TATA
REVIEW
JULY-SEPTEMBER 2020



the experience imperative



Cover design: *As all of us embrace digital, the singular word that will help us differentiate is 'experience'. Whether it is tools to work better, smart buying journeys or connected products, the digital adoption will be driven by how we design and deliver the experience. The common thread in all our stories is not only about technology and the problems solved but also, in equal measure, about how the stakeholder experience was reimagined during the transformation and while using the end product or service. Our belief in this fundamental tenet has driven the cover design.*

Editorial

Dear Readers,

Tata companies are in the journey to transform their businesses for the digital future. This issue of *Tata Review* throws spotlight on the digital transformation journeys of select companies for us to learn and get inspired.

Right off the bat, the Cover story brings together the digital trends and how the group companies are embracing them. They are building capabilities, leveraging external partnerships and coming together as 'One Tata' to deliver results.

The Special Report section focuses on various elements of business which are seeing accelerated adoption of digital, namely manufacturing, workplaces and consumer engagement. Also read stories about how a Tata company has built Global Lighthouse factories, while others have deeply changed their operating models and one company has leveraged AI for generating product design.

In an exclusive interview, Rajesh Gopinathan, CEO & MD, Tata Consultancy Services (TCS) — who occupies the best seat in the arena as TCS helps businesses in their digital transformation journey — speaks about the trends which are driving these changes and what can businesses do to adapt and flourish.

Companies are adopting digital to build new consumer experiences, connected products, intelligent enterprises and to accelerate product development. They are also adopting an agile mindset to hit the market quickly. This only promises more delight for all of us as consumers. Read about these stories in our Business and Review sections.

If you wish to know more about the most talked about topics in digital, read the columns on Design, Data Privacy and Analytics where the authors leave you with thought starters.

People are the biggest drivers and beneficiaries in any digital transformation. Our Tata People section focuses on two of the many colleagues in the group who are champions of digital as a change agent. The Community section throws light on how the digital wave is benefitting people cutting across strata.

Before wrapping up, we, at *Tata Review,* would like to extend sincere thanks to all the companies for their support in bringing these stories together, and we hope all of you enjoy reading this issue.

Group Corporate Communications & Group Digital teams

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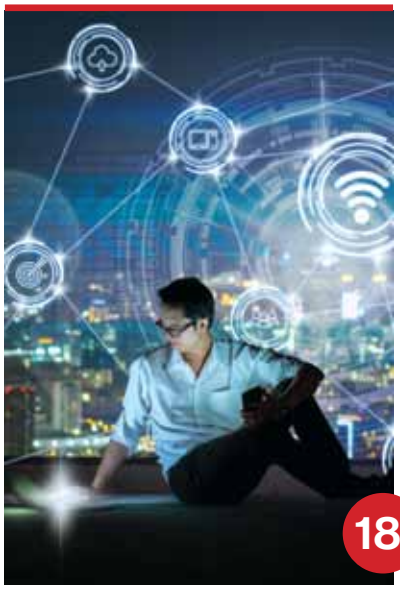


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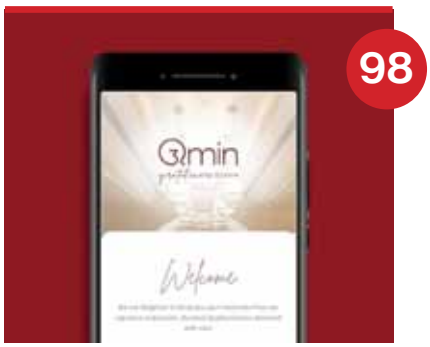


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The **digital** gene

Embedding Digital in the Tata DNA

BY MONALI SARKAR

When the 1,000th Nexon EV, India's first electric SUV, rolled out in August 2020, it represented a lot more than the success of the Tata bet on the future of mobility. It was a microcosm of the digital transformation that is being embedded into the very DNA of the group. From its conception, powered by Tata Motors' indigenous Connected Vehicle Platform (CVP), to its design to digital channels of sale to being 'connected' with the customer throughout the lifecycle of the car via features like SOTA (software over the air).

But then an electric vehicle (EV) is an expected poster child of a digital product. What about something more traditional?

