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2024 AI Outlook

Expert Advice on Navigating the AI Economy

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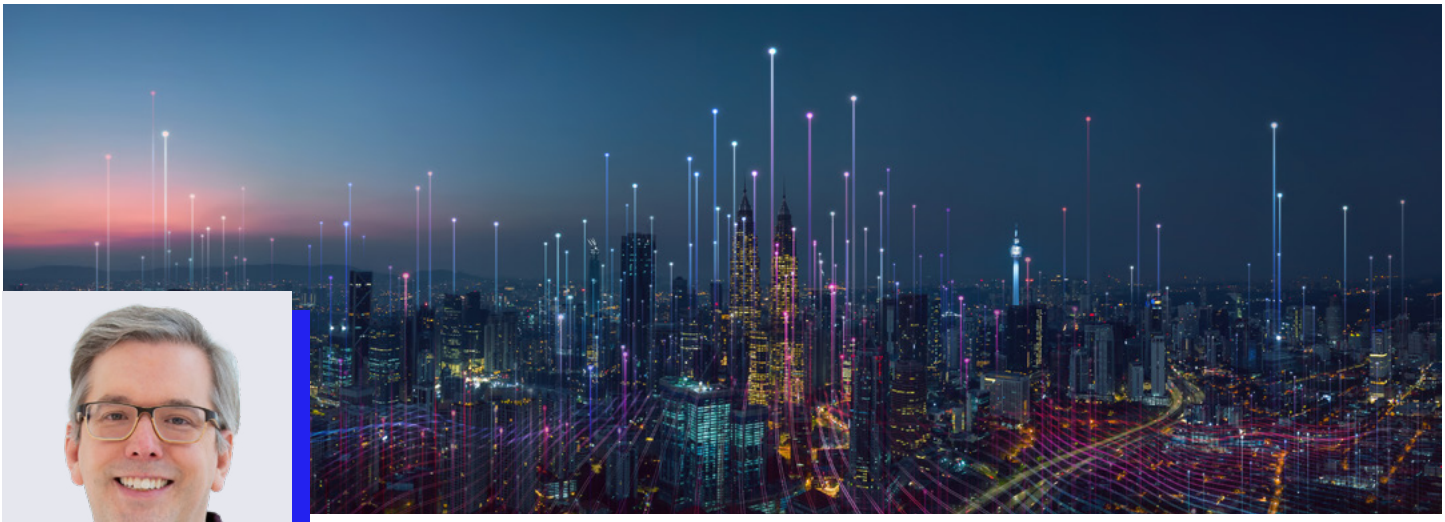


4 predictions for the future of AI.

Michael Beckley, CTO and Co-Founder, Appian

AI has become every organization's top challenge—and their top opportunity. AI is changing software from a mere tool to an actual collaborator in the workplace and in our workflows. This is the rapidly emerging AI economy, where organizations will be split into two groups: those who are good at AI and those who are bad at business.

Most experts agree that AI will not replace humans anytime soon but instead augment us in a world of mixed autonomy. Succeeding in this new world will not be easy. It will require new structures to harness AI's transformative potential while managing its very real risks. The outcome rests on building new methods of highly efficient human-AI collaboration. From my perspective, few organizations are at that place yet.

While 2023 brought the world of AI to the masses, it also stirred up a maelstrom of unanswered questions for organizations everywhere. How can we derive practical value from AI? What is the most cost-effective way to operationalize it? What about data privacy?

These questions have slowed the pace of transformation for many organizations in the AI era. The ability to become a full AI enterprise—one that wins—depends on how you answer these questions.

With that in mind, I'd like to share four predictions of my own. Although the easiest way to be wrong is to make a prediction, my predictions are rooted in my strong belief that **data** and **process** are the two most important areas to focus if you want your organization to become a winner in the AI economy.

Prediction 1: Data foundations will become more critical.

Several industry experts in this outlook have mentioned the need for a strong, foundational data architecture.

I couldn't agree more.

AI is nothing without data. A large language model, for instance, reshuffles the information it's been fed. More data, and better data, means better answers.

And to make AI most effective, you have to feed it **your data**. Yet, organizational data is often fragmented, lying in isolated pockets, rendering them ineffective, stagnant, and inaccessible to AI models. A data fabric solves this problem by offering a 360-degree view of enterprise data without migrating it from other sources. Organizations that embrace data fabric will more easily operationalize AI across the enterprise.

Prediction 2: Humans and AI will work harmoniously.

Contrary to the dystopian narratives where AI replaces humans, the reality paints a more balanced picture for the short-term and even the long-term. AI simply isn't autonomous enough to replace human judgment or expertise.

> "Organizations must have a strategic vision for mixed autonomy—in other words, how they will use AI to augment humans, rather than replace them."

These narratives remind me of the worries software developers initially had with the advent of low-code. Many thought that low-code would eliminate developer jobs. Instead, it made software developers far more valuable, which leads to greater job security over the long term. Like low-code, AI can augment human capabilities, making employees far more valuable and accelerating their contributions to the business. This has always been a cornerstone of Appian's approach: automation and AI complements humans, not overshadows them.

AI is a partnership. AI can write, humans must edit. AI can propose decisions, humans will decide. We will need to route work to AI, but we'll also have to route to other automation technology as well as humans. This makes sophisticated workflow and process automation critical for turning AI into a valuable, transformative technology that truly achieves the AI Enterprise. AI can be enormously helpful, but it's not a solo show—it's part of a larger, interactive team that helps augment humans.

Prediction 3: Businesses will need private AI.

Public AI models have captured the collective consciousness but pressing data privacy concerns cut the honeymoon phase short. OpenAI briefly banned ChatGPT in Italy in early 2023 due to potential privacy issues around GDPR.[1] Companies across sectors have limited their usage within the enterprise—from public sector organizations to major banks like JPMorgan.[2]

While the headlines focus on these famous examples, privacy concerns aren't limited to chatbots. Many large public cloud providers offer pre-packaged AI services to businesses and organizations of all sizes. Unfortunately, these cloud providers often train their public AI algorithms on their customers' data. Businesses may unwittingly help the competition by sharing this data to train algorithms used by other companies. Plus, many of these large-scale providers aren't transparent about how data will be used, which can open businesses up to potential liabilities in the event of a leak.

While some sectors can tolerate this risk and embrace AI with open arms, they must still remain aware of the risks. Some industries—such as public sector, life sciences, or even financial services—simply can't afford these risks at all. Privacy breaches will be catastrophic. Organizations must be strategic and careful, limiting AI usage to areas where privacy can be better assured—or embrace vendors who emphasize a private AI approach.

1. "ChatGPT Has a Big Privacy Problem," Wired. www.wired.com/story/italy-ban-chatgpt-privacy-gdpr (April 2023).
2. "JPMorgan Restricts Employee Use of ChatGPT," CNN. www.cnn.com/2023/02/22/tech/jpmorgan-chatgpt-employees (February 2023).

Prediction 4: Regulations will soon catch up.

