

# The edge

Vol' 01

quarterly

## REWIRING THE ENTERPRISE

Leading into the digital age

Twin it to win it

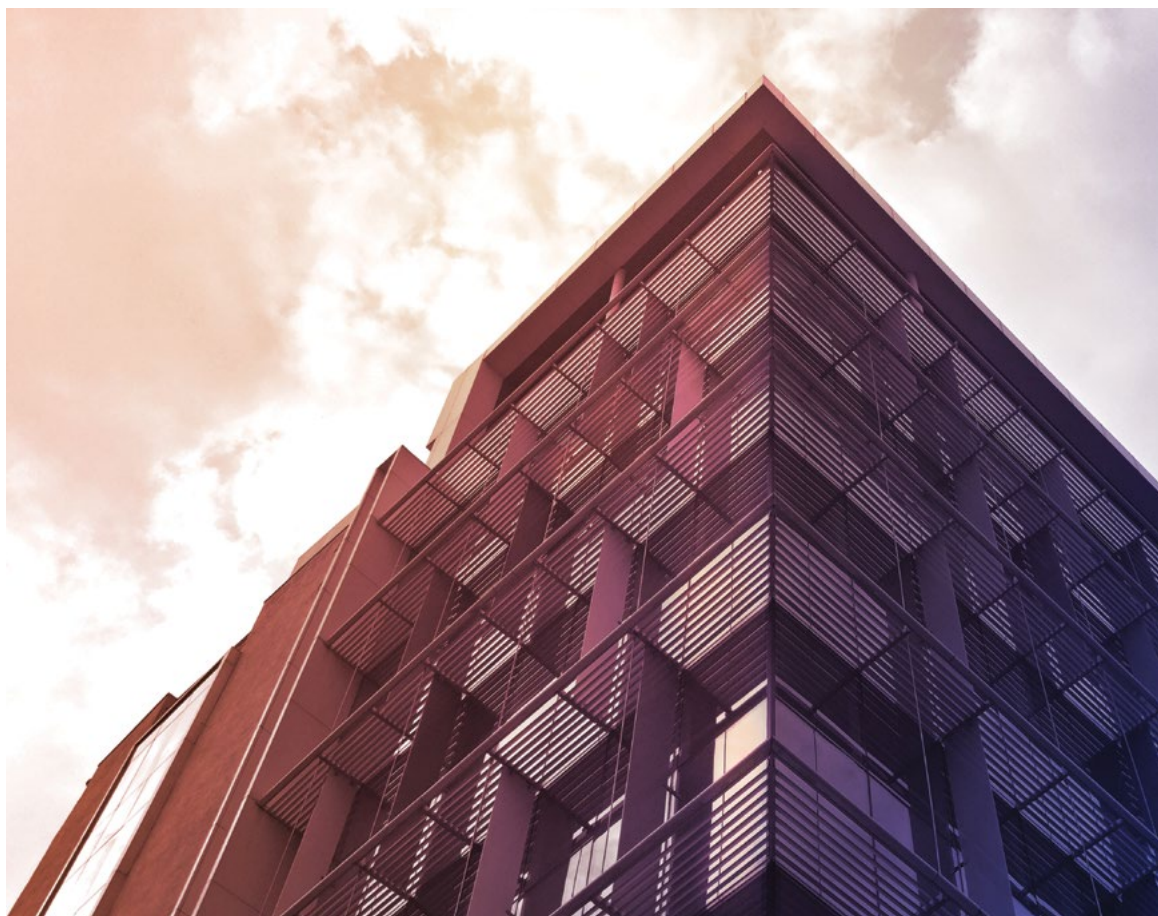
The future enterprise

The next phase of AI

From document to insights

Powered by

 **edgeverve**  
An Inliss company



*EdgeVerve Headquarters, Bengaluru, India*


## **About EdgeVerve**

EdgeVerve Systems Limited, a wholly owned subsidiary of Infosys Limited; defines, develops and licenses innovative software products and cloud hosted business platforms. We focus on driving revenue growth, cost effectiveness and profitability for global corporations and their business ecosystems across the world.

Visit [www.edgeverve.com](http://www.edgeverve.com) to know more about our innovations in financial services, insurance, retail, CPG, life sciences, manufacturing and telecom.



# EVOLVING TOGETHER



In our journey of creating continuous digital transformation for organizations around the world, we come across people who are thought leaders, experts and implementers. Each of them have given us insights into how the world is changing now and in the future. We have had long debates internally and with our partners on the direction technological change is heading. We believe that this continuous conversation and sharing of ideas is what will drive change.

The Edge Quarterly was conceived to share practical leadership ideas and best practices with enterprise leaders and strike a conversation around rewiring enterprises. 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 [www.edgeverve.com/the-edge-quarterly](http://www.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](mailto:contact@edgeverve.com)

**- Editorial Team**

# CON TEN TS

06

08

14

20

24

28

34

36

40

44

## **Leading into the digital age**

The confluence of AI and Automation

## **The future enterprise**

Rewiring for Digital Transformation

## **Twin it to win it**

Welcome to the world of Automation Singularity

## **See more. Aim higher.**

A case study on demand visibility

## **The next phase of AI**

Building a cognitive and connected enterprise

## **Make your data work for you**

A technical article on data harmonization

## **AI to improve decision-making in procurement**

Leveraging data for success

## **Where sight meets might**

Combining channel visibility with intelligence

## **From document to insights**

Harnessing the power of cognitive AI

## **The Future of work is here. Are you prepared?**

Creating an RPA trained workforce



# LEADING INTO THE DIGITAL AGE

## By Atul Soneja

Senior Vice President,  
Global Head of Edge and Infosys Nia™,  
EdgeVerve Systems Ltd. (An Infosys Company)

**O**ur world has changed in a manner yet to be seen. The challenges faced and benefits expected have changed too. We live in a new normal where we need to disrupt before being disrupted. The Fourth Industrial Revolution is firmly underway unleashing transformative change, but many enterprises need help on how to navigate this change. Businesses have not only used technology as a key lever for transformation in the digital era, beyond just reducing costs or improving operations, but also for building better products and creating new business models. Digital transformation has pushed boundaries on how companies need to relook at their strategies.

**The verdict is clear:** From predicting diseases to transforming healthcare to integrated human-digital workforce changing how we live and work, the convergence of innovation across digital, social, physical, and even biological platforms will drive this new wave of digital transformation. The new ecosystem will see a transition that permeates every aspect of our existence. Deploying technology has long been a hygiene factor, but what's new is the speed at which AI and Automation technologies have evolved and are accelerating this digital journey for enterprises. It is not just about business productivity and ROI for enterprises. This transition is more substantial than any before and the smartest companies understand its potential impact.

The situation is not without its advantages. In my conversations with CXOs, it is clear that there is an opportunity in creating a competitive advantage through AI and Automation. For the first time in history, enterprises have been able to access a confluence of technologies. Harnessed with intent, the power of AI and Intelligent Automation can help enterprises drive better decision-making and increase their ability to innovate faster. The flip side is that many of them face challenges in scaling these levers across the company for real impact.

Adoption is not without its challenges, requiring a greater focus on culture, an investment in skilling, and a fundamental shift in mindset, but the benefits far outweigh the obstacles. The intersection of AI and Automation and their capability to fast track digital transformation, makes it a potent disruptor for organizations looking to enhance or change their business models.

What I am most excited about is the classical and unpredictable aspect of the potential that both AI and Automation hold in providing businesses the catalyst they need to compete in the digital age. In my view, today enterprises largely focus on the following 3 areas on their journey towards digital transformation :

#### ■ Customer experience

#### ■ Enabling the knowledge workers

#### ■ Unifying the human & digital workers

Customers have renewed expectations of the products and services that improve the quality of their lives. It is no longer sufficient to be the

best priced, best delivered, or best-constructed product or service. A level of quality and customer experience is a prerequisite in this new digital age. Similarly, **the capacity to use technology to enhance human capability in an ecosystem where humans are armed with the best insights from data and collaborate seamlessly with digital workers will define the enterprises of the future.**

Imagine if you could predict what a customer wants and are able to offer a product or solution at the instant of his or her need – that will be a true game-changer. Digitally native companies are close to doing this, and are the new breed of emerging competition across sectors. This is where AI and Automation gain significant prominence as catalysts in enabling organizations in making sense of their large-scale data, converting it into actionable intelligence and automating contextual responses to lead them into the digital age and create superior experiences for the customers.

Drawing on our experience of spearheading transformation initiatives for some of the world's leading companies, EdgeVerve is privileged to play a role in transitioning organizations towards becoming a connected and cognitive enterprise through leading AI and Automation products. And, since every transformation begins with a conversation, I am delighted to present to you the first-ever issue of **The Edge Quarterly**, an EdgeVerve magazine on practical thought leadership, industry insights, and technology best practices from across the planet. I hope you find the material stimulating and would love to hear your specific comments, challenges, and feedback, as we strive to create a magazine that becomes essential reading for CXOs everywhere. Please also get in touch if you would like to contribute an article because this is a situation that requires constant, diverse, and constructive debate. Your perspective is valuable.

Without further ado, I invite you to enjoy this edition of **The Edge Quarterly**. Happy reading.■



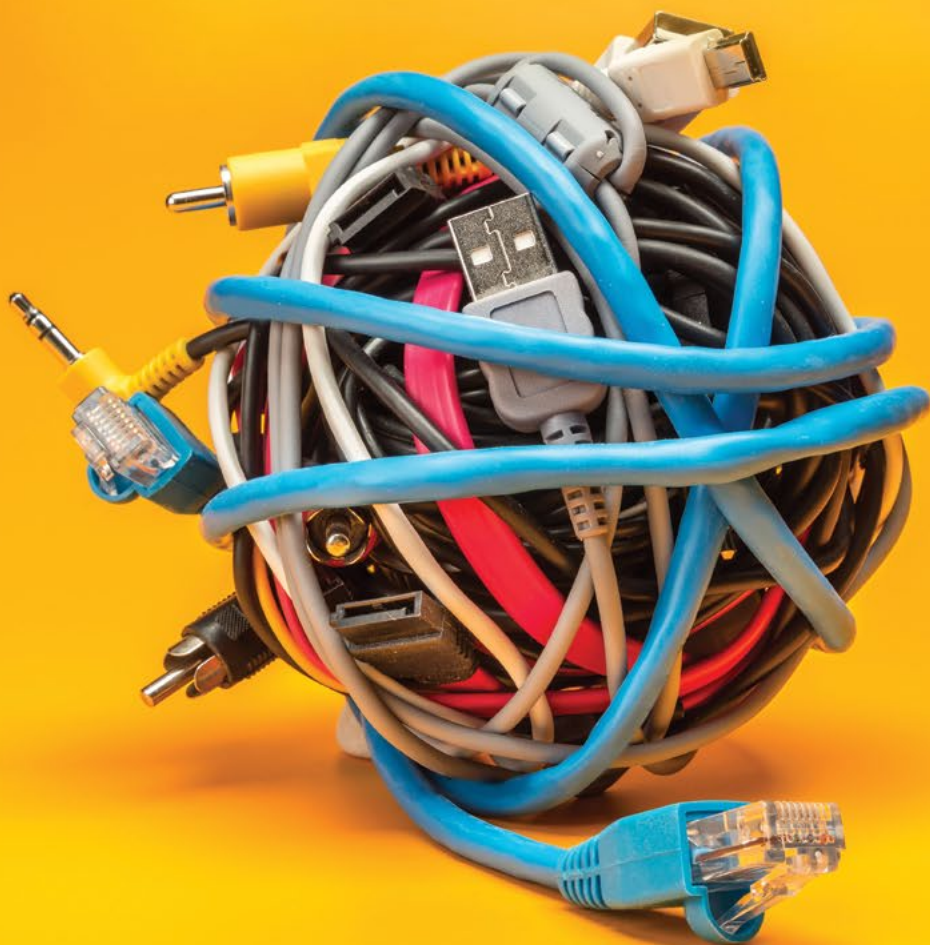
# The Future Enterprise

## Rewiring for Digital Transformation



**By Mohit Joshi**

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





## Transformation.

**W**e've heard it said every single time there is a shift in technology or consumer behavior or market dynamics. And with those shifts taking place as frequently as today, it can be easy to believe in the need for constant metamorphosis. However, if consumers are changing at a fast pace, enterprises need to transform faster. Newer competitors that are digitally native are changing the rules of the game by leveraging technology to make business perform better than ever before from providing superior customer experience to significantly transforming the future of how people work.