At Titan Company's Tanishq, digital is altering the journey of gold jewellery. Prometheus, an in-house automated machine learning (ML) platform, has been deployed to leverage ML models across various applications such as demand forecasting,



Photo credit: Getty Images

merchandising optimisation, pricing decisions, sales and scenario planning, customer propensity-based targeting and delivering personalised campaigns. ThirdEye, a network analysis tool, is helping retail managers identify prospective store locations and understand store concerns. Artifical Intelligence (AI) frameworks are also augmenting intelligence to create new designs. All serving as building blocks for the jewellery giant to up its digital game and offer a seamless shopping experience even when the Covid-19 pandemic hit.

HOW WE GOT HERE

It was in 2015, at the World Economic Forum (WEF) summit in Davos, that Tata Sons Chairman, N Chandrasekaran, then the CEO & MD of Tata Consultancy Services (TCS), noted, "Going digital is no longer an option for all of us; it is the default."

When Mr Chandrasekaran took over the reins at Tata Sons, in 2017, he identified

digital adoption across the Tata companies as a priority. The focus has been across two levers: transforming existing business for an AI and data-led future and incubating and scaling new digital platforms.

Aarthi Subramanian, group chief digital officer, Tata Sons, tells *Tata Review*, "Digital transformation has been on the agenda of our companies for a long time, but we have seen an acceleration in the last few years. Embarking on a digital transformation journey became an imperative for companies to respond to changing consumer expectations. It is also a lever for enterprises to reimagine business processes, business models and ways of working to drive growth."

Driven by consumer behaviour and expectations, consumer-facing sectors like retail, technology and financial services were the first set of industries to be disrupted. Media, telecommunication and manufacturing followed next. In a group as diverse as the Tatas, companies initially adopted a contextual approach — driven by sectoral trends and priorities — to their digital transformation.

Ms Subramanian says, "Digital was initially seen as just a set of technologies, with the early days being



Nexon EV, the first connected car from Tata Motors

THE POWER WITHIN

The One Tata vision of simplifying, synergising and scaling has powered several of the digital transformations across the group:

TCS, which has a business unit dedicated to Tata Group Relationship, has partnered with group companies across sectors. Tata Chemicals worked with TCS when it embarked on a digital industrial journey to improve process efficiency. Croma worked with TCS to transform the overall enterprise, including changes in the business process and creating a more seamless and agile CX. Tata Steel partnered with TCS to develop a maintenance technology roadmap.

Tata Steel also worked with Tata Communications to develop Suraksha, an RFID-based worker safety solution, and with Tata iQ on developing algorithms to predict failures and the residual life of equipment.

Tata Motors worked with Tata Elxsi, Tata Communications and TCS to build its industry first Connected Vehicle Programme. The company is now closely working with group companies like Tata Power, Tata Chemicals, Tata AutoComp, Tata Motors Finance and Croma to create an e-mobility ecosystem called the Tata uniEVerse.

characterised by the adoption of SMAC — Social, Mobile, Analytics and Cloud. But it didn't take very long for the transformative nature of digital to be understood. Digital is a technology-first strategic approach to solving business problems or responding to business opportunities. Over time, certain industry-agnostic opportunities are emerging, which lend themselves to shared and common platforms that have the capability to not only accelerate digital transformation but also provide assurance on best-in-class. Some of the common digital platform opportunities are in the areas of customer engagement, employee engagement, operations and digital infrastructure.

"Digital transformation continues to dominate business strategy and has disrupted every industry. The next several years will see a widespread adoption," she adds over a series of Microsoft Teams calls and emails, the new normal in the Covid-19 era.

Acknowledging the increased adoption of digitalisation due to the pandemic, she notes, "One thing has emerged clearly — companies that had made investments in digital transformation have been able to innovate, respond better and faster."

A fact that the Chairman also highlighted at the TCS Annual General Meeting (AGM) in June 2020, the first virtual AGM in the company's history. "Covid-19 has resulted in many sectors adopting digital channels," Mr Chandrasekaran said. "These options, which were secondary and nice-to-have options, have become the primary channels, and in some instances, the only channels. This is the transformation that we had spoken of five years ago, when we said that 'Default is Digital'."