If 2023 was the breakout year for AI, expect 2024 to be the year of AI regulation. Governments have recognized the potentially negative impacts AI could have on society writ large—from privacy concerns to misinformation to cybersecurity risks. In 2023, we saw the seeds of regulations starting to take shape in the United States and the European Union, among others.

While most of the political talk has painted broad strokes of how we might start to address concerns, we should expect more bills from the US Congress as well as actions and guidelines set by various regulatory agencies. The European Union has been hotly debating its own AI Act to curb potential misuse of the technology (although, at the time of publication, this was not settled law and has its opposition).[3] As lawmakers sculpt these regulations, it's unclear how they will ultimately take shape. But watch the trend itself—regulations will come soon and organizations will have to adapt in kind.

Forging the AI future with confidence.

As we stand at this juncture, it's clear that organizations must use AI responsibly and effectively. As the CTO for an enterprise software company, I'm part of a team using AI to reinvent the Business Process Automation (BPA) market. BPA software brings together enterprise data and processes. It cuts through red tape and bureaucracy to enable everyone to be an active participant in improving the processes that govern our lives. The applications of AI are obvious and exhilarating, but so are the risks and challenges for our companies, our creators, our authors, our artists, and our society.

In this guide, you'll hear from industry experts across top consulting firms. They'll echo some of the sentiments above and share quite a few of their own. One thing is certain: the path toward the AI Enterprise is rife with both opportunities and challenges. We hope the following pages will serve as a compass for you to navigate the AI future with confidence.

3. "EU AI Act: First Regulation on Artificial Intelligence," European Parliament. www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence (June 2023).

Balancing the clock speed dilemma with strategic value.

Todd Lohr, Principal, KPMG LLP

Todd Lohr is a Principal within KPMG's Technology Enablement practice, specializing in Digital Transformation and Enterprise Automation. He leads the Technology Consulting business and specializes in the selection, design, and implementation of digital technologies, including low-code, data and analytics, cloud, and AI/ML. Lohr is also a regular presenter at conferences and guest lecturer at universities. He brings the breadth of KPMG's 4,000+ partners and professionals to help companies solve their most complex technology challenges. Most recently, Lohr has focused on emerging technologies, their impact to business models, and how executives need to lead their organizations through changes. He focuses on the ethical implications of AI and what organizations need to do in this new realm of corporate and social responsibility.

Some career highlights include leading the implementation of conversational AI to strategically transform customer service for a FORTUNE 10 organization, leading intelligent automation programs at 10+ FORTUNE 100 companies, and leading enterprise automation strategies for large technology companies focusing on RPA and cognitive solutions.

Todd Lohr earned his BBA in finance from the University of Iowa. He is also a certified business process professional (CBPP), attained a certificate of mastery in process reengineering through Hammer, and is a Six Sigma Green Belt.

Q&A with Todd Lohr.

Q: How do you think AI will change the landscape of business and how prepared are organizations for that change?

KPMG has done a couple different surveys with executives and found that, in general, it's a mixed bag. But most organizations think they're more prepared than they really are because they don't fully understand AI, specifically generative AI, and how it will affect the market.

How will it change businesses? Well, AI is not a new phenomenon. It's been in the works for years, if not decades, but it's just moving at a faster pace. So, the biggest impacts will be around the "clock speed dilemma." Will organizations keep up with the exponential curve of what AI can do for their businesses and will they be able to transform fast enough to keep up?

"It will change every business and every industry. Wherever you have people working, AI will augment their work, change what they can do, and change the roles they play."

Q: What about risks? What are the big risks about charging into generative AI at the moment?

The market is focused on adopting generative AI, which emphasizes the "here and now." But risks occur around the validity of the output and intellectual property (IP). Generative AI creates content based on large sets of data, but doesn't really explain how it arrived at the output and whether it's valid. How do you show your homework, so to speak?

The bigger issue is IP protection. If you create content, how do you protect it? And how do you ensure you're not using someone else's IP?

In addition, there's algorithmic bias. The technology is only as good as the people that trained it, the methods used, and the underlying dataset. So how do you actually understand the biases, then develop AI that detects and mitigates them?

And on the cybersecurity side, attackers could manipulate underlying data in an AI system, which changes the output. This is a sophisticated attack that's hard to detect.

Q: How else will AI shift the cybersecurity landscape?

There's a couple ways to think about it. One is that we're using AI to secure environments. But also, AI makes the environment more challenging. As much as AI can be used for good, it can also accelerate the pace and complexity of sophisticated cyber schemes. It both creates cyber risks and becomes a tool to fight cyber risks at the same time.

Q: For companies that have already adopted AI, what do you think sets the top performers apart?

They view it as a technology to solve a specific business challenge. They don't treat AI as a hammer looking for a nail.

A lot of organizations follow hype cycles, getting enamored with a new technology, and want to just go apply it to their business. But they lose sight of some important questions: What value am I creating for shareholders? What is the experience I'm creating for my employees? What strategic propositions am I trying to accomplish as a business, and how do I use this to pivot or accelerate that strategy? Top-performing organizations stay true to their business strategy and use AI as an accelerant.

I think a lot of organizations have gotten sideways on AI. The first question I ask is "why?" Their answer is, "because I want to do AI." That's not the right answer, right? That is one of the traps.

Q: So how do they ensure they're doing it right?

Organizations that adopt AI quickly are ones that face more disruptions in their business models. They know their future business is predicated on these technologies, so they explore it faster. Culturally, they have to allow teams to experiment and innovate. Fail fast. These technologies are reasonably newer, and not perfect yet. You have to have that pioneering spirit to move into new technology areas and keep the focus on innovation.

One of the most common questions I get asked from senior leaders is, "tell me six of my peers in industries that have done this." I respond that it's fairly new. Is there anyone who's the market leader in AI? Not really. A lot of organizations are trying to figure out if they should become the market leader or follow quickly behind one. And if so, what does that path look like?

Q: You mentioned people chasing hype and losing sight of the value. Do you think we'll hit a point where people will implement AI and then wonder, "Why did we do all this?"

AI is interesting in that it's following a number of different hype cycles. The previous AI hype cycle was what—five, six years ago? That was a wider automation cycle that went in tandem with RPA and other broader automation tools.

Now, we have a new cycle that is a subset, generative AI. AI has staying power. One challenge is that people are really excited about gen AI, which is only a slice of AI capabilities. If you're thinking about your business strategically, you should be thinking about AI more broadly, and not just generative AI.

That said, the generative AI hype cycle is based on the democratization of large language models. If you play this out in large swaths of time, each piece of AI likely has its own hype cycle and trough of disillusionment. We will hit that disillusionment because I think organizations are starting to figure out that LLMs are interesting, but until you bring your own data and IP to the model, it's general knowledge. It's not specific enough to your business.

"AI is here to stay. I think you're going to continue to have intermediate waves of this hype and disillusionment, as with any technology. But if there's one technology that's going to change the course of human history in the next decade, it's certainly AI broadly."

Q: Any parting thoughts?

