CRACKING THE AI CONUNDRUM

The various techniques of AI, or what Minsky calls 'agents' are by themselves of little use. But when used together, with a clear purpose, they have the potential to create great outcomes. This is what enterprises have to aim for, as they undertake the AI journey.

In his seminal book 'The Society of Mind', cognitive scientist and artificial intelligence (AI) guru Marvin Minsky constructs a model of human intelligence step by step, built up from interactions of simple parts called 'agents' that are themselves mindless. These agents are akin to the various AI techniques which have matured today, such as machine learning, deep learning, natural language processing (NLP), and artificial neural networks. But collectively, these agents hold the potential to create great outcomes, but when taken individually, they are pretty 'mindless' and not a patch on the whole. So when enterprises adopt AI, it is essential to have a sense of purpose – to use all the AI techniques needed – not just individual agents.

Let's look at a business scenario that illustrates this idea. Let's say, a manufacturing business is under pressure to increase yield. So, it has identified in its 15-step supply chain process, one step that is currently consuming four hours. The organization is excited about applying a certain AI technique to this step and improving the process significantly. Cause for celebration yet? Not really, because the company could instead, create a high-impact solution by taking a comprehensive

approach towards increasing yield – by applying a bunch of AI techniques. These could help them identify the known and the unknown problems surrounding the issue of inadequate yield, make interconnections among them, read hidden patterns, and gather insights. The true potential of AI is unfathomable. The key is to continually embrace AI by experimenting, learning, and building on successes.

Today, two important developments have precipitated an environment for AI techniques to rapidly develop and thrive, empowering organizations to adopt AI:

ABUNDANCE AND AVAILABILITY OF DATA: With IoT creating colossal amounts of structured and unstructured data, organizations have unprecedented access to data. The more the data that is fed into a machine learning algorithm, the sooner it 'stabilizes' and improves accuracy. According to Ovum Research, machine learning will be the biggest disrupter for big data analytics in 2017.

SUPERCOMPUTING POWER AT A REASONABLE COST: Neural networks have existed for decades, but it is only now that

massive computing power is available at a reasonable cost, which in turn has helped increase the number of 'layers' in these networks. Each 'layer' adds more intelligence but also consumes enormous computing power, which earlier used to be prohibitively expensive.

More layers mean better outcomes. This is what is commonly referred to as 'deep learning'.

Beyond automation: AI is about problem finding and problem solving

A piecemeal approach to AI amounts to turning the clock back by underutilizing its true power. Kvelling upon the automation-driven scale and cost efficiencies is appreciating only a fraction of the picture – being myopic really. To tap into the true potential of AI, it is important for businesses to change their approach to problem finding and problem solving.

There are essentially two kinds of problems that a business needs to solve:

Known problems – These have been known to us for years but it is only now that we have the technology to tackle them and achieve tangible results. Some examples are fighting money laundering and financial fraud, ensuring better regulatory compliance, medical diagnostics, analyzing customer sentiment, and so on.

compels us to look beyond and push the boundaries, as technology-led innovations and disruptions are upending business models and creating new paradigms. Often, going after the familiar problems may not lead to the best solutions. On the upside, AI-driven techniques such as predictive analytics and forecasting – of revenues, possible snags, behavior of suppliers, partners, and clients in a certain context, cost of products yet to be built, and so on – are enabling deeper understanding, discovering problems, and creating better solutions for them.

At Infosys, we believe that a comprehensive approach to adopting AI – spanning both the known and the unknown problems – albeit in a step-by-step manner, is the way forward. We have adopted Design Thinking across the board to address these two categories of problems and create sustainable solutions for our client ecosystem. True to the principles of Design Thinking that pivots on the end-user, our clients are integral to this journey of problem finding and problem solving.

Our next-generation AI platform, Infosys Nia, leverages open source and consolidates various AI tools and techniques to create a 'society of mind', if you will. Infosys Nia brings onto a single platform, big data / analytics, machine learning, knowledge management, cognitive automation capabilities, end-to-end RPA capabilities, optical character recognition (OCR), natural language processing (NLP) capabilities, and infrastructure management

A JOURNEY INTO THE UNKNOWN

It is important to deal with the known problems first and build credibility, especially among the skeptics in an organization, through early results.

AI is never about a piece of technology. Rather it is a new paradigm altogether that needs to be treated thus.

There should be dedicated focus and investment in problem finding, an area that is inextricably related to realizing the true potential of AI.

Unknown problems – These are problems that have not manifested themselves yet. Problems that we don't even know exist.

But these are 'problems' nevertheless. The pervasive technology revolution today

services. It enables a wide set of industry- and function-specific solutions and allows customers to build bespoke experiences to suit their business needs.

While the power of AI lies in problem solving, it will allow humans to focus on problem finding!

Addressing larger issues, amplifying human potential

While automation and AI are transforming bottom-line-focused, data-rich industries such as retail, manufacturing, and telecom, as well as touching others such as healthcare, insurance, and financial services, these technologies are also enabling massive collaborations across organizations and industries. Some of these are the result of new business models and disruptions, and others are driven by the need for the greater good. Many technology leaders and visionaries believe that AI has the power to address some of the biggest problems facing us – as humans, on planet Earth.

Google DeepMind focuses on trailblazing work in machine learning with the aim of bringing about an 'artificial general intelligence', to harness AI for grand challenges. CEO of DeepMind, Demis Hassabis, says: "If we can solve intelligence in a general enough way, then we can apply it to all sorts of things to make the world a better place."

OpenAI, a non-profit AI research company, backed by Tesla and SpaceX founder, Elon Musk, is aimed at 'advancing digital intelligence in a way that is most likely to benefit humanity as a whole.'

Although concerns around machines overtaking humans may exist, human creativity and imagination will triumph. AI will relieve us from the mundane and the cumbersome, liberating us to focus on finding the most relevant problems to solve. To achieve our true human potential.

We live in extraordinary times, where technology empowers us to envision a future where we can sync our brains with artificial neural networks, yet at the same time ponder upon the possibility of job loss and AI systems going rogue. It is a time when all enterprises will embark upon the AI journey and learn along the way. The more we iterate and the more we learn, the better the results will be. So as we take the initial steps, it is important to acknowledge the potential of AI and build a purposeful platform for it.

It is important to deal with the known problems first and build credibility, especially among the skeptics in an organization, through early results.

About the Author

Abdul Razack

In a career that spans over two decades, Abdul has been involved in several engineering and consulting roles at Commerce One, Sybase, KPMG Peat Marwick, and SAP. Abdul holds a Master's Degree in Electrical Engineering from Southern Illinois University, and a Bachelor's Degree in Electronics and Communication Engineering from the University of Mysore, India.

If you wish to share your thoughts on this article or seek more information, write to us at **Insights@infosys.com**