive the export of intermediate goods from Pakistan.

Digital and services trade: Pakistan's services sectors, particularly accounting firms, law firms, financial institutions, and consultancies, would benefit from partnering in the ASEAN region by opening new markets. ASEAN could also lower costs through digital trade and modern rules on data for Pakistan's tech sector. On financial services, it can provide market access and non-discrimination provisions, as well as a means for dispute settlement. On data, it would enable the free flow of business-related data between jurisdictions.

Access to high-growth economies: Pakistan's exports to ASEAN markets have scope for growth. Pakistani exporters can position themselves as alternate suppliers, improving their market access and quality standards to serve these markets.

Fair business practices: ASEAN members share a commitment to strengthen international consensus against unfair trade practices and maintain high standards in the areas of environment, labor, and intellectual property. This creates a level playing field with enforceable rules.

Ecosystem and global supply chains: Companies increasingly look beyond their own organizational boundaries to ensure that their entire supply chain is set up for growth. The ASEAN Chapter of ICAP Members (ACIM) and the Malaysia Pakistan Business Council (MPBC) are well-placed to help organizations expand internationally. These organizations are developing a strong network in the regions to act as gateways, benefiting the entire business community, professionals, and supporting long-term growth.

Pakistan's geographic location, with a 2,600 km long border with Afghanistan, a 900 km border with Iran, and a 600 km long border with China, provides a strategic opportunity for ASEAN countries to optimize trade, investment, and tourism flows through alternate and cost- and time-efficient supply chain routes via Pakistani ports and land routes into the South and Central Asia region, which has a market of nearly 500 million people. It is a win-win option to optimize Pakistan-ASEAN economic growth opportunities.

Opportunities for collaboration on energy transition and climate change initiatives:

Indonesia is making significant efforts toward its net-zero goals and a just energy transition from coal to clean energy. The ASEAN region, with support from development partners such as the Asian Development Bank, is also making efforts to decarbonize the energy sector. Pakistan, with a fossil fuel-intensive energy sector, can collaborate with ASEAN countries in this regard.

Opportunities for employment and professional advancement:

Building a strong network in ASEAN can create multiple channels for bright Pakistani professionals in terms of diverse careers, internships, skills development, and rotational programs.

Opportunities for knowledge collaboration:

Access to contribute to and learn from ASEAN think tanks, such as global and regional workshops and seminars on knowledge sharing events. Diverse platforms can allow cross-pollination of ideas on best practices in accounting, reporting, business, finance, and other fields.

Mr. Humayun Habib and Ms. Tahmeen Ahmad are members of the Institute of Chartered Accountants of Pakistan.

Humayun is based in Kuala Lumpur, Malaysia and he works at Cargill. Humayun is co-founder and Chairperson of ASEAN Chapter of ICAP Members (ACIM); he also serves on the executive committee of Malaysia Pakistan Business Council.

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