### How does an organization transform for the digital world?

In this new world of the Fourth Industrial Revolution, there have been massive shifts across industries on how business is done. It is both a boon and bane for companies to disrupt and be disrupted. An organization is like a complex wireframe built over time on a foundation of people, partners, workflows, complex processes, legacy systems, and new technology infrastructure to provide the customer what they want in the best possible way. How well an organization can do this, better than any competitor, and better than what the customer expects, will define their competitive advantage.

By challenging the status quo and serve the customers of the future, enterprises need to be able to pivot rapidly despite existing constraints. Spurred by rapid evolution, Information Technology has been one of the most significant enablers for organizational transformation over the last few decades. What was once a differentiator has become a hygiene need now. Also, technology was primarily looked upon as a lever to improve the functioning of processes for efficiency, productivity, and cost optimization. In today's world of digital transformation, IT is again expected to become the bedrock of innovation and impact business growth through new products and business models.

While the importance and understanding of digital transformation have been higher than ever, there is a flip side to the story. Many studies by leading analyst firms and consulting organizations have pegged the

success rates of digital transformation initiatives at less than 20%.

The emergence of AI and Automation has made it possible to apply "digital" to any process, system, or underlying technology infrastructure and rewire the enterprise to become agile and sharpen focus in yielding tangible business results.

The transformation impact of AI and Automation is happening at various levels, right from wide-ranging efficiency improvements in an enterprise to the transformation of the way an industry sector operates and even impacting humanity positively.

**With 64 tournaments across 30 countries every year, the ATP Tour is a powerhouse of tennis content and experiences. As much an institution as an organization, it was now crucial for the ATP Tour to evolve in line with the tennis-crazy digital native. However, it had to do this without disrupting its systems while ensuring compelling viewer experiences. Infosys today, 5 years and 15 innovations of partnership later, has developed cutting edge digital solutions such as the new ATP Tour fan and player apps, live scoring and stats innovations that unravel the insights behind tennis matches and immersive virtual reality experiences that excite fans across the globe. The digital features are also available to consume for fans in real-time on ATPTour.com, NittoATPFinals.com and Android/iOS app stores as well as social media, transforming tennis in every way imaginable, from court-side to television and digital to social media.**

### Embracing the change

Embracing any change to harness the power of digital innovation requires teams across the business and functions to rethink the role and impact of technology. Enterprises across sectors, even fervent advocates of digital transformation, continue to run both newer and legacy systems that operate in silos. These processes and systems make them slow, inefficient, and unable to respond to change. The resulting rigidity makes it even tougher for enterprises to take on innovative, and rapidly emerging, competition without technology baggage.

**The real win for any enterprise lies in providing an exceptional customer experience. Customers today want speed, personalization, coherence, and value from every single interaction, but enterprises aren't structured to deliver these benefits. AI and Automation have been widely deployed as a layer of intelligence that empowers enterprises to drive customer delight by with rich customer context and better productivity through intelligent automation.**

*With its ability to drive 8% spikes in NPS, a 20% increase in agent productivity and FCR, up to 50% savings in training and operations cost, and over a 70% improvement in query resolution time, AssistEdge has provided immense value for some of the leading enterprises across the planet. The impact on telecom companies, in particular, has been transformative. In the case of two world leaders in communication services, AssistEdge was able to drive a 40% reduction in AHT, generating substantial savings, and elevating the customer experience.*

## The need for action

Genuine progress needs a modification of core functioning. The evolution of technology has changed the relationship between intelligence and efficiency from a tradeoff to a mutually inclusive advantage. A singular focus on intelligence or productivity can yield immediate benefits in the short term, but this would only be a quick fix. It is here that a combination of AI and Intelligent Automation, when leveraged rightly, can play a crucial role. Organizations can collect and aggregate organizational data across people, processes, and legacy systems into a self-learning knowledge base to become a true cognitive enterprise. They can now generate deep insights while discovering opportunities to optimize, simplify, and automate complex business processes.

Enterprises understand that scalable and agile transformation is key to their success, but their initial attempts at technology adoption can frequently either stagnate or fail to meet expectations. In our experience, although every

enterprise faces unique challenges with regards to digital transformation, we have found that these hurdles have a common theme:

- **The lack of a comprehensive AI and RPA strategy** that moves beyond the pilot stages
- **Low availability of reliable datasets** due to siloed operations coupled with security and compliance risks makes AI and RPA adoption a significant challenge
- **The absence of talent with relevant AI and RPA skills** calling for a reskilling exercise supported by extensive change management efforts
- **Limited insights contextual to a particular enterprise** leading to an over-reliance on industry reports and peer comparisons

While the first step to adoption should be the creation of a customized plan relevant to an individual organization's challenges and goals, there are many measures enterprises can take to increase their chances of success.

## A pragmatic approach to adoption

We believe that the following pragmatic actions are central to a successful digital and cognitive transformation.

- **Unleash Digital Darwinism across the enterprise:** Organizations should set the stage for creating newer competitive edge and differentiation by making the enterprise more cognitive, digitally connected, and strategically agile through co-creation between various functions towards the larger goal.
- **Trust your data :** Start with creating the right datasets, curating the quality of data from the right sources, and bringing in explainability through AI to build the trust in your data and insights to make crucial decisions for your organization.
- **Rewiring for agility and speed :** Infuse AI into all customer-facing processes and automate comprehensively to make them intelligent and self-healing to empower the enterprise with the ability to adapt and respond faster.
- **Rapid experimentation :** AI and RPA should be seen as tools to solve business problems and must be deployed creatively, consistently, and comprehensively

to gauge impact and modify approach.

• **Scale your journey across the enterprise :**

Practically every organization is already on their journey of digital transformation. Yet, the hurdle of scaling is the biggest. It is imperative to have a clear enterprise-wide intelligent automation strategy. The success of this strategy will depend on identifying the right areas to rewire to scale and stimulate growth.

• **Identify the right technology building blocks:**

With a focus on solving specific business problems, the technology leveraged should be easy to deploy and use. Enterprises should look to adopt a potent combination of buy-and-build approach supported by a robust enterprise-grade AI platform, an integrated and cohesive RPA product suite, and AI-ready plug-and-play business applications.

• **Selecting the right solution partner :** Every enterprise needs a specific solution and the right technology partner. Organizations should look to work with solution providers who have a demonstrable track record of addressing business problems, experience in their vertical, and solutions that are flexible enough to scale. This choice of partner is perhaps the most crucial element of transformation success.

• **The future of work is here :** A world where the two forces, the human worker and an intelligent digital worker converge to co-create the future worker to enable synergy and enhanced output across people, process, and technology is already here. Enabled by AI & RPA, this customer-centric workforce of the future opens up a new horizon of endless possibilities.

**I believe that the courage to innovate, backed by the tenacity to persist, will see enterprises harness the power of AI and Automation. Through consistency and effort, enterprise leaders can build intelligent organizations capable of navigating the future with agility and adaptability, leading the evolution of business as we know it. ■**

Enterprises should look to adopt a potent combination of buy-and-build approach supported by a robust enterprise-grade AI platform, an integrated and cohesive RPA product suite, and AI-ready plug-and-play business applications.





# Automation Singularity Led by Humans

Human-led  
Automation for the  
Enterprise of the  
future



At EdgeVerve, we envision a world where the two forces – the human worker and digital worker converge to co-create the future worker, enabling a synergy of people, process, and technology.

As automation gains momentum, businesses need to look at building a solid foundation to embark on the Automation Singularity journey – an end state of the future workforce.

'Automation Singularity' refers to a customer-centric workforce of the future that opens up a new horizon of endless possibilities.

**AssistEdge is recognized as a Leader in The Forrester Wave™: Robotic Process Automation, 2019**

To read more



# Twin it Win it<sup>to</sup>

In the face of rapidly changing consumer behavior and vertical-agnostic competition, enterprises need to evolve faster than ever before. Today's consumer has complex demands, expects personalization, and uses their experience as a crucial determiner of choice. Loyalty is a thing of the past, while context and service excellence is at the forefront of business success. From a competition standpoint, reduced information asymmetry and the democratization of technological infrastructure has leveled the playing field. Increasingly, enterprises need to contend with disparate information from a wide variety of industries and geographies. This change in dynamics implies that organizations must compete on a level beyond price, efficiency, and reach. Their value proposition needs to combine creativity with effectiveness and customer-centricity with internal impact. On the one hand, companies will need to redesign processes with a focus on customer journeys, and, on the other, they will need to revisit the very structure of their operating models – a challenge for the rigid but an opportunity for the curious and innovative.





## The increasing importance of automation

It is no surprise that automation, specifically intelligent automation, is at the center of this enterprise transformation. With organizations required to reinvent their models at speed, it becomes crucial to unlock efficiencies and minimize process and operational leakages. RPA is integral to this vision, offering accuracy, consistency, and throughput while enhancing enterprise abilities for personalization and speed.

### The numbers make a compelling case

A Forrester study commissioned by EdgeVerve indicates that 95% of respondents (300 business and IT decision-makers in companies across the UK, US, Australia, Germany, and Japan markets) see speed and scalability as the primary drivers for RPA adoption. Even while the massive efficiency gains see RPA becoming a mainstay in enterprise business strategy, the adoption trend is evolving from deterministic to intelligent automation. A report by the Shared Services and Outsourcing Network (SSON) in partnership with EdgeVerve found that intelligent automation is a top investment priority across markets with the APAC region (83% of respondents) leading the way followed by the Americas (70%) and Europe (67%). With its ability to inject intelligence into every aspect of the enterprise, the demand for intelligent automation is no surprise. This factor is driving the demand for solution partners who can offer enterprises the best blend of AI and RPA buttressed by strong consulting capabilities. In line with this trend, the Forrester study mentioned above also found that 55% of respondents would choose RPA solution partners for their ability to create and execute a cognitive AI roadmap. The question, however, is whether intelligent automation is enough?

### The human-led evolution of enterprise

Humanness. That most vaunted and complex of concepts, easy to propagate, and challenging to harness will soon become an invaluable aspect of enterprise strategy. With quality, price, and efficiency prerequisites to compete, productivity and agility, substantial competitive advantages in

the past, are no longer adequate. Enterprise success will lie in the ability to drive contextual creativity and empathy – inherently human skills, at scale. To do this, organizations will need to create and deploy a unified workforce of humans and bots. At EdgeVerve, we call this Automation Singularity – where the future worker or Human-Digital twin signals the seamless synergy of human and bot workers, fueling the growth of the new enterprise.

**Automation Singularity** refers to a highly customer-centric and agile oriented state of constant improvement and optimization through the future workforce, opening up an expanded horizon of possibilities.

