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FUTURE OF WORK – ARTIFICIAL INTELLIGENCE AND ITS APPLICATION IN ACCOUNTS AND TAXATION

The emergence of digital technologies and Artificial Intelligence (AI) is progressing at an ever-increasing fast rate and is transforming a wide variety of industries. We are experiencing rapid technological changes that are affecting all areas of work and life –and its impact spills over to ancillary areas such as Finance and Tax with increasing use of emerging technologies such as Artificial Intelligence (AI) and Machine Learning (ML), blockchain, Big Data Analytics, Internet of things (IoT) and 3D printing etc. These technologies are used to drive innovation, develop new business models, products, and enhance the dataand analysis needed to enable insightful decision making and overall change the way we do things.

What distinguishes AI from other emerging technologies?

AI is the ability of a machine to perceive its environment and perform tasks that normally require human intelligence, that isthe ability to sense, think, and act in ways that can match or outperform human capability.

SENSE

AI can

- **See**–Face Recognition in current mobile Phones, Google Lens, QR Code Scanners etc

- **Hear** – Voice Recognition, Alexa, SIRI, Google Assistant

- **Speak**–Replies from Google Maps, Alexa, SIRI etc, Natural Language Processing

- **Smell** - As recently as 2020, a new AI algorithm has been invented which can detect atleast 10 different smells and is planned to be used in robots that can smell chemical weapons, manufacturing of chemicals which is hazardous to human health

- **Feel**–Fingerprint Recognition

- **Understand gestures**–Mobiles screen on when picked up, shaken etc, Virtual Reality Games being played on Gaming stations etc. The BMW 7 Series has a built-in Hand Gesture Recognition system that recognizes five gestures and can control music and incoming calls, among other things.

- **Interface with your brain and Body** – Wearable Technology

THINK

AI can help make better decisions –and does it faster, better, more cheaply, and more accurately.

Knowledge and representation– Knowledge representation (KR) is the part of Artificial intelligence that is concerned with AI objects to enable thinking and how thinking contributes to intelligent behaviourmachines.It is responsible for representing information about the real world in a way that a computer can understand and utilize it to solve complex real-life problems such as diagnosis of a medical condition based on symptoms provided or collected via Machine Vision or sensors or communicating with humans in natural

language.Knowledge representation in AI is not just about storing data into some database, but it is also about enabling an intelligent machine to learn from that knowledge and experiences so that it can behave intelligently like a human.

The different kind of knowledge that needs to be represented in AI is

- **Object:** All the facts about objects in our world domain. E.g., Ball is round, Water is wet etc

- **Events:** Events are the actions that occur in our world.E.g. It is raining, running a marathon etc

- **Performance:** It describesbehaviourthat involves knowledge about how to do things.

- **Meta-knowledge:** It is knowledge about what we know.

- **Facts:** Facts are the truths about the real world and what we represent.

- **Knowledge-Base:** A knowledge base is a published collection of documentation that typically includes answers to frequently asked questions, how-to guides, and troubleshooting instructions. Its purpose is to make it easy for machines to find solutions to problems based on case-based reasoning.

Planning and reasoning - Planning is a critical part of Artificial Intelligence that deals with the actions and domains of a particular problem. Planning,which is considered as the reasoning side of acting, involves the representation of actions and world models, reasoning about the effects of actions, and techniques for efficiently searching the space of possible plans that form part of the knowledge base. So basically it is all about deciding the actions to be performed by the Artificial Intelligence system and the functioning of the system on its own in domain-independent situations.The planning system needs the domain description, action specification, and goal description. An executable plan is a sequence of actions and each action has its own set of preconditions to be satisfied before performing the action.

Machine learning - Machine learning is part of AI that enables systems to automatically learn and improve from experience without specific detailed programming. It focuses on the development of systems that can access data and auto-learn.The learning process begins with observations of data, such as instances, direct experience, or instructions, identifying patterns in data and make better decisions in the future based on the examples and inferences that are provided.

Some day-to-day examples of machine learning are:

1. **Virtual Personal Assistants** like SIRI, Google Assistant or Alexa: Machine learning is an important part of these personal assistants as they collect and refine the information based on your previous involvement with them. This set of data is then utilized to display results that are tailored to your preferences.Eg. If you have booked a flight and have received tickets on your Gmail account, it automatically sets up a reminder when your date of travel is near.

2. **Google Map Predictions**: When using GPS navigation services like Google Maps, we are shown the best possible route and approximate expected timing of arrival.How this works is that our current locations and speeds are being relayed to a central server for managing traffic. This data is used to build a map of the current traffic. This helps in preventing traffic and does congestion analysis based on thenumber of vehicles in the area using Google Maps. Machine learning in such scenarios helps to estimate the regions where congestion can be found based on daily experiences or the number of vehicles in the same area extrapolated with traffic servers.

