Robotics and Cognitive Computing – Toolkits for the Future Finance Professionals

The article showcases the exponential technologies that would influence the chartered accountancy profession and the office of the Chief Financial Officer in the near future. It gives a perspective of how the professionals will need to upskill and prepare themselves to embrace the new technologies that will define the future of finance. Read on to know more…

Finance organisations are finding it hard to keep pace with the growing requirements of their businesses. Technology has enabled organisations to receive significant amount of data which needs to be optimally utilised for decision making. Information is flooding into business, pushing data volumes through the roof. Apart from internally generated business data there is a lot more data outside the business which influences decision-making. Big data, social media, the internet of things and many more sources which cannot be ignored.

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To manage the influx of such large data organisations will need to develop a robust eco-system which will enable effective utilisation for this data for effective decision making. Organisations in India are significantly investing in futuristic technologies such as Robotics, Cognitive, Block-chain, in-memory computing, visualisation etc. which will potentially come together in some kind of an ecosystem to define the way finance is going to be run in the future.

We are soon going to experience a situation where we are going to invite many millennials, many centennials into a work force in years to come. They are coming into the system with their own ideals, expectations and aspirations. They are not accustomed to work in a world of finance that is still tied up to conventional software and ERPs. A lot of change will be driven by the ERP providers and the finance technology providers. We will see a future

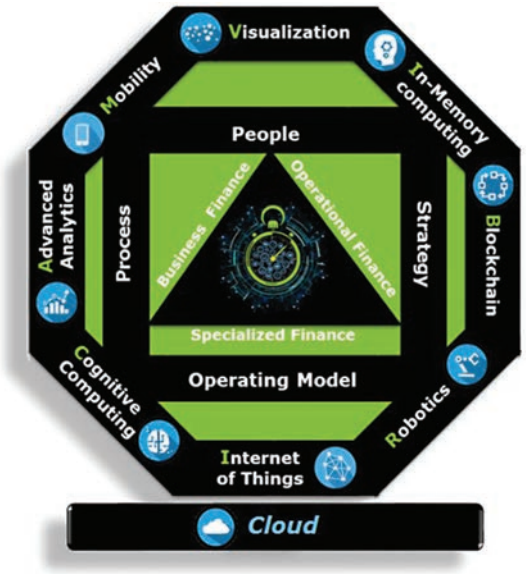
when finance will probably be run on apps. Finance probably is going to run on a system just like an iOS that Apple has put in place, where there will be many independent apps say to close books, pass journal entries etc.

If one has to look at the evolution of finance and particularly the evolution of technology interventions in finance which started with the set of ERPs followed by workflow solutions, business intelligence solutions, finance governance solutions etc. All these technology solutions helped the finance organisations to keep pace with the dynamic business environment of those times and provided relevant information for decision making.

There are eight exponential technologies that will redefine the way finance of the future is going to be conducted. These are: Robotic Process Automation (RPA), Cognitive Computing, In-Memory Computing, Visualisation, Block-chain, Internet of Things, Advanced Analytics and Mobility.

This entire ecosystem coming together and all working on a cloud platform are going to define the future of finance, purely from a technology play. But it is important to remember that these 8 are not separate pieces. They are all a part of the same jigsaw puzzle, they are all a part of the continuum, and it's only when the continuum comes into play that the finance will start realising the full benefits of these technologies, as much as the external world and the frontend and the business are going to leverage them as well.

Eight Technologies for the future of finance



These technologies can sit on top of a Cloud environment that uses scalable, elastic technology to deliver services over the Internet. Instead of making large investments up front, finance can get the full stack of finance functionality "as-a-service", delivered through public, private, or hybrid clouds.

These technologies will bring in a wave of disruption in core finance areas. While financial planning and analytics is the area where maximum disruption is seen, there are other transaction based areas where we will see significant influence.

Two such exponential technologies that have a wide ranging impact in shaping the future of finance profession are being discussed.

Robotics Process Automation (RPA):

RPA is a computer-coded software, commonly referred to as BOT, that emulates human actions and is able to drive automation of rule-based processes. It is an ideal automation technique for any process that has heavy dependence on data entry, data manipulation, triggering responses and communicating with other digital systems. Organisations see this 'IT-light' technology (RPA operates only at a presentation level, eliminating the need for any integration with ERPs) as a blessing to dramatically bolster process efficiency levels, accuracy levels and throughput for transactional processes, without having to navigate IT organisation complexities required for other automation interventions.

Robot-led automation has the potential to change today's workplace as dramatically as the machines of the industrial Revolution changed the factory floor.

Core skills that are related to business- process knowledge, technology integration and insightful analytics could be delivered through a leveraged model at a lower cost. The capability and demand already exists for this technology and it is enabled by abundant computing power and software solutions that can be packaged and downloaded as "apps".

Organisations using RPA solutions typically experience benefits beyond cost reduction.

a) Decreased cycle times and improved throughput:

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Software robots are designed to perform tasks faster than a person can and do not require sleep— making 24x7 operations possible.

b) Flexibility and scalability: Once a process has been defined as a series of instructions that a software robot can execute, it can be scheduled for a particular time, and as many robots as required can be quickly deployed to perform it. Equally, robots can be quickly reassigned when other, more important processes arise—as each robot is typically capable of performing many types of processes.

c) Improved accuracy: Robots are programmed to follow rules and robots do not make typos.

d) Improved employee morale: The tasks and processes most suitable for automation are typically the most routine and least enjoyed and employees relieved of them can be refocused on more rewarding and higher value activities.