Contrary to popular perception, in our experience of solving complex challenges for the world's largest organizations, we have found that human ability is enhanced, not diminished, by a robust automation ecosystem. The stage of integration and evolution that we call Automation Singularity refers to a highly customer-centric and agile oriented state of constant improvement and optimization through the future workforce, opening up an expanded horizon of possibilities. The idea here is that enterprises will turn to a variety of automations (attended and unattended) that, when combined with AI, will have a transformative impact on every aspect of the organization. At the outset, enterprises will make the transition from deterministic or rule-based process automation to intelligent automation that powers data-driven decision-making. The final and most dynamic stage of this journey is a state of human-empowered automation, where bots will use intelligence from knowledge-driven maintenance and self-learn to combine with the human worker's creative and emotional capabilities. It is here that we believe enterprises will unlock exponential value, differentiating their products and services

on ingenuity and intuition supported by the highest standards of quality, accuracy, consistency, and insight.

**What this means for the workforce of the future is that enterprises will become more customer-centric with employees focusing on providing tailored, empathetic solutions for customers while bots provide them with intelligence for better decision-making.**

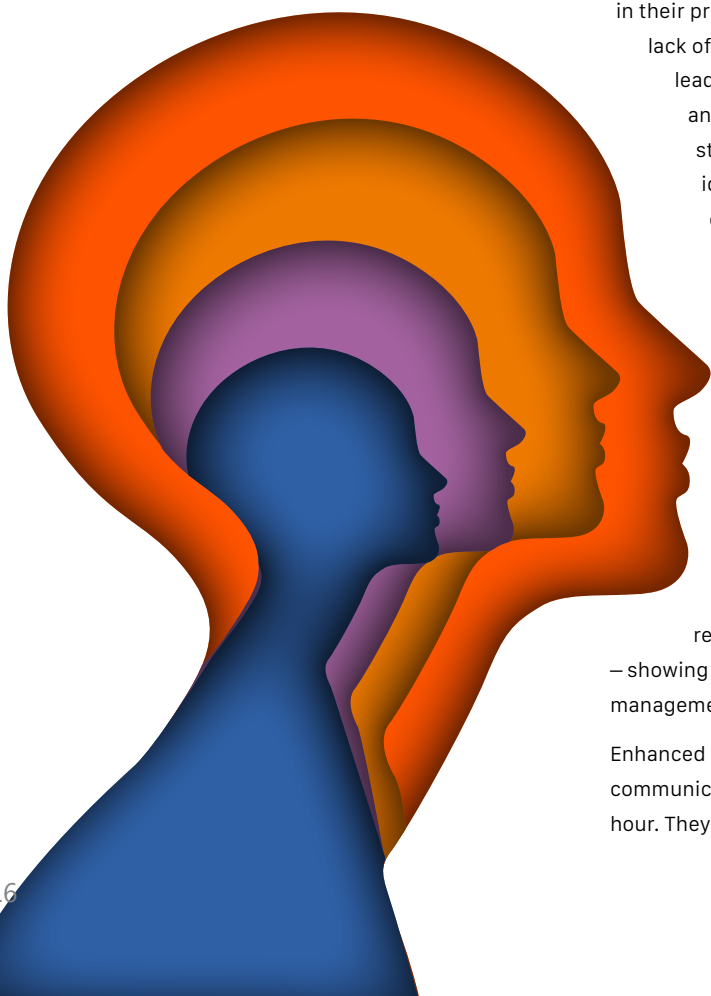
## The workforce of the future

A robust RPA platform that is led by humans and empowers people to focus their energy on customers while bots handle repetitive, albeit complex tasks. What this means for the workforce of the future is that enterprises will become more customer-centric with employees focusing on providing tailored, empathetic solutions for customers while bots provide them with intelligence for better decision-making. The future worker is essentially a combination of the human worker and the digital worker, whereby the digital worker will empower the human to deliver superior value. This future worker will redefine the way we view traditional jobs, bringing in a more granular level of discussion around tasks and skills - functions that can be done by the human, acquired by the digital, and delivered as a Human-Digital Twin.

## The need to balance creativity with caution

While enterprises are open to adopting automation in their processes, already existing legacy systems, lack of direction and inertia of action could lead to a lag or failure in implementation. In another EdgeVerve-commissioned Forrester study, one of the primary challenges identified in adopting RPA is in the space of governance and visibility. Better bot utilization, streamlined RPA expansion, robust control, and maintenance capabilities were a few clear-cut areas of improvement indicated. Respondents also pointed towards poor visibility due to the lack of integrated systems and inadequate integration of workflows. A majority of respondents were looking for better capabilities from RPA vendors that enable superior audits, compliance reporting, and provision for access controls – showing the growing need for governance and management as the RPA ecosystem grows.

Enhanced systems with the ability to work with and communicate with each other are the need of the hour. They can be developed through an RPA agenda



that flows through every department that enables the unification of data across the enterprise. A staggering majority of respondents considered a systemized management framework for human and digital work tasks as a critical need.

## The importance of effective change management

The stage is set. The future of automation and Artificial Intelligence will be spearheaded by humans working in lockstep with bots that perform their function seamlessly, intuitively, and unobtrusively. Reassuring as this may be, it also entails a change management exercise of unprecedented scale and complexity. Think Fourth Industrial Revolution on steroids. The enterprises that succeed will be the early adopters who participate with intent and learn quickly from setbacks. There are no prizes for guessing that the organizations that 'wait and watch' or remain stagnant will be stuck at best and in threat of extinction at worst. Enterprises need to embrace the change management process alongside becoming agile and hyper-productive to stay ahead of the curve. A seamless blend of people, processes, and technology held together by a unified strategic vision will be the key to sustained growth.

### People

Organizations will have to drive a culture of rapid learning and innovation. They must recognize that since the transition to Automation Singularity focuses on maximizing the potential of their human resources, human expertise should steer the ship. They should empower people to lend their expertise to opportunity identification and lead the automation agenda. Much of these efforts will go into breaking silos within the organization for knowledge sharing between departments. Reskilling and upskilling employees to embrace change and enhance customer experience will be a vital step in this direction.

### Technology

Enterprises will have to employ a bird's eye perspective, focusing not just on tools and processes but also on more considerable business outcomes. Investment in resilient IT change

"Change in this world of Automation Singularity will be pervasive, going beyond the boundaries of enterprises, touching value chains, and calling for public discourse on a whole range of issues including employment at large, human reskilling, data privacy, and others. This change will have an impact at a grassroots level encompassing people, technology, risk and governance."



**Sateesh Seetharamiah**

VP, Global Product Head, AssistEdge  
EdgeVerve Systems Ltd (An Infosys Company)

management and supporting technology is compulsory to ensure automation reliability. Bot governance also needs to be enhanced for better resource allocation and utilization to drive cost-efficiency. Interoperability between technologies will have to happen at scale and between multiple vendors to keep up with the momentum.

### Risk

There is a need to develop a framework around potential risks to enable informed decision-making during this time. The speed and efficiency of this ecosystem mean that errors, if any, will also be replicated at scale. Organizations that account for parallel risk-controls measures will benefit significantly from thinking ahead of the curve.

### Governance

Every automation exercise should move in the direction of achieving clear strategic priorities and backed by greater process visibility and data access

for better decision-making. Organizations should consider establishing a dedicated Center of Excellence for automation-led transformation to initiate projects and manage innovation. They can help develop systems and metrics to benchmark the automation progress around the business objectives.

### **Building a Vision from the Outset**

Automation Singularity serves as a beacon for enterprises to conceive, design, structure, and deliver products and services.

The evolution of the enterprise towards Automation Singularity will traverse the journey from rule-based automation with efficiency at a task level towards a state of human-empowered automation where decisions on task, task allocations, and process design are crafted based on data and optimization algorithms.

In due course, the future worker will take center stage in thinking, recrafting, and delivering on the possibilities ahead.

That said, organizations must realize that their automation strategy should be contextual to their journey. Even in the same vertical, no two enterprises are the same. A cookie-cutter approach to an inherently intuitive and flexible discipline could result in more obstacles than benefits. Any movement towards Automation Singularity should be preceded by a thorough

and honest audit of the business situation and objectives. Once an enterprise realizes that its competitive advantage can be driven by differentiated products and services, supported by excellence in service and execution, it can start to make specific changes.

Automation Singularity will soon become a way of life in the enterprise and beyond. Our challenge today is to enable it through practical change management and strategic intent to ensure that the first step is in the right direction. ■

# Are your Sales and Supply Chain ready for AI?

Businesses across industries are increasingly adopting AI with the pursuit of new opportunities for growth. Nearly half the organizations have begun to leverage at least one AI capability in their business processes. In such a scenario, how do you ensure you stay ahead of your competition? And more importantly, how do you ensure that you stay relevant in a fast-paced world where technology and innovations are aggressively consumed to enable growth?

In this whitepaper, we are covering the ground realities of applying Artificial Intelligence in the context of a consumer goods value chain. You may read on to further understand in detail the obstacles that you may face across product, market/channel and marketing dimensions across the demand value chain, with insights on how you and your organization can be better prepared in navigating the changing market dynamics.



[Download the whitepaper to learn more](#)

[www.edgeverve.com/tradeedge](http://www.edgeverve.com/tradeedge)

- › Data challenges that you may have come across in your organization
- › Ever growing number of products in the market and their impact
- › Complexity of demand planning, forecasting and visibility
- › Measuring effective spending on promotions





## See More. Aim Higher.

A case study of a multi-billion dollar global client in the sports retail space wanting to increase demand visibility.

### A Complex Opportunity

We live in the age of the consumer. The opportunity for retail has never been this excellent, but there is a flip side - it has also never been more complicated. From omnichannel distribution to shorter product lifecycles and exponentially increasing consumer demand for personalization accompanied by speed, retailers not just need to manage but excel in every aspect of business strategy to have a chance at competing. In what has always been a game of microscopic margins, the focus on speed and agility can affect the quality of decision-making unless supported by the right technology. Demand planning based on a comprehensive view of inventory, sell-in data, and sell-through data is essential from a business standpoint but equally critical for cash flow and keeping the operation lean. Today, driven by

innovation and intelligent technologies, better and smarter visibility can improve business performance by giving retailers the knowledge they need to make effective decisions at speed.

TradeEdge Market Connect is built for this exact purpose. An automated two-way data exchange platform built by EdgeVerve, TradeEdge Market Connect gathers sales, orders, inventory, invoices, and other similar data from channel partners before delivering them to the manufacturers, irrespective of the size or intricacy of the operation. The platform can adapt to a range of scenarios, whether it is acquiring distributor data in emerging markets or relaying point-of-sale data from large modern retailers in developed geographies.

Crucially, TradeEdge Market Connect does more than facilitating data exchange. The platform deploys advanced machine learning algorithms to detect anomalies faster and augments business efficiency by cleansing, validating, transforming, and enriching data. The result is a seamless data transfer between channel partners, large and small, to enable better



analytics, reporting, and strategy. So, when a global sports merchandise brand approached EdgeVerve to redesign their Point-of-Sale (POS) data acquisition, it was time for TradeEdge Market Connect to take the field. Read on to find out how the platform delivered transformative impact with a 60% increase in demand visibility, offering near-real-time data harmonization from disparate sources.

## Understanding the odds

The client, a multi-billion-dollar global behemoth in the sports retail space, designs, develops, and distributes a wide range of footwear, apparel, and sports equipment. With thousands of retail accounts in the US alone, the company's reach covers nearly all of the planet through a combination of wholesalers, single-brand and multi-brand retail outlets, and distributors.

The scale of the company's business, while a substantial competitive advantage, also lent itself to a high degree of complexity leading to a range of process and business challenges. The issues from a process standpoint were primarily connected to data collection, capture, and flow or, more specifically, inefficiencies in each of these areas:

**Inability to integrate data collection efforts** : The size of the client's operation meant that they had to integrate teams across countries, local territory teams, and several vendors, big and small, to collect on-ground data. However, the intensity of intent, in this case, couldn't translate into the effectiveness of execution. Emerging markets, in particular, can pose a more significant challenge in this regard.

**Non-standard data capture** : With POS systems differing across retailers, distributors, and partners, the data, if captured at all, was in many random formats. As a consequence, the little data that was recorded was asynchronous and unfit for use.

**Delayed data flow** : Inducting a partner to the data acquisition system took anything between 12-18 months. Even from partners in the system, the delays in sending the data to the client's demand planners, weeks on end, invalidated the purpose of gathering data in the first place.

As you would expect, these challenges bled into the operations posing significant business challenges from inefficient inventory management and demand

planning constraints to lower trust in data and, most important, a dramatic reduction in agility. The slow onboarding process, delay in data availability, and poor data quality compromised the company's ability to respond to market indicators in a timely and adequate manner.

## Getting the house in order

Recognizing the need for a shift, the leadership decided to embark on a journey to redesign their POS business intelligence systems. While the work with retail partners to increase collaboration and effectiveness was underway, it was imperative to find a solution partner who could enable their POS data acquisition. Specific parameters were defined to govern the success of this initiative:

- Onboarding at least 100 partners within a three-year timeframe while maintaining the integrity of these global relationships
- Secure, configurable data processed within 2 hours in a scalable and future-proof system
- The use of automation to minimize manual effort and ensure a continuous data flow between retailers and the company

## Enter TradeEdge Market Connect

As a fully automated data exchange, powered by cutting-edge machine learning algorithms and EdgeVerve's strong track record in retail and CPG business transformation, TradeEdge Market Connect was identified as the ideal solution. EdgeVerve's experience of executing similar programs on a global scale meant that we could develop a systematic and structured initiative specifically designed to address the client's problem.

We understand that every client is unique. The impact of any technology solution is only as strong as the partner's understanding of the business context, and this approach saw us work in lockstep with the client's leadership team. A detailed study of the client's data acquisition processes was conducted through interactions with various stakeholders and this resulted in the development of a congruent and customized solution. It was time to get started.

**Prepare. Perform.**

The strength of our solution lay in its simplicity just as much as its effectiveness. The first step was to define and standardize processes, so the onboarding process became more manageable. Once retailer processes were aligned with the company's SOPs, with enough elbow room to accommodate local and market-specific nuances, standard file specifications were defined to ensure consistency in data acquisition metrics and measures. To support the client's efforts on the adoption of their new work-in-progress POS business intelligence system, we also created detailed user guides to educate their partners about the process.

**A notable advantage of TradeEdge Market Connect is its ability to retain the complexities in the business process while harmonizing data to make it accurate and trustworthy.**

The implementation was a resounding success with 325 client partners added to the platform in a mere five years; an achievement lent even more credence by the fact that the addition of the first retailer took just six months.

Customized onboarding models continuously optimized and accelerated the process, light years ahead of the original target of 100 partners in three years.

**Hitting winners across the court**

TradeEdge's market impact was an absolute gamechanger. The numbers tell the story.

**60% increase in partner network and brand visibility** : 325 retailers. Over 32000 stores. More than 30 countries. Unifying the client's distribution network through TradeEdge Market Connect instantaneously injected efficiency into the client's business by empowering business users to optimize demand planning and forecasting.

**Omnichannel intelligence** : Name a channel. See a channel. By eliminating data analysis in silos, TradeEdge Market Connect's harmonized data



**325  
retailers**

allowed the client to garner valuable business insights from cross-channel analyses previously inconceivable.

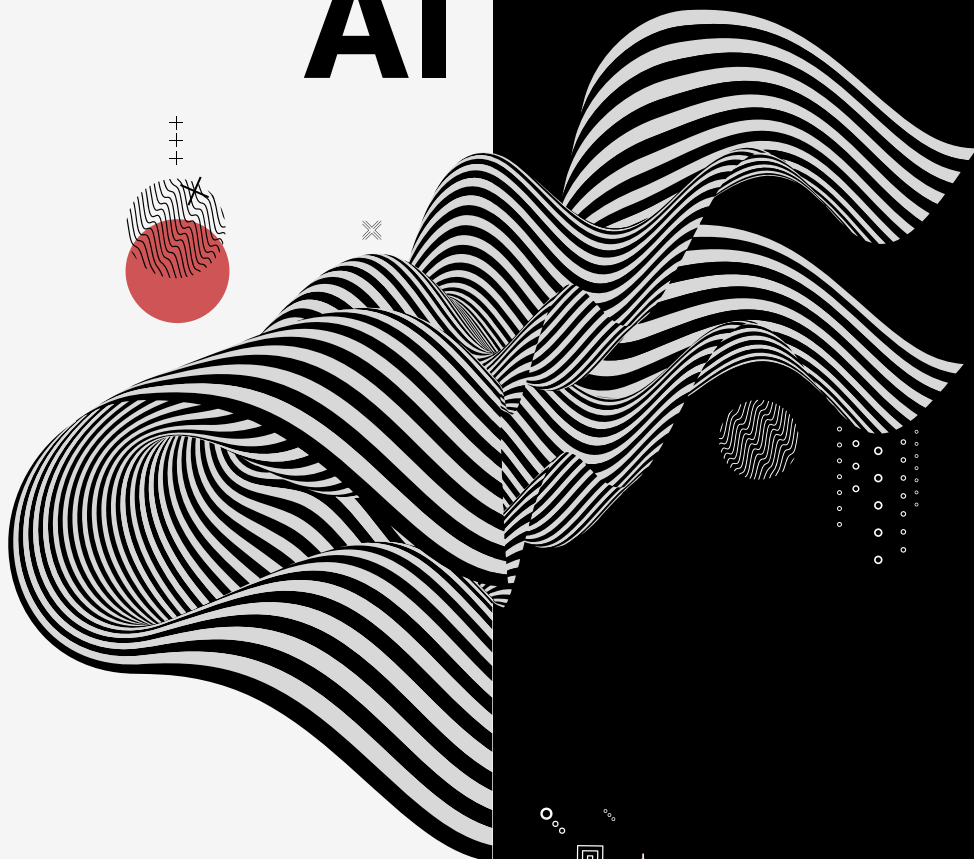
**A breakthrough in sell-through** : Profitability is the purest metric of successful transformation exercises. With inventory turn up to 30%, the company was able to make the transition from a sell-in demand planning organization to a highly competitive sell-through approach that measured customer purchase. The shift completely changed how over 2500 business users - strategic leaders, financial analysts, category manager, business planners, account managers, data scientists, and retailer operations teams - go about their day. Buoyed by insights from TradeEdge Market Connect's data initiatives, the client was able to double down on their growth strategy - multiplying the impact of innovation, accelerating time to market, and building direct relationships with consumers. The resources freed up by the exercise are now being leveraged for progress in 10 countries and developing cities over the next five years.

The win is complete. The legacy has only begun.

TradeEdge Market Connect's success in solving this business challenge propelled the client to replicate the program for another flagship brand. With the roadmap developed, we are now creating the engine room to fuel the client's data-driven growth strategies, built on the back of best-in-class intelligence. ■



# THE NEXT PHASE OF AI



## A Cognitive and Connected Enterprise



**By Praveen Kombial**

VP, Global Product Head,  
Business Applications,  
EdgeVerve Systems Ltd. (An Infosys Company)

**How do I convert leads to customers?**

**How do I engage with my customers before they have a concern?**

**What do I need to do to retain customers by controlling pipeline fallouts?**

**How do I reduce delinquency rates and charge-offs?**

If you work in a financial institution, you're not alone in having these questions. Change in customer behavior and high expectations means Financial Institutions need to raise the bar with innovative business models in the battle to win the customer - understanding and enhancing user experience. In a highly regulated industry, it can be challenging to be as agile as your customer and, if you aren't, the consequences are significant. Everyone is talking fintech, but no one seems to

know exactly where to start. And you have your challenges with adding intelligence to your business – silos, a lack of data expertise and infrastructure, and the absence of AI explainability which gets in the way of governance and regulatory requirements. While each of these issues is valid, can you put off the evolution of your business until you fix these issues? Let's answer that!

## The FinXEdge suite of business apps for lending will be able to leverage AI to:

### Boost revenue

Lead and Channel Management    Loan Fulfilment    Operational Savings

### Reduce losses

Loan Servicing    Loan Collections    Fraud Detection    Measurable Impact

### Build a 360° view of your customers

360° customer view    Behavioral Profile    Financial Profile    Personalization

### Consider external data for better decision-making and customer engagement

Macroeconomic Data    Local News    Weather Information

Trending Information

### Service better

Risk bucket prediction    AI-based prioritized queue

Suggestion on corrective measures

### Collect smarter

Predict channel and time    AI-based personalized communication

Roll rate prediction

### Recover efficiently

AI-based prioritization    AI-based resolution strategies

Account-level personality insights

Life isn't linear. This line may sound like a truism, and it is, but there's more. Digital technology has converted what began as the consumerization of IT, the influence of the consumer on business thinking, into the consumerization of industry. What we're saying is that the consumer's life is complicated, non-linear, and dynamic. To be successful, organizations now need to behave, think, and interact with their consumers just like other consumers would, but even better. The successful enterprise is characterized by its ability to provide contextual, personalized, and meaningful customer interactions, all while delivering exceptional experiences.

Businesses can no longer rely on a transactional approach, but need to think with intelligence and agility – cognitive capabilities that can be driven in the enterprise by machine learning and AI.

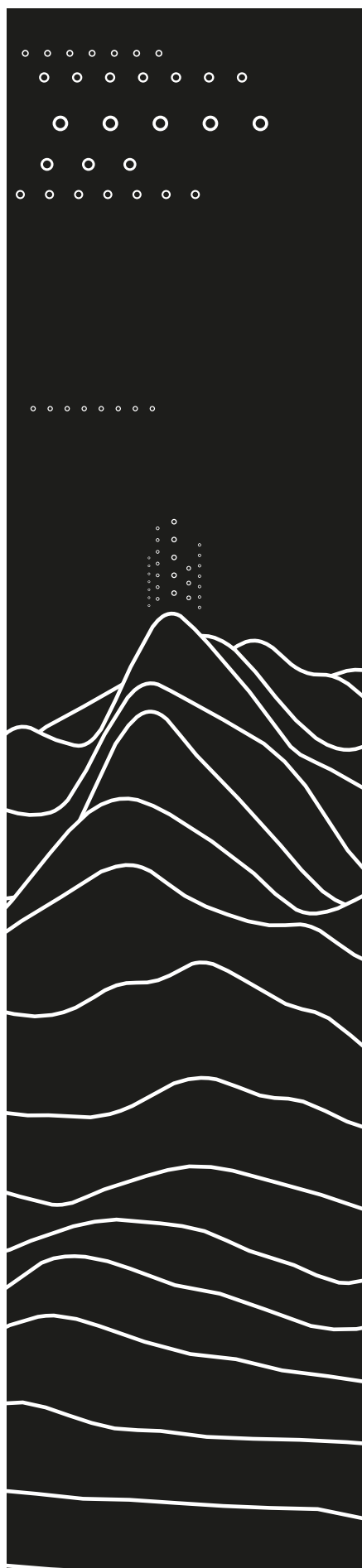
**Cognitive enterprise solutions are starting to change how organizations work by allowing them to proactively meet customer expectations, even before the customer is aware of them.**

At EdgeVerve, we draw on our experience of using technology to turn business challenges into opportunities for innovation, customer excellence, and growth to build fit-for-purpose intelligent applications. We understand that financial institutions need a fast way to get intelligent without overhauling their existing infrastructure.

AI adoption is the key to transforming customer experiences at scale in a digital economy. That's why we built FinXEdge, a layer of intelligence that transforms your financial institution into a cognitive, connected enterprise. FinXEdge is "Applied AI" that helps users to move from experimentation to production. FinXEdge is a suite of pre-built enterprise AI apps that helps clients see results faster and deliver real value to the business and deploy innovative solutions that solve real-world industry-specific problems.

With the FinXEdge suite, you can supercharge your customer experience at scale to ensure that you get the most out of your digital ecosystem. The platform enables you to use AI for customer acquisition, matching customers to the right loans, and also reducing losses through dynamic default and fraud management. **Most importantly, you can now create a 360° view of your customer and provide a contextual and hyper-personalized service.**

In a system with several customers, each using many different services, it is difficult to resolve customer challenges and demands without a comprehensive understanding of their behavior. Furthermore, consumers are affected by factors beyond your business data, such as macro-economic trends, weather, and other events taking place in the broader world. By deriving







intelligence from a range of internal and external sources, through both structured and unstructured data, FinXEdge deploys powerful AI to make your service not just relevant, but coherent.

Through a wide range of applications, FinXEdge can help your banking, lending and collection efforts by allowing you to acquire and retain customers, increase your loan conversion rate, reduce time to decision, reduce charge-offs, and minimize losses from delinquency.

The benefits of this intelligent approach are not restricted to your customers alone but have a significant impact on employee satisfaction and productivity. It is here that FinXEdge really comes into its own. The application sits on top of existing core servicing, collection, and other systems, adding a layer of intelligence for actionable insights.

Additionally, as opposed to black-box AI, FinXEdge's explainable AI offers users a thorough understanding of every decision from the metrics chosen and the behavior considered to the logic applied. This transparency ensures that your banking operation gains intelligence and efficiency in line with governance, compliance, and regulatory requirements.

The imperative to transform is no longer a question of competitive advantage, but one of building a roadmap for the future to stay relevant! ■

# MAKE YOUR DATA WORK FOR YOU



## By Sagar Sarma

AVP - Senior Director,  
Head - Product Development,  
Business Applications,  
EdgeVerve Systems Ltd. (An Infosys Company)

In a world driven by technology, data has fast become the planet's most valuable resource. For enterprises, the ability to harness data is as valuable as it is complicated. With digitization no longer the exception but the norm, enterprises are becoming data-driven and, more importantly, data-dependent. At the heart of digital transformation, data can power businesses into the future, unlocking business potential at every stage of the value chain. On one hand, high-quality data supports decision-making with actionable insights, and on the other, it offers businesses a competitive advantage by enabling transformative technologies like predictive analytics. If the value is so evident, why aren't enterprises able to leverage data at scale? The answer lies in the challenges.

## UNPACKING THE DATA CONUNDRUM

The struggle is real. A simplistic view is that because of the large volumes of internal and external data that enterprises generate, it should be easy for them to extract insights to drive intelligent operations. There is one caveat. Size does not mean structure. To build a holistic, consistent, and insightful view of the organization, enterprises must first organize their data. Several obstacles hinder this process:

### Data generation in siloed systems

Organizations generate data from siloed systems. For example, marketing automation tools like Oracle Eloqua or CRM systems like Microsoft Dynamics have different representations of data for the same individual. For any campaign analysis, you would have to connect these systems to generate an accurate view for the same prospect or customer.

In this case, the absence of standardized fields becomes a constraint. Banks are another example.

### A representation of siloed network of marketing system

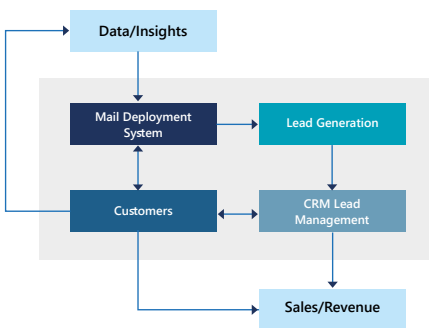


Fig.1 A representation of siloed network of marketing systems

By storing multiple addresses of the same customer for different services, banks struggle to connect the data for the same customer and consequently lose out on business opportunities.

### Disparity of external sources

The inconsistency issue is exacerbated when enterprises connect organization-generated data to external sources. In fact, this problem is harder to navigate than the siloed data generation within enterprises.



**Manufacturer** - GTIN xx000x0x

**Distributor** - Fr Breath Paste 100g

**Retailer** - Fresh Breath Pst100

Fig.2 A representation of different notations across the value chain for the same product

For instance, in trade-related data, in spite of having a GTIN (Global Trade Item Number), the same product is represented by different notations across manufacturers, distributors, and retailers. The resulting complexity leads to further inaccuracies and even more chaos.

### The inefficiency of traditional methods

While consistently delivering the innovation narrative, a majority of enterprises continue to use human intelligence as their primary recourse to solve data standardization problems. Businesses invest large sums of money on requirements for combined data and reports, which mostly translates into a set of rules for an extensive manual review. Depending on the data quality, a few scripts may be written to connect data fields across systems, but the rest of the process is mostly inefficient. Connecting semi-structured or unstructured data poses even more significant problems:

- By not conducting a systemic study to find ways to unify data across all levels and systems, enterprises miss out on data analysis opportunities
- Manual data processing comes with inherent bias and human inaccuracy, and this results in high resource arbitrage and error rates

## ORDER THROUGH INTELLIGENCE

From these challenges, it is evident why enterprises struggle to take advantage of their rich and nuanced information sources. Data is available but simply not ready for use. The solution - data harmonization. Data harmonization brings consistency to enterprise data management by contextualizing business data for each enterprise. By leveraging automation and machine learning techniques, this process makes data insight-ready through a clean, efficient, and effective mechanism.

At EdgeVerve, we understand that the best enterprises need to be supported by the best technology. That's why we built EdgeVerve TradeEdge Data Harmony - a cloud based solution that utilizes best-in-class machine learning and AI techniques to harmonize multiple different external data sources in parallel.

## A LOOK UNDER THE HOOD

Using the C-Score to eliminate the need for rule-based processes, TradeEdge Data Harmony is a set of progressively learning algorithms that builds and operates on taxonomy-based data dictionaries. Data dictionaries are created using one of the data sources as reference data.

In the example in Figure 3 below, Data Source 2 has been considered reference data and the dictionaries will be built using the fields of this source. The customer provided taxonomy is a semi-structured set of words consisting of nouns and alphanumeric sets. Due to this variation, our harmonization solution does not follow linguistic grammar to apply conventional NLP techniques. Additionally, we have found techniques like stop word elimination (e.g. 'the' 'in' and others) to be ineffective and have instead derived inflective words using stemming and lemmatization.

The problem of data harmonization is the mapping of one row of input (Data Source 1) to one or more rows of reference data (Data Source 2). We address this issue by assigning a C-Score to fields where there is a strong correlation. The higher the C-Score, the stronger the relation. This approach alleviates the need to state rules to express which column of input data needs to be mapped to a column of reference data since the system automatically determines data to match and augments the C-Score.

## LEARNING FUNCTIONS AND IMPROVEMENT OVER TIME

The address mapping problem statement described above is simple, in the sense that a person's name and address are unique and it is straightforward to

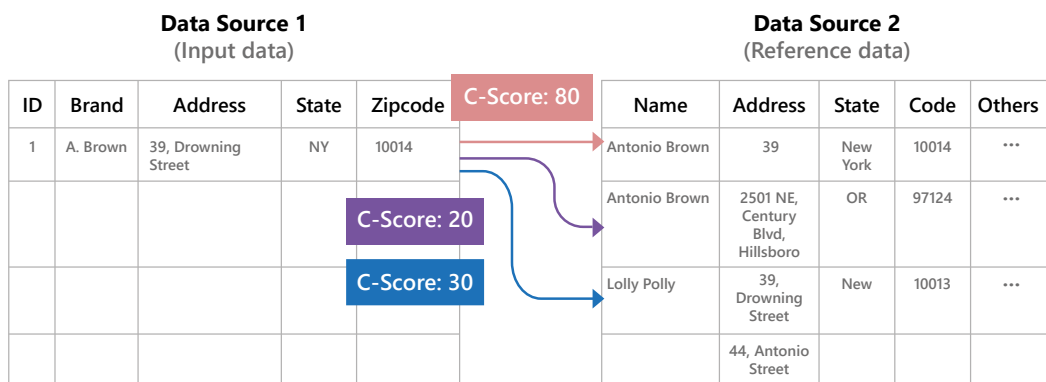


Fig.3 The data harmonization problem

**Source 1 Data (input)**

Sl. No	Description
1	Fresh Breath Paste

**Source 2 Data (reference)**

Brand	Sub Brand	Category	Subcategory	SKU
ABC	Whitening	Oral care	Tooth-paste	Fresh Breath Paste 100g
ABC	Whitening	Oral care	Tooth-paste	Fresh Breath Paste 250mg

C-Score: 80

C-Score: 80

Fig.4 A representation of multiple products with similar C-Score

find one row in the reference data where the C-Score is the highest. While this is an example of intelligent automation where the problem is addressed without human intervention, there are other cases such as trade data harmonization (see Figure 4). Here, there are hundreds of similar types of products that manufacturers build and incoming data may produce the same C-Score for many rows in the reference data. In this system, human guidance is applied followed by feedback learning to improve results significantly.

**PREPARING A DATA DICTIONARY**

Automatic taxonomy is constructed using the reference data by creating a set of dictionaries, and this is the first step of data harmonization. Below is a list of the dictionaries created:

Language dictionary

Spelling dictionary

Abbreviation dictionary

Split Merge words dictionary

Correlated words dictionary

n-grams

**Complex Cases of Dictionary Creation**

One of the critical capabilities that we have developed is an algorithm with the ability to identify abbreviations. Say there are two words – “Nutritious” and “NTRS” – that are found in the same row of the reference input. The system then identifies “NTRS” as an abbreviation of “Nutritious” and stores this relationship for later use, helping the algorithm to improve accuracy when future input data only includes the abbreviation.

**Input Data Preparation**

Our method harmonizes the entire input data preparation process. We do this in a few ways.

In summary, using these dictionaries captures information about:

**Importance of words:** Using TF-IDF algorithms as the base, Bag-Of-Word constructions can be used to create important word and column vectors.

**Words Contexts:** “Antonio” is related to both “Brown” and “Street”. This relationship needs to be expressed in the form of a graph to traverse quickly.

**Error Corrections:** The word “Downing” may be written as “Downin”.

**Word sequencing using n-grams:** “San Francisco”, a 2-gram can be chunked together as one word.



**Automation Featurization** : The input data requires multi-level processing to be converted to a form that can be mapped to the reference data. The first step is to combine all the columns in an input row into a set of input tokens. These tokens are then incrementally processed using the dictionaries to derive a final token list.

Examples of such processing include:

Tokens like “FreshBreath” appearing in the input being converted into independent tokens – “Fresh” and “Breath” – if no dictionary entries for “FreshBreath” are found.

Tokens like “nutrientsII” being converted to “nutrients”

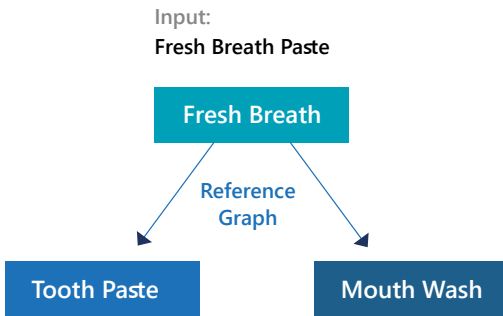
Take a look at the following example. “Fresh Breath”, in this case, could mean either of the two products below.

The challenges with trade data are many. Each channel partner has its own way of identifying nomenclature and structuring the data. Mapping competitor's data to ones' own data set requires specialized expertise and is not a trivial knowledge too. Data harmonization at this stage becomes critical.



*A representation of a common analysis problem faced by retail organizations with several products having similar names but different product lines.*





**Context Identification** : Context identification implies the identifying of a relationship between the input features and the reference rows. The main challenge here is that the column heads in Source 1 (input) and Source 2 (reference) may not have any similarity, and this information isn't available. The system then relies on matching every column of input data to every column in the reference data across all rows. This process would require an enormous amount of computing power. We overcome this need by using the data dictionaries prepared in the previous step to quickly identify a relation with a cell in the reference data, speeding up the processing of input data. If the input is "Fresh Breath paste", then the dictionaries will be crawled as shown in the above graph to identify the relation.

## Mapper Logic

The mapper function identifies the number of tokens in an input row that match each of the reference rows. The C-Score computation is based on:

- The number of important words in the reference being matched
- Consideration of column importance in the reference
- Consideration of whether the user has manually inserted words
- Consideration of whether the user has specified if any column in the reference data is more important than others

## First Responder and Feedback Learning

For a complex data set, when the C-Score value for multiple reference rows equals one input row, the first responder system is designed for human involvement. The system learns by automatically adjusting the importance of the data dictionaries so that learning systems provide accuracy in future instances.

In a highly competitive business environment, enterprises can use every advantage they can get. In recent times, much of the attention has been directed to digital transformation and emerging technologies such as machine learning, predictive analytics, and AI. However, without data harmonization, the effectiveness of each of these interventions is greatly reduced. **Through data harmonization, enterprise data can be more consistent, complete, and richer, providing a single source of truth that offers valuable business insights.** The resulting clarity allows enterprises to explore new techniques, make better decisions, and be more agile. TradeEdge Data Harmony's ability to drive intuitive data harmonization through intelligent applications is specifically designed to ensure that your business doesn't just survive, but thrives. ■

As technologies like AI and RPA continue to establish a firm position in the mainstream, they are driving a fundamental change in businesses across sectors, globally. Marketing, operations, product design and finance are just some of the areas transformed by intelligent application. Now, as companies start to seek, and create competitive advantages, the procurement function is in the spotlight. Typically resistant

to change and reliant on manual methods, procurement departments tend to be slow when adapting to technological developments. However, digital transformation in procurement is starting to become a priority for CXOs, indicating that the time for progress is here.

### Priming Procurement for Intelligent Digital Transformation

# Artificial Intelligence to improve decision-making in procurement



**By Greg Holt**

Solution Marketing Director,  
JAGGAER



So, what is the best way for the procurement function to leverage disruptive technologies and help enterprises secure a sustainable competitive advantage? Much has been said about the need to view procurement departments as vehicles of value creation and not just spend management functions. As a data-rich activity, ripe for digital transformation, procurement is primed to generate incremental value for businesses that take its development seriously. **Our recently published report “Digital Transformation in Procurement: How Close Are We?” based on a global survey, revealed that most progress had been made with the automation of supplier management, procure-to-pay and spend management processes.** Some of these processes are supported by Artificial Intelligence, for example, to map inbound supplier invoices for automated data entry.

However, our survey showed that procurement leaders had some doubts about where to go next with AI because, in reality, the use of AI and RPA in procurement is still in its infancy. Even chatbots and

guided buying are not transformational – they do have efficiency benefits but do not fundamentally change the way you procure. At JAGGAER, we have customers who are at very different life stages of digital maturity, and we are continuously helping them explore new ways to derive higher value from their procurement function. Ultimately our focus has been about how AI can help make decisions faster and with accuracy whether that be for smarter sourcing, identifying risk factors in supply chain or contract compliance. That focus requires specialist knowledge, and **we are convinced that procurement software vendors can make rapid progress by partnering with AI & RPA specialists, as JAGGAER is doing with EdgeVerve.**

Any procurement transformation project powered by intelligent technology will need to be comprehensive, easy to adopt, and scalable. The key to the success of such projects will be the creation of robust supplier collaboration solutions through the continuous collation of data from many sources and incorporation of the lessons learned from such data into an algorithm capable of delivering these solutions autonomously. These data sources typically include the end customer's approved supplier network, third party supplier networks, and private company information supplier networks.

### Creating a Culture of Data Excellence

Data can drive informed decisions and accelerate growth. One of the primary uses of AI in procurement is bringing together internal and external data to make faster decisions with higher accuracy. AI is built to find patterns, correlations, and identify alarming trends. At this point, it is crucial to understand that machines can only learn if the data used is clean. Accuracy, completeness, and consistency are prerequisites for benefiting from AI.

**The most prominent challenge facing organizations is a lack of connected systems. Departments across industries often work in silos and interact with each other only when they need information from the other.**

Since data resides in so many different systems managed by disintegrated departments, it becomes an almost impossible task to have a 360° view of all the data available. Add to this the challenge of connecting internal systems with external data

sources, such as supplier databases, and it becomes easy to see that the task is as complex as the opportunity is attractive.

<sup>[\*1,2]</sup>In Deloitte's 2018 survey of chief procurement officers, more than 45% of respondents believed a lack of integration and poor-quality data were critical barriers to the practical application of digital technology. To reap the rewards and benefits of AI, there needs to be a more strategic focus on data governance and ownership. There's merit in seeing the digital transformation of procurement as a marathon with a series of sprints, as opposed to a one-off dash to adopt new technology. Intelligence must be integral to the procurement function to deliver truly transformational value.

### Harnessing the Power of Data

Cleansing and consolidating your existing data is a good start point to data excellence; whether that be looking at your category strategy or the supplier segmentation structure. A central repository for all data, with a clear process in place to maintain the accuracy and quality of the data, is central to augment the value of data. Data governance is an ongoing task. Supplier databases can change, certifications and audits require update; new information needs to be managed in a systematic way to make it valuable. New suppliers will need onboarding, existing supplier details will need updating, and redundant suppliers deleting. With a clear structure in place and AI-enabled procurement platforms, you can now simplify and streamline this process to bring more efficiency into your systems and functions. Once established, your business can start to function with increased clarity and efficiency, with decision-making supported by a 'single source of truth.' Also, the cohesiveness resulting from a holistic view of organizational data ensures that every department is aligned with the broader strategy and goal.

What is clear now is that no matter what the stage of your organization's digital maturity, the ability to test, learn, and repeat with AI and RPA projects using short cycles provides a vast opportunity. Intelligent and pragmatic transformation is integral to companies achieving competitive advantage in the procurement function, and consequently in their business. ■

<sup>[\*1,2]</sup> source link <https://www2.deloitte.com/us/en/pages/operations/articles/chief-procurement-officer-survey.html>

# Where sight meets might



By Suresh Prahlad Bharadwaj

AVP - Lead Product Manager,  
EdgeVerve Systems Ltd. (An Infosys Company)

## How channel visibility coupled with intelligence can transform your business performance

In a highly competitive marketplace, high-tech companies need to balance shorter product lifecycles with the dramatic increase in customer expectations. Furthermore, they must look to deliver value and satisfaction at every stage of the value chain to ensure long-lasting and beneficial relationships with both customers and partners. A cookie-cutter approach to business, in this case, is doomed to fail. Organizations must have the foresight and agility to anticipate market opportunities and capitalize on them at speed. However, sprinting in the dark is rarely a strategy for success. Decision-making based on accurate, relevant, and contextual insights is crucial for organization leaders to ensure that their supply chain is built for scale, resilience, and effectiveness.

## The Emerging Opportunity

The high-tech industry includes products and services such as electronic components, computer and office equipment, telecommunications, consumer electronics, industrial electronics, packaged software, and semiconductor-based products and services. **Recent estimates place global sales of this segment at nearly US \$1 trillion per annum with sales channels comprising 10,000 Tier-1 distributors and over 1 million resellers.** The size of the industry and fiercely competitive market dynamics can make it challenging to scale businesses exponentially, but that is changing now with the rise of emerging markets. Buoyed by the advent of globalization, the urbanization of emerging markets is giving rise to new customers with a high appetite for consumption. According to some reports, these new customers will be responsible for nearly 50% of global consumption by 2025. The



numbers point to a rather clear narrative – growth is moving to new avenues, and companies would do well to move with it. Emerging markets like India are developing at a staggering pace with the country's burgeoning middle class, presenting an immense opportunity for companies across sectors.

It is no wonder that access to emerging markets, specifically in the case of these high-tech manufacturing companies, is fast becoming a crucial growth lever for enterprises looking to increase their market share. By reaching out to a driven, discrete, and high-value customer base hungry for world-class services and products, organizations can create significant competitive advantages in a market as lucrative as it is untapped. Its complexity matches the sheer potential of this opportunity. Cultural diversity, political environment, and economic borders combine to provide a substantial challenge. Still, the most critical wins lie in the ability to build a robust, efficient, and scalable global supply chain. As with any distribution-led business, the supply chain is the lifeblood of the company, ensuring the smooth delivery of products to customers through a widespread network of retailers and other channel partners.

As enterprises start to focus their growth on emerging markets beyond their borders, the need to offer flexibility through a multi-channel approach alongside navigating the intricacies of unfamiliar locations can be a daunting task, but one that can be managed by diligence and intelligent technologies. Technology has opened the doors to access, enabling companies across the planet to reach customers anywhere. The first step is to establish and optimize a robust channel sales model.

**The idea of building a well-oiled channel sales model is centered on an organization's channel visibility, with deep contextual and near-real-time insights into every component of the supply chain, every partner, in every geography, available to leaders to make informed decisions backed by data.**

The leaders in the race to dominate emerging markets will be defined by their ability to harness demand, develop a robust supply chain, and create a framework for futureproof import-export excellence. Before we address the ways to arrive at

this excellence, however, let's explore the problem in detail.

## A Worthy Challenge

The enormous potential of emerging markets is balanced by the obstacles they pose. These include:

**Cultural Diversity** : Cultural differences across markets require more than an understanding of local nuances. Companies need to customize products, price points, and promotions, which can lead to SKU (stock keeping unit) proliferation and cannibalization. The difference in packaging and labeling for each market and the complexity of distribution through regional hubs also results in extended lead times for enterprises. Besides, the inadequate visibility of demand drivers can adversely affect warehousing, inventory management, and distribution.

**Political and Economic Borders** : Emerging markets in non-European countries usually have different statutory and regulatory controls, which make it difficult for organizations to combat issues such as counterfeiting and grey market activity. There is also a sizable variation in route to market models and volumes in each of these countries, making for an exceptionally complex growth journey.

**Differing Physical and Technology Infrastructure**: Organizations use two main retail delivery structures – modern and traditional – based on the needs of individual markets, with the choice of format having a knock-on effect on cost. In developed APAC markets like Singapore and Japan, the modern format drives 90% of business. Still, this figure varies drastically across countries, as evidenced by the format's 40% share in China and Malaysia and a mere 5% in India and Indonesia. The variation necessitates a complex supply chain model comprising distributor and sub-distributor routes, which limits visibility and effective system integration. The challenge bleeds into constraints across client-store relationships, store-level influence, inventory control, promotion programs, promotion claims, and product return management. Also, in the majority of emerging markets, the sales staff commission is based on sales to end customers as opposed to those made through distributors or Tier-1 retailers.

## Why you should buy into Sell-through

For a long time, high tech retailers focused on sell-in, measuring the sales of their products into the channel without considering the sell-out to the actual consumer. The problem with sell-in incentive programs is that they misrepresent real demand. While benefits such as price protection, stock rotation, and obsolescence protection in distribution contracts insulate channel partners from the risk of excess inventory, they also incentivize these partners to increase turnover by inducing the channel to buy more. During boom cycles, companies then make decisions based on spikes in sell-in volumes, stockpiling important products and components. In a market like consumer electronics where 'must-haves' are created overnight, this strategy is fraught with danger.

**Having understood the pitfalls of the sell-in model, enterprises are now moving to a sell-through mindset where sales data is based on the end customer, and not channel, purchase.** In this model, stock in the channel is replenished only when existing inventory is sold to customers or when the channel forecasts sales on the back of marketing activity such as promotions. Channel visibility is critical in this regard, given that the accuracy of the entire supply model relies on gathering, harmonizing, and analyzing accurate sell-through data in near real-time.

## Channel Visibility is the Key

The importance of a multi-tier channel and the faster risk of obsolescence drive the need for large incentive payments. Payments such as rebates, price protection, and marketing promotions account for nearly 10% of the estimated US \$51 trillion global high-tech sales. When you understand that, at any point in time, approximately 25% of annual sales, or US \$250 billion, is held and locked up as channel inventory, it is easy to see the need to minimize obsolescence risk. Unsurprisingly, in studies of high-tech enterprises conducted by leading industry analysts, 40% of the 1000+ sample size indicated driving efficiencies and the improvement of overall cost control as its top priority. Channel visibility is key to both these imperatives as it enables:

**Efficient Data Collection :** By offering accuracy

and timeliness in sales data tracking across channel partners, organizations can minimize the time spent on data validation and auditing. The resultant efficiency can inject vigor into the sales operation, improving the quality of planning, decision-making, and goal-setting. Additionally, it also eliminates variations between internal sales data and the data collected from channel partners, allowing organizations to have an accurate and detailed view of channel performance and requirements.

### **Performance Tracking and Measurement :**

Clear visibility of individual channel performance segmented by type, geography, and product allows organizations to compare their product performance with competitors across markets. They can also apply analytics to accurate data, analyzing channel sales, identifying top resellers, and ensuring that inventory is optimized for peak seasons in specific markets and regions.

**Accurate Demand Forecast :** Channel visibility provides enterprises with the autonomy to create precise demand forecasts by eliminating the reliance on channel partners for data. Companies can gain visibility into inventories of all channel partners, identifying the need for improved fulfillment and replenishment based on real stock and sell-through data. They can also understand customer demand in near real-time, moving the needle from demand speculation to demand sensing backed by powerful insights.

**Improved Processes :** The clear visibility of sell-through data frees up the time and resources otherwise spent on a manual review of sales transactions to determine claims. It also ensures the accuracy of incentive and commission payments to sales representatives. The increased visibility also helps organizations overcome the obstacles previously discussed in this piece. Accurate, timely, and comprehensive visibility of channel inventory is critical to managing a successful high-tech supply chain, or a supply chain in any other global product-based business. A clear view of downstream product inventory offers companies a thorough understanding of the products they are selling through their channel, those that remain in the pipeline, and the performance of various promotions in different markets at any given point in time.

Channel visibility enables business leaders to

derive more from previously underutilized channel intelligence and provides a valuable link between the sales channel, inventory, and manufacturing, channel visibility. The resulting clarity empowers organizations to make specific and effective decisions through a previously inconceivable holistic business view. These decisions cover the entire gamut of the demand management process, including demand planning, collaborative forecasting and replenishment, revenue recognition, promotions and incentives, sales commissioning and, product life cycle management.

## Leading with Intelligence

At EdgeVerve, we understand that, while visibility is a crucial driver of business value, it is not enough. The best enterprises in the world need more than just visibility. They need intelligence. Data is only as powerful as the decisions it drives, and that attribute is defined by intelligence derived from careful analysis. That's why we built TradeEdge – a cloud-based solution suite that empowers organizations with exceptional channel visibility combined with powerful analytics that generates impactful insights across the demand value chain. TradeEdge provides transformative value for every stage and goal of the distribution process through five built-for-purpose intelligent modules:

1. TradeEdge Market Connect is an automated two-way data exchange platform that gathers and delivers sales, order, inventory, invoice, and similar information from channel partners to manufacturers.
2. TradeEdge Distributor Management System is an intuitive, highly configurable order management and fulfillment system with built-in business reporting.

3. TradeEdge Data Harmonization is a cloud-based solution that leverages automation and machine learning techniques to contextualize external business data for each enterprise and make it insight-ready.

4. TradeEdge Promotion Effectiveness enables enterprises to measure and understand the effectiveness of their trade promotions by making sense of complex and disparate point-of-sale data.

5. TradeEdge Perfect Order Measurement equips enterprises and partners with advanced analytics tools to derive insights into the order fulfillment process with a view of perfect order indices and influencing factors.

TradeEdge has delivered incredible value for clients across the globe, operating in both emerging and developed markets.

In a market characterized by rapid, and often drastic change in both dynamics and consumer expectations, extreme and agile optimization combined with creativity is the future of leadership. Enterprises looking to build enduring, dynamic and profitable businesses must combine visibility with intelligence directed at specific outcomes such as increased sales, cost reduction, and inventory optimization. Channel visibility is essential to these objectives, making a transformative impact when combined with analytics to extract specific marketplace insights. Industry leaders will be determined by their ability to think intelligently at speed, supported by comprehensive contextual information, unlockingprecedented value and growth. ■

## Key TradeEdge Highlights

**50%+**

Emerging Market Revenue Influenced in 90+ Countries

**8%+**

Improvements in Case-fill rates

**75%+**

Reduction in Manual Order touches

**5%+**

Reduction in Non-Productive Inventory

**5K+**

Channel Partners

**50M+**

Retail Outlets

**500K+**

Items across product lines

**20+**

Fortune 500 Global Enterprise Clients

# From Document to Insights

Harnessing the power of cognitive AI



By John Kuriakose

Principle Product Architect,  
Infosys Nia, Infosys

In a business landscape characterized by digital transformation, it is easy to see how data offers businesses an edge. The addition of intelligence to the data management process has infused speed into data movement and analysis. Increasingly, enterprises are finding new ways to gather, unify, clean, and analyze data at speed.

RPA has helped automate digital data movement across business tasks, but hits a roadblock with non-digital data in documents such as invoices, scanned paper forms, statements, claims, and receipts. How then can organizations increase business efficiency by bringing more data into the purview of their digital information systems, especially data that is locked away in scanned documents?

Two words – Data Digitization.

## Understanding the Importance of Intelligent Information Extraction

Most large companies have many business processes that deal with paper forms and scanned documents, usually requiring human agents to enter this information into an enterprise IT system. While organizations have relied on varying capacities on manual processing centers, optical character recognition (OCR), and handwriting recognition, each of these techniques has its share of challenges. **The emergence of deep learning techniques in the areas of computer vision and NLP, coupled with the flexibility of provisioning resources in the cloud is a game-changer** enabling a new breed of text



digitization solutions. These new techniques can help understand the relationships between field labels and values and the structure and layout of data elements – starting from boxes and tables to specific details like checkboxes and signatures.

## I already have OCR. How is this different?

OCR involves the ability to detect text regions on any scanned images and convert those regions into the correct digital text. Handwriting recognition must supplement this foundational capability and include the ability to deal with pages that feature handwritten text. Here are some of the issues with that approach:

Manual data extraction from scanned/native documents is inefficient, effort-intensive, and slows down the business process.

OCR/handwriting recognition based on templates needs substantial setup and configuration effort for each new document format.

Traditional OCR techniques have limitations when processing forms (fields) and while dealing with tables.

## Visualizing The Data Digitization Feature Map

1. OCR & handwriting recognition

2. Structure & table detection

3. Check-box detection

4. Data type classification

5. Document understanding

6. Reviewer UI & workflow

7. Data validation & resolution

8. Document type detection and classification

9. Document version detection

10. Post-conversion auto-correction

A comprehensive data digitization solution should offer the following features:

**1. OCR and Handwriting Recognition** forms the foundational layer for all digitization products with computer vision models at work in recognizing printed and handwritten text. This layer usually identifies rectangular regions within an input image before extracting the text within that box.

**2. Structure and Table Detection** enables products



to categorize individual regions of results from OCR/handwriting recognition into logical groups. Data types, alignment, and text styling are all used to improve the accuracy of this group to improve the system's capabilities.

**3. Checkbox Detection** is not offered by most existing OCR/handwriting systems even though checkboxes are a standard option in forms. Digitization products should be able to recognize a checkbox group accurately and then identify the options selected in a group.

**4. Document Type Classification or page classification** brings key NLP capabilities to automatically classify various pages in an input document into a specific type. Document types need to be configured, and each type must be tagged with examples to enable this feature.

**5. Document Understanding** is a function of interpreting various information elements to group them into pairs of fields and values. It requires the capability of understanding the layout and structure of the document. This feature should complete the complex task of detecting checkboxes and tables while segregating table headers, data, and rows that don't align with the table structure.

**6. Reviewer UI and Workflow** provides an interface for human review of digitization results. The feature must be designed for high productivity and offer support for user management, workflow, and role-based security. Additionally, they must support the validation of data against data types, including emails, addresses in a location, SSNs, and dates.

**7. Data Validation and Resolution** checks for validity according to the classified data type, while reviewer UI and workflow adds a user interface to the digitized data to enable human review and verification.

**8. Data Type Detection** is the capability to auto-classify values in the field-value pairs into data types such as numbers, data-time values, general text, and names. Validation rules can be applied to this classified data, and human users can also change data types.

**9. Document Version Detection** adds the capability to configure the criteria for completeness and detect the latest version in document types. It relies on some out-of-the-box features for human signature detection.

**10. Autocorrect Suggestions** based on data generated from a manual review of data digitization output revealing specific problems with OCR/handwriting conversion. This data can also be used to train custom models that predict corrections. These corrections are unique to a particular deployment and require the product to be deployed and used in production for some time before being enabled.

## Use Cases for Data Digitization

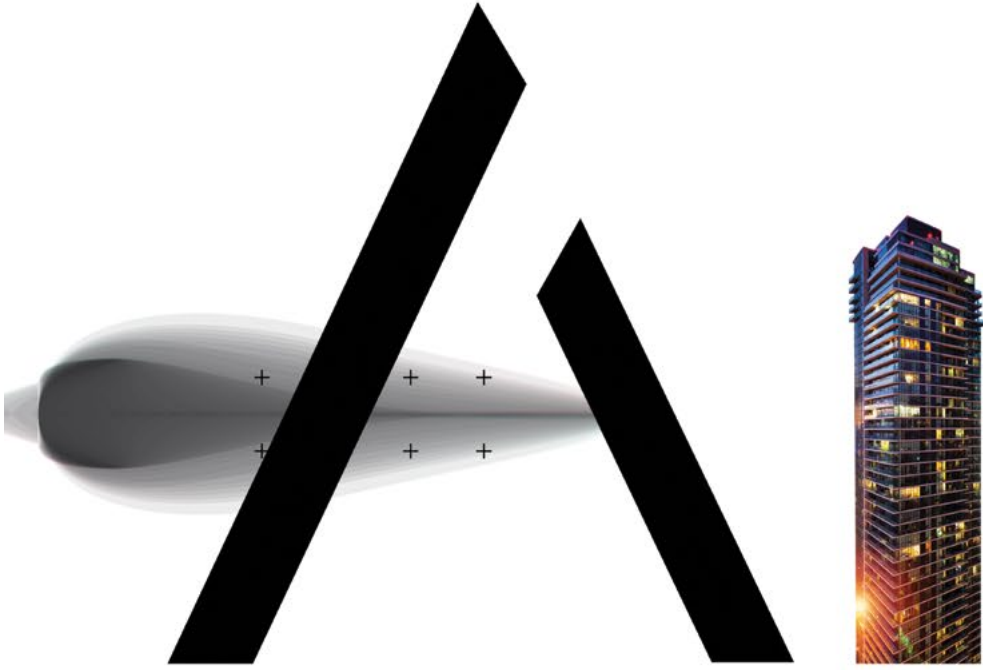
**Form Digitization** : Digitizing existing enrolment or other multi-page paper-based forms that involve a mix of typed text, handwriting, check boxes, and other fields and tables.

**Dynamic Extraction or Touch-free Zero Template Extraction** : Dealing with non-standard input documents that are not structured like forms, but usually contain the same information, albeit in varying layouts.