Everyone is focused on generative AI to the point they may ignore other parts of AI. Generative AI is just one subset of the emerging tech landscape. Someone may want to solve a specific problem and ask how to use generative AI to do that. Often, I'll say, "This is how you actually solve the problem, and you don't need generative AI to do so." I mean, there's a whole host of different components of AI that kind of fit within the overall ecosystem—advanced analytics prediction, forecasting modules, anomaly detection… there are all sorts of problems that can be solved with AI without focusing exclusively on generative AI.

Harnessing AI's opportunities and avoiding risks.

George Casey, Principal, Data Scientist, RSM US LLP

George leads the Advanced Analytics practice at RSM. In this role, he advises clients on both strategic and technology issues important to delivering value with data science. Prior to being acquired by RSM, George was the Chief Marketing Officer and Chief Technology Officer for Junction Solutions, a B2B technology solution company serving mid-market clients with a focus on life sciences, supply chain, and multi-channel retail. Over his 13 years at Junction Solutions, George had the opportunity to advise multiple clients on strategy, business intelligence and analytics, CRM system design for both B2B and B2C clients, as well as full system implementations of ERP solutions.

George has been published in several professional and trade journals and is a frequent seminar speaker. He is a Microsoft Certified Trainer and has written several manuals for Microsoft on Reporting and Business Analytics.

George holds a bachelor of science in management information systems from the University of Illinois and a master of business administration and a master of science, predictive analytics from Northwestern University. Additionally, he is Certified in Planning and Inventory Management (CPIM) from the American Production and Inventory Control Society (APICS).

Q&A with George Casey.

Q: How have you thought about AI over the past 5 or 10 years and how has it changed recently?

There are multiple ways of defining AI and its components. The one I like is that AI replaces some tasks we used to think a human was required for. Whether that's driving a car, reading a text message, or interpreting a picture, it all starts with a prediction and an action. With ChatGPT, for example, it'll see you put in a bunch of characters, then predict your intended meaning. And it's doing that using natural language processing and the ability to understand, "oh, well, this looks like the English language and it looks like these words that I've seen. And when I see them in this pattern, this is typically what I can infer from that."

What's more available today is the massive amounts of data and scalable compute power. We can do these things in real time in memory, just like if I'm driving my car, it can predict that I'm closing too fast on the car ahead, then act and apply the brakes. The ability to do that prediction has been around for 50 years. But before, it would take a long time, and by the time it finished its prediction, you would have hit the car. So, I think that's why we're seeing such an uptick in this web of disruptive technologies. We've seen interconnected devices and the growth of Internet of Things devices, then massive available datasets and compute power.

Q: Where do you think we're seeing the most impact when it comes to AI?

Everyone sees opportunity. I've yet to come across an industry that can't take advantage of these techniques. It just depends on the industry.

Take healthcare. I have colleagues who will say that if you don't use AI as a large healthcare practice, you're committing malpractice because you're not serving the patients using the best and greatest state-of-the-art techniques. In life sciences, we're seeing people do massive things around drug development and clinical trials. It's changing the game in clinical trials by using a simulation or model so we quickly evaluate compounds without all of the physical testing we used to have to do.

Industrial companies are seeing uptake on the shop floor, in what we'd call "factory of the future" or "industrial 4.0." They're moving beyond basic automation. Now we introduce things like computer vision where we can use cameras, video images, and data to infer things like shop floor safety, predictive maintenance, quality, or even being able to look at all the parts that come off of the shop floor and say, "hey, is this a good part or a bad part?" In the old days, they would have a sampling program with human inspection that hopefully catches most of the problems. Now, we can catch 100% of the issues because it's all passing by a camera that instantly detects defects.

> "I've yet to find an industry that couldn't better leverage data to remove uncertainty or reduce the time it takes to make decisions."

Q: It seems like the world is focused on generative AI, but there are a lot of use cases around data and AI in general. Is that fair?

I 100% agree. It's not about the technology—all innovation starts with a problem to be solved. When you look at opportunity that way, it's important to focus on the "why?" Why would we do this? Why are we trying to solve a particular problem? What's in it for us? Where is there value? Answer those, and then we can start getting to the how.

For example, think about nonprofits and how they operate. Their challenge is around predicting member engagement or predicting donor engagement depending on their charter and their structure. So, being able to better understand the signals they get from their members through their behavior or demographics, can they understand if the members will renew their membership? And if they can infer or predict that they won't renew their membership, can the nonprofit team design an intervention strategy?

"Now we're talking about saving a lot of money or creating additional value opportunities for organizations. It starts with understanding that they have a problem. Then, it becomes, 'how can we solve it?'"

Q: What big risks should people think about around AI?

The first one that people get concerned with is just access to data. If I am sharing data with an entity, whether that's the computer or organization that controls it... I don't necessarily want them to have full access to that data.

The example we talked about before with healthcare is illustrative. A lot of people can have concerns. The first risk is that many of these systems work based on access to massive datasets. How can you make sure you're governing that data access appropriately to avoid misuse or misappropriation?

Another big risk is the data we use to train these models. The underlying data may lead to bias. With AI, we may institutionalize that bias because we base decisions off of how we gathered the data, not necessarily what's appropriate or representative.

So it's important to assess whether a dataset is appropriate to be used for a model or if it represents a specific bias that you wouldn't want to be pervasive. That's a risk.

A third risk is around autonomous control, where you take humans out of the loop and the machines do more than you originally planned for. While that's the most publicized worry, I think it's a lower risk due to the controls we have as developers and consultants when implementing these systems. We can design around this risk. We just need to ask the right questions, assess what data the system is exposed to, and then decide what actions it's allowed to take.

Q: One more question. How do you feel AI plays in the automation space?

You can look at companies like Appian and others that have applied AI. You're not necessarily creating bespoke models, but you're applying the technology in a low-code environment where you enable a citizen developer to take advantage of AI. That gives people a head start or leap ahead rather than having to build all this from scratch. They can say, "Hey, there's a specific process we want to automate and we're going to use some AI to take what was difficult before and help us make some of those decisions." This approach makes it much easier to adopt than growing systems from the ground up.

Risk-tolerance and the need to reskill.

Piyush Bothra, Field CTO, Principal Solutions Architect, Amazon Web Services

With over two decades of expertise in the technology realm, Piyush Bothra has a proven track record of enabling transformative business outcomes through execution of strategic technology initiatives. A specialist in cloud computing, he currently serves as a trusted advisor to executives and senior leadership, offering expert guidance on cloud strategy, modern architecture, and best practices. He is currently focused on helping customers with generative AI use cases and fostering a vibrant AI/ML culture of innovation.

Q&A with Piyush Bothra.

Q: Let's start with a broad question. How do you think AI will change the business landscape? And how have things changed compared to the past?

AI is already changing the landscape in several ways. AI didn't land on our plates yesterday or the day before. I know that Appian has been in this business for many years and has done a lot of innovation here as well. While AI has undergone incremental innovation for years, the generative AI trend has entered the public domain and broadened visibility into AI in general.

It will have exponentially accelerated impact moving forward in several ways. One way is business process flow automation, like what Appian is doing. Business processes will become more intelligent and optimized. We'll also see impact in areas where data will drive more business decisions because artificial intelligence mainly relies on data to generate insights and recommendations. We'll see progress in that area as well.