3. **Estimation of Cab Fare and Surge Price** - When booking a cab, the app estimates the price of the ride and minimize the detours using machine learning. The Apps like UBER and OLA or even Delivery Apps like Zomato and Swiggy use ML to define price surge hours by predicting the rider demand.

4. **Social Media** - From personalizing your news feed to better ads targeting, social media platforms are utilizing machine learning for their own and user benefits. The magic factor that makes us addicted to our social media accounts without realizing that these wonderful features are nothing but the applications of ML. Features like: People you may know, Face Recognition, Suggested Posts etc are the result of continuous learning on part of Social Media's Machine learning algorithms. Overall backend process is complicated and takes care of the precision factor but on the front end, it looks to be a simple application of ML.

Deep learning–On a very basic level, Deep learning and Machine Learning are similar. They function similarly for a lay-person, however, the main technical difference is that deep learning goes deeper and mimics the workings of the human brain in processing data like recognizing speech including voice modulation, and speech patterns, accurately detecting objects – location, placement, shape size etc, translating languages, and making decisions based on data collected. Deep learning AI can learn without human supervision, drawing from both unstructured and unlabelled data. Deep learning is a subset of the machine learning functionality which is based on the concept of evolutionary algorithms. It mimics biological processes like evolution and takes longer to establish as it uses neural networks.

Simulation and digital twins - In the computing world, simulations refer to digital models that imitate the operations or processes within a system. Such simulations are used for analyzing the performances of systems and the testing and implementation of new ideas. Simulations are used by engineers and technicians across industries to test products, systems, processes, and concepts. Eg. Air Flight simulations, Space Simulations for testing of models of rockets etc.

A digital twin is a digital representation of a physical object, process or service. A digital twin can be a digital replica of an object in the physical world, such as a jet engine, or even larger items such as buildings or even whole cities. We have seen this type of technology shown in futuristic sci-fi movies. In reality, technology is usually used to replicate processes to collect data to predict how they will perform. A digital twin is, in essence, a computer program that uses real-world data to create simulations that can predict how a product or process will perform. This futuristic technology is a confluence of various other technologies like AI, ML, Internet of Things and Big Data Analytics.

ACT

AI is equaling or surpassing humans in all sorts of tasks -playing games, driving cars, and making recommendations and process Intelligent automation which is a result of the combination of AI, ML, and Robotic Process Automation (RPA) that is used to create smart business processes and workflows that think, learn, and adapt on their own.

Implications of AI in Accounts and Taxation

Globally, countries are leveraging the benefits of AI and robotics in many fields like healthcare services, transportation, defence, and national security. Back home, in India, Government is rapidly accepting the use of AI, which is opening up new opportunities for innovation in government services, like taxation. Tax is a major source of revenue for the government and it is always looking at ways to collect taxes from citizens in a shorter time and reducing the number of tax defaulters and increase the effectiveness and efficiency of tax collection.

The government is currently leveraging robotics and AI in taxation to prevent tax default and regulate taxpayers and identify defaulters who are paying less tax or not paying tax at all, by analyzing and monitoring

the financial data of citizen over various data points. AI makes possible facilities like automated tax filing (pre-filled utilities on the Income-tax website) and can also help educate taxpayers to comply with tax filing. There are many different areas of taxation where robotics and AI can be implemented.We as tax professionals have over the past few years seen government build up a technologically powerful solution within the Taxation system of India. In Income tax – E-Filing, Automated Initial processing of Returns filed, Instant defects finding in returns that are filed, Instant matching up of TDS records with Returns filed etc are examples of AI set up within Income tax. In GST, automated GSTR3B data based on GSTR1, E-way bills and Inputs from Central Excise systems, tracking of goods movement with E-way bills etc are examples of AI. We are now seeing linking of GST, Income Tax, Professional Tax, ROF and ROC databases and we receive inter-linked notices for matching and correlation of records. This, my dear professional friends, is an example of our government setting up an AI-based system that is keeping track and filing up all loopholes within the taxation system.

Leveraging AI for Accounts and Taxation

Much has been said about how AI can be used in business; however, what are the actual accounts and tax activities that AI can facilitate?

Sensing

Natural language processing: Understanding the meaning of the written text.

- Tax data extraction
  Audio and speech: Understanding the meaning of spoken words. The machines default language is Binary ie. 0 and 1. So understanding natural language, though seems normal, is a huge leap.

- Voice to text translation
  Machine vision: Recognizing the patterns,features and phrases in scanned documents. This capabilitycan be used to digitize materials including taxforms, notes, and contracts.

- Scanned tax form data extraction

Thinking

Machine learning: Applying ML and deep learning methods to automatically identify patterns in data. These patterns can be used for accurate predictions.

- Trial balance and Ledger account classification
- Predictive models for planning and forecasting
- Determining the tax implications of transactions
- Scanned tax form data extraction

Acting

Robotic Process Automation (RPA): The simplest form of AI, mimicking human actions by executing pre-programmed rules on mostly structured data.

- Performing structured tax,accounting, and compliance activities
- Automating Extracting of details bank statements and direct posting to Accounting System.
  Cognitive automation: Making inferences based on information contained in unstructured data.
- Making determinations such as levels of risk

- Identifying irregular entries based on past entries.

  Deep Learning: Answering specific questions by searching a large database of compiled information.

- Research and data gathering/documentation

- Intuitive Real-time Dashboards and reports

Practical Use Cases in Accounts and Taxation

AI-enabled systems are well suited for performing in-depth data analysis. With the help of previous tax documentations for learning and predictive analysis, AI systems can get a thorough knowledge of taxes and can stay on top of regular changes thus making it far easier for tax practitioners to identify areas to save time and money. Some of the practical uses for AI in Accounts and Taxation are :

1. Automating repetitive processes or Robotic Process Automation (RPA)

One of the most basic and yet most useful applications of AI in process automation. The time-consuming tasks that comprise a Chartered Accountants typical workday are majorly repetitive processes which include Accounting, Data entry, processing documents, reporting, and others. Deploying AI-enabled systems to automate repetitive tasks would help tax professionals in performing repetitive procedures and allow them to focus on more intellectually challenging tasks.

For instance, AI-enabled Systems can be used to identify relevant fields and fill details onto spreadsheets, for financial closeouts and reporting, etc

2. Extracting key data from tax documents

Any typical task starts withour teamhaving to classify documents, find the source of the documents that come in, and define what useful information is there in the documents and extract the same. Then we process and analyse the information and come up with relevant reports, computations or submissions. AI can accelerate the processes byclassifying documents, defining the taxonomy of documents, and extracting the required data from these documents and processing the same in a much better and efficient manner. ML algorithms can help AI-enabled systems to easily detect the capital gains andChapter VI Deductions for an Assessee, handle assessment notices and other matters that can be used to classify documents. Key data like the account number, number of payments on the tax bill, discount on the tax bill, and other data can be extracted effortlessly and with accuracy by AI-enabled systems. The accurate key data can then help for easy tax payment and filing tax returns.

3. Identifying evasion and frauds

Frauds and Evasions have become a bane for our economy, especially our profession. We as professionals are being targeted and held responsible for deeply embedded evasions and frauds that occur within a company and are somethings impossible to be detected at a human level. Auditors try to identify fraud in the Financial system of Assessees. Finding specific information from huge piles of documents can be like finding a needle in a haystack for auditors. With the help of ML algorithms, AI-enabled systems can be created that can sense erroneous or fraudulent entries in large datasets. Using predictive analytics, AI can help to fight against tax evasion and other frauds. From the revenue authority point of view, AI can detect fraud based on many aspects like matching the source of income vs spending and asset owning, correlation of various documents, forecasts and projected financial data filed with various financial institutions, regulating authorities with tax data, etc.

4. Scanning Notices

Receipt of Assessment and scrutiny Notices from various departments and revenue authorities for multiple assessment years is always part of our work as tax professionals. Gathering information, evidences and documents from various sources is a time-consuming process. With the help of optical character recognition

(OCR) and AI, documents from various sources can be accessed from anywhere, even by a smartphone. OCR and AI can together help in searching within a complex document faster, also documents can be scanned and uploaded to a database for later retrieval. Searching a database to find a document is much simpler than finding the physical form of a document as a digital search will also be made with keywords that are within the documents.

5. Processing of Tax Notices

Tax notices are an unstructured data problem. Almost no two notices follow a similar structure or language. AI can be leveraged to extract key terms from this unstructured data in various tax notices to automate tracking and preparation of responses.Data annotation and classification is the first step to help the machine understand what keyterms are to be extracted from tax notices. OCR and AI along with Natural language processing and machine vision, help with converting scanned tax notice imagesto textunderstanding the text and extracting specific data and phrases.

6. Forecasting the burden of tax

AI systems can make tax forecasting more accurate with predictive analysis. Algorithms can be programmed to detect sales trends on an annual, monthly, or even more frequent basis. AI-enabled systems can also use weather patterns to determine how sales in a particular region can be affected by climate change. Thereby, it can also determine how the impact on sales would affect the tax burdens.

The use of AI has already hit the complex world of taxation. The applications of robotics and AI in taxation can help reduce the workforce and burden on humans. It will also certainly pace up the lengthy procedures of taxation and benefit the tax sector in general. We saw how the government is implementing AI in the field of revenue collection however, the concrete implementation of AI applications for Industry at large is still in its infancy. In our profession, we are still taking up technology and just now learning to use licensed software, adapting to the cloud and digitising and making our offices paperless. AI implementation, though necessary, is still a long way to go.

Another hurdle for the Tax professional is figuring out how these emerging technologies can solve existing challenges. It is important to understand the power of these new tools and how they can deliver a good return on investment. Do an audit and find out how AI-ready your firm is!

Because The future is now.

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