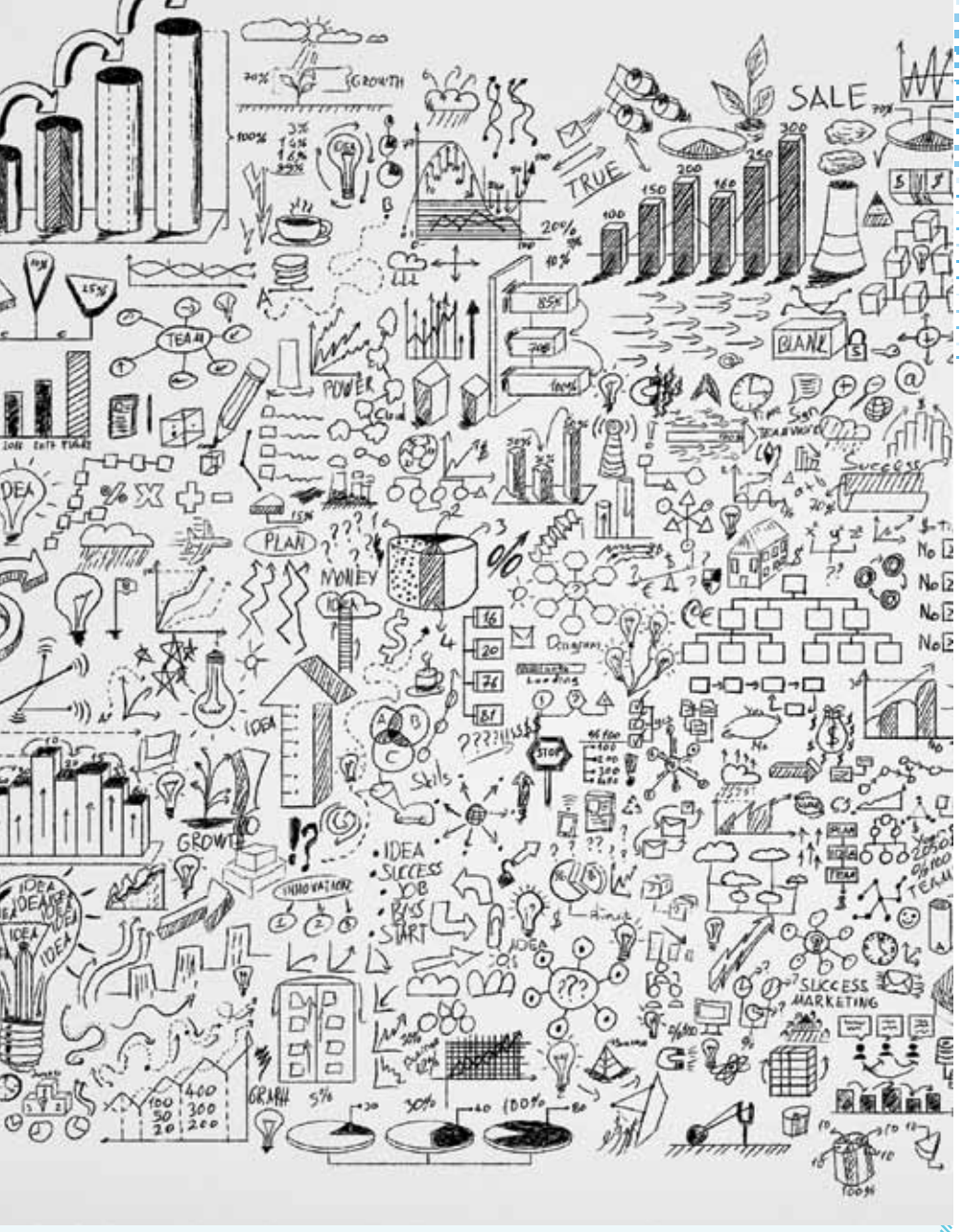
These digital opportunities are helping companies address the outcome levers of growth, cost optimisation, improved collaboration, increased efficiency, improved products/services, improved speed to market, better experience and customer delight.

AT THE HEART OF IT

The acceleration of digitalisation is primarily being driven by customers. Their expectations — more customisation, more



StarQuik delivers a hyperlocal and innovative customer experience



Digital must-dos

Focus on business outcomes: Digital transformation should be guided by broader business strategy. Start with defining what business outcomes will the transformation impact and clearly articulate the goals.

Digital savvy leaders: Adoption of digital requires a mindset and culture change, and this requires an organisation-wide change management. Therefore, digital transformations require CXO level engagement and commitment.