Another area of impact is on jobs. There's a lot of talk about jobs going away. The way I see it is that it will definitely disrupt the job market where some old skills will be replaced by AI and automation. But new skills will be required to do existing jobs. Businesses must adapt soon to reskill their resources and teams with the new developments.

Q: So how do businesses go about reskilling the workforce?

To do this, it's critical for businesses to think of AI and machine learning as a general, top-down strategic play. If there is a machine learning strategy or AI strategy their organization adopts, then reskilling their human resources will obviously be part of it. Also, give employees enough time for theoretical and practical training. Many partners today provide this kind of training. By the way, AI is a contributor to having this training available as well.

> "Start with the basics—give teams enough time and resources to experiment. Fail fast, adapt, and re-experiment. That's the best way to learn."

It is important to strategize about AI and ML applications as part of operational and yearly planning for shared leadership responsibility. This will help identify the need for more skills, resources, and training programs. Organizations must be willing to accept minor risks if the team fails in their own experiments. That should be the mindset moving forward.

Q: Are you finding that organizations are more risk-tolerant or risk-averse?

I see a mix of both. Some organizations are more risk-tolerant. It depends on the leadership as well as the domain and industry. If we talk about the technology or IT industries, they're more risk-tolerant than government or public sector, which are more risk-averse. There are many reasons behind this mix, like culture, regulatory environments, and availability of skills and resources. Another factor is how much of the data is available for building AI and machine learning applications, and how well-governed that data is.

Take cybersecurity risks. AI systems could be targets of hacking and manipulation. Organizations need to apply strong cybersecurity practices to AI systems and data. Now, technology leaders should widely recognize cyber risks and act proactively before launching AI applications.

Q: What industries do you see leading in AI adoption?

The financial industry is already applying AI. We've seen algorithm-driven trading for many years. I also see great potential in areas like fraud detection. Think about the billions of requests coming through financial systems from various sources and places across the globe. It's just not possible to analyze all the requests and data flow, then still get insights using traditional analytics. That's where using AI in auto-detecting some of those fraud alerts comes into play.

Beyond that, we see a lot of adoption in the retail industry. Personalized recommendations and product ads based on our purchase history—that's driven by AI. Healthcare is huge, too. There's a lot of potential to serve humans in general. Healthcare research can leverage AI to analyze billions of data points to get insights in a way that just isn't possible with human eyes or traditional analytics methods.

One favorite area of mine for application of AI is education. I think we're falling behind, and AI can help. AI can help take education to all the geographic locations and communities that might be underserved due to a lack of skilled teachers. Also, we should think about how to change our education system to teach kids early about AI, machine learning, and responsible usage.

Q: What makes companies successful at using AI?

The companies that adopt machine learning and AI as part of their product strategy or business strategy are already seeing bottom-line and top-line growth. They're setting themselves up for that kind of trajectory against companies that don't. This gap will increase even more in the coming years. The competitive landscape may change drastically. If the majority of companies don't start thinking about it now, we may see only a few companies running the show, which we don't want.

Companies who are doing well pull AI in as part of their operational planning. A few companies ask their leaders each year how they'll use artificial intelligence.
It's no longer a question of whether you will use AI or machine learning, or even why, but really, how will you apply AI and machine learning in the business? It's kind of mandating that business leaders, product managers, data scientists, and engineers get together and start thinking about how they can improve the customer experience using machine learning and artificial intelligence. Companies that see this as a top strategy will succeed.

Also, it's important to provide the right tools and data for the teams to become successful in this journey. As we all know, machine learning and artificial intelligence cannot run without data. If there isn't easy and well-governed access to data for engineers and data scientists, then those organizations will fall behind in terms of innovation.

Data quality, governance, and the courage for buy-in.

Frank Schikora, Chief Technical Officer, Roboyo

Frank has been working in the automation space for the last 14 years on a multitude of different IT projects, from ERP implementations to large-scale infrastructure and business intelligence efforts. Automation and freeing up time for employees has always been a driving force for him.

Since joining Roboyo, he has focused on delivering value to clients with the right mix of technology, methodology, and optimization to solve business problems and deliver tangible outcomes, and to do so across all the disciplines Roboyo brings to the customer, be it RPA, IDP, low-code, process mining, or AI.

As CTO, Frank is responsible for curating the best technology partners for Roboyo.

Q&A with Frank Schikora.

Q: When it comes to AI, what do you think we need to keep in mind as far as governance and security?

One of the main AI applications now is for large language models (LLMs), where you ask the model something and it generates an output. But who's asking the questions? Are they allowed to ask those questions? And are they really allowed to get that answer? This is super important in terms of prompt engineering, for example. This is where it gets interesting for governance—you basically need to scale down what the LLMs can do.

If you think about ChatGPT, you ask anything and it will answer. In a business context, we don't want that to happen. You don't want employees asking an LLM about the CEO's salary, then having it answer or even hallucinate parts of an answer. We need to make sure that the user is allowed to get the answer to a question and understands the data supporting the answer. When a model gives an output, we want it to give evidence on its data.

"We really need to focus on questions about how we segregate data, and how we make sure that when a question is asked the person is allowed to receive the answer. This is a challenge and depends heavily on the infrastructure lying behind everything."

Q: Have you seen any specific industries that are using AI well? Maybe some that're a little further along the maturity curve than others?

It relies a lot on data. Data is everything, including for language models. Any industry processing and using a lot of data can use AI effectively. Where we've seen it a lot is within the financial services space or within the private equity market.

One use case we did with Appian was to create an investment thesis out of different inputs. Again, you must give evidence for the outcome and ensure the person who requested it is allowed to ask. We're also doing conversational AI for contact centers. For some tasks, this can almost replace human agents.

If you have a chatbot and a good knowledge base behind it, a language model can also help searchers find answers faster. It's not necessarily better—in the end it's still a Q&A database—but the answers are just more natural. And this is something you can mask much better, for example, with a large language model now than you could with a traditional chatbot. You can have the LLM figure out the intent and provide the answer. And now you can have the LLM create an answer that's coherent if you're asking for more than one thing and it identifies more than one search intent in this case.

Q: What makes the difference for a company that is truly successful at using AI?

The main thing I often see missing with AI is direction or purpose. You need buy-in and the guts to go through with it. Yes, you can create models, but then you need to maintain them. You need to have somebody who can actually look after them. We've called this AIOps in the past. Just because the model gives the right answers in a user acceptance testing (UAT) environment, you still need to train again and then validate. I think this often isn't taken into consideration—people think they have nine months of highly trained and expensive people to build a model that will save them enormous amounts of money without having to look at it again.

And again, it should not be a black box. You need to understand the data that's coming in and how the AI tool gets to the output.

To put a cap on it, I've seen failures time and again where the time-to-market was underestimated and the place where it would fit within the rest of the business process just wasn't clear. It needs to map to clear value for the business.

Q: What else should people know about the future of AI?

I'm coming from delivery, so this is weird for me to hear, but everyone is predicting that you won't need to know things anymore. AI will just build it for you. They think of AI as a black box and don't recognize the governance needed. You still need an authority to understand what the output is and whether it's valid or not. We're seeing this now time and time again.

I've played around a bit with generative models. I always get a very confident answer. I asked it how to update a certificate in a certain application, and it was very confident about the steps. But I think the steps were taken out of four different versions and also two different tools that were actually used.

If I'm just trusting and don't know what I'm doing, I would have used the output and it wouldn't have worked at all. This is important—validation is such an important step. There are SMEs for that—they can be on the business side or in our case more on the development side, but someone needs to understand what needs to be done.

We need to really consider this in terms of how much work can actually be taken over by AI and not bank on just everything within the next few years being completely AI driven. I think it will solve a lot of problems, but there's still specialized knowledge required to verify and vet what is produced.

Taking a strategic, top-down approach to AI (and the importance of a strong data foundation).

Piyush Kumar, Global Head – Strategy, Strategic Partnerships & Solutions, Wipro

Piyush Kumar has over 23 years of experience in the IT industry in cross-functional and global roles. Currently, Piyush leads the Strategy, Partnerships, and Solutions function at Wipro's Enterprise Futuring - Digital Experience business. Piyush is a digital strategist and technology evangelist with extensive experience around emerging technologies that power customer, employee, and partner experiences. He has a successful track record in building strong relationships with customers and partners across different geographies and has delivered some marquee programs around digital experience transformations in his previous roles. Deeply passionate about the evolving landscape of technology, Piyush harbors an unyielding fascination with gadgets and emerging tech that pushes the boundaries of innovation to continuously enrich human experiences.

He has a bachelor's degree in engineering from National Institute of Technology (NIT) Trichy, India, and holds a certification of specialization in strategy from Harvard Business School along with other certificates in strategy execution, sustainable business strategy, and disruptive strategy.

Q&A with Piyush Kumar.

Q: With AI being at the forefront of everyone's mind, how should we set our expectations?

AI is already everywhere. If you're shopping online, for example, you see recommendations on what you should order. If you are on Netflix, you see suggestions. If you're communicating through email, there are spam filters and auto-complete features. All of that is AI. I drive a Tesla, a self-driving car. AI is already embedded or infused nearly everywhere in some shape or form.

But we're just scratching the surface. I think the potential offered by AI to transform businesses is immense. I was reading a paper from a top analyst firm sometime back, and I remember they mentioned something like 30% of CIOs say they're already using AI, but only 10% say they're using it strategically, which means they're probably doing some small work but not using it across departments and processes. It's just not widely adopted yet.

ChatGPT has become a catalyst for AI. It's important for organizations to put AI first as part of their strategy. In the past, organizations were selective about AI projects. Now, you need a top-down approach to guide AI adoption across the organization—it's a large change the entire organization must go through. I think organizations are preparing themselves. ChatGPT pulled that trigger. Now everyone is in reactive mode.

Q: You mentioned AI not being a strategic, company-wide initiative but more tactical at this point. What would you suggest for organizations to use AI more strategically?

Well, when I'm talking about strategy, I mean you need to start looking at an AI-first approach to the organization, infusing AI into everything, where AI becomes the center of whatever you do. And at the crux of the full AI program is data. If the data is not there, it's garbage in, garbage out. If the data is wrong, the AI will be wrong, too.

> "Organizations must look at their whole AI strategy first, put strong governance in place, and look at different use cases that can be easy wins for them in different departments."

Because AI is multifaceted, the technology can solve many different problems. There's discriminative AI, which can help you classify or cluster things. It can classify and group things, for example, spam email; it can group a set of news articles or create a segment of customers. Then there's predictive AI, which can infer from data to make predictions and improve your business decision-making.

Generative AI can help automate a lot of routine activities. In the past, we used only RPA, which was rule-based. But with AI, intelligent process automation comes into the picture, which can use cognitive capabilities to implement a broader range of activities. For instance, it can be used for risk management to identify patterns and mitigating risks or in fraud detection and remediation. AI has been applied in a few industries like financial services and healthcare, but it's not as widely adopted yet as it could be.

Q: What advice do you have for organizations trying to implement and operationalize AI?

It all boils down to the basics. You should have your data strategy dialed in. The best organizations take a top-down approach, where the c-level buys in to the critical business value and differentiation AI can drive. This may be easier to achieve with the news hype and promise of generative AI in the last nine months. Picking the right use cases to showcase the value has always been key. Focus on early wins with low-hanging opportunities while you build and invest toward the bigger vision.

But, again, you need the right data available to get the output or results you want. How do you cleanse that data? How do you prepare that data? How do you do feature engineering on top of that? All that is critical for driving results and proving the value with confidence.

The organizations that are leaders use an AI center of excellence (CoE). This helps them set governance and drive evangelization around what AI can do across the company. AI is not great at everything, but AI can do quite a lot.

If businesses look at the outcomes they want, they'll be able to determine how data plays a crucial role in delivering that outcome. Then, adoption becomes easier, and you get the desired result.

Q: What's counterintuitive to people about AI?

People need to understand that AI is not a magic box. It can have flaws, especially in early stages. AI tools will have instances where they hallucinate during use. This means generative AI will make up content on its own that isn't based on real data. AI has a lot of shortcomings right now—therefore, it's important to know those shortcomings as you design and create your own AI experiences.

I think generative AI is gaining momentum because ChatGPT was made accessible to all. We all have the chance to interact with it firsthand, showing people the potential use cases and overall value in personal and professional situations. I think people must understand that there are limitations, especially in these early stages of generative AI. People who acknowledge and work around those limitations do very well. Those who don't acknowledge the limitations end up with chaotic implementations and get into trouble. Remember AI is to augment human work and not to replace it. This realization is important to ensure that we use AI responsibly, ethically, and transparently.

Q: Yeah, I can imagine it's probably easier to get the c-suite involved now, but I can also imagine a future where people implement AI without knowing the dangers you're mentioning, causing people to push back and doubt the capabilities of AI. Almost like an overcorrection in the opposite direction. Does this resonate?

Yes, and in fact, this is applicable to any technology. If you win, you become a hero. If you lose, then it becomes a bigger problem for everyone else. I think that's why it's critical to pick the right business use cases from the start so that you show successes, understand limitations well in advance, and do the right thing for your organization.

"AI projects can fail. In fact, most AI projects fail because they lack the right governance and the right data."

Another aspect, which I heard Matt Calkins from Appian say, was private AI. Public AI is generally applicable to almost all language models online. You have a ChatGPT kind of interface. If someone from a bank wants to know something and takes information and searches in something like ChatGPT, that information becomes part of the training set. This means that your competition can come and ask anything about that bank, and they may end up finding confidential information about that bank because somebody has fed that data to train the model. Private AI is critical. Most organizations will need to focus on private AI to safeguard their data

Uncharted possibilities and the future of working alongside AI.

