The edge

Vol' 05

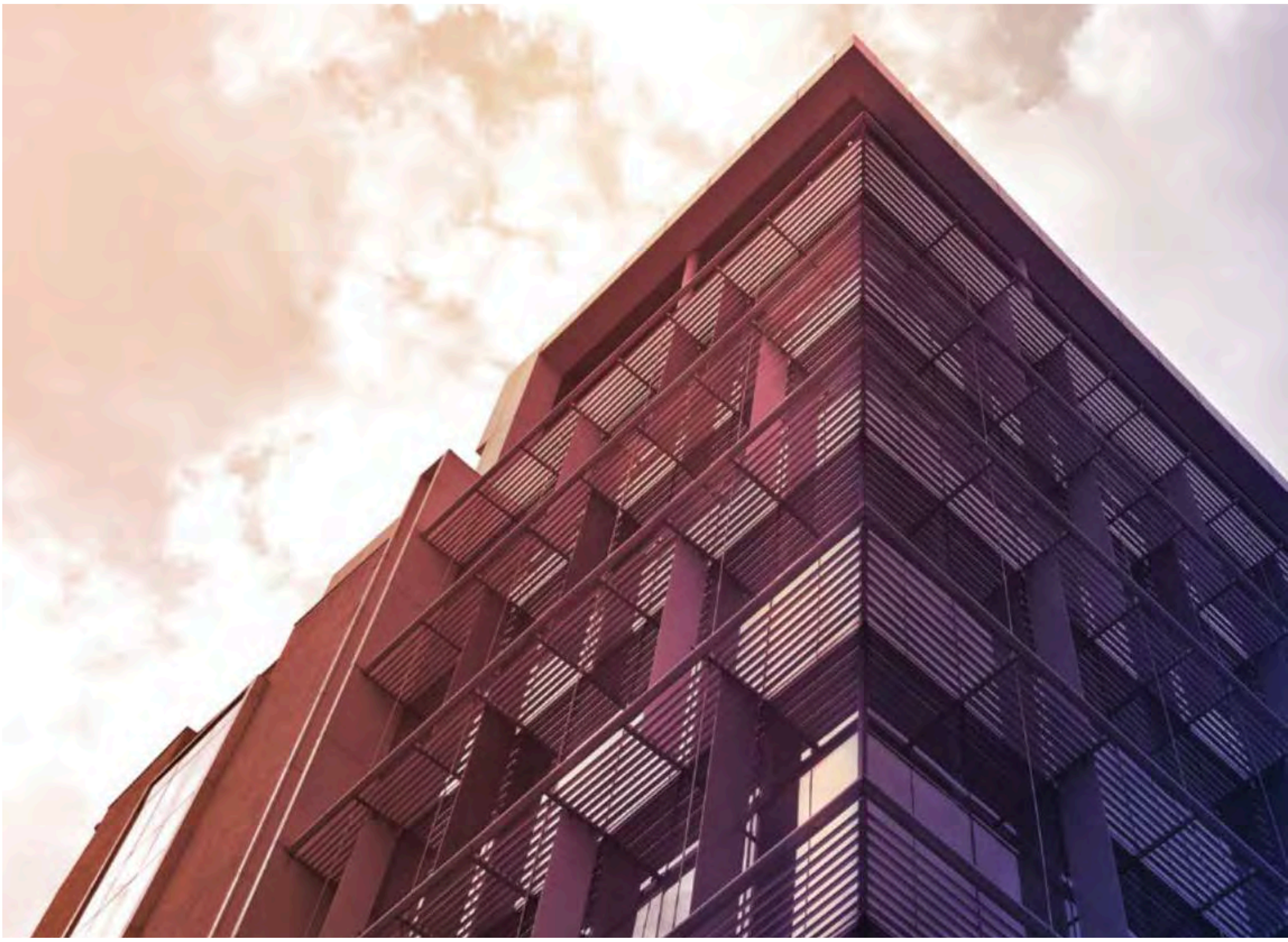
quarterly

2021

A Year of Possibilities

Anniversary Edition

edgeverve
An Infosys company



EdgeVerve Headquarters, Bengaluru, India

About EdgeVerve

EdgeVerve Systems Limited, a wholly owned subsidiary of Infosys, is a global leader in AI and Automation, assisting clients thrive in their digital transformation journey. Our mission is to create a world where our technology augments human intelligence and creates possibilities for enterprises to thrive. Our comprehensive product portfolio across AI (Infosys Nia), Automation (AssistEdge) and AI enabled Business Applications (TradeEdge, FinXEdge, ProcureEdge) helps businesses develop deeper connections with stakeholders, power continuous innovation and accelerate growth in the digital world. Today EdgeVerve's products are used by global corporations across financial services, insurance, retail, consumer & packaged goods, life sciences, manufacturing telecom and utilities.

Visit us to know how enterprises across the world are thriving with the help of our technology. **https://www.edgeverve.com/**

Anniversary Edition

2021 - A Year of Possibilities

All eyes are set on 2021 — a year of hope, stability, and growth. A year of revolutionaries and trailblazers who believe that the future rests on disruptive technologies forming the backbone of resilient enterprises. A year where reinvention takes center stage – ramping up investments in AI and Automation – with a robust digital strategy that will inevitably rewrite the rules of the game.

The crisis is still unfolding; we can neither deny its existence nor ignore its repercussions. But, shutting down the modern global economy is inconceivable. Organizations are looking at areas of untapped opportunities that lie on the next horizon. They are prepared to test uncharted waters and respond to the shifting winds by leveraging the power of Automation & AI.

2021 will be a year where new paths are forged with a renewed focus on creating digital-first experiences, enabling organizations to step up, inspire, and lead, creating a new narrative in this period of great uncertainty. The first-anniversary edition of The Edge Quarterly emphasizes how 2021 will be a year where organizations combine resilience with technology to fuel a new future of growth.

The Edge Quarterly was conceived to share practical leadership ideas and best practices with enterprise leaders. We hope that you will like the articles and share ideas, thoughts, and comments. You can also view the online version of the magazine for access to other cutting-edge white papers in addition to blogs on AI and Automation at **edgeverve.com/the-edge-quarterly**

To feature your enterprise story or transformation journey in our next edition, please write to us at **contact@edgeverve.com**

The Editorial Team

Contents

New Year Of Possibilities 5

Transforming South East Asia's Financial Sector 6

The Beginning Of An Intelligent World Order 7

The Case For Failsafe Protocols In AI Based Automation Deployments 8

Think Big And Move Ahead 9

5 ‘Predictions’ For The Indian Automobile Industry 10

Creating Unlimited Possibilities With AI 11

Powering New Opportunities 12

Ambient Intelligence 13

Have You Deployed RPA In Testing Yet? 14

2021 - Time for business models to make way for model businesses? 15

Ignorance Is Risk 16

The New Digital Normal 17

Cutting Through The Noise 18

Intelligent Automation 19

January 2021

New Year Of Possibilities

5 predictions for 2021

Atul Soneja
SVP & Global Head of Edge and Infosys Nia™
EdgeVerve Systems Ltd. (An Infosys Company)

Summary

The year ahead requires organizations to leverage technology, recover, and grow. I believe the key for a successful organization is to build truly digital customer experiences, leverage AI and data for internal operations, create smarter supply chain networks, gain true process insights, and humanize intelligent automation.

Predictions for 2021, with a 20:20 hindsight

The year 2020 started for everyone with high hopes and plans. Without stating the obvious, we all know how businesses have had to adapt, be resilient, and transform to not only survive but thrive in the new normal.

Over the last two editions of The Edge Quarterly, I have covered how businesses and leaders need to build resilience to thrive in a crisis[i], and how they need to look beyond the short term[ii] and have long term strategic goals in focus to emerge out of the crisis stronger. We are currently well entrenched in the new normal and continue to adapt both personally and professionally to the conditions imposed by the pandemic.

This issue marks the first year anniversary of The Edge Quarterly, and we want to celebrate more than the success of our magazine; we want to look at the year ahead. The year ahead starts with hope in these uncertain times, with good news on vaccines, which serve as a beacon for the resiliency of the human race and our advances in technology.

The pandemic has accelerated digital transformation and automation across industries and has driven businesses to rethink and overhaul inefficient processes. As the previous recessions and economic crises have shown, we expect the leaner, smarter, and customer-focused businesses to emerge not only stronger, but also pioneer new innovations in 2021.

The 'Next Normal' and the underlying uncertainties

Innovation and resiliency have been the keywords for businesses that have thrived in the pandemic. The extended lockdowns, resource constraints, and social distancing norms have forced corporations and small businesses alike to scramble and rethink their strategies and business from the ground up.

The entire educational sector has seen massive disruption — schools and colleges, even in remote villages, have had to embrace online classes and solve the challenges that inevitably come with the changes. Online businesses like eCommerce have thrived, while vacation home rental companies have had to undergo crippling lean periods during the normally peak-summers and pivot to the 'work + vacation' travelers. Internet and connectivity services have endured massive strain on their infrastructure as remote work and home entertainment peaked across the world.

> In a way, the pandemic has shown businesses the processes that can break during a crisis and the unlimited, untapped potential in their resources with a remote and digital-first strategy.

For the first time since the crisis started, the news about the potential mass availability of vaccines within the next few months has changed the outlook on the horizon. It is now more of hope, stability, and growth. It promises untapped opportunities for organizations that have embraced AI and Automation and continue to reinvent and innovate on the strength of their digital strategies.

Predicting trends in 2021 — Growing past a crisis

The new year is thus a harbinger of another new normal. A period of uncertainty that will define the business landscape for the next decade or more. Digital transformation has accelerated at an unprecedented scale. Analysts and business executives expect most of the changes to impact long-term core business strategies. Technology is a strategic differentiator and the core of the modern resilient enterprise. AI and Automation are the answers to the challenges in the crisis now and in the future.

In my previous article, I had stressed the need for a technology strategy that balances growth and resilience for businesses to continue without interruption, irrespective of any disruptions in the business environment. The year ahead requires organizations to leverage this strategy, recover, and grow. I believe the key for a successful organization is to build truly digital customer experiences, leverage AI and data for internal operations, create smarter supply chain networks, gain true process insights, and humanize intelligent automation.

Truly digital customer experiences

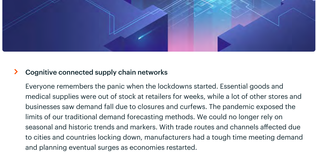
Organizations have had to innovate fast in the past few months. One of our clients saw their support requests triple during the pandemic, but their backend team was now short-staffed and remote, which resulted in backlogs and delayed customer service. They immediately worked with us to get Nia Chatbots enabled for their business. The team got the chatbots working and online in record time, and the client can now handle the requests much faster than they used to before the pandemic started.

Stories like this abound all over the world. It has now become imperative for customer-facing businesses to create a fully remote digital experience for their customers. We have seen traditionally automation averse industries now embracing bots and automating processes. Employees who have seen automation as a threat are now upskilling at home and finding creative ways to handle their remote workload efficiently. Therefore, I expect 2021 to be the year when organizations and employees work together to create seamless, touchless, truly digital customer experiences.

AI empowered remote workforces

The pandemic may have forced organizations to switch to a remote working model, but it has also shown everyone the numerous advantages a remote workforce brings to the enterprise. As employees get a better work-life balance, organizations have secured their networks, automated their processes, and collected data on the usage of their resources. Internal IT operations had to scramble to facilitate this transformation. In most organizations, AI has proven to be the savior, predicting and handling possibly crippling security and overage incidents.

The pandemic is predicted to impact businesses for the better part of 2021, and with organizations now rethinking their infrastructure setup, working remotely will be the norm for many of us. **With the advanced AI tools at our disposal, it is only a matter of time before AI-powered IT operations, or AIOps, be an integral part of the Next Normal.**



Cognitive connected supply chain networks

Everyone remembers the panic when the lockdowns started. Essential goods and medical supplies were out of stock at retailers for weeks, while a lot of other stores and businesses saw demand fall due to closures and curfews. The pandemic exposed the limits of our traditional demand forecasting methods. We could no longer rely on seasonal and historic trends and markers. With trade routes and channels affected due to cities and countries locking down, manufacturers had a tough time meeting demand and planning eventual surges as economies restarted.

This has brought to the fore a need for the Cognitive, Connected Supply Chain. This is a supply chain that automatically adjusts to spikes and drops in demand in real-time. Such a supply chain is possible through centralized control towers, which are data-driven, with real-time access to information, and fully aligned across business functions. FMCG, CRL, and BFI industries are now investing in building such autonomous supply chains, and the gains from these investments will be seen across the world soon.

Intuitive process discovery

Organizations are investing in Intelligent Automation extensively. As we strive to build highly automated and intelligent processes, it becomes imperative that businesses know every single step in the processes they are automating.

> A significant need in understanding your processes is to understand how human interactions drive the processes. Both attended and unattended automation use cases become more autonomous when all possible interactions and outcomes are discovered and automated effectively. Such granular level data capture and analysis is possible only with intelligent and intuitive process discovery.

Organizations have understood the need for fully scientific, bias-free process mapping, and will now look to build actionable process insights as a critical capability.

Humanizing intelligent automation

At EdgeVerve, we fully believe that automation serves to empower the human counterpart. While automation aims to drive improved efficiency across the enterprise, it is important to remember the unique advantages humans bring to the enterprise. Human specialists bring creativity and empathy to their customer interactions and will be aided by the accuracy and productiveness of their digital twins.

The possibilities unlocked by such a combination are endless. Automation is not just for repetitive back-office processes anymore. It is now touching every aspect of an enterprise — the employees, the systems, and the customers. Dynamic, contextual operations will be the goal for organizations in 2021. And such operations cannot be built on deterministic automation alone- it needs a much more evolved and nuanced human-digital interaction. This step will be a significant milestone in their Automation Singularity journey.

Full speed ahead

As I had written previously, when disruption strikes, we either innovate or perish. There is no third option. Companies have innovated, survived, and built to this point. Now they need to innovate again when the pandemic ends. The current normal will be disrupted again, and the future belongs to not only the resilient enterprise, but also to an agile technology first enterprise.

2021 will thus be a year where new paths are forged with a renewed focus on creating digital-first experiences, enabling organizations to step up, inspire, and lead, creating a new narrative in this period of great uncertainty.

References

i. https://www.edgeverve.com/the-edge-quarterly/being-resilient/
ii. https://www.edgeverve.com/the-edge-quarterly/dominating-disruptions/

January 2021

Transforming South East Asia's Financial Sector

UnionBank's way

Jonathan Jerald V. Deomano
First Vice President, Asset Collections Group,
UnionBank of Philippines

Summary

Financial services enterprise has been impacted with high delinquency and charge-offs, due to challenges in default management. This has increase manifold during this time when moratoriums were passed on as benefit to end consumer, it has also led to an increase in high operating cost and unable to maintain an optimal customer experience. Read this article to know about how a Philippines bank has gone about leveraging AI to address these problems.