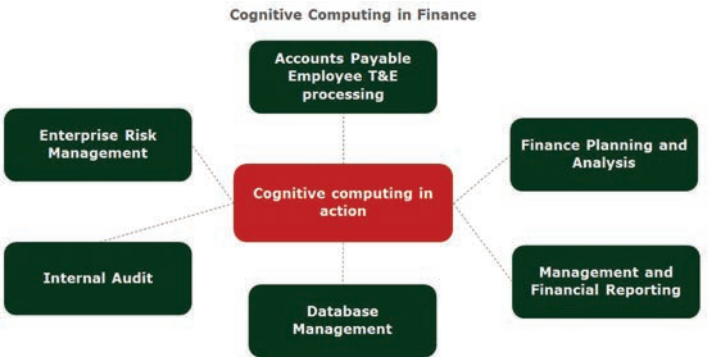
e) Detailed data capture: The tasks performed by a software robot can be monitored and recorded at every step, producing valuable data and an audit trail that can support further process improvement and also help with regulatory compliance.

When applied to a typical finance environment, the results help understand why there is a surge of interest in RPA in the finance organisation. Size of opportunity ranges from 40 to 60%, with highest amenability experienced in the usual suspects: Accounts Payable, Fixed Assets and T&E - processes characterised as being typically low-risk, self-contained and rule-based. In addition, there are pockets of opportunity in Accounts Receivable (sales order processing, debtors reporting etc.), and General Accounting (journal entry processing, reporting), which are also being actively considered in the RPA portfolio as a testament to the strength of the RPA solution.

Cognitive computing:

Perhaps the most disruptive set of technologies upending the world of finance lie in Artificial Intelligence (AI) Applications. A subset of AI is Cognitive Computing which by definition is "a self-learning system that uses data mining, pattern recognition and natural language processing to mimic the way the human brain works. The goal of cognitive computing is to create automated IT systems that are capable of solving problems without requiring human assistance. These advanced tools simulate human cognitive skills, grinding through mountains of data to automate insights and reporting in real time. Cognitive solutions may be deployed from the cloud and offered as a hosted service or may be deployed on in-house servers depending on the organisational IT landscape and requirements.

Areas in Finance where Cognitive computing is being used



Used in finance, cognitive technologies working alongside the existing ERP systems and robotics can upend operational finance and bring about unprecedented speed, agility and transparency to the processes. These processes have a deterministic way for exception handling (Employee T&E processing, Management Reporting, Internal audits etc.) and are ideally fit for cognitive automation, thus creating bandwidth at all levels in finance.

Machine learning in Internal Audit:

In audit, because of recent advances in machine learning, standard audit techniques like sampling are on the verge of becoming obsolete. This directly affects the audit industry's employment model, which has been dependent on hiring scores of graduates to carry out mundane administrative work. This is because developments in data mining have given auditors the

ability to collect, analyse and test entire data sets. In the past they relied on restricted samples of data.

With a cognitive BOT in the audit team, the auditors can analyse an entire set of accounting journals, rather than just taking a sample of journals that provided a snapshot. This wider view can highlight anomalies like entries posted by unexpected people or at odd times, such as weekends. Other examples include analysis of the entire set of expenses and potentially expose claims for personal travel, etc.

Machine Learning in Financial Planning and Analysis (FP&A):

For the FP&A function, the key aspect of planning is to obtain higher level of accuracy in understanding and prediction of sales volumes. Many a time though plans are made for sales profiles, the sales forecasts turn out to be wrong. Inaccurate revenue forecast remains one of the biggest risks for CFOs. In a recent study, more than 50% of companies feel their pipeline forecast is only about 50% accurate. Machine learning has the potential to improve this process by:

1. Powerful Trend Analysis - Humans do not have the capacity to scan vast amounts of data and come up with scenarios and identify patterns. This is where algorithms are powerful. They can examine structure as well as unstructured data and come up with meaningful and impactful analysis. These scenarios may prove invaluable in a planning cycle in providing perspectives beyond what is available merely from the ledgers and past performance data sets.
2. Forecast Accuracy - Forecasts are generally driven at product level sales values. Machine learning algorithms can detect patterns at lower level feeder drivers such as brand categories, product categories, purchase orders and even invoices to discover interesting relationships and dependencies, which can then be used as inputs into the planning cycle and thus enable more accurate forecasts.
3. Dynamic Forecasting - Machines are capable of dynamically updating scenarios based on changing input parameters. They can simulate and re-simulate scenarios while tweaking data and thus act as informative decision tools. This makes the planning cycle more elastic.
4. Interactive self-service - Machine learning is now allowing companies to build self service solutions on platforms that can mine swathes of data and provide relevant and contextual responses to any standard human query around financials. A leading global FMCG company is investing in cognitive computing to build forecasting models for its key categories and markets where executives can direct queries to the platform and expect responses that offer powers of simulation and deep learning insights, humanly impossible to obtain otherwise.

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Machine learning in other Finance areas: In other areas tools have been developed which use machine learning technology to scan electronic papers and automatically identify and extract key accounting information from a wide range of documents like contracts, policies, agreements, purchase orders, sales orders, commercial invoices, etc. These artificial tools then improve with every human interaction, which will over time increase their power as they gather more information.

Natural Language Generation (NLG) in Finance: NLG in finance can be used in generating cumbersome financial and statutory and compliance reports which can consume significant amount of human effort.

The future of finance will have a very important place for the Cognitive BOTs. While the humans would still be around to develop the strategies, setting goals, designing the future road map etc., the BOTs would help eliminate the cumbersome manual efforts of producing the reports. The time freed up can be effectively used by the finance department to provide powerful analytics which will help the management to make quick, yet deeply insightful decisions.

The age old profession of finance is getting upended through exponential technology innovations. It is now time for professionals to take note of these changes and be prepared for this inescapable future. The clarion call is here and now – those that do not choose to listen may be rendered irrelevant in the future of finance in the intensely digital world! ■