Akhilesh Natani, Managing Director and Co-founder, Intelligent Automation, Xebia

Akhilesh Natani's intelligent automation (IA) journey began in 2013 when he co-founded Appcino, a prominent player in the intelligent automation arena. His leadership and dedication played a pivotal role in elevating Appcino into a dominant force, recognized for its exceptional expertise in the realm of intelligent automation. Subsequently, he orchestrated the successful acquisition of Appcino by Xebia, headquartered in Atlanta, Georgia. At present, Akhilesh holds the position of Managing Director within Appcino's Intelligent Automation practice.

Under his guidance, the team has thrived, consistently delivering top-tier solutions to clients spanning diverse industries. This achievement underscores Akhilesh's profound impact and commitment to the field of intelligent automation.

Q&A with Akhilesh Natani.

Q: What is AI's role in the broader atmosphere of automation (and by extension, productivity)?

In my opinion, AI is like a genie that can do wonders for the organization and its people. Organizations are increasingly turning to artificial intelligence to automate tasks done by humans. For example, AI-powered chatbots can now answer customer questions and resolve issues, freeing up customer service representatives to focus on more complex tasks.

AI is also used to automate the development of custom applications, making the process faster and cheaper. This automation helps businesses and tech teams make software that fits their needs perfectly. With just a few instructions, AI can create the code for these applications, automating much of the development process and saving a lot of time and money.

As an associated benefit, AI is also being used to analyze data and make decisions. For example, AI can be used to analyze financial data to identify risks or to analyze healthcare data to diagnose diseases. Generative AI has already been used to design drugs for various uses within months (instead of four to five years), offering pharma significant opportunities to reduce both the costs and timeline of drug discovery.

As AI technology continues to develop, we are likely to see even more ways in which AI can be used to improve productivity. Though disruption is inevitable, I feel that this could lead to fresh job creation. Understandably, there is widespread concern about the impact of AI on jobs; however, it is important to remember that AI is not a replacement for humans. AI is a tool that could help humans to be more productive and to do their jobs better. In the future, we are likely to see a new breed of workers emerge, who are skilled in working alongside AI. These workers will be in high demand, as they will be able to leverage the power of AI to get their jobs done smartly, delivering organizational goals faster.

Q: What are the main barriers to adoption for organizations in terms of AI? And how do they overcome these barriers?

Organizational barriers can hinder AI adoption. Those who identify and remove hurdles early on will be poised for success. The key is to identify the threats, then find solutions that neatly define the responsibilities and preventive actions for these threats.

Apart from the technology-related challenges that organizations face, governance-related issues are the first ones to address. This comes down to two points. First, usually the projects aligned to corporate goals get more attention from the organization, so it's important to take a portfolio approach to AI initiatives that maximizes the benefits of AI while minimizing risk and ensuring alignment with organizational goals. Second, organizations need formal structure and accountability with a well-defined RACI matrix for successful AI initiatives.

There are further risks beyond governance that organizations must solve, too. First, regulatory. Organizations must be able to continuously track and adhere to a continuously evolving regulatory landscape. To navigate these waters, there must be strong alignment between AI practitioners and the legal and security or risk teams to evaluate AI use cases and feasibility with regulations in mind.

Second, organizations must deal with internal threats. Data is critical, so teams must acknowledge that there are both potentially malicious and benign actors within organizations that could lead to security issues.

"Organizations must prioritize data integrity and bolster their organization-level security controls."

Third, it's critical to align your AI strategy with your wider technology investment strategy (such as your cloud strategy). Make any adjustments necessary to minimize technical debt over the long term.

Q: How do you think AI will change the landscape of business—and how prepared are organizations for these changes?

Organizations stand to gain significant benefits from integrating AI into their operations, leading to both top-line and bottom-line growth. AI enables them to streamline processes, boost efficiency, and enhance risk management and compliance measures.

AI can drive top-line growth by helping organizations better understand their customers' needs and preferences. This empowers businesses to offer personalized products and services, leading to increased customer satisfaction and loyalty. Additionally, AI-driven insights facilitate identifying untapped market opportunities and emerging trends, enabling businesses to make timely strategic decisions.

On the bottom line, AI optimizes operational efficiencies by automating repetitive tasks, reducing errors, and maximizing resource utilization.

AI also plays a crucial role in risk management and compliance. By analyzing vast amounts of data and detecting patterns, AI can identify potential risks and fraudulent activities, enhancing organizations' ability to mitigate threats and comply with regulations.

Some organizations have already embraced AI and integrated it into their operations, while others are still exploring its potential. The level of maturity depends on factors like budget, access to AI talent, company culture, and regulatory constraints. As one analyst claimed, only 10% of organizations have achieved AI maturity. This underlines the fact that the biggest challenge for organizations is the competitive landscape. Those who successfully leverage AI effectively differentiate themselves from the competition. These leading organizations prioritize innovation and invest in AI research and development, staying at the forefront of technological advancements.

Industry maturity levels and the lesser-acknowledged risks of AI.

Brendan McElrone, Managing Director, Deloitte Consulting LLP

Brendan McElrone is Managing Director, Deloitte Consulting LLP and brings nearly two decades of deep technical experience to his current role. McElrone brings extensive subject matter expertise in applied artificial intelligence and electronic system architectures. Prior to Deloitte, McElrone served in VP-level engineering and AI leadership roles, leading teams of data scientists and machine-learning experts to develop applied AI systems—including an enterprise-scale natural language processing (NLP) project for the US Department of Defense. He has experience with both large and smaller enterprises in prior roles at Lockheed Martin, Johns Hopkins University Applied Physics Laboratory, and several self-started entrepreneurial endeavors. He has a master's degree in electrical engineering from Johns Hopkins University and an undergraduate degree in electrical engineering from Virginia Polytechnic Institute and State University.

Q&A with Brendan McElrone.

Q: AI has had a breakout year, and it's changing the business landscape. How prepared do you think organizations are for it? And where do you think it's making the biggest impact at the moment?

I agree AI has had a big year, and a lot has shifted with the generative AI movement. But one thing I like to remind people is that it is still AI, and fundamental to every AI problem is data. When we talk about how prepared organizations are, a driving force will be the maturity of their data ecosystem.

I think impact is going to come in several forms across the entire spectrum. ome organizations have doubled down on the data side of the house, which will provide longevity in this accelerated technology evolution environment.

Q: Do you think certain industries are more mature at the moment? In AI or on the data front?

I believe there are industries that are more mature, but those industries may not be as forthcoming with that information. Let's take the financial industry, for instance. I don't have direct insight into what happens behind the walls of those institutions, but I would gather that because they have access to a very large corpus of domain specific data, they have the fuel to allow them to accelerate AI deployments.

"Broadly, it is difficult to say where maturity levels are because 'state-of-the-art' seems to be redefined weekly. I think we could see industries accelerate maturity seemingly overnight because of data access. It is a fluid environment."

Q: There's certainly a lot of talk about the risks of AI. What are some of the risks you see for organizations that may go overlooked?

First is cost. Going back to data, if we're talking petabyte scale, the cost model can quickly become astronomical. There is a paradigm shift taking place toward smaller-sized models trained on a larger corpus of data, and I think part of that is hitting on cost model breakdown.

Additionally, I'd say access to infrastructure could be an issue. Users may run into access issues due to things like supply chain complications or demand. I often note how a technology company in the social networking domain ordered a billion dollars of GPUs this year.. That is just one entity in an industry not directly related to work I specifically do. Normally that may not be a concern but in this environment, everyone is in competition for compute access. Will we have enough hardware to support all metrics we're trying to meet with generative AI?

In addition to cost and access to infrastructure, I think more broadly, impact. The environmental impact of all of this is a very real thing that we can't understate. The hardware utilizes a significant amount of power. What will be the global impact of deploying these systems?

Q: With the emphasis on generative AI at the moment, do you think there's a risk of other AI technologies falling by the wayside?

There is a land grab taking place right now. Market share is disappearing by the minute, and I think the evolution around generative AI is certainly taking all the headlines. But I also feel there's a convergence happening. The underlying technology and infrastructure of these newer AI systems have similar architectures, and the imminent evolution to multimodal models will blur the lines between traditional AI fields.

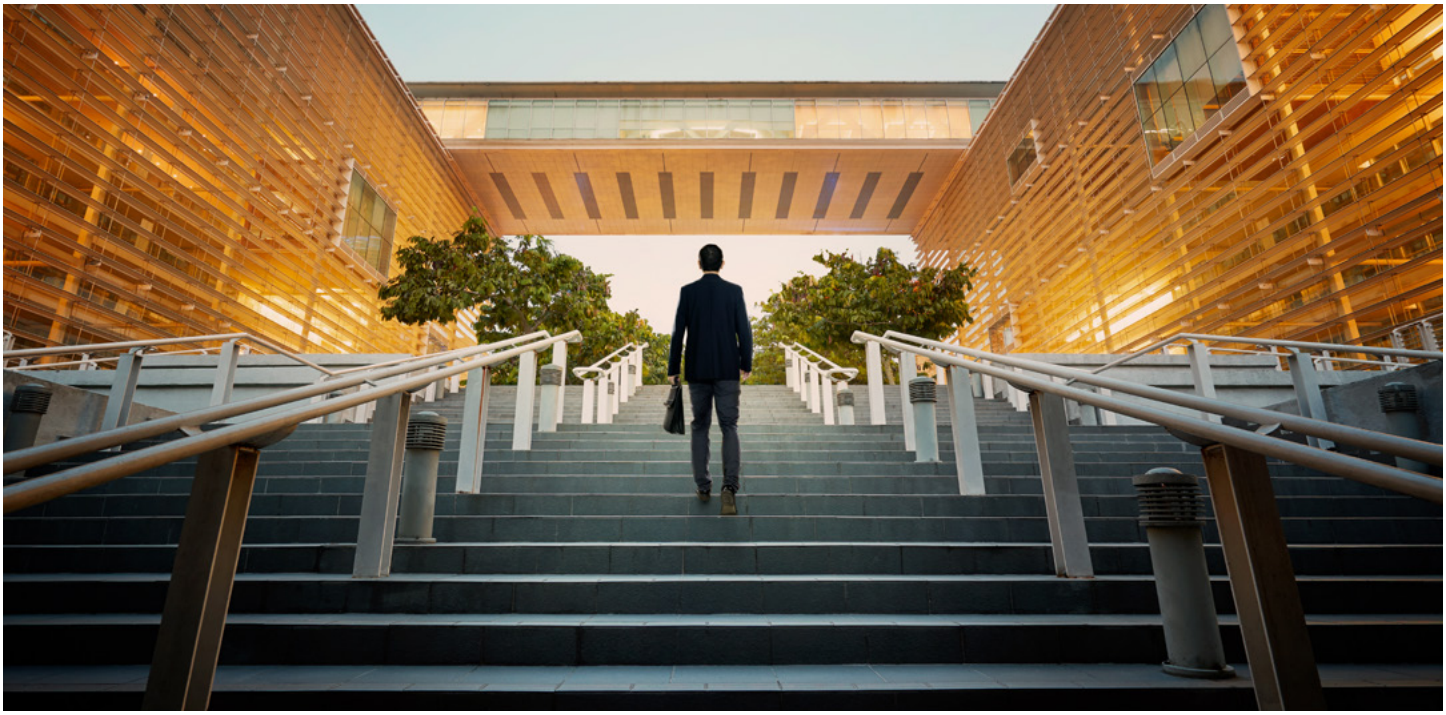
I believe we will need traditional AI expertise to fully leverage the next evolution of generative AI tech. The roots of generative AI that we know today have been around for some time. Language models have existed for several years at this point, but the mainstream aspect of generative AI is causing a new wave of adoption. I look at the new tech as a very powerful tool that can be used in a system of subsystems AI architecture. We need to leverage other aspects of AI as we have a client base that needs non-generative AI as well.

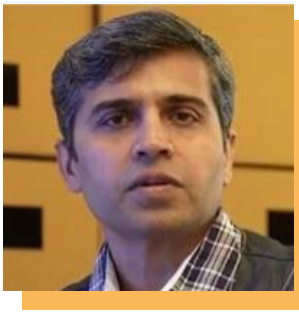
As Appian capabilities expand with this convergence, customers will look to see how Appian generative AI will further accelerate low-code development so they can get to their ROI a lot faster. I think we're seeing people who have already adopted low-code and Appian who are looking for a path to market accelerator.

Q: So, what are the gaps in the current conversations around AI?

I think it's being discussed, but the risks need more emphasis, as they do for any emerging technology. Fraudulent AI use is very real, and I think it will accelerate. Unfortunately, sometimes it takes a significant event for the broader mainstream to realize these risks and double down on the fact we need to focus on them.

It's difficult to say how we get out in front of that. The curious engineer in me is always questioning and asking about risks and limitations first. I firmly believe the benefits from this technology will be staggering, but the edge cases of potentially adversarial aspects are very real and need to be thought out sooner rather than later.





Forging ahead into new markets with AI.

Hasit Trivedi, CTO Digital Technologies and Global Head – AI, Tech Mahindra

Hasit Trivedi is a seasoned expert with 25+ years of experience in the technology business and industry recognition as a leading voice in the field of artificial intelligence. A tech evangelist who has run businesses in a wide variety of niche technology areas like artificial intelligence, intelligent automation, cloud, IoT, and more, Hasit has played key roles in technology innovation, client delivery, product management, and product engineering and has experience building units from scratch. Hasit is GPAI SME Invitee (Offshoot of G20 Summit) for AI/Data Governance, MeitY task force member for IndiaAI, NASSCOM DeepTech Mentor as well as a member of various industry and technology forums.

Currently, Hasit is the CTO, Digital Technologies and Global Head of AI for Tech Mahindra. He is responsible for building technology-led businesses and platforms in the space of AI, analytics, and intelligent automation and helping organizations to drive digital transformation. Prior to Tech Mahindra, Hasit worked with Infosys for more than two decades. As a Global Head of AI & Automation Services, he was responsible for building Infosys Services offering around the AI and automation space, helping the organization incubate business in some of the niche technology areas as well as in new geographies.