**Content Classification and Extraction from Mixed-type Documents** : Digitizing documents that include many different document types.

**Information Consistency Checking** : The most complex use case that requires mature products, which address all the previous use cases and also support the definition of consistency verification rules that enforce domain-specific rules for information consistency.

'Digitization products today deliver enhanced value through these advanced features for extracting and interpreting information from your scanned documents and integrating results into existing business processes and applications. They are typically used in conjunction with modern scanning solutions to ensure a virtually touch-free deployment of the process in production, so your human resources can focus on improving and delivering stellar customer experiences. ■



Ease into, and through  
enterprise-wide AI

NIA CAN

AI isn't just about running tools, it's a complex journey.  
NIA CAN, and will simplify your consumption experience.  
Are you ready?



To know more, log on to  
[www.edgeverve.com](http://www.edgeverve.com)

# The future of work is here.

## Are you Prepared?



**By: Manish Bararia,**  
Associate Director, AssistEdge,  
EdgeVerve Systems Ltd. (An Infosys Company)



With a spur in competition across industry and consumer loyalty losing steam, there has never been a more challenging enterprise market. While price, performance, and service excellence are now prerequisites, customer experience is the real competitive advantage. The way forward is clear. Enterprises now need to supplement a sharp focus on differentiating their customer offerings with impeccable execution, driven by a more agile, hyper-productive and intuitive process ecosystem. CXOs will need to drive their organizations through a synergy of people, processes, and technology. Robotic Process Automation (RPA), is a significant component of this vision, bringing consistency and throughput, enabling organizations to enhance their capabilities in personalization, response time, and innovation.

As per a research firm, RPA revenue is set to reach \$1.3 billion by 2019. The demand for RPA is increasing exponentially year on year, suggesting that it will become a mainstay in the enterprise model. This shift has implications for enterprise talent. Enterprises are starting to recognize the importance of investing in the creation of an RPA-trained workforce. From reskilling existing employees to skilling trainees and educating college students, it is crucial for these efforts to be comprehensive.

Our experience in building and implementing AssistEdge, our flagship automation product, has given us a detailed understanding of the challenges clients face and the impact of RPA on their business. AssistEdge is a leading automation platform with advanced AI capabilities offering a comprehensive suite of products across Process Discovery, RPA and Orchestration. To help our clients navigate a wave of transitions and turn uncertainty into opportunity, we are pioneering an industry-wide effort to prepare a workforce capable of harnessing the power of RPA by building process automation on AssistEdge.

The three main pillars supporting this journey:

## AssistEdge Community Edition

## AssistEdge Marketplace

## AssistEdge Academy

## AssistEdge Community Edition

EdgeVerve launched the AssistEdge Community Edition (ACE) in 2018. ACE is a free version of the product designed for students, developers, and professionals keen on learning automation. Creating a bot on community edition is easy with no advanced IT or programming skills needed. It comes with the full power of AssistEdge Enterprise Edition across the automation cycle, without the need for enterprise-scale infrastructure. We have run many events using ACE, enabling participants to learn, and start a career in, automation. These events run in the following formats:

**Online Events** : These run in the form of an online contest that typically lasts for a month. Participants register online before creating and submitting bots based on their own ideas. The hugely successful Botathon, just after the launch of ACE, saw nearly 5000 participants submit exceptional ideas with 10 winners taking top honors. We have also organized several contests on social media and other websites reaching over 1000 students interested in automation.

**Offline / Physical Events** : These are typically single-day events where participants complete a timed challenge created by EdgeVerve. People can pre-register on a website or register at the venue for events including:

- **Bootcamp Sessions** : Events across Infosys Development Centres and in some external colleges like RV College, Bangalore. These are usually half-day events where contestants are given an overview of EdgeVerve, AssistEdge, and AssistEdge Community Edition before gaining hands-on experience in a timed assignment.
- **The Big Bot League** : The Big Bot League is a series of single-day contests where individuals compete to solve a problem through a bot while on the clock. The first Big Bot League, held at the sprawling Infosys Campus in Bangalore, was a huge success with 3000+ students from various prestigious colleges and professionals from some of the renowned organizations as registrants. The top 500 were chosen to eventually participate in the contest with several teams winning a number of great prizes. Another event in the Big Bot League series was conducted at a college in

Bengaluru (India), as part of their annual event. About 500 students participated and completed their first experience of automation in a half-day session.

**Hybrid Events** : EdgeVerve has also conducted a few events that were a mix of online and offline models. We recently organized an event in Infosys' Indianapolis offices where participants with no experience in RPA were able to create automations for specific processes on their own.

### AssistEdge Marketplace

EdgeVerve's upcoming AssistEdge Marketplace is an initiative where publishers and buyers make automation easier to access. Many of EdgeVerve's partners and customers will be able create their own automation and list it on the marketplace for others to benefit from. This exchange leads to advancement in automation realization as process owners will be able to utilize prebuilt bots on the marketplace.

### AssistEdge Academy

EdgeVerve's AssistEdge Academy is an easy-to-use learning portal for all partners and customers. Here, they can access AssistEdge learning material, which includes eLearning courses, product documentation,

and certifications. It is essentially a one-stop-shop for users, from beginners to experts, to learn AssistEdge irrespective of their automation skillset.

In our view, automation providers will have to continuously think of ways to increase awareness about RPA among colleges to ensure long-term impact.

It isn't long before the 'future workforce' becomes the only competent option, and this transition is taking place much faster than expected. Technology may be powering the future, but the real winner is the human ingenuity that harnesses it. A commitment to skilling will be the difference between the organizations that thrive and survive. ■





## Editorial Team

Kartik Murugan, Soumya Saxena, Abhishek Sharma, Razia Kuvale Zubair

## Design

Aprajeeta Anumeh

## Acknowledgments

Several individuals and teams contributed to creation of this publication. We would like to point out a few significant contributors:

Greg Holt – Solution Marketing Director, JAGGAER

ATPTour

The Shared Services & Outsourcing Network

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

Atul Soneja - Senior Vice President, Global Head of Edge and Infosys Nia™, EdgeVerve Systems Ltd.

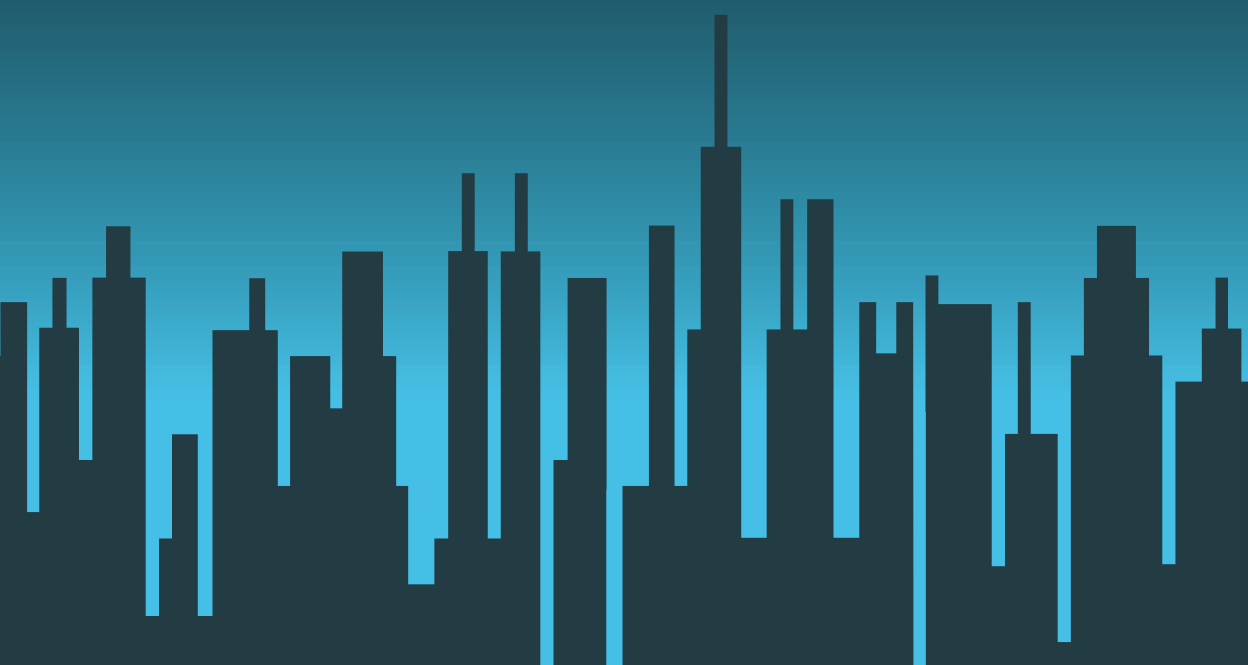
Praveen Kombial, Sateesh Seetharamiah, Jasdeep Singh Kaler, Suresh Prahlad Bharadwaj, Sagar Sarma, John Kuriakose, Shrikant Deo, Manish Bararia, Sonam Lal, Divya C Nair, Arul Gunalan, Surbhi Sharma, Aditya Modi, Product & Marketing Team, EdgeVerve and Infosys CSG Teams, Customer Success Team

## Safe Harbor

Certain statements mentioned in this release concerning our future growth prospects are forward-looking statements regarding our future business expectations intended to qualify for the 'safe harbor' under the Private Securities Litigation Reform Act of 1995, which involve a number of risks and uncertainties that could cause actual results to differ materially from those in such forward-looking statements. The risks and uncertainties relating to these statements include, but are not limited to, risks and uncertainties regarding fluctuations in earnings, fluctuations in foreign exchange rates, our ability to manage growth, intense competition in IT services including those factors which may affect our cost advantage, wage increases in India, our ability to attract and retain highly skilled professionals, time and cost overruns on fixed-price, fixed-time frame contracts, client concentration, restrictions on immigration, industry segment concentration, our ability to manage our international operations, reduced demand for technology in our key focus areas, disruptions in telecommunication networks or system failures, our ability to successfully complete and integrate potential acquisitions, liability for damages on our service contracts, the success of the companies in which Infosys has made strategic investments, withdrawal or expiration of governmental fiscal incentives, political instability and regional conflicts, legal restrictions on raising capital or acquiring companies outside India, and unauthorized use of our intellectual property and general economic conditions affecting our industry. Additional risks that could affect our future operating results are more fully described in our United States Securities and Exchange Commission filings including our Annual Report on Form 20-F for the fiscal year ended March 31, 2018. These filings are available at [www.sec.gov](http://www.sec.gov). Infosys may, from time to time, make additional written and oral forward-looking statements, including statements contained in the company's filings with the Securities and Exchange Commission and our reports to shareholders. The company does not undertake to update any forward-looking statements that may be made from time to time by or on behalf of the company unless it is required by law.

## Copyright Information:

Copyright ©2019 EdgeVerve Systems Limited, Bangalore, India. All Rights Reserved. This documentation is the sole property of EdgeVerve Systems Limited ("EdgeVerve"). EdgeVerve believes the information in this document or page is accurate as of its publication date; such information is subject to change without notice. EdgeVerve acknowledges the proprietary rights of other companies to the trademarks, product names and such other intellectual property rights mentioned in this document. This document is not for general distribution and is meant for use solely by the person or entity that it has been specifically issued to and can be used for the sole purpose it is intended to be used for as communicated by EdgeVerve in writing. Except as expressly permitted by EdgeVerve in writing, neither this documentation nor any part of it may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, printing, photocopying, recording or otherwise, without the prior written permission of EdgeVerve and/ or any named intellectual property rights holders under this document. For information on reprinting articles and all other correspondence, please e-mail [contact@edgeverve.com](mailto:contact@edgeverve.com)



The  
**edge**  
quarterly  
Nov 19

 **edgeverve**  
An Infosys company