Scale up talent and skill development: Organisations need to focus on reskilling and upskilling internal people who have deep knowledge of the business and engage business teams closely so that they are better equipped to adapt to the change.

Reimagine don't digitise: Design experiences and journeys with fresh outside perspectives.

Agile culture and mindset: Adopt agile decision making, rapid prototyping and flat structures.

experiences, more connections, more context and more options; anytime and anywhere; in the format and on the device of their choice — dictate the next step. And, according to an industry report, they are quick to change if they find their provider isn't as 'digitally intense' as they would want it to be.

Hyper-personalisation and a connected universe have therefore emerged as the mega trends of customer experience (CX) for the new decade. Customers are no longer just buying products. They are shopping for multidimensional, channel agnostic and seamless consumption experiences — nutrition and not just groceries, fitness and not just wearables, style and not just new clothes, vacations and not just hotels. This has caused a paradigm shift away from product-centric strategies to real-time customisation of offerings, services and content for the segment-of-one approach.

At the Tata group, these trends now underpin business and innovation across sectors. For instance, Croma is leveraging digital tools like Endless Aisle, chatbots, smart shelf labels, etc, to create a seamless omnichannel experience from product consideration to post sale. StarQuik, the grocery shopping

app from Trent, is seamlessly connected with StarBazaar, Trent's hypermarket chain, to extend the reach of the stores and deliver a hyperlocal experience for the customer in an innovative manner. Tata Chemicals is leveraging its proprietary microbiome analytics platform to build a personalised nutrition platform. And Tata Steel has gone beyond B2C with *Aashiyana*, an online portal that puts the individual home builder in the driving seat for their construction projects.



Croma is reimagining the CX, both online and offline

CX is also driving a third, fast growing trend — sustainability. Consumers today 'shop with their values'. They want companies to take a stand on social, cultural, and environmental issues and be responsible not just to customers but also to employees, partners and the planet.

As the future of work becomes more mobile, agile and global, especially in the 'with' Covid-19 world, creating a customer-like experience — connected, intelligent and location agnostic — even for the workforce has become a necessity. Tata companies are well poised to tackle this trend, starting from recruitment.

TCS iON democratised entry level college hiring with the TCS National Qualifier Test. In its first year, it increased TCS' access from 300+ colleges to ~1,800 colleges, improving the quality of talent being hired and the joining ratio, which increases the yield from the efforts. Meanwhile, Tata Communications leveraged AI to mask gender and mitigate hiring biases. It increased the number of women among new hires from 28% in FY17 to 33% women in FY20. The AI-powered tool also helps employees determine roles that they will be eligible for down the road.

Digital tools are not only enhancing productivity but also ensuring employee safety. At Tata Steel, Suraksha, an RFID-based worker safety solution that communicates using long range wide area network, can detect an employee's location in real time and identify when someone enters an unauthorised zone or trigger an emergency response protocol if an SOS button is pressed. It was swiftly adapted to ensure worker safety on the shop floor during the pandemic.

It is only such timely forays into digital that enabled the Tata group and its 7 lakh+ employees to seamlessly slide into work-from-home mode when Covid-19 hit. Even at TCS, the group's largest employer with 4.5 lakh employees across 46 countries, the shift happened in a matter of days. The company extended its Open Agile Work framework to create the Secure Borderless Workspaces™ operating model and outlined the bold Vision 25×25: that by 2025, only 25% of TCS associates will need to work out of the company facilities at any point of time.

The third focus area is the adoption of automation in manufacturing with increased efforts towards connected plants, connected assets, connected supply chain, and connected safety — already successfully at play inside the legacy factories of companies like Tata Steel and Tata Chemicals.

ADAPT OR PERISH

One of the biggest aspects of digital transformation is modernising legacy assets and investing in emerging technologies to create a digital-ready enterprise.

Successful digital experiences are now achieved through incremental, manageable interventions and agile delivery of iterations rather than the traditional waterfall approach of long-term development processes that run the risk of the technology becoming obsolete or customer expectations changing by the time it goes live.

In an era of always-on, tailored interactions, companies need to lower their technology debt by building future-forward architectures that optimise the benefits of agility, automation, security and scalability. In fact, in August 2020, Gartner identified "Composite Architecture" — think Lego blocks replacing the monolith — as one of "the five emerging trends that will drive technology innovation for the next decade". Composite Architecture is agile by design with the ability to respond to the changing technologies and business demands rapidly.