Hasit earned his bachelor's degree in electronics and telecommunications from Devi Ahilya Vishwavidyalaya. He is a Steering Committee member for: AI, Digital and Robotic Forum of Confederation of Indian Industry (CII), Mentor & SME - AI & Automation: Women Wizard Rule Tech (A Diversity and Inclusion Initiative) by NASSCOM.

Q&A with Hasit Trivedi.

Q: How do you think AI will impact the business landscape?

AI is pervasive. It must be infused in every aspect of a business, be it a business model, the processes that define it, the applications that deliver it, or the infrastructure that supports it. It's the first time that we have a technology that can see, read, speak, and listen like humans. So far AI has been able to predict, recommend, detect, and converse, and now it can create as well thanks to generative AI! This transformative capability positions AI as a digital assistant to humans, greatly amplifying human potential.

Generative AI will cause disruption as well as amplification. While some jobs and functions will get disrupted significantly due to the technology's extreme efficiency gains, many other roles will be amplified by deskilling complex human skills and, thus, unlocking faster value in businesses. I will say, for industries involved in transportation, packaging, and logistics, there may be a reduced need for human labor, as AI and robotics can efficiently perform these tasks.

"Like any other technology, the adoption of generative AI varies among companies. Some are quick to embrace it, while others adopt a cautious 'wait-and-watch' approach to assess its actual impact on their operations."

Q: How should companies go about implementing AI to get their best results?

At Tech Mahindra, we refer to the AI journey for clients as amplifAI. Under the same term, we have created all of our AI offerings and solutions. The term "amplifAI" conveys our philosophy and belief that AI is pervasive, and it has incredible power to amplify human capabilities.

We also focus on our terms "Zero Ops to Infinity Ops" (0 → ∞), which signifies how enterprises can derive value from the full spectrum of AI applications. We help our clients to aspire for Zero Ops, which refers to driving extreme efficiency and effectiveness in business processes that enable zero disruption, zero errors, zero touch, and zero latency. We also assist clients to aspire for Infinity Ops to solve the problems of the future, which are hitherto considered "un-solvable" due to some human dependency or technology limitations.

Zero Ops is where most of the money goes today because the savings lead to better capital expenditures (CapEx). It funds itself, and this is what businesses prefer to do right now. But there are ideas for Infinity Ops where the businesses must commit CapEx to see first whether they will work or benefit them. I think businesses need to adopt the mindset of taking bold steps to take on new business models, products, and experiences, which lands on the Infinity Ops side. Businesses can spend the majority of effort, time, and energy on Zero Ops, but some selection of bandwidth and money should go into the Infinity Ops category. This will help businesses stand out to customers beyond profitability and efficiency gains.

Q: I really like these concepts and their distinction. When it comes to Infinity Ops, can you give an example of this? How would someone enter into new business opportunities with AI?

I would love to share an example of how at Tech Mahindra we successfully ventured into a new revenue stream by leveraging innovative approaches. We were not in the business of field services for power and utility companies. Typically, these companies have transmission assets like poles, towers, and wires through which electricity flows, and there is a business process for inspecting these assets. This inspection task was traditionally handled by specialized field engineers from dedicated service providers, making it seemingly inaccessible for a technology-focused company like Tech Mahindra.

To overcome geographical limitations and reduce the need for field engineers to physically visit these assets, we implemented cutting-edge technologies, drones, and helicopters to capture image data. Instead of sending field engineers to the assets, we started bringing the assets to our engineers virtually, eliminating the need for travel or physical access. Then, we integrated AI into our operations to enhance problem detection. Initially, we relied on the expertise of field engineers to train our AI models, hiring a select few to assist in the process. Today, our AI systems autonomously handle the detection tasks.

Before our intervention, our customers conducted audits only once a year, with field inspections covering a mere 10% of their assets due to logistical challenges posed by remote locations and difficult terrains. Now, we provide comprehensive coverage for 100% of their assets, conducting four inspections annually, all at a more cost-effective rate. This exemplifies the potential of technology-driven strategies to enter new business domains successfully.

Q: So, what do you think are the main failure points around AI implementations right now?

The success of a project hinges on obtaining management's alignment with the strategic plan. Ideally, this alignment should stem from a top-down approach, unless there are remarkable instances of effective bottom-up leadership. Although a bottom-up approach may occasionally yield positive results, the consensus is that a top-down strategy tends to be more effective.

A pivotal factor in achieving success is the formation of a cross-functional team to tackle the project. At times, technology becomes the most important thing in projects, and that often leads to exclusive involvement of technical experts: for instance, AI-driven projects where data engineers and data scientists dominate the scene. However, this may lead to disappointing outcomes. For example, many websites have chatbots now, yet only a fraction truly deliver. Why? Because they are often conceived and developed by technical specialists rather than individuals who possess a deep understanding of effective communication with consumers or personas. Building chatbots is easy, but making ones that people can use easily is hard.

Q: OK. So what's something that people really need to key in on? Maybe something that's flying under the radar about AI that needs more prominence in discussions?

I'd like to highlight two key points. First, we avoid acknowledging the profound influence that AI will exert on employment. While it promises substantial transformative effects, it is crucial to communicate this impact delicately to avoid unsettling individuals. Although we are empathetic and understand these concerns, it is essential to accept that certain occupations will undergo significant changes.

The advent of AI is expected to give rise to a multitude of new job opportunities. It is anticipated that AI will generate approximately three to four times the number of jobs currently in existence, mirroring the historical pattern accompanying technological advancements. However, it is imperative to provide support for those whose professions will be most affected, facilitating their transition through reskilling, refactoring, and the identification of new career paths.

The second point is that, while we discuss the impressive capabilities of generative AI, we tend to ignore its potential dangers. Ungoverned use of this technology can create turmoil in society through fake narratives and fraudulent activities using generative AI. For example, it might lead to crime, as voices can be replicated or narratives altered. The speed at which this can happen might cause significant unrest. While this was possible in the past, it was quite resource intensive. With current technology, these actions can be carried out rapidly.

Humanity has shown wisdom with certain technologies. For instance, we harnessed nuclear power, but we established safeguards to ensure its safe usage.

"I believe that, over time, both technology creators and regulators will implement enough measures to ensure responsible use. Eventually, everything will align as it should."

Q: What do you think we should do about these dangers?

Key ecosystem players need to play critical roles in AI governance. Regulatory bodies need to play their role, and technology creators need to bring tech interventions to ensure the technology is safe, secure, and suitable for work, including addressing aspects like copyrights.

Also, the people implementing this technology—companies like ours at Tech Mahindra or any other service provider—must recognize their own roles in this. They know how this technology works and must safeguard it.

For example, if certain data is not to be used for a particular purpose, they must put in technical safeguards to prevent this. If output can be harmful or offensive, they must filter that out. If malicious content comes out, they must block that as well.

Yet, it's essential to remember that while AI can create issues, it can also resolve them. It's like an antidote. While AI can lead to cyberattacks, it can also defend against them. Technology can cause disruption, but it can also provide protection.

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