As a hub for Fintech in Asia, the Philippines is fast carving out a reputation for innovation driven by a flourishing startup ecosystem, young population, and high internet penetration 73%[1]. The Filipino consumer has led this wave, adopting tech with great confidence and intent, as well as driving a shift in how businesses operate. This high degree of consumer readiness is accelerating the evolution of a market-first intelligent approach, centered on user experience. The recent pandemic has accelerated the process of digital transformation in the country, placing an impetus on technologies that reduce friction in the customer experience, improve efficiency, and ensure safety. With technology already key to financial inclusion and better access to banking services, this acceleration firmly places banking innovation in the spotlight, making it a crucial step in the economy's progress.

Leading Innovation through Action

Despite these advantages, the market is not without challenges. Limited access to financial services, combined with the legislation currently adapting to the speed and resources required to build a formidable startup ecosystem, makes innovation at scale a complex challenge. It is here that private sector actors like Union Bank of the Philippines (UnionBank) are playing a lead role, spearheading innovations, specifically AI adoption, in the region. Whether it is pioneering the largest cash-out network rollout in the Philippines -11,000 cash remittance counters across the country, or establishing pioneering partnerships with both private and public sector players, UnionBank's efforts leverage technology and digital services to spearhead the cause of financial inclusion and innovation in the Philippines. UnionBank's recent partnership with the Monetary Authority of Singapore (MAS) is a case in point. As the only Philippine-based company in a 17-member consortium of international financial institutions established by MAS, UnionBank is helping create a framework called Veritas, which governs the responsible deployment and adoption of AI and Data Analytics by financial institutions. Veritas will help financial institutions assess their AIDA-powered solutions based on fairness, ethics, accountability, and transparency, with the resulting increase in trust expected to drive cross-border data protection compliance. UnionBank's extensive use of AI in fraud detection allows the company to contribute to the creation of Veritas by sharing knowledge and expertise with MAS.

AI that Drives Real Impact

Technology is only as powerful as the quality of its deployment and the specificity of an objective. Leadership and specialist knowledge are integral to this focused approach. Recently, UnionBank added to its ranks world-renowned data science expert Dr David Hardoon, previously MAS's special advisor on artificial intelligence. The company understands that data and AI are fundamental to the next wave of digital transformation, as it seeks to mobilize a digital-first ecosystem for both individual and institutional customers. Through UBX, its Fintech spin-off, UnionBank is delivering several cutting-edge technologies in the space of B2B and logistics, investment, cryptocurrency innovations, and other key technical capabilities. Framing the pandemic-driven lockdown protocols as an opportunity to accelerate innovation, the bank sees itself developing into a technology company that is also a bank, moving beyond the often limited definition of banking-focused institutions. Similar adoption and technology leadership saw Quicken Loans, an intelligence-driven mortgage lender in the US, swiftly become the country's largest mortgage originators, overtaking traditional players like Wells Fargo. These technologies are expected to drive the next phase of our evolution.

While the growing consumer appetite for online offerings is driving UnionBank's focus on AI-led technologies, it also understands the complex risks associated with such technologies. A dedicated AI and Data Policy unit ensures ethical and business standards across AI systems through better data governance, fairness, human control, and intrinsic respect for human rights. The bank is also deploying AI to address performance challenges, specifically portfolio delinquency, using best-in-class tools to address the state of its high stress and high delinquency products.

How UnionBank is Using AI to Address Portfolio Challenges

At UnionBank, AI is not just part of our customer value proposition, but a capability fundamental to our operations. Specifically, in the lending business, high delinquency can place significant stress on performance.

> Given our aim of driving AI adoption in banks and other financial institutions, we wanted to show the efficacy of AI-powered technologies and their impact on the bottom line. In partnership with EdgeVerve, UnionBank ran a pilot of FinXEdge Collect, a data-driven intelligence application designed to reduce delinquency rates and charge-offs. Using FinXEdge Collect for the bank's credit card and motorcycle loan portfolios was the logical first step given both the relatively larger portfolio size and higher delinquency rates of these verticals. FinXEdge's use of unstructured and non-traditional data elements to compute risk, its ability to continuously update strategies using even feedback from call records, and proven ability to improve RPC (Right Party Contact) and PTPs (Promise to Pay) drew the bank to work with the platform. The pilot began in the second half of this year and is already showing some impressive initial results.

Employing a Champion-Challenger approach, the experiment with AI-enabled tech has seen the challenger emulate and, sometimes, exceed the efficacy of existing operations. In time, the AI-led model is fully expected to power core systems across functions. An AI-led collections process is significantly more efficient, transparent, and effective when compared to traditional tools and techniques. Early results have been promising with substantial improvements in collection rates, a near 100 basis point reduction in roll rates, and a 15% spike in RPC and corresponding PTPs. As the results continue to deliver consistent outcomes, the bank is confident that its processes will shift from traditional risk modelling techniques to focus on AI-based modelling. With portfolio performance also a function of selection, AI is fully expected to be used at the top of the funnel to revamp our loan origination process, segmenting portfolios with an unprecedented amount of detail.

A View to the Future

As a pioneer of smart technology adoption in the Philippines, UnionBank's commitment is to harness the power of groundbreaking technology to enhance both customer experience and business performance. With our collections process firmly moving towards an AI-focused ecosystem, we envisage adopting the technology for other portfolio products like home loans. The goal, however, remains to drive UnionBank's digital leadership through AI, scaling it's intelligent transformation journey, and continue to power the digital transformation of the BFSI sector in the Philippines, leading the surge towards an intelligent future where an exceptional customer experience is the norm.

References

i https://business.inquirer.net/290279/gearing-to-become-next-hotbed-for-fintech

January 2021

The Beginning Of An Intelligent World Order

Artificial Intelligence (AI) in the post-pandemic world

Mohit Joshi
President, Financial Services, Healthcare, Insurance and Life Sciences (FSHIL), Infosys.
Chairman of the Board at EdgeVerve Systems Ltd.
(An Infosys Company)

Summary

Revolutions are rare. Artificial Intelligence is the catalyst for future possibilities and revolutions, creating a new narrative that was unthinkable in the past.

While businesses are aggressively pursuing the benefits of AI more than ever — delivering hyper-personalized services, creating meaningful customer experiences, and amplifying human capabilities — this is just the tip of the iceberg. We have only scratched the surface. With the COVID-19 pandemic adding fuel to the proverbial AI fire, businesses are ramping up investments, signaling a new wave of innovation, where machines+humans work collaboratively. This article puts the spotlight on how businesses will need to rethink AI in terms of enterprise-wide applications as they write the next chapter of growth.

The AI narrative has moved from cost savings to one that of business differentiation. Today, we see banks leveraging end-to-end AI to derive deeper customer insights and behavior patterns and offer hyper-personalized services, predict and prevent churn, cross-sell better, and minimize fraud risk. Similarly, drug discovery that would earlier take years and billions of dollars can be fast-tracked and made affordable by leveraging AI for drug target identification and validation.

These are examples of what's to come; and what is already brewing in many organizations. In the coming decade, Artificial Intelligence is going to be everywhere. That is what the market demands and that's what makes business sense.

AI continues to be a hot trend of recent years with its tremendous potential to create impact. The COVID-19 pandemic has added fuel to the proverbial AI fire by creating a foundation for widespread adoption by:

- **Pushing companies to adopt digital solutions almost overnight**
  According to McKinsey, digital adoption vaulted forward five years in a matter of eight weeks[i]. Companies turned to digital systems and data science to make sense of the situation and reassess demand, supply chains, and operations.
- **Creating an explosion in the amount of data generated**[ii]
  Increased virtual communication, more online shopping, remote working, and increasing automation and digitalization fueled data generation for AI engine's consumption, even bringing unstructured data into the fold. These insights are helping companies create better outcomes for every stakeholder.
- **Making people and businesses more open to change and new ways of working**
  A forced transition to digital is now helping build a more resilient, technology-centric future. In a survey,[iii] 62% of respondents said they will continue the use of touchless interfaces such as voice assistants, facial recognition, digital showrooms, etc. even post-pandemic.

However, to take advantage of the groundwork that's happened in 2020, businesses need to take a re-look at their approach to AI. While, to date, investments in AI projects were limited to specific functions or business units, going forward businesses need to start thinking of AI in terms of enterprise-wide applications. A feat that few have managed to achieve yet.

The Holy Grail: The quest for achieving end-to-end AI

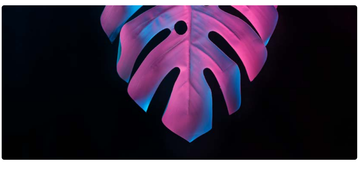
While the results are evident, struggles to scale AI, and thus its returns, remain. According to reports[iv] over 70% of companies find it difficult to scale AI, most only able to implement it piecemeal. Large scale adoption challenges leave AI projects in fragmented silos across the business affecting ROI. This is a result of viewing AI as just another technology implementation and not something that requires organizational change.

> We need to understand that AI is not merely about learnability, data crunching or process automation. The true potential of AI lies in its capacity to transform every aspect of business and create new opportunities for integration within industry ecosystems.

According to BCG[v] , companies that make extensive changes to many processes for AI adoption are 5x more likely to realize significant financial gains. A glimpse of this transformation is visible to those few who have managed to scale AI across processes and departments to get closer to the end-to-end AI vision.

For instance, a leading O&G player has been able to use AI across its operations to prevent equipment malfunctions, reduce maintenance costs, and scout for new oil & gas deposits 80% faster. Another great example of this is the contactless Amazon Go store[vi] where customers just walk in the store, pick up the items they need, and walk out without any checkout or waiting. At Edgeverve we've helped companies across the board weather the pandemic with AI interventions. For example, a leading bank was able to process 25,000 PPP loan applications in just a week, processing 15000 digital forms per hour; a cosmetics major was able to respond to market demand instantly with real-time promotional insights; and a healthcare manufacturer saved $40Mn in costs with end-to-end intelligent automation.

It is time for companies to start looking beyond pilot projects and focus on AI proliferation. Embedding AI in every aspect of their business can catapult their growth in the new normal. To do this they need to:



- **Define a holistic AI vision**
  Lack of an AI vision is the reason most AI scaling projects flounder. Companies need to define a vision and AI roadmap to deliver the specific outcomes that would make business sense for them.
- **Do detailed due diligence**
  Not identifying the potential challenges, right partners, and hidden costs, etc. can derail an AI project even before it begins. Take time to understand how the project would impact the organization and plan out a seamless transition from the get-go.
- **Invest in data quality**
  Most organizations lack the capability to provide volumes and quality of integrated data that AI systems need to perform optimally. Ensuring top-quality data would ensure AI performs as expected.
- **Modernize legacy infrastructure**
  To support AI at scale the rest of the IT infrastructure must also be agile and scalable, something that traditional structures lack.
- **Mitigate organizational resistance**
  Be it the existing processes or unwillingness of people to adapt to the change, organizational resistance can be a big deterrent for AI implementation. It's very important to get stakeholder buy-in and put in place internal communication campaigns to make a cultural shift.
- **Build AI-related skills and competencies**
  Upskilling existing resources and creating new technology partnerships must be a high priority.

Dawn of a new era

The shock of COVID-19 will be felt in the years to come. However, there is an opportunity in every adversity. In the aftermath of the COVID-19 pandemic, we stand at the gateway to a new decade that is ripe for change. Depending on how we leverage the tools and technologies available to us, we can write the next chapter of business growth. In a white-water world, end-to-end AI can help companies pivot strategies and tactics in real-time. AI engines can create new synergies across the value chain increasing collaboration, boosting innovation, and taking end-user experience to new heights in a new remote world connected by technology.

While AI adoption marches full steam ahead, and investments in AI increase across the board, the most successful businesses will be those that are able to get machines and humans to work together collaboratively. The agenda in the coming decade, to solve most of the challenges businesses are plagued with, is about combining human ingenuity, creativity, and emotional intelligence with the efficiency, accuracy, and agility of artificial intelligence.

When it comes to the potential of AI, we have just scratched the surface. This is, indeed, just the beginning.

References

i https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/the-covid-19-recovery-will-be-digital-a-plan-for-the-first-90-days
ii https://www.visualcapitalist.com/every-minute-internet-2020/
iii https://www.techrepublic.com/article/ai-is-accelerating-the-move-to-a-touchless-world/
iv https://www.forbes.com/sites/gilpress/2019/11/29/63-of-executives-say-ai-leads-to-increased-revenues-and-44-report-reduced-costs/?sh=5a046efa14b3
v https://www.bcg.com/publications/2020/is-your-company-embracing-full-potential-of-artificial-intelligence
vi https://bigdata-madesimple.com/ais-impact-on-retail-examples-of-walmart-and-amazon/

January 2021

The Case For Failsafe Protocols In AI Based Automation Deployments

Humans are still needed in the loop

Rajeshwari Ganesan
AVP, Solution Consulting
EdgeVerve Systems Ltd. (An Infosys Company)

Arjun Prasanna Athreya, M.S., Ph.D.,
Associate Consultant,
Assistant Professor, College of Medicine, Mayo Clinic

Summary

AI is already automating several aspects of human and/or machine functioning and it's utility is expected to substantially increase in the future. These automations, while being accurate in a majority of instances, are highly unlikely to achieve sustained 100% precision across the entire space of potential actions. So how can we design, introduce and operationalize "failsafe protocols"? Read this article to know more.

Machine Learning (ML) and broadly Artificial Intelligence (AI) technologies have caused significant disruptions by automating several aspects of human and/or machine functioning. From automotive and healthcare to legal and retail experience, the disruption is significant and is expected to be sustained in the future. ML/AI technologies use data to learn rules/patterns associated with tasks; these rules (e.g., Bayesian conditioning) are then used to make decisions which be used to actuate without needing human supervision (referred to as automation in this article). These automations, while being "accurate" (i.e., making the right decision and actuating as expected) on a majority of instances, are highly-unlikely to achieve sustained 100% precision across the entire space of actions.

In part, this lack of perfection can be attributed to a combination of the lack of:

- data relating to rare events
- the context in which seemingly correct decisions could lead to adverse effects downstream
- feedback mechanisms to point out which corner cases need changes in rules to make correct decisions in the future

Knowing that these widely deployed technologies will not be perfect, now or in the foreseeable future, requires us as a community (i.e., academic researchers, developers, industry leaders, and technology adopters) to think about how we can design, introduce and operationalize "failsafe protocols." Particularly, where human experts can serve as "AI-chaperones," allowing for AI technologies to bloom (akin to children enjoying company in adult supervision), while also telling the AI models where the judgment was wrong, and what is the course of retraining and reengineering to avoid incorrect actuations in future (akin to children being told to correct behavior if needed). Just as children evolve to become well-behaved adults in socially complex situations when chaperoned, AI systems with "human AI-chaperons" could also evolve into reliable, complex decision-making engines that earn the long-term trust of its adopters.

> The most riveting evidence of needing human-in-the-loop to ensure sustained and reliable levels of automation lies in the airline sector. Capt. Sullenberger flying a modern-day commercial airplane, landed his plane safely (no loss of human life) in the Hudson River, New York City, after losing both engines to a bird strike, shortly after take-off. Within 35 seconds of losing both engines, Capt. Sullenberger had decided to land the plane in the river. More than half of the simulations conducted by the United States of America's National Transportation Safety Board investigating this incident showed that the traditional turn-around approach to land on a conventional runway would not have been feasible. The aircraft's ability to land safely is often tested on designated runways, and the data is then used to develop landing automation systems. In such an automation system, there would be no option for a "pilot-free" plane to land on a river, which in hindsight turns out to be a safer option in some adverse situations if a skilled-human were to take control of the system. Such convincing analogies can be made for every complex automation system, where skilled-humans can serve as "AI-chaperons" to ensure failsafe performance.

Developing AI technologies with "failsafe protocols," allowing humans to avert rare but catastrophic mishaps, will be a significant avenue for innovation in the future. The following challenges will have to be overcome in developing fail-safe protocols when using AI technologies.

First, identifying when to engage human experts, i.e., adopters (users needing the technology) to enumerate to developers as many possible states of failures and agree on when to "hand-off" operations based on human judgment. There is a responsibility on the adopter's end to seek data on as many routine and corner cases of operations as possible and continue to measure such data even after deployment.

Second, arriving at a consensus on when models have to be retrained to handle new states of failures that are learned during operations following deployment. To achieve this objective, both adopters and developers will have to collaborate on defining performance metrics that will warrant an "update" to the underlying rule sets that are used to actuate.

Finally, introducing high degrees of interpretability in model outputs allow humans to quickly identify why the model arrived at a particular decision and what are the alternative actions any human can take to avoid a catastrophic outcome. Achieving high degrees of interpretability requires developers to have a deep algorithmic understanding of AI algorithms and provide "simple English readouts" of features and how they contribute to decision-making capabilities. An example of human-engagement proven to be essential in seeking regulatory approvals for automation technologies is self-driving cars. Despite self-driving cars being able to "drive themselves," not only are humans expected to be behind the wheels by law, but are also expected to engage with the car's controls at varying intervals of time or when the car's automation system is unsure of how to actuate based on scanned data.

Automating simple tasks will be low-hanging fruits to convince adopters that these technologies can "make fast disruptions." However, as the complexities of tasks requiring automation increases, we assert that significant coordination between developers (either in research or industry settings) and adopters (i.e., customers/consumers) is needed to introduce "failsafe protocols," where human engagement to avert rare, but damaging outcomes is possible. Introducing this notion will likely earn users' trust, and most importantly, introduce industry-standards for what constitutes dependable ML/AI-based automation systems. We conclude this article with the enthusiasm that "safe and dependable" ML/AI-based automation systems are here to stay and will become ubiquitous across all industry domains.

DISCLAIMER

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the respective institutions or funding agencies.

January 2021

Think Big And Move Ahead

How AI and automation will drive fintech in 2021

Jay Nair
SVP - Regional Head - Americas, Financial Services, Infosys Ltd.

Summary

Immense financial and operational challenges are clearly visible in this pandemic. The need for automation and digital transformation is urgent to reduce costs, cement customer loyalty and boost revenues. From payment and lending to insurance services, AI/ML technologies are essential for sustained growth and performance.

There was a sense of sanguinity in the Financial Services sector late in 2019. M&A activity had gathered pace across the financial services spectrum. New Products and Services were being launched to capture a rapidly changing demographic. At the dawn of 2020, the opportunity in Financial Services seemed limitless. There was an air of anticipation of what would be next? Who would be the Next to create a global currency? Which Fintech would be the Next revolutionary in Banking? How would technology influence Payments, Commerce and how we live?

Fast forward to March - a global pandemic would see entire countries shut down to the world and businesses adversely impacted. The coordinated and global nature of the impact of the pandemic caught us all by surprise. The optimism vanished into thin air within a few weeks in March. The world grappled with complex public health issues of containing the pandemic and finding a cure.

> Businesses, big and small are searching for a way to recover from the significant losses they suffered. They are reimagining themselves to build stronger, more agile business models, and embrace the future.

Analysts are unsure of what the recovery will ultimately look like or how long it will take. However, some consensus can be found in the data, not least of which being that the future is here. From the use of automation, Blockchain, and a Work from Anywhere culture, the Financial Services sector can no longer cling to "traditional" business models. From our own experience working with large financial services firms during the pandemic, we saw a surge in volumes in Mobile Banking, Market Volumes, Dispute calls, Loan Modifications to name a few. Firms that were set up with data-driven AI funnels were better placed to handle this spike.

As we continue along this uncharted terrain, it is important to look back, remember the lessons of this pandemic, and acknowledge that a "return to normalcy" will be different from what it was before. Financial Institutions will need to remain open to new forms of work and finding ways to continue to support and protect employees and customers alike. For many in Financial Services, investing in Cloud, AI and RPA will help alleviate many challenges.

Combating the COVID-19 challenges with automation & AI

Remote working, social distancing, and concerns related to health have precipitated automation and digitization in areas where the need existed for long, but the progress was slow. We saw this playing out across our global client base.

For instance, our clients in Capital Markets had a long-standing goal to establish straight-through processing between middle and back-office operations. Processes had several manual steps and with a large portion of the workforce at home, this became an urgent call-to-action. Infosys is enabling this automation leveraging the Infosys Nia Platform.

> With record unemployment and increased delinquency in mortgage payments, analysts foresee a continued rise in delinquency with the peak hitting in 2021.

Mortgage servicers are still facing many current and future challenges resulting in a deluge of loan modification requests overwhelming call centers and loan officers. Mortgage originators and servicers are expediting digitization of the paperwork required to originate, modify or refinance a mortgage. Several clients are leveraging the Nia DocAI Platform, which combines the power of NLP, OCR, and Computer Vision to automate document (handwritten & structured) comprehension and analytics with high accuracy to manage the volume surge in a safe and efficient manner.

Our clients in Global Money Transfer are urgently working on Digitizing the process by making it agentless and cashless. We are helping to accelerate this with our expertise in integrating with real-time payment rails in different markets and EdgeVerve's platforms. The power of EdgeVerve's AI and Automation platforms to cut down the time to build straight-through processing is helping them accelerate this transformation.

For our banking clients in the US, the need for AI and Automation became urgent when they had to process million of loans within a couple of weeks as part of the Paycheck Protection Program (PPP). By leveraging the power of RPA, ML & Deep learning, from EdgeVerve's suite of products, we were able to bring hyper automation in the PPP loan processing and cut down the cycle time by 80% and error rates by 90%.

The disruptive potential of fintechs in 2021

We can already see the contours of the post-COVID business environment taking shape. Automation will be used effectively, not only to improve efficiency but also to increase health and safety.

> If robots and software were appealing before the pandemic, the arguments not to adopt AI and Automation are even weaker now. That being said, forward-looking enterprises are ramping up Automation and AI investments, discovering a potential avenue for growth.

This pandemic is a gigantic stress test. Immense financial and operational challenges are clearly visible. The need for automation and digital transformation is urgent to reduce costs, cement customer loyalty and boost revenues. From payment and lending to insurance services, AI/ML technologies are essential for sustained growth and performance. The pandemic has taught us many lessons and solidified the reality that the future is unpredictable and at times unimaginable. Emphasis on digital tech innovations rings true more than ever, pushing companies to recognize the combination of technologies and resilience as a key success factor. The pandemic has also given us an opportunity to reimagine and reinvent the future to be stronger and more resilient. To think big and move ahead with confidence in the emergence of a new normal.

As we look ahead to 2021, I believe we are also looking at a world with unimaginable possibilities and the people, means, and tools to achieve the greatest of dreams. The air of optimism and anticipation is back.

January 2021

5 'Predictions' For The Indian Automobile Industry

What's possible in 2021

Avik Chattopadhyay
Co-founder & Partner of Brand Strategy Consultancy, Expereal

Summary

The famur of the Indian automobile industry was broken due to the pandemic. It will take every stakeholder, right from the customer to the policymaker to put it back in place. Not an easy task, but when shouldered by many, the weight gets significantly reduced. 2021 in my opinion, will be the year when a few brave automakers will take this step of transitioning into digital networks, setting the path for others to follow. The five predictions in my article, will not work in isolation. They are totally interlined. Their coexistence is crucial towards the co-creation of a more sustainable and inclusive mobility system in India.

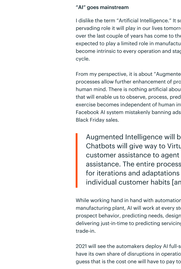
Well, we are finally in 2021 and "prediction" may not be the best of words to use in these times in the title of any article. Imagine if we were to revisit all the predictions for 2020 done in December 2019!!

So, let's call them "trends" instead of predictions.

The Indian automobile industry, by its very size and impact, is one of the economy's key pillars when it comes to progress, growth, and sustainability. Consider a few numbers — it constitutes 7% of national GDP, 49% of manufacturing GDP, 8% of exports, 15% of GST revenue, and 8% of R&D spending. The industry is a benchmark when it comes to employment, skills, investments, and development of a unique ecosystem that includes indirect employment, townships, education, social development, and inclusiveness. The Auto Mission Plan of 2030 has a target of direct and indirect employment of 100 million people. That is surely no mean goal, even if the industry takes another ten years to achieve the same given disruptions like the COVID-19 crisis.

Mobility is a universal barometer of economic progress in any country. The higher the level of mobility, the quicker the economic development. It is a simple equation. Allow people and goods to move across the country reliably, quickly, safely, and economically, and you will see education, skills, health, food, enterprise, and employment all grow in tandem, almost uninterrupted. Access to multi-modal transport solutions on road, water, rail, and air is critical as well as penetration of each mode of mobility per 1000 people.

India is currently the 5th largest automobile market in the world. We are first in two-wheelers, second in buses, third in heavy trucks and, fourth in passenger four-wheelers. Impressive? Not really, given that we are 1.37 billion strong. So, it works out to just 126 two-wheelers per 1000 people, 23 four-wheelers, and a measly 1.3 buses!



Hence this industry has immense potential to grow much more on all fronts. Therefore, if it gets impacted by an unplanned disruption like the current pandemic, it actually sends shockwaves across all sectors and segments of the economy. For the industry to get back on its feet is crucial for India to recover and move forward. And the industry can do that only if the overall consumer sentiment is positive, enabling millions to experience both public and private transport.

The last two financial years have not been good for the industry as the consumer sentiment has taken a downturn since mid-2018 for a mix of factors. From September that year, the numbers started sliding right through 2019. As the industry was limping along, came the pandemic in February 2020 [to India, that is] and broke the camel's bone!

As of now, the market has shrunk by around 20% over 2019, which was a bad year. The just-concluded festive season has thrown up some positive numbers for a few automakers. However, with critical segments like two-wheelers, heavy trucks, buses, and three-wheelers still depressed, recovery in the true sense [to 2018 levels] will take another 12 months, as I foresee.

The last nine months of the pandemic have made the Indian automobile industry both introspect hard as well as try out new processes and methods which might not have happened if the femur were not broken. **Going by human nature, when you limp, you just carry on in the hope that the limp is temporary, and you will walk and jog again. When the femur is gone, you just cannot move; therefore, you have to think hard about how best to heal and get up.**

The industry is adopting more automation and robotics on the shop floor. Supply chain protocols are being re-written for design, production, and pipeline management. Design and prototyping are adopting digital, remote management, and 3D printing. Electric mobility is in the limelight. Downstream processes like vehicle delivery and servicing are relooking at traditional processes. The consumer is also behaving in a new manner in terms of digital research and engagement. There are many interesting trends to observe, some completely new and others, modifications of older habits.

I choose 5 out of the many as the key trends for the Indian automobile industry.

By industry, I imply both the upstream and downstream operations.

"AI" goes mainstream

I dislike the term "Artificial Intelligence." It somehow is not representative of the all-pervading role it will play in our lives tomorrow. What was an 'overused and 'trend' over the last couple of years has come to the forefront due to the pandemic. What was expected to play a limited role in manufacturing and production planning has now become intrinsic to every operation and stage of the vehicle ownership and experience cycle.

From my perspective, it is about "Augmented Intelligence," where systems and processes allow further enhancement of processing and analysis capabilities of the human mind. There is nothing artificial about it. It is basically an extension of the mind that will enable us to observe, process, predict, and plan better. The moment the entire exercise becomes independent of human intervention, you have instances like the Facebook AI system mistakenly banning ads for struggling businesses just before the Black Friday sales.

> Augmented Intelligence will be "conversational" Chatbots will give way to Virtual Assistants, ranging from customer assistance to agent assistance to employee assistance. The entire process will be more humane, allowing for iterations and adaptations based on language, culture, and individual customer habits [and quirks too].

While working hand in hand with automation, robotics, and 3D printing at the manufacturing plant, AI will work at every step on the pipeline – right from studying prospect behavior, predicting needs, designing solutions, planning production, delivering just-in-time to predicting servicing interventions, and even planning the trade-in.

2021 will see the automakers deploy AI full-scale at each stage of the interface. This will have its own share of disruptions in operations, organization structure, and roles, but guess that is the cost one will have to pay to gear up for a post-pandemic life.

Electric rebound of public transport

Public transport bore the biggest brunt of the lockdowns. Both people and goods movement had come to a standstill for close to two months. Fleet operators incurred huge losses. Those amongst us who could afford went ahead and got ourselves second-hand or new modes of personal transport as all forms of public transport were no more seen as "safe."

However, in a country where close to 400 million travel on foot, the adoption of public transport holds enormous potential. Concurrently, cities need to adopt more public transport modes to gradually decongest as well as reduce air pollution vehicular emissions while reducing our import bills on fossil fuels. This is why there has been a strong, though directionless focus on electric vehicles.

> Public transport will rebound in an electric avatar. This will be one big development happening through 2021, both for people as well as for goods. Specific states like Delhi NCR, Telangana, and Karnataka have taken bold moves on this front. All others will follow.

Buses of all shapes and sizes will be in electric forms. Also, they will incorporate new designed-in standards of hygiene, safety, and connectivity. Imagine the sheer expansion of scope and scale of the business if bus penetration rises from 1.3 per 1000 persons to 13 in the next ten years!

Electric micro, mini, and light commercial vehicles are the best way forward, with all automakers in this space hyper-active for the first-mover advantage. New names in electric mobility are also launching three-wheeler CVs.

Anxieties on charging infrastructure and operating range are ably addressed through a cluster-charging infrastructure of fleet operators and logistics companies. The concept of swappable batteries will work equally well in this scenario where there is control on vehicle operation, maintenance, and charging.

If India gains significant traction in the adoption of electric mobility, public transport is the best bet. And 2021 can indeed be the watershed year for that.

Experience over ownership

Seems far-fetched for a country where vehicle penetrations levels are still very low? Not at all. My reading is that while the Indian market will start growing again in the next 12 months, the rate of growth will not be as planned in the Auto Mission Plan 2030 for the following reasons:

- Public transport will become more mainstream in the form of a robust bus and last-mile connector network.
- Those amongst us who will take to any form of mobility for the first time will opt for either public transport or new forms of personal transport like electric bicycles [an entirely new segment for India].
- In the cities, with further evolution of public transport and shared solutions, in terms of safety, hygiene and reliability, the younger generation will decide against locking up resources in vehicle ownership, even if loan interest rates go down.
- With a significant share of white-collar jobs becoming remote, the need for personal mobility will reduce.
- Even 'ownership' formats will change with leasing being actively offered by most automakers in the mass/volume segments.

Hence, while personal vehicle penetration will undoubtedly increase, it will not increase as traditionally projected on the assumption that Indians, middle-class and above, will want to 'own' a vehicle as a symbol of achievement and status. Even if the swing falls in the range of 15-20% a year, it is significant enough for the industry to ponder.

> Brands will finally have to walk the talk of providing differentiated experiences to the consumer rather than just focusing on selling and servicing. The target will be the "consumer" and no longer the "owner."

The focus will be on creating experience packages than extended warranty packages. The focus will be on repeat experiences rather than remote value. Brands like Maruti Suzuki and Hyundai have embarked on leasing programs. Solution providers like Zoomcar and KeyLeasing allow consumers to experience premium and luxury brands without actually having to own them. This is the other spectrum of true democratization of mobility for those who can afford it. And 2021 can be a terrific time to kick-start this.

Hydrogen, anyone?

More than a century ago, the internal combustion engine pushed the electric vehicle out of favor, using all tricks in the trade, lobbying hard, and playing on fears of reliability and range with the consumers then. Now it seems to have turned full circle, with petrol and diesel engines being the villains of the world, especially the latter. Electric mobility is being touted as the emancipator of all that is messed up with the air, which is perfectly fine as long the battle of options for clean mobility is open and fair to actively consider solutions like ethanol, methanol, biofuels, and hydrogen.

Some energy experts swear that hydrogen is an option that might bite the lithium battery where it hurts. Regarded expensive and difficult to store right now, both automakers and oil companies are working on hydrogen as a viable alternative. The Hydrogen Association of India has a clear roadmap for offering this as a clean mobility solution that is more efficient and sustainable than electric, which suffers from questions on the source of electricity and the use of thermoplastics to house the cells.

> 2021 will see increased discussions on hydrogen as another clean mobility solution in India with its strong lobby of scientists, activists, and engineers pushing policymakers into offering the same level of incentives as for electric vehicles.

Dismantling of brick & mortar

Report after report gives the verdict that the Indian automobile customer has evolved in research and ownership behavior. The medium is digital—for knowledge, reviews, word-of-mouth, shortlisting, booking test drives/rides, scheduling servicing, etc.

The only aspect of vehicle ownership that is still not digital and virtual is the financing process –full of paperwork and physical interactions. Fintech is helping change all that. Some banks are already promising a process that needs a minimal physical interface, at the choice of the customer. Once this rolls out as a standard operating procedure across the banking and finance community, the need for a physical structure called a "showroom" gets further diminished. Maruti Suzuki recently announced that digital sales gained rapid adoption in these times of distancing.

> The brick and mortar vehicle network is a thing of the past. Its relevance lies only in the service center and a brand experience zone, if at all. Automakers looking at expanding their reach through physical infrastructure will be putting money on the wrong horse. It needs to be digital-to-the-core AI-enabled experiences and virtual infrastructure in tandem with consumer desires. And this applies equally well to both urban and rural customers. The lines are totally blurred between the "India" and "Bharat" that marketers have always loved dividing the market into.

2021 will be the year when a few brave automakers will take this step of transitioning into digital networks, setting the path for others to follow.

None of these five key trends, in my opinion, work in isolation. They are totally interlinked. Their coexistence is crucial towards the co-creation of a more sustainable and inclusive mobility system in India. Even after 70+ years of independence, mobility is exclusive, expensive, and not accessible to all. Policymakers still consider a two-wheeler, leave alone a car, as a luxury product, and it attracts the highest GST rate.

The renowned anthropologist Margaret Mead had once commented that the first sign of civilization in a culture was a healed femur bone. If you break the femur in the animal kingdom, you are left to die as there is no one to help you repair and recover. A broken femur that has healed is evidence that others stayed with the affected person, bound up the wound, put the bone in a splint, carried the person to safety, and then helped recover. "Helping someone else through difficulty is where civilization starts," Mead said.

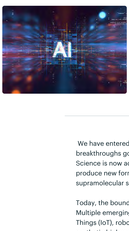
The femur of the Indian automobile industry was broken due to the pandemic. It will take every stakeholder, right from the customer to the policymaker to put it back in place. Not an easy task, but when shouldered by many, the weight gets significantly reduced.

January 2021

Creating Unlimited Possibilities With AI

A technology for everyone

Mike Khan
Executive Director, Finance and Program Governance, Australian Taxation Office,



Summary

AI has evolved significantly into mainstream enterprise technology in the last few years. It is important for an enterprise to understand the possibilities they can achieve by leveraging the power of AI. Read this article to know about some of the top emerging use cases of AI in sectors like healthcare, finance, banking.

We have entered the time of the "Fourth Industrial Revolution," where technology breakthroughs go beyond automation of production or digitization of information. Science is now advancing to the point where researchers can deconstruct and produce new forms of physical and biological matter at an atomic, molecular, and supramolecular scale.

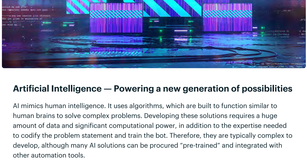
Today, the boundaries between physical, digital, and biological worlds are blurring. Multiple emerging technologies, including Artificial Intelligence (AI), the Internet of Things (IoT), robotics, AI-enabled smart devices, nanotechnology, 3D printing, synthetic biology, and genetics are reaching their maturity.

Disruption has touched many industries in the past. However, with the exponential nature of technology advancements, the pace of change is continuously accelerating, and disruption will penetrate almost every industry in the coming decade. New technologies are changing the playground and rules of competition across industries, creating significant new business opportunities. Indisputably, businesses that aggressively innovate also thrive in these times of the digital revolution.

Digital technologies are disrupting existing products, processes, and business models, profoundly impacting and transforming businesses across the globe, thereby redefining competition and blurring sector boundaries.

As more organizations embark on systematic, data-driven, end-to-end digital transformation journeys, their leadership needs are fast evolving. Unless organizations create a true transformation vision, they will remain vulnerable to disruption. Building a sustainable response environment internally aids firms in developing innovative solutions, a key ingredient to gain a competitive advantage.

Implementing all-digital platforms is now the name of the game, enabling organizations to dramatically transform their operating models to improve the customer experience, increase successful business outcomes, and stay ahead of the curve.



Artificial Intelligence — Powering a new generation of possibilities

AI mimics human intelligence. It uses algorithms, which are built to function similar to human brains to solve complex problems. Developing these solutions requires a huge amount of data and significant computational power, in addition to the expertise needed to codify the problem statement and train the bot. Therefore, they are typically complex to develop, although many AI solutions can be procured "pre-trained" and integrated with other automation tools.

AI Use Cases — Shaping the future of businesses

AI/ ML tools and techniques help organizations detect project risks faster, perform what-if analysis much wider and deeper and make recommendations for corrective actions in a much more impactful manner than ever before. Moreover, cognitive technologies help managers get deeper and faster insights into staff performance and customer satisfaction, thus proactively supporting them in areas where they might need help.

AI meets healthcare services

AI is poised to play an increasingly prominent role in medicine and healthcare because of advances in computing power, learning algorithms, and the availability of large datasets sourced from medical records and wearable health monitors.

The rise of AI in the era of big data can help physicians improve the quality of patient care and provide radiologists with tools for improving the accuracy and efficiency of diagnosis and treatment.

Experts predict AI to significantly impact diverse areas of healthcare, such as chronic disease management and clinical decision making. While still in the early stages of adoption, AI algorithms are showing promise in specializations such as radiology, pathology, ophthalmology, and cardiology. The avalanche of medical data in the form of clinical, genomic, and imaging data is only likely to accelerate as precision and personalize health care. For further more information, refer to the article, How AI is improving efficiency and accuracy of medical diagnostics and treatment, reducing cost of health care and expanding clinical capacity.[i]

AI will support the future needs of health care by analyzing the vast amounts and various forms of data that patients and healthcare institutions record at every moment. It's likely to support and augment physicians by taking away the routine parts of a physician's work and enabling them to spend more precious time on more complex healthcare cases.

AI in finance function

There are many automation opportunities in the finance function due to its relatively high proportion of rules-based processes in comparison with other business functions. Some of the key opportunities, where the benefits are typically highest, are illustrated in the figure below.

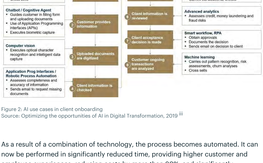


Figure 1: AI use cases in finance function
Source: Optimizing the opportunities of AI in Digital Transformation, 2019 [ii]

AI in client onboarding function

Traditionally, onboarding clients in banking was very manual, often taking several days before providing clients with an acceptance or a rejection of their case. This end-to-end process is complex to automate, as it combines a large amount of diverse capabilities: reading, checking, analyzing, summarizing, and decision-making.

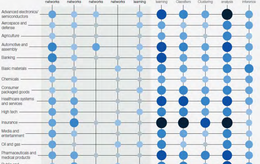


Figure 2: AI use cases in client onboarding
Source: Optimizing the opportunities of AI in Digital Transformation, 2019 [iii]

As a result of a combination of technology, the process becomes automated. It can now be performed in significantly reduced time, providing higher customer and employee experiences, reducing costs by more than 80%, and significantly increasing compliance.

AI in customer service function

The use of AI in the front-line customer service engagement provides considerable opportunity to improve service level and differentiate the offerings 24/7, resulting in increased customer satisfaction. An emerging technology that will rewrite the rule book for customer service is the clever use of digital humans created through advance application of AI.

McKinsey in the paper, Driving impact at scale from automation and AI[iv], 2019 collated and analyzed more than 400 use cases across 19 industries and nine business functions. This provided insight into the areas within specific sectors where deep neural networks can potentially create the most value.

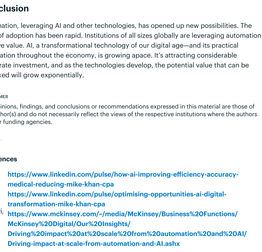


Figure 3: AI techniques can be applied alongside traditional analytics across industries
Source: Driving impact at scale from automation and AI, McKinsey, 2019 [v]

In the same report, they estimated that AI has the potential to create between $3.5 trillion and $5.8 trillion in global value annually across nine business functions in 19 industries. This constitutes about 40 percent of the overall $9.5 trillion to $15.4 trillion annual impact that could potentially be enabled by all analytical techniques.[vi]

Conclusion

Automation, leveraging AI and other technologies, has opened up new possibilities. The pace of adoption has been rapid. Institutions of all sizes globally are leveraging automation to drive value. AI, a transformational technology of our digital age—and its practical application throughout the economy, is growing apace. It's attracting considerable corporate investment, and as the technologies develop, the potential value that can be unlocked will grow exponentially.

DISCLAIMER

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the respective institutions where the authors work or funding agencies.

References

i https://www.linkedin.com/pulse/how-ai-improving-efficiency-accuracy-medical-reducing-mike-khan-cpa

ii, iii https://www.linkedin.com/pulse/optimising-opportunities-ai-digital-transformation-mike-khan-cpa

iv, v, vi https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/Driving%20impact%20at%20scale%20from%20automation%20and%20AI/Driving-impact-at-scale-from-automation-and-AI.ashx

January 2021

Powering New Opportunities

Leveraging automation in 2021

Satesh Seetharamiah
Vice President and Global Product Head for AssistEdge, EdgeVerve Systems Ltd. (An Infosys Company)

Guha R
Senior Director, Product Management, EdgeVerve Systems Ltd. (An Infosys Company)

Shrikant Deo
Associate Director, Product Management, EdgeVerve Systems Ltd. (An Infosys Company)

Summary

2020 was an year of uncertainty, leading organizations to realize the importance of resilience to thrive in difficult situations. Some key themes, such as data-centric decision making, Machine Learning, and Intelligent Automation, emerged as enterprises moved towards digitizing their operations. So what will be dominant in the world of Automation in 2021? Read the article to know more.

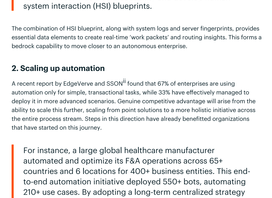
It would be an understatement to say that the year 2020 threw us a curveball. The COVID crisis made people and organizations alike realize the importance of building resilience to survive and thrive. Amidst the pessimism, we see green shoots of hope emerge in business. As we have seen in history, every adversity is followed by a period of prosperity. Organizations that adapt well to the volatility can thrive when the new normal emerges — a recurrent pattern from the depression of the 1930s, the wars, and more recently, the dot-com bust and the financial crisis of 2008. Our hypothesis is that new winners will emerge from this crisis, and it's quite likely that these enterprises would be extremely customer-focused with agile processes and hyper-efficient execution.

Some key themes emerge as enterprises across geographies and industry sectors move towards digitizing their operations. These include leveraging disruptive technologies such as data-centric decision making, Machine Learning, and Intelligent Automation, which have enabled organizations to develop new capabilities and hyper-efficient operations. Trailblazer companies have reaped benefits during the pandemic and are now gearing to build a more competitive posture.

For instance, a large US bank leveraged Intelligent Automation and Computer Vision to manage an unprecedented, pandemic-triggered surge in loan applications. They were able to accelerate loan processing by reviewing and approving over 25,000 loan applications and 100,000 documents in just a week. The intelligent algorithms helped them extract data at the speed of 15,000 digital forms per hour, at an accuracy of 90%.

The dramatic shift in working, amidst the constraints brought about by the pandemic, has propelled Business Transformation, RPA, and Intelligent Automation (IA) to become top priorities for most IT organizations. According to a report by Infoholic[i], there has been a dramatic increase in the focus on IA and it is projected to witness a CAGR of more than 8% during the forecast period 2019-2025 to reach revenue of ~$300 billion by 2025.

What areas will be dominant in the world of Automation in 2021, and how will they shape the future of enterprises? Let's take a look at some of them.



1. Pushing the automation frontiers with process discovery

Over the years, enterprises have made great strides in automation, including RPA. Today most enterprises are at some stage of the automation journey, either implementing or scaling their existing investments. The next big opportunity to drive transformation, 'the Holy Grail of automation,' is the ability to evolve customer journeys autonomously and dynamically manage execution across the human and the digital workforce. This resonates with the overarching solution design philosophy — Automation Singularity. Automation Singularity can be defined as a highly customer-centric and agile-oriented state of constant improvement and optimization through the future workforce, opening up an expanded horizon of possibilities.

But are enterprises ready to move to this next stage of automation? Not yet. There is a yawning deficit of data to make such decisions.

To pave the way for dynamic work allocation, business leaders must first address two critical capabilities:

- Understand precisely the activities happening at every point in the process
- Understand every human interaction with the system

This knowledge, at a highly granular level, will drive the necessary insights to take full advantage of today's automation opportunities.

> Process Discovery is a critical technology that companies will have to invest in as a core capability and develop human-system interaction (HSI) blueprints.

The combination of HSI blueprint, along with system logs and server fingerprints, provides essential data elements to create real-time 'work packets' and routing insights. This forms a bedrock capability to move closer to an autonomous enterprise.

2. Scaling up automation

A recent report by EdgeVerve and SSON[ii] found that 67% of enterprises are using automation only for simple, transactional tasks, while 33% have effectively managed to deploy it in more advanced scenarios. Genuine competitive advantage will arise from the ability to scale this further, scaling from point solutions to a more holistic initiative across the entire process stream. Steps in this direction have already benefitted organizations that have started on this journey.

> For instance, a large global healthcare manufacturer automated and optimize its F&A operations across 65+ countries and 6 locations for 400+ business entities. This end-to-end automation initiative deployed 550+ bots, automating 210+ use cases. By adopting a long-term centralized strategy driven by strong governance and a center of excellence, the manufacturer was able to save over $40Mn in costs and 1,000,000 hours in effort.

Enterprises worldwide are on the cusp of realizing the next-generation operating model — a digital enterprise where human and bot workers work synergistically to offer a frictionless, end-to-end service experience. The key to realizing this vision lies in building the right foundation and by leveraging a cohesive platform.

A cohesive approach ensures that the process flows are migrated seamlessly across the platform, and learnings and knowledge are retained within. It is critical to enable human intervention as multiple processes cannot be automated, while in many scenarios, exceptions and approvals would need to be manually managed.

Simultaneously, the right basis, i.e., a robust framework, infrastructure, groundwork, along with strong governance, strategic oversight, and IT involvement, is essential to gain the benefits of automation and scale the program.

3. Holistic process view and optimization

Holistic process optimization is a powerful operational objective that could help enterprises not only transform individual processes into the sum of their parts, but also potentially transform their entire operating model via Intelligent Automation. Combining traditional optimization methods with the advantages of digital technologies is unleashing a whole new value proposition — delivering efficiency gains, improved customer experience, and building a competitive edge. For instance, **a US logistics leader leveraged the AssistEdge Platform suite to completely automate its collections process with AssistEdge that helped them manage disputes better and faster, improved cash flow, and uncovered $8 million in disputes.**

However, the challenge organizations are experiencing is that end-to-end cannot just be 'implemented' as a strategic initiative. To succeed, it requires:

- True process workflow understanding and orchestration
- Complete visibility into enterprise data, business metrics, and outcomes
- A receptive ecosystem in the form of a 'rebooted' enterprise culture

4. Moving towards value centricity

There was a time when automation for the sake of automation offered some advantages. We are past that now. Enterprises will soon move from just automating processes to designing programs with long-term value. Intelligent Automation is at a stage of maturity where leadership will ask questions of its contribution. Some key points to be considered would be:

- How can automation enable innovation?
- Can a governance framework be established and executed?
- Is there a system in place to determine RoI at every stage of maturity?
- Has the Automation program delivered the value it had promised?
- What is the potential for future contributions?

It will become imperative for enterprises to strengthen the value proposition of their automation projects. These initiatives will be audited more thoroughly and, outside the experimental leeway often accorded to PoCs, held to a rigorous standard.

EdgeVerve has been helping enterprises craft these value propositions and deliver on them. For instance, EdgeVerve helped **a large US-based healthcare insurance company servicing about 39 million people automate their claim and ticket management process. With AssistEdge, they were able to clear a backlog of 70,000 records, accurately process 250K+ transactions monthly, and unlock potential annual savings of $6 million.**

Making automation sustainable — Key learnings

While the integration of Intelligent technologies with Automation is the way to go, the long-term success depends on factors like process selection, data management, organizational buy-in, and creating a center of excellence to drive the program.

- **Process selection**
  In the past couple of years, incorrect process selection has consistently been identified as the leading cause of difficulty, even failure, in IA projects. Without proper insight into organizational processes, automation can magnify inefficiencies and yield unsatisfactory outcomes.

- **Data management**
  The lifeblood of Intelligent Automation is data. For organizations to put the right foot forward in creating strategic benefits, the data management strategy has to be brought to the table as early as possible. Our report with SSON[iii] called "Intelligent Automation In Modern Enterprises 2020" found that 67% of enterprises are experiencing difficulties in accessing data for IA use. This is typically due to data locked up in silos and process restrictions around data sharing.

- **Organizational buy-in**
  Lack of stakeholder buy-in can create difficulties for IA projects in the long run. To ensure that digital transformation is not a one-off initiative but a continuous journey encompassing various stages, it's essential that companies get key stakeholders on board with the program and run internal awareness and educational campaigns about IA to drive a cultural shift.

- **Governance**
  A CoE is essential to drive a successful Intelligent Automation program as it ensures that no business unit holds sway on which IA projects are prioritized, supervises automation use across the organization, and prevents security breaches by monitoring data flows.

- **Proactive risk management**
  Automation represents more than a shift in work; it represents a shift in trust. Intelligent Automation systems operate at scale and can be hacked. The flip side of the scale and speed of Intelligent Automation is that improper functioning can cause significant issues in a short period. Robust monitoring systems must be in place to identify any concerns before they spread.

As companies strategically move ahead on the Intelligent Automation curve, they will widen the competitive advantage gap and open new avenues for process and even business model innovation. The key to success lies in taking the direction outlined above and keeping value at the heart of your automation goals.

References

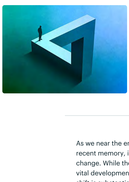
i. https://www.infoholicresearch.com/report/intelligent-automation-market/
ii. https://branden.biz/wp-content/uploads/2020/10/SSON-Report-Intelligent-Automation-in-Modern-Enterprises-2020.pdf
iii. https://branden.biz/wp-content/uploads/2020/10/SSON-Report-Intelligent-Automation-in-Modern-Enterprises-2020.pdf

January 2021

Ambient Intelligence

How the ubiquity of AI and Automation will drive enterprise growth in 2021

Gururaj Deshpande
SVP – Chief Operating Officer – Edge Products, EdgeVerve Systems Ltd. (An Infosys Company)



Summary

Can technologies like AI and Automation be our saviour? Yes and No!
What does it really takes to drive growth?
What have we been missing for so many years?
This article will take you through stories of four organizations who evolved in 2020 by integrating AI and Automation with the most important element - employees.

As we near the end of a surreal year defined by one of the most seismic events in recent memory, individuals and organizations alike are finding ways to thrive alongside change. While the resilience in the face of this crisis has been noteworthy, an equally vital development is an awareness of the need for preparedness. For enterprises, the shift is substantial, and the message is clear. **The time for transformation is here.** Unlike previous crises, the current pandemic has set the stage for AI and Automation to enter the mainstream through adoption at scale and integration into the heart of enterprise operations.

To evolve, however, enterprises must first be ready to adapt. Currently, enterprise attempts at intelligent digital transformations are riddled with questions that are crucial to answer before embarking on a fundamental shift.

- Do enterprises have a resilience and growth strategy centered on AI and automation?
- Are they preparing for systemic change that drives transformation at scale or experimenting with AI in silos?
- Is decision making driven by instinct and anecdotal evidence, or does leadership have access to high-quality data designed to realize AI's potential?
- Is AI diminishing or enhancing the effectiveness of the human workforce?

This article will address each of these areas while offering an approach to begin integrating AI and Automation into enterprise plans across sectors.

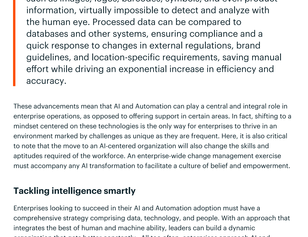
True resilience is true creativity

By speeding up digital transformation cycles overnight, COVID-19 has brought smart technologies to the forefront of enterprise evolution, but there's more to the development than damage control. Enterprise leaders have to choose between continuing to survive while mitigating losses or adopting a growth mindset that sees current challenges as a watershed moment in their journey. Companies must stop reacting to the crisis by cutting expenses at the cost of growth opportunities. It is critical to shift priorities from survival and damage control to a focus on sustained success. Change is here to stay, and it is impossible to predict what other events may threaten growth, making it imperative to build a highly adaptable organization capable of navigating adverse circumstances.

Furthermore, as the recent past and unfolding present have shown us, there is more to transformation than the bottom line alone. While it's tempting to focus purely on the balance sheet benefits of transformation, that there are other metrics to consider. The promise of intelligent change extends beyond numbers and will help organizations foster thinking on parameters including sustainability, security, and compliance, all crucial aspects to consider in the new normal. The industry needs leadership, not mere endurance. AI and Automation are essential to this endeavor.

The possibilities of AI and automation

Creativity is essential to the future, and a culture of innovation will drive novel ways to engage with and serve the market. Through AI and Automation, enterprises can acquire and service customers in new and innovative ways, facilitate self-service alongside faster and contactless decision making, and ensure unprecedented levels of transparency and compliance, all while drastically improving productivity and accuracy. More importantly, they can do all of this at scale, opening up new avenues for growth and value addition, ensuring that enterprises can focus on thriving even in unexpected circumstances.



CASE IN POINT

One of the oldest and largest financial institutions headquartered in the US used AI-powered document intelligence to digitize its loan application review process. A surge in loan requests due to COVID-19 meant that the firm needed to review over 25,000 applications in a week. Without the need for data or system integration, the technology enabled the company to set up a validation framework swiftly to power what was essentially an automated loan approval process and system that could quickly scale. By using AI and Computer Vision to crawl the applications, totaling over 100,000 documents, the company could find the documents necessary for processing and extract payroll information from a wide variety of document formats. It could also gather wage data with information provided for traceability and audit purposes, all while processing a staggering 15,000 digital forms per hour, combining scale with extreme accuracy to identify opportunities it didn't know existed.

Digital-led operations will also offer predictability and incredible consistency, creating the stability needed to develop new capabilities, processes, and incrementally enhanced outcomes.

The possibilities are limitless if companies are ready to harness the new wave of enterprise transformation. Consider the emergence of the human-digital twin. With digital workers offering extreme efficiency and accuracy, human talent has the opportunity to enhance its creative and critical thinking contribution, driving the evolution of intelligent enterprises capable of adapting to any situation. With document or image analysis, for instance, it is impossible for the human eye to pick up every single detail such as numbers on a barcode or minor tweaks in a layout, even more so given the sheer volume of such tasks. AI and Automation can breeze through these needs, unlocking transformative value for enterprises.

CASE IN POINT

One of the largest FMCG companies in the world uses AI-powered image analysis for artwork review and analysis. By deploying AI to review the artwork used for packaging, labelling, advertising, and branding, the organization accelerated its compliance reviews by eliminating intensive manual identification and checks. The technology, often referred to as Computer Vision, adds an intelligence layer to typical OCR functions by identifying, extracting, and processing document information including graphic elements such as images, logos, barcodes, symbols, and even product information, virtually impossible to detect and analyze with the human eye. Processed data can be compared to databases and other systems, ensuring compliance and a quick response to changes in external regulations, brand guidelines, and location-specific requirements, saving manual effort while driving an exponential increase in efficiency and accuracy.

These advancements mean that AI and Automation can play a central and integral role in enterprise operations, as opposed to offering support in certain areas. In fact, shifting to a mindset centered on these technologies is the only way for enterprises to thrive in an environment marked by challenges as unique as they are frequent. Here, it is also critical to note that the move to an AI-centered organization will also change the skills and aptitudes required of the workforce. An enterprise-wide change management exercise must accompany any AI transformation to facilitate a culture of belief and empowerment.

Tackling intelligence smartly

Enterprises looking to succeed in their AI and Automation adoption must have a comprehensive strategy comprising data, technology, and people. With an approach that integrates the best of human and machine ability, leaders can build a dynamic organization that gets better constantly. All too often, enterprises approach AI and Automation as an experiment, either running pilots in silos or using the technologies to tackle non-critical problems incapable of driving organizational support. Enterprise leaders would do well to adopt a two-pronged approach to their AI and Automation strategy, tackling point problems on the one hand while working out a shift in their broader strategy on the other.

CASE IN POINT

A financial services company in India recently used RPA (Robotic Process Automation) to power its digital transformation initiative designed to deliver the best performance from a combination of technology and human talent in a strategy encompassing data, technology, and people. With a focus on customer excellence, the firm set about an enterprise-wide RPA implementation keeping in mind regulatory requirements, data accuracy, security, and accountability. The deployment saw the firm dramatically reduce its turnaround time, for instance, ensuring customers received statements within seconds compared to a 24-hour turnaround previously. The company also used bots to support its advisors during the WFH transition because of COVID-19, not only avoiding business interruptions but even driving a 20% spike in operational productivity.

To realize the value of AI and Automation fully, it is essential to ensure that the transformation process is strategic and not driven by piecemeal interventions. How does this translate into practice? Enterprises can start experimenting with AI to address specific use cases and problems while steering the organization towards an operational model centered on AI and Automation. For large enterprises with thousands of processes for transformation, technologies like process discovery and process intelligence can help identify the best process candidates, eliminating speculation and randomness from automation initiatives while driving a shift towards continuous learning and innovation. The resulting intelligence can also provide valuable actionable business insights grounded in empirical data, allowing for a smarter and more effective decision-making process.

CASE IN POINT

A leading global healthcare manufacturer used process discovery and process intelligence to identify and analyze key automation and process standardization opportunities. It leveraged RPA further to optimize its international F&A operation in over 60 countries. With over 500 bots deployed to automate over 200 use cases and 100 processes, the RPA intervention has driven around $15mn and 1mn hours in savings, improving not only accuracy and efficiency but also helping move over 300 employees to more meaningful and business-critical activities.

Looking ahead

AI and Automation can offer substantial value and future proof enterprise operations, and a structured approach is the key to ensuring their success. Enterprises must look to establish CoEs for their intelligent transformation staffed by a differentiated pool capable of steering the organization to an AI-led mindset. They should look to address significant business and organizational problems using AI and Automation to ensure that these initiatives earn mindshare and leadership support. For the enterprises that think AI is not for them, because of their sector or previous ways of working, it is essential to look harder and think about possibilities, not just preventative measures to ensure survival. The ability to develop and keep this mindset while addressing both the urgent and important through a comprehensive AI and Automation strategy could well be the defining feature of enterprises leading the next wave of industry evolution.

January 2021

Have You Deployed RPA In Testing Yet?

Here's why you should

Vasudeva Naidu
AVP - Delivery Head, Infosys
Validation Solutions

Summary

Riding on a push for extreme automation, organizations have invested in multiple tools and technologies to achieve end-to-end automation, creating a complex web of heterogenous toolsets. Even with this effort towards test automation, testing organizations struggle to achieve end-to-end automation and spend disproportionate time on script maintenance. Can this be rectified? This article explores how Robotic Process Automation (RPA) is taking center stage in enterprise test automation, addressing the challenges faced in traditional automation.

Challenges in traditional test automation

Mila was frustrated. Her company, a large investment bank in Singapore, was struggling to create test automation efficiencies. Running legacy modernization as a program using mainframe systems was a pain. The systems were notoriously difficult to automate using traditional automation tools and left her wondering what her next course of action should be.

This is not a one-off problem, and most companies struggle with test automation challenges. Typical 4th generation automation tools for testing are unable to overcome several challenges:

- **Building test scripts is still a massive effort.**
  The team needs coding skills to develop automated scripts, frameworks, and generic reusable utilities and libraries.
- **Requires significant recurring investment.**
  Companies need to pay for maintenance, subscription, licensing, training, and know-how for multiple tools.
- **Lack of support for advanced capabilities.**
  Traditional tools offer no support or capability for cognitive automation, OCR, advanced image recognition, and in-built screen and data scraping wizards.
- **Low productivity.**
  Most instances require custom coding and bring down automation development productivity. Even load distribution during execution requires additional effort.

With the need to be hyper-productive post the ravages of COVID-19, companies cannot afford to let these inefficiencies slide. Harnessing the power of cognitive technologies along with the use of RPA platforms will play a critical role in the success of Enterprise Test Automation in the near future.

5 ways RPA is better than your existing test automation infrastructure

RPA is a critical path-breaking technology trend that has created a paradigm shift in the way automation scripting is carried out. RPA has the potential to address all the typical challenges of 4th generation test automation tooling. Adopting RPA tools can help organizations make testing more productive, more efficient, and help get more features to the market faster. Here's how RPA is a definite step up in the test automation game:

- **Supports hyperautomation**
  RPA Platforms are low code platform with advanced OCI capabilities. Their ability to work with heterogeneous technologies and various environments that business processes navigate makes E2E testing possible. With RPA, you can recognize all complex embedded components, read images, orchestrate workflows, and integrate seamlessly with external applications. RPA also allows you to build more and more intelligence into the bots in use. All these capabilities directly support hyperautomation.
- **One platform that supports all test automation needs**
  RPA platforms can replace several tools in solving multiple test life cycle challenges, including test data management, automated test execution, batch job monitoring in test environments, report generation, database validation, and many more. This eliminates the need for multiple automation tools and platforms. RPA platforms also have the capabilities to import or integrate custom scripts written in Python or any other scripting language. This is a powerful enhancement to carry out custom jobs and extend capabilities beyond its own, making E2E automation a possibility in a single platform. RPA helps expand enterprise test automation coverage while reducing the number of tools/frameworks.
- **Simplifies complexity of the testing environment**
  Traditional automation strategies adopt various scripting languages depending on the technology landscape and build the necessary frameworks. This calls for orchestrators to make these heterogeneous frameworks to work together. The resulting setup is highly complex and requires specific skills. RPA, with its ability to navigate heterogeneous environments, addresses these challenges right away.
- **Significant reduction of test execution cycle time**
  As a low code platform, RPA makes rapid scripting possible and allows enhancements and script changes. Even the UAT testers can easily adopt and use these scripts.
- **Existing talent pool**
  RPA has been widely used by BPM users already. Hence the skilled resource pool is already available. Testing is a natural extension for RPA platforms.

The one tool to rule them all

Whether it's package-based applications that used multiple technologies to build different screens, creating synthetic test data, managing batch jobs, or creating test reports – RPA is the one platform that can help perform all these activities with ease. Automating the end-to-end workflow for each application using just one tool can significantly reduce the overall maintenance effort (upwards of 30%) and boost productivity.

> Mila decided to adopt RPA based testing to solve the challenges of test automation her organization was facing. RPA, with its AI and OCR capabilities and the ability to traverse through and handle any technology, was quickly able to automate 800+ test cases in the mainframe — saving 60% of testing efforts!

Your organization can reap these benefits too. In fact, it is critical for test automation organizations to take advantage of this technological advancement. Adoption will increase awareness and knowledge, which will enable organizations to adopt cognitive capabilities more efficiently.

2021

Time for business models to make way for model businesses?

Mehul J Shah
Strategy Director, Superunion

Summary

'Business Model' thinking that puts scale, growth and shareholder returns above all else, is now increasingly at conflict with 'Model Business' expectations of keeping all stakeholder interests at heart when doing business. This is a crisis of trust today, spanning wide and deep in our socio-economic constructs. This article explores the role that digital technology can play in bridging the gap between Business Model thinking and Model Business behaviour. It also provides some practical perspectives on how businesses can look at adoption of digital technology to accelerate their journey towards a Model Business.

2020: The year of acceleration

I recall reading a report[1] in May this year, suggesting that technology adoption in many walks of life and industry has leapfrogged ahead, covering nearly 5 years worth of ground in just a few weeks. I wondered then if this pandemic would have some positive fallouts as well.

If the number of people striking Yoga poses on social media is anything to go by, we ought to be a calmer and better-balanced species by the end of this — although that does seem like a long shot.

I can safely say however, that 2020 did accelerate some fundamental shifts, from better hygiene and growing internet penetration, to new ways of teaching and learning and advances in healthcare research, in part a greater appreciation for the things we have.

It makes me wonder if 'Business', as an institution, missed a trick on accelerating some much-needed change during this time. Don't get me wrong, there are a ton of companies out there that have done well during the pandemic and scores more that may have done excellently as well. However, I feel that something fundamental that could've been changed hasn't really been impacted adequately.

Ways of doing business: a (not so) silent prayer for change

Even before the pandemic hit the world, trust levels in business and capitalism were declining.

> According to the Edelman Trust Barometer survey[2], people worldwide felt that none of the four key institutions (Business, Government, Media, and NGOs) were fully trustworthy – either because they were perceived to be incompetent or unethical, or both.

This was in January 2020, one can only imagine what these numbers will look like in 2021, given the layoffs, bailouts, the odd cases of profiteering, the poor handling of the pandemic in many countries, and the generally pessimistic mood that prevails.

As far as businesses are concerned, this current perception seems to be that businesses have put self-interest above collective interests even in these trying times. The growing conversation around employee furlough is simply adding more fuel to that fire.

On the other hand, if one were to ask business owners, they would probably argue that business survival was/ is at stake and that they're doing what is necessary to protect the business and as many jobs as they can.

Business models v/s model businesses

On this issue, we can acknowledge two simple facts and move forward from there:

> Firstly, since the Industrial Revolution, business and industry have been conditioned to keep scaling and growing; most of their success measures today are linked to this ideology. For simplicity, I'm calling this, Business Model thinking. While this constant pressure to grow is unhealthy and often damaging to society, it is also deeply ingrained in ways of doing business and cannot be changed overnight.

Secondly, the world is at a inflection point today. Discontent about the socio-economic, environmental, and ethical fallouts of current business practices is on the rise, and the world is asking for a change. Ideas like Stakeholder Capitalism[3] and Conscious Capitalism[4] for decades are gaining traction once again[5] in mainstream conversations. The world wants businesses to be inclusive in their benefits to all constituents, not just the shareholders. For ease, I'm calling this Model Business behaviour.

On the face of it, the friction between Business Model thinking and Model Business behaviour feels like a tug-of-war, with no win-win solution in sight.

The underleveraged asset

Humanity has a history of resolving some of its greatest stresses in innovative ways. And it isn't an exaggeration to say that the tension between Business Models and Model Businesses and the resulting inequalities is one of the greatest concerns of our time[6]. Interestingly, despite having access to a potential solution, many of us still haven't embraced it fully, or rather, we only embrace it enough to make do for the moment.

I'm referring of course to digital technology spanning across **Web3 like learning, Intelligent Automation, chatbots, facial recognition, ERP, ARI VR, real-time geolocation, remote working platforms, collaboration systems, predictive analytics and AI/ML** — which **all have the potential to transform businesses, not by replacing people, but by augmenting them.**

Millions of reams have been written previously about how digital tech can make a business stronger, faster, leaner, and more productive. And yet, if one were to compare the actual use of digital tech in business to the potential of proliferation that is on the potential, you'll see that we've got some enough to get by.

It's unfathomable that businesses that are hesitating to embrace digital tech are getting disrupted and often consumed by those who do. Think of what Uber, Ola, and Grab have done to cab companies, Facebook and Google to news media, Whatsapp and WeChat to an entire revenue stream for cell cos, and what Amazon is doing to everyone and everything!

It's the business model mindset that often comes in the way. Myopically driven by quarterly result pressure and traditional budgeting methods, many businesses will deploy a chatbot here or an analytics suite there, to see bottlenecks or gain short-term advantages. However, they don't see transformation and growth in digital tech by technology, become a part of their organization's DNA. I imagine that if an artist were to paint the digital tech landscape in an average business today, it'll probably look like a patchwork quilt rather than a rich tapestry with a larger coherent story.

Why does this matter to the Business Model v/s model Business conversation? Because deep digital technology adoption is the most promising long-term solution to solve this tug-of-war, with the least compromises at both ends.

Think of it this way: if inequality were a pandemic, then digital technology is a promising treatment that can get to scale enough support to heal them all. Digital technology is more often met with doubt and resistance than with open arms. Why is that? Here are the most widespread barriers that come in the way of deep digital tech integration in businesses. To my mind, four of these stand out the most.

Barrier #1: Missing a larger digital tech strategy

Too often, the adoption of digital technology is a reactionary/ problem-solution exercise within an organization. For instance, during the pandemic, companies that entirely depended on physical ways of doing things adapted to digital tech overnight, barring some teething troubles, have more or less found a degree of stability.

I spoke with a senior financial services leader in Brazil a few weeks ago who confirmed that their organization had made the shift to remote working in a matter of days, being fast tracked to approval in a matter of days. Another executive in India who believed that 'work-from-home' is essentially no work at all, spent 10 minutes at the start of our meeting, extolling the virtues of remote collaboration software and how it was boosting productivity. And then there's a dear friend helming the SEA business of a global FMCG brand, who was excited that his sales team were doing just as well on their 'virtual beat' and saving several hours a week as well. What's more, he also had ways and structured access to data that gave him more insight into customer needs than ever before!

The question is, wouldn't all of this have happened without the pandemic? None of the technologies are new or path-breaking. In fact, they've been around for a while now. So why the inertia in adopting them? Fear of it is change aversion and the good old mentality of 'don't try to fix what's already working,' but there's more as well.

Most traditional businesses have only reshaped their ways of working incrementally over the years, with digital technology playing a role in it. So, when a substantial shock in the 'business model' rather than asking themselves what a 'model business' of today needs. As a result, what's happening is the classic frog-in-hot water — things are gradually deteriorating in a tipping point until finally someone from the outside (or inside!) can see just how messed up things are in the business and start something of their own to disrupt it.

Suggestion: Don't piecemeal it; Reimagine it.

What is your long-term approach to empowering your people with the right technology so that they can add more value to your business? If you have a thought through answer, you're one of the very few. Unfortunately, most companies today don't have a long-term people technology business strategy.

A good way to arrive at it is to build it from the ground up. Get your senior executives and a few ground soldiers in a room together (a virtual one for now) and a couple of digital technology experts as well. Take your ground staff's take on the most and our entire business process, from marking the bottlenecks and high-cost zones to the high and low-value activities. Then ask the digital tech experts to suggest ways in which much your business is being in terms of cost of time, cost of leverage, and cost of error. Let the digital tech experts work with you on ideating solutions that could solve these issues. Do a ballpark cost estimate of deploying the solutions — the cost of deploying tech will more often than not be lower than what you're losing already.

Don't let the quantum of change daunt you. Once you have it all in one place, you can start to prioritize and drive an agenda. That kind of reimagination of workflows makes businesses operation-proof, drives greater satisfaction across stakeholders, and allows for creativity to flourish. It starts you off on the journey to becoming a Model Business.

Barrier #2: Lack of awareness and aversion to change

A critical barrier to reimagining workflows is the lack of digital tech awareness and skills in the workforce. The average line manager might tell you the challenges they face in their everyday workflow but may not know the possible technologies that could resolve it, nor would they have the skills to deploy such tech at scale.

And it's not just the organization's problem in this case. Many employees too contributed as well. If you've read digital tech product literature in recent times and come out thinking it sounded like English but wasn't actually, I don't blame you. For very long, the technology sector has been addicted to jargon that obfuscates what they do more than explains it. As a result, even the most willing employees have still feel daunted when they start to immerse themselves in the learning curve.

What adds to the challenge is that even if you identify your business's issues and somehow zero in on the solutions to address them, you are likely to face resistance to change within the organization and could end up with employees who will confirm adoption of the technology across functions, markets or levels. This can create an incomplete picture and a misalignment within the organization.

Lastly, organizations often evaluate the technology solutions on extremely rational parameters. Is it accessible? Is it efficient/ can we measure quick gains between the two solutions? Is it enough? Is it worth buying a solution that can fix the job that is clunky, poorly designed, or buggy. That kind of experience will only reinforce the resistance to change that your workforce is feeling.

Suggestion: Invest in the user and the user experience.

This suggestion is equally applicable to both, the client business and the technology vendor. I tend to look at this investment in three ways:

- **First, invest in listening and learning from them.**
  Talk to the workforce at different levels. Understand their challenges and concerns. Take time to assess their current technology awareness and familiarity. And lastly, learn the language that they speak because your solution will find a lot more acceptability if it's speaking the users' language.
- **Second, invest in usability.**
  There's a lot of digital technology out there, many solutions to the same problem. Don't evaluate it all only on quantitative or measurable parameters; keep some qualitative measures in play as well. Get a few end-users to sit through the demos or get them to test out the solution. Have an open-ended conversation about what worked and what didn't. Ask them about the issues they felt and which ones were 'deal breakers' so that you know they could live with. The more end users are comfortable with the solution and find it easy to use, the greater the likely acceptance.
- **Third, invest in design and emotion.**
  We judge a book by its cover all the time. It's the same with digital tech. Think about the kind of digital technology your workforce is using on a daily basis in their personal lives. Most of the apps, software, and interfaces that we are designed to look attractive, intuitive, and minimize user effort. Compare your chosen solution and decide if it comes close to the digital tech your workforce is already familiar with. If not, then find ways to make it more user-friendly, from the appearance, functionality, and ease of use. Don't forget to factor in the cost of this customization. Lastly, don't underestimate the power of telling the right narrative while introducing the solution within your organization. The way it is positioned in people's minds will go a long way in driving acceptance and trials.

Barrier #3: Existing legacy systems

Businesses often invest in tried and tested technologies and can deliver on all their needs. The challenge comes when they want to scale, when their needs and workflow changes and the need for the solution too? More often than not, the process evolve in unpredictable ways and at a rapid pace. And the tried and tested technologies that they relied on start to become less useful and eventually become obsolete.

These legacy systems may have been the 'sensible' answer at the time of purchase, but over time, they can become a force that holds a business back instead of propelling it forward. One of the reasons is because the buyer is qualified to evaluate the system on current needs and not on future possibilities. What's more, the temptation to choose the 'safe' option is often the default choice. The safe option in the buying a solution that is already on the downward journey of obsolescence (and considering Nokia's fate as a parallel, one can expect the journey to be a quick one).

Suggestion: Don't just buy the solution; look for value in the roadmap as well.

When you're considering a digital technology solution, don't just look at its present avatar, look at its history and future roadmap as well. Has the vendor been regular in launches updates and technology upgrades? Have there been any major glitches or bug fixes along the way? Have there been any rollbacks? What is their innovation and evolution roadmap? How are they planning to empower their users going forward?

The product roadmap might hold the promise of exceeding your expectations. On the other hand, you might have an excellent product to meet your needs today but minimal visibility of what to expect from it tomorrow. It needs some judicious thinking on the buyer's part to decide which of these is a better bet. And the stakes are not just monetary. Once bought into, the business will probably invest more time and money in the solution and integrate it into its workflows. It can be hard to change course after that. In such scenarios, the wrong choice or the one that doesn't have a long-term horizon can prove quite expensive and painful to the business.

Barrier #4: A vertical competence, not a horizontal one

This last barrier is one of my pet peeves. And like barrier #2, this one also is shared between clients and technology vendors. In most businesses, digital technology is considered a domain. Some folks call it the IT department. Others call it fancier names, but the crux is the same — that technology competence exists in a vertical in the organization. Therefore all new technology adoption tends to get routed through that vertical.

This is a major issue because the IT department may not be intimately familiar with the business and the everyday workflows. Yet, they are tasked with keeping the business at par with and ahead of competition from a technological perspective. **What usually happens is the IT department ends up operating in its own silo.** They may be technologically savvy and dominate the conversation around technology, but they're not in touch with the real-life situations that are keeping the business from its full potential and solving issues that individual users ought to figure out themselves. You have now enough cartoon strips, memes, and real-life situations to know that this is true.

As a result of this structural flaw within organizations, business leadership is not adequately qualified to evaluate technology. Technology leadership is not adequately armed to decide what product/solution is best for the business.

Suggestion: Technology as a culture, not a function.

The world is waking up to how integral digital technology is to our lives and how much more it will be going forward. That's why you see children learning to code alongside arithmetic and grammar, and even beefy male-coding lesson videos are getting millions of views on streaming platforms.

However, the average organization is yet to make digital technology awareness and appreciation a part of its mainstream culture. Technology is no integral to life and business that it can no longer remain inside a single function — it needs to become a cultural attribute within the company.

There are several ways to incorporate tech sensitivity in the organization. The leading ways amongst them are:

- **Incentivize new technology discovery and adoption amongst the business folk**
- **Make tech consciousness an evaluation criterion for employee appraisals**
- **Encourage gamification and healthy competition within the organization to drive faster adoption rates**
- **Make skilling, upskilling, and reskilling part of your business plan**

In conclusion

A painless transition from Business Model to Model Business thinking that balances do well and do good objectives can only be achieved if businesses embrace digital technology to overcome their inherent inefficiencies and empower stakeholders to do more with less.

> Technologies like AI, Machine learning, Automation, remote working platforms, predictive analytics, and bots are already reshaping the business landscape and making this balance possible as we speak. However, to realize their true potential, businesses need to stop reactionary and haphazard approaches to technology adoption. Instead, they need to make digital technology adoption a cultural tenet and inspire the workforce to think of technology as an integral element to business workflows. This requires a multi-faceted, long-term strategy that is user-centric and accounts for technology as an integral part of the business model.

Companies that can achieve this are likely to enjoy better employee satisfaction, customer loyalty, operational efficiency, innovative thinking, and sustainable growth. Sounds like the kind of business I'd like to be in.

References

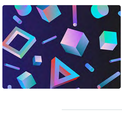
1. https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/the-covid-19-recovery-will-be-digital-a-plan-for-the-first-90-days
2. https://www.edelman.com/trust/2020-trust-barometer
3. https://hbr.org/2020/01/making-stakeholder-capitalism-a-reality
4. https://fortune.com/2020/11/17/capitalism-entrepreneurship-economic-inequality-us-bureaucracy/

January 2021

Ignorance Is Risk

Why risk intelligence is key to enterprise procurement

Mudit Chaudhry
Senior Product Manager, ProcureEdge, EdgeVerve Systems Ltd. (An Infosys Company)



Summary

While procurement has been a focus for most large organizations, the recent pandemic showed otherwise. As pandemic brought the supply chain to a halt, even though varying amount of time depending on location, sector, time etc., it has taught us a valuable lesson - Visibility is everything. Complete supply chain visibility will not only allow enterprises to manage risk but lower cost, accelerate growth, ensure worker safety and continuously evolve operating models. The article takes you through some of the key reasons why an excel-based or traditional approach to procurement is not enough to be resilient to what the future holds.

In an uncertain world, the allure of stability and control leads many of us to plan based on a predictable future. If this year has shown us anything, the best strategies are those that prepare for risk just as they understand opportunities. While COVID-19 is a crisis that has affected the entire world simultaneously, several other risk events are continually taking place globally, affecting suppliers in myriad ways. In the first few months of the pandemic, there were over 3,000 force majeure declarations by suppliers in China alone, pointing to substantial disruptions that would be a feature of the pandemic[i]. It is now more apparent than ever before that enterprises need to harness technology's power to understand which of these disruptions merit evaluations and which they can ignore based on their unique context. In what is a new paradigm for business, intelligent technologies are crucial to enterprise evolution.

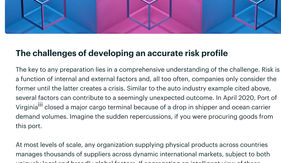
Risking ignorance

As the lifeblood of enterprise supply and demand, procurement teams are now front and center of risk management protocols, identifying key suppliers, creating data-backed risk projections for a leadership review, and developing alternative options in case of further disruptions. Relevant, current, and rich intelligence is essential to these teams' effectiveness, but existing systems fall short by some distance. On the one hand, enterprise risk assessment systems often account only for internal factors, making them unidimensional, while, on the other, their complexity can often impede user experience. Combine this with the notable absence of detail, such as the potential financial implications of disruptions, and it is easy to see why the status quo needs to change.

With no enterprise an island, as the connectedness-driven impact of COVID-19 has proven, it is no surprise that over 77% of senior procurement executives, respondents in a KPMG survey[ii], believed that risk management is a strategic priority given the impact of third party performance, including supplier operations and business reputation. In a crisis, it is natural and imperative for organizations to address immediate and short-term concerns. It is equally important to adopt a view that addresses the medium-long term impact of risk. Ignoring long-term growth at the expense of short-term survival is a recipe for long-term disaster. Enterprises recognize this need for balance, placing CPOs under immense pressure to ensure continuity and growth while minimizing losses from supply chain disruptions. Mere recognition is not enough. Without an in-depth understanding of risk exposure, organizations risk operating in survival mode, limiting their growth and awareness of opportunities.

> Consider the case of the US auto industry[vii]. Production stoppages, supplier disruptions, and plummeting consumer demand coupled with the need to invest in long-term resilience in the face of potential and repeat bankruptcies has meant that the pandemic has triggered a perfect storm of imperfect circumstances for several industry behemoths, delaying product launches and sometimes pointing to an imminent collapse.

To create robust contingencies, an understanding of risk is not just essential to resilience but also to adaptability and innovation.



The challenges of developing an accurate risk profile

The key to any preparation lies in a comprehensive understanding of the challenge. Risk is a function of internal and external factors and, all too often, companies only consider the former until the latter creates a crisis. Similar to the auto industry example cited above, several factors can contribute to a seemingly unexpected outcome. In April 2020, Port of Virginia[iii] closed a major cargo terminal because of a drop in shipper and ocean carrier demand volumes. Imagine the sudden repercussions, if you were procuring goods from this port.

At most levels of scale, any organization supplying physical products across countries manages thousands of suppliers across dynamic international markets, subject to both uniquely local and broadly global factors. If aggregating an intelligent view of these thousands of suppliers across dynamic international markets is a problem, attempting to create a unified view of each supplier relationship exacerbates the challenge. Even if companies generate a risk profile, they still need to track each instance's impact on their organization and critical suppliers. The understanding of an environment rarely offers the know-how to tackle the risk of every event within it. Although many organizations comprehend the importance of preparedness, risk mitigation strategies often use a template approach, rendering them unstructured and ineffective. It is here that risk intelligence can pave the way for smarter business decisions and greater resilience in the face of increasing uncertainty.

The need for intelligence

Despite the pandemic elevating the importance of supplier risk management, the results of an Infosys Survey[iv] on the supply chain impact of COVID-19 revealed that less than half of the respondents identified had full visibility of their Tier-1 suppliers' emergency contacts, activities, and locations. Add to this, just about 31% of these respondents had risk mitigation plans in the event of disruptions to these suppliers.

Another recent survey[vi] indicated that over 50% of organizations had negligible or non-existent track records of using enterprise digital tools to identify and delineate supply market risk. While enterprise leaders today are balancing - worker safety, stock inventories, and viable operating models[v], they also are facing challenges in addressing dual goals of driving down costs and accelerating growth. Managing multiple goals efficiently requires a smarter approach, one that leverages intelligence. Cost reduction evidently is important but so is risk reduction led by better intelligence.

> The aim should be to eradicate contributing factors that create risk, e.g. supplier concentration for critical goods, or performance inhibitors such as excessive supplier fragmentation impeding procurement decisions. At the same time, intelligence on key vendor relationships can drive up procurement's ability to make a broader contribution beyond traditional spend management. A vendor relationship that is related to an industry vertical under stress or shortages of goods or commodities from specific geos, are all examples of early risk signals for the enterprise in general and not just procurement alone.

The reality, however, is that no single enterprise, enterprise function, or person can forecast, define, and mitigate risk exhaustively and efficiently. Even in mid-size organizations, thousands of events could influence each vendor relationship and affect procurement outcomes for an enterprise. Intelligent technologies are crucial to adapt as organizations operate in a new paradigm for business. From AI and automation to ML and powerful data analytics, a wide range of integrations are allowing for several new enterprise capabilities, those which companies looking to be leaders cannot afford to ignore. With technology, organizations can extract the most valuable insights from comprehensive internal and external data, separating signal from noise to understand the relevant risk, contextualize its impact, and suggest mitigation strategies. An intelligence engine can support continuity, customer experience, and creativity - all key to enterprise leadership.

How risk intelligence can offer transformative value

While managing multiple goals like cost, time, safety, stock updates can be an overwhelming task, managers should remember that all this ties to improving supply chain visibility and visualizing risks. Enterprises can often struggle to visualize risk, much less categorize by priority and criticality. Intelligent analytics can address this problem and help companies build robust interventions. In the short to medium term, intelligence can serve to reduce risk based on emerging threats while in the longer run, it can highlight trends & patterns, providing insights that can shape strategic decision making.

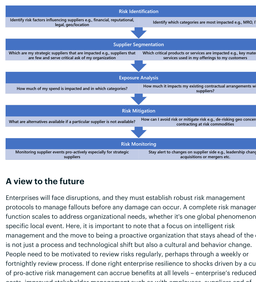
While every sector can benefit from risk intelligence, it can be beneficial to supply intensive areas such as manufacturing, CPG and retail. By driving an increase in risk visibility, risk avoidance and productivity, risk intelligence enables enterprises to transition from a reactive mindset to proactive risk assessment driven culture. Over time, resilience is not a capability developed in haste during a crisis, but an attribute consciously created with foresight. Enterprises cannot learn from experience in the absence of performance strategy insights, which risk intelligence systems address by utilizing technologies (like AI and ML) centered on continuous learning.

Critical elements of procurement risk intelligence

Risk intelligence systems must not just report the status quo but generate actionable insights that reveal opportunities and guide the ways to realize them. Given the importance of current and relevant insights, these systems must identify critical suppliers and monitor them regularly.

Additionally, enterprises should also look to implement a tool that offers flexibility and adaptability, as every organization is unique and so is its risk profile. Another factor to consider is the substantial revenue pressures caused by the pandemic or other disruptive events, meaning that organizations cannot afford a complete overhaul of their systems of record. To avoid the challenge of rip and replace without sacrificing the benefits of transformation, enterprises should turn to intelligent plug and play systems that sit on top of existing IT infrastructure.

A comprehensive risk intelligence framework that we recommend to procurement organizations:



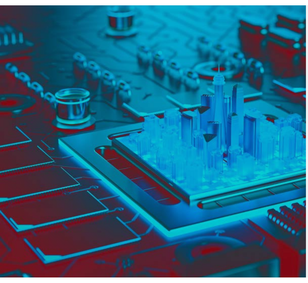
A view to the future

Enterprises will face disruptions, and they must establish robust risk management protocols to manage fallouts before any damage can occur. A complete risk management function scales to address organizational needs, whether it's one global phenomenon or a specific local event. Here, it is important to note that a focus on intelligent risk management and the move to being a proactive organization that stays ahead of the curve is not just a process and technological shift but also a cultural and behavior change. People need to be motivated to review risks regularly, perhaps through a weekly or fortnightly review process. If done right enterprise resilience to shocks driven by a culture of pro-active risk management can accrue benefits at all levels – enterprise's reduced costs, improved stakeholder management such as with employees, suppliers and of course better customer service to the end customers. Organizations need to build their philosophy on a foundation that manages risk ahead of time.

While chance and luck play a significant role, even at the individual level, in a worldwide supply chain affected by thousands of mitigating circumstances, their impact is exponential. By developing the ability to show agility and clarity in the face of adversity, enterprises can build a foundation to thrive in a future as uncertain as it is brimming with opportunity.

References

i. https://hbr.org/2020/03/coronavirus-is-a-wake-up-call-for-supply-chain-management
ii. https://home.kpmg/xx/en/home/insights/2020/08/third-party-risk-management-outlook-2020.html
iii. https://www.pilotonline.com/news/health/vp-nw-coronavirus-port-virginia-portsmouth-marine-terminal-20200416-kbdvid74wbfphgh5sqhkqbgr4q-story.html
iv. https://www.infosysconsultinginsights.com/wp-content/uploads/2020/08/covid-19-supply-chain-impact-survey_infosys-consulting.pdf
v. https://www.mckinsey.com/business-functions/operations/our-insights/supply-chain-recovery-in-coronavirus-times-plan-for-now-and-the-future
vi. https://www2.deloitte.com/be/en/pages/strategy-operations/articles/global-cpo-survey.html
vii. https://www.autonews.com/commentary/crisis-exposes-flaws-supply-chain



January 2021

The New Digital Normal

Are you ready?

Kartik Murugan
AVP - Senior Director and Head - Marketing, EdgeVerve Systems Ltd. (An Infosys Company)

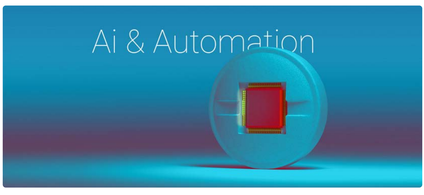
Summary

What's next? A question that most of us have been pondering over of late. The New Year sure does feel different, with a sense of cautious optimism that the worst is behind us. Economists' predictions on how long it will take to restore the world economy are wide-ranging, and businesses are trying to figure out the next. Even as we witness multiple waves and newer strains of COVID-19 across key cities worldwide, the news on multiple successful vaccine trials has given hope and optimism to people and businesses. The conversation has now shifted from how we navigate the pandemic to what is next in a post-pandemic era. In a world that will never be the same, companies are gearing up to take advantage of this new era.

Resetting the pandemic fatigue

It was March 2020 when we realized that the business plans we had created for the year might lose its relevance. Like many other organizations, the questions we faced were, how much do we pivot? and by when? Now, with almost a year into the pandemic and having experienced many phases — high adrenaline reaction initially and then the uncertainty of an end-date, followed by the realization that this could last longer by many quarters — it's been a grueling time for most of us. The biggest challenge has been to sustain effective connect with our teams, employees, clients, and partners. Pandemic fatigue is real and has impacted both mental and physical health equally. The effect on people and organizational performance is visible, and this is higher in industries that have been deeply disrupted by COVID-19.

Overcoming pandemic fatigue is essential and shared responsibility between the organization, its leadership, and employees. The good news is that the vaccines are here and expected to shorten the end-date of the pandemic. Frankly, I've been highly impressed with how well we've been able to navigate a completely unknown crisis and been able to accomplish so much in an almost 100% remote environment. Many organizations have perished during this time, and there are quite a few examples of companies that have thrived simply because they were better prepared for the "new world" than others were. As we begin to unfreeze from this event, the learnings have been immense, and organizations have displayed resilience and creative ways to overcome the challenges.



The consumer has evolved

Almost everything has changed today — the way we work, engage, shop, and spend. Consumer preferences will realign sharply, and the newfound changes in behavior are expected to remain post-pandemic. Some of the daily routines that needed external physical space have become virtual — Fitness, Education, Personal events have all gone digital in this new self-help, self-heal world. A crucial factor that will impact behavior change is the "work from home" trend with high-income groups as many organizations continue to embrace this change and a few of them make it permanent too. This is expected to alter consumer spend structures and preferences in a big way. The cascade effect will be felt on industries dealing with office real estate, coworking spaces, business travel, hotels, and even lead to a rethinking of people's preference to live in big cities.

> The retail industry has been one of the most disrupted in 2020. The organizations in this sector can't gamble in a wait and watch mode; rather, they will need to reimagine their business models to serve the evolving consumer. Consumerism is expected to bounce back in a strong yet different way.

We already see that in the need people have to come out and experience entertainment, despite the pandemic. A year of exposure to technologies like Zoom and online shopping with superior experiences has increased customer expectations from digital. How are these experiences shaping the way organizations respond? Will brands redefine their purpose? Or will they invest more in digital technologies? A rethink of superior customer experiences is paramount, given that the consumer has moved away from sub-par digital experiences.

The New Digital Normal

Digital has played a vital role in managing the current situation effectively, and the adoption and dependence on technology have grown manifold. Imagine this COVID-19 pandemic in a world without the internet. That would be an interesting debate for another day. The post-COVID-19 era will be a new digital normal for many industries, and it is no longer an option to optimize businesses for digital.

> There has been an explosion of online data over the last year, and with that comes insights and patterns into the changing consumer preferences and shopping habits. This means faster digital transformation that enables new business models and future of working.

The prominence of technology as a differentiator has grown manifold in recent months, and areas like AI, Automation, Cloud, and Security have taken center stage. For long, AI has been touted as the next big thing in technology, but today, the moment for accelerated AI adoption is here. In a recent McKinsey[i] Global Survey on AI, the key finding has been that organizations are using AI as a tool for generating value. **AI & Automation together is the magic pill that many enterprises need to navigate the new digital normal.** These technologies help businesses solve problems like never before, with AI providing the insights for better decision-making and Automation executing the actions faster and accurately. For example, it has now become imperative for customer-facing businesses to create a contactless experience for their customers, and technologies like AI & Automation are becoming the bedrock of such true digital experiences.

Are you ready?

Over the last two decades, we've witnessed many economic downturns and the largest pandemic the current generation has seen. These scenarios are almost impossible to predict when they will happen and when the next normal returns. Organizations need to invest in building enterprise resilience to weather any crisis better and, more importantly, stay prepared when growth is back. Various studies have shown that companies that had invested in a robust digital transformation strategy managed to cope with the crisis better than the laggards.

As part of their COVID-exit strategies, savvy CXOs continue to invest in building digital maturity by strengthening the technology infrastructure aligned to evolving business needs to put their organization in an advantageous position. An organization looking to thrive in the new digital normal will need to figure out how to hardwire the positive employee behavioral changes into their organizational culture and couple that with agile operating models on the back of robust digital transformation execution. It might even be a good time for industry forums and enterprises to collaborate with peers and leading companies from other sectors to create a blueprint to handle similar pandemics in the future.

In conclusion, the expectations from 2021 are high, with hopes for new possibilities. The next digital normal is already here, and organizations that embrace the trend smartly will be able to ride the phase of growth and even be prepared for future uncertainties.

References

i https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/global-survey-the-state-of-ai-in-2020

January 2021

Cutting Through The Noise

Debunking myths in AI-powered document processing

John Kuriakose
Principle Product Architect,
EdgeVerve Systems Ltd.
(An Infosys Company)

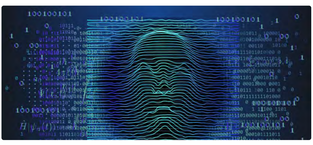
Summary

Enterprises are realizing that their documents are a rich source of hidden data and insights. But as the market is flooded with multiple jargons and claims, it can get difficult for the end consumer to de-clutter through the noise. Read this article to demystify the myths around applying AI for document processing.

Mike leads technology for a large CPG player and is currently facing a big dilemma. He is losing out on critical business insights because most of the company's data is tied up in unstructured documents. He's been looking at document digitization options that could unlock these insights but feels that they all might be making tall claims. Surely not everyone can deliver 100% accuracy!

Mike isn't the only one. Analysts report that 80-90% of data in organizations is unstructured and locked up in documents creating bottlenecks for information processing and roadblocks for digital transformation. For organizations that want to become digital businesses, the first order of the day is document digitization. No wonder then that the global document management services market size is projected to reach USD 57.56 billion[1] by 2027 . But given the demand, there has been a spurt of solution offerings in the market, making it essential for technology leaders to make an informed choice.

Mike isn't sure that the parameters he's evaluating give him the right picture of what the document digitization solutions can do. So, he calls a consultant to discuss this problem.



"Anne, I really need to get our documents digitized to make sense of where we can cut costs or improve efficiencies. I've been looking at solutions, and while all of them promise the moon, I'm not quite confident if they can deliver it," said Mike. "Could you help me figure out what works, please?"

"Sure, Mike, tell me how I can help."

"Well, the first thing, which I thought would be the easiest to pick is the accuracy they promise. Unfortunately, all of them promise 100% accuracy. That can't be true, right?"

"Yes, that's misleading. In fact, not just accuracy, you should look at five key areas where some myth-busting is needed. Let me take you through all of them, and you can decide."

Myth #1: 100% accuracy guarantee

What is the accuracy Mike should look for? Isn't a solution that promises 100% the best to consider? Accuracy is the wrong starting point in assessing the business case for document digitization solutions. Rather, Mike should be focusing on the costs for the current process and explore what-if analysis to arrive at a minimum accuracy for each document type in scope to make the project viable.

The accuracy claims of document digitization solutions require reference data and are based on a tiny sample set with no guarantee of how they will perform on a large scale. A 100% accuracy guarantee is not possible using automation and AI alone; there has to be some level of human involvement. Also, accuracy claims are, at best optimistic beliefs. The only way to measure accuracy is during implementation on the actual data set and with the manual effort of mapping the actual results vs. the expected ones. Since that's not feasible on the large data sets in production, often what's touted as accuracy is a proxy measure called the confidence score — i.e., how confident the system is of correct extraction.

> The way it works is that there is a threshold for the machine learning models — say 90% — and if the extracted value from an OCR engine has a confidence score higher than the threshold, it is believed to be correct. This can be verified for a small set and extrapolated to the documents in production. The question is — how reliable and sound is your extrapolation from a few hundred documents to a million or more?

A product can have a high confidence score yet fail to provide accurate extraction and vice versa. It is purely a function of the kind of training data that the model was exposed to and the type of actual data it's now running through.

Hence, instead of accuracy, the business case should rest on savings in cost and effort and how automation can increase productivity and reduce the time taken for key business processes like loan application processing.

Myth #2: Unconditional Straight Through Processing (STP) Promise

From the point of accuracy, we established that pre-production is impossible to guarantee 100% accuracy; it shouldn't even be an expectation. So, the products that promise unconditional STP are merely relying on confidence score, which we have seen is not a measure of correctness. It also doesn't factor in the issues that could emerge from document layout and content drift as formats and information change over time.

Instead of relying on unconditional STP, one should look for a system that can give you a reasonable accuracy for you to cut off into production and then conduct benchmarking exercises at regular intervals in production. The idea should be to start with a reasonable measure that makes sense for your basic ROI calculation and then constantly improve the product performance with measurement and human feedback.

Benchmarking helps measure the accuracy over time, catches deviations due to content drift, and can be re-trained on new use cases. To achieve this, we need to simplify the effort and the benchmarking process radically — something that most products lack and the reason they depend so heavily on the confidence score.

EdgeVerve's Nia DocAI solves this problem. With a few clicks, even non-technical people can redirect some sample documents over any configurable period to the Exception Queue, where they are checked manually. Once the auditors review and correct the results on the sample set, it gives a precise measure of accuracy. A learning and auto-tuning capability then improves the product based on benchmarking data and auto-suggests corrections based on an ML model. This improves the product over time. As you scale in production, it allows you to make sure that our new kinds of layouts are not degrading your performance, and if they are, the feedback can be used to bring it back into an optimal extraction.

Myth #3: Implementation without calibration (PoC)

An out of the box (OOTB) product needs to be calibrated for an organization's data quality. For instance, in poor document quality, an OOTB model will underperform on the client data.

In the product evaluation phase, it makes good business sense to do a PoC. This will help assess the context of the business problem and product fitment — how the technology works with client data. A PoC also helps provide a starting point for the OOTB model to work and adjust to client data needs. This calibration forms a solid foundation, which continues from the PoC to implementation to production. Instead of a one-time calibration, the right approach is to do it often. Along with the real measurement of product performance on your documents and data, a PoC allows your staff to see and feel the user interface used in production to manage the entire document lifecycle. It also gives you a sense of the actual human effort and skill required to review and correct machine results.

Myth #4: There is no need for customization

No software platform can address all use cases for all industry verticals and all business domains without customization. Every company has its unique business requirement to be addressed, and document digitization has an unthinkable level of complexity. This stems from the variety and variance in documents that are unique to each organization.

Keyword variance is not easy to solve because you don't know what to expect in the client data. For every kind of use case or customer use case, you will have to spend some time customizing the product to deal with these variables. Some of these variances will not be fully known right upfront when you're cutting over from implementation to production. Even a customized product can run across document formats that it hasn't been trained on, impacting performance.

5 dimensions of document layout variance

- **Classification keyword**
  What is the document classified as? Is it a form, is it an invoice? Is it a bill of lading? Is it a packing list?
- **Structural elements variance**
  Field – Value pair, Table, Checkbox, Images, Signature, Logo, Paragraph, Section
- **Key-value mapping variance**
  Direction of association between field and value
- **Field keyword variance**
  Various alternate names (alias) for the field. For instance, an invoice date could also be called a bill date.
  i. Alias for field
  ii. Order of Preference for Field alias
- **Location of structural element**
  Where is the information that you are looking for located in the document? E.g., Is the invoice date at the top of the document or the bottom? Is it inside a box or a table, on the right or left?

EdgeVerve's Nia DocAI solves this problem with an Onboarding feature. As variance from document sources cannot be controlled, Nia DocAI makes it easier to automatically identify and train new layouts, improving the system as it runs.

Once in the production pipeline, if Nia DocAI detects that the quality of extraction is not good or the classification has gone wrong, then it quickly makes an intelligent decision to do two things:

- It puts the document into an exception queue for manual checking, or
- It identifies it as a new layout that needs to be trained on and puts it in the onboarding queue.

The onboarding queue saves the effort of checking every new layout manually. Once a human agent trains the system on the new layout, it re-processes all the similar documents in the onboarding queue through the production pipeline.

Myth #5: Buy and forget

Implementing a document digitization product does not mean that you can buy and forget about it. As we saw from the points above, it needs continuous training and improvement depending on the data quality and variance and to handle exceptions and outliers. It'd help if you had some human agents working in tandem with the product to get the best output.

"So, Mike, as you can see, while products may make many claims, the on-ground reality is quite different."

"I can now see that clearly Anne, and this has been immensely helpful in weeding out some of the options I was considering. I quite like the idea of a product that learns and improves over time."

"Well then, you know which one to pick!"

References

1 https://www.fortunebusinessinsights.com/document-management-services-market-102848#:~:text=The%20global%20document%20management%20services,6.9%25%20during%20the%20forecast%20period.

January 2021

Intelligent Automation

The most promising lever in financial services

The edge quarterly

Jan'21

edgeverve

An Infosys company