Tata Steel, a 113-year-old company that is leading the way for India's adoption of Industry 4.0, addressed this through bite-sized learning opportunities for a byte-sized environment — a reverse mentoring programme for the leadership, learning missions with digital native companies and training programmes for its 70,000 strong workforce. The company also synergised its IT and digital teams to form One IT, which simplified the processes and scaled up the journey. Tackling the challenges head on led to Tata Steel Kalinganagar becoming the first Indian manufacturing plant to be recognised as a WEF Lighthouse, a network that spotlights leaders of the Fourth Industrial Revolution.

Gartner predicts that "by 2023, 60% of mainstream organisations will list composable enterprise as a strategic objective". In the Tata group, we have already begun our journey.

The deployment of any new technology has to be accompanied not just by reskilling and upskilling of talent but also communicating the right message at the right time to tackle fear and resistance and change mindsets and behaviour.

"Digital transformation is more about people than technology," says Ms Subramanian. "Our companies are looking at internal talent for new skills rather than just external talent. They are identifying talent that are more digital-first, data centric, curious and ever willing to learn and investing significantly in digital talent development. They are also driving change from the top because change across the organisation can only happen when its leaders invest in new skills and talent."

Companies also need to ensure that teams work together because a digital transformation cannot be siloed — existing in just one location or team. It's a single strategy that spans the breadth of an enterprise.

Embracing this spirit of collaboration is what enabled the Indian Hotels Company Ltd (IHCL), a 116-year-old brand, to launch an app in just 90 days to take the Taj dining experience into people's homes. Qmin, which was created through a collaboration between IHCL,



Tata Steel Kalinganagar, the first Indian manufacturing plant to be recognised as a WEF Lighthouse, a network that spotlights leaders of the Fourth Industrial Revolution

Tata Strategic Management Group, the Group Digital team from Tata Sons and Tata Digital amid a national lockdown, has become an additional source of revenue at a time when the number of covers at restaurants have reduced drastically across the industry.

Ms Subramanian says, "Digital is not a technology; it is a powerful lever to reimagine processes, business models and ways of working. Therefore, digital requires a mindset change and new ways of thinking. Given the all-pervasive nature of digital, this impacts everyone — leaders to every employee in the company. Without a digital-first mindset, the digital aspiration of any enterprise cannot be successful."

WHEN AN ENTERPRISE GAINS MOMENTUM

In the long-term, this is what provides the fuel to keep the momentum going. For a digital transformation to be truly successful and sustainable, it has to be a living strategy that is regularly renewed and iterated.

"Companies are connecting the dots from the existing investments to shape well-defined roadmaps for the future," says Ms Subramanian. "The focus is on creating a strong digital foundation and leveraging the same to scale up digital interventions across every aspect of business. We are constantly looking out for disruptive changes, adjusting and responding with agility. Speed is imperative in experimenting, learning and scaling on a continuous basis."

The future readiness as well as change readiness of the Tata group's digital transformation were successfully tested — especially in companies and job profiles that are digital immigrants — when the Covid-19 pandemic hit.

Tata Steel's investments in a Connected Workforce platform helped them enforce social distancing norms on the shop floor and switch seamlessly to work from home elsewhere. They also had ready digital tools to identify demand hotspots remotely to help the sales teams.

Tanishq didn't miss out on *Akshaya Tritiya* — the second most important day in the Indian jewellery business calendar after *Dhanteras* — despite the national lockdown. The launch of e-Akshaya Tritiya resulted in the ticket size online jumping 2.5 to 3 times the usual online average ticket size.

And at Tata AIG, where risk engineers would routinely travel to properties looking for general insurance, an inspection app helped them close the process remotely. The company followed an agile process with weekly releases that were being virtually 'field tested' as they were being developed.

Ms Subramanian notes, "The advantages of Tata companies are trusted brands, a large customer base, customer relationships, physical network and deep domain expertise. Tata companies are leveraging these strengths and responding to the opportunity by becoming more agile, embracing open innovation, encouraging the culture of risk taking and experimentation and accelerating adoption of digital to reinvent themselves." TR

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Turning up the **digital quotient**

In an interview, **Rajesh Gopinathan**, CEO & MD of TCS, discusses global business and technology trends in the post-pandemic world. He affirms that digital adoption and hyper-personalisation are gaining traction in businesses, even as technology must enable enterprise agility and stay relevant to business demands.

BY HARSHA RAMACHANDRA



What are the global trends that you are seeing across industries? How do you see them affecting key priorities for the CEOs in the coming years?

The most palpable trend is that of technology leading growth. While digital has been important to business growth for some years now, the Covid-19 pandemic has accentuated its role. Enterprises that had achieved greater maturity in their digital journey were the ones that could adapt successfully — and quickly — and are well-poised to adapt to the post-pandemic world. In fact, that is the reason our core concept of Business 4.0™ now highlights resilience and adaptability as characteristics of winners in this digital world. The single biggest trend I see is that digital has enabled a revolution in the workplace, not just remote working but also new operating and new business models. We are seeing an increasing need for newer and more direct channels to consumers, contactless interactions, agile and robust supply chains with embedded workforce well-being and safety, and digital business models backed by accelerated use of data and automation.

The patterns of business recovery from the pandemic vary across geographies, sectors and client

segments. Some sectors like healthcare and life sciences are likely to recover faster than some of the more impacted ones like travel, tourism and hospitality. Some areas where fast track adoption of digital services is gaining traction are telemedicine, online learning, invisible payments, 'lights-out' factories and contactless passenger experience. In the retail sector, we are seeing an influx of new strategies to deal with financially hit value-conscious consumers, as well as dealing with overall behavioural changes among shoppers, with hyper-personalisation in line with their social behaviour. Some businesses are experiencing strong demand whereas others are dealing with over capacity. Cost base is being reworked, and there is a flight to variable-ised cost structures. Analytics and forecasting models are being rebuilt.

For CEOs, identifying the enterprise's true purpose of existence and organising the business around it has taken centre stage. They are now realising that purpose driven organisations can achieve higher productivity and growth by looking within their value stream to unearth and package consumable services that drive growth. While agendas like driving growth and transformation will continue to be a medium- to long-term priority, achieving these in a sustainable way was never more important for business leaders than as of today.

What are the big tech trends that you are seeing? How will the role of technology leaders in companies change in the years ahead?

The Covid-19 pandemic has served as a launch pad for organisations to become virtual, digital-centric and agile in a very short span. Companies are investing in technology, data and processes for shorter time to market through better decisions and faster course corrections based on what they learn.

The shift to cloud-native products and platforms is fast-tracking, to achieve increased



'Outstanding Business Leader of the year' – Rajesh Gopinathan collects the CNBC 2020 award from Nirmala Sitaraman, Finance Minister of India

collaboration, security, scalability and efficiencies. Hybrid, multi-cloud platforms are now becoming mainstream.

The wholesale shift to operate businesses online has at the same time increased the risk of cyberattacks by an order of magnitude. In this era of remote working, enterprises are increasingly investing in cloud-based security services like multi-factor authentication, virtual private network, etc.

Over the past few years, technology leaders have pushed for digitisation of their enterprises; and looking at the pivotal role played by technology in the enterprise's transformation journey, technology leaders have now earned a seat at the decision-making table. Given the scale of disruption, leaders need to embed 'elasticity' in all three dimensions of their operating model: workforce with fungible skills and remote and secure workplaces; operations via artificial intelligence, automation, business-aligned agile teams, and cloud-based scalability; and technology consisting of flexible architecture, analytics, and multi-cloud capabilities. Every leader has to be able to visualise their function as a digitally-enabled one.

What are the new opportunities arising as a result of the major shift to digital which the group companies can leverage?

This pandemic presents a critical inflection point that can be used to propel organisations into rapid growth and market share gains, by transforming their operating and business models using digital. The Tata group companies' business ethos is focused on purpose-led growth and premised on putting the customer first. Today as purpose-led ecosystems take centre stage, the group companies are well placed to actively find value in synergies. Our group companies are leaders in various sectors, and together we can achieve value that is far greater than the sum of the parts.

E-commerce is becoming a norm and digital selling has emerged as a powerful new option. On the fulfilment side, services such as robotic last mile delivery hold enormous potential. IoT-enabled logistics can drive business growth as customers expect real-time updates on the status of shipments. In the CPG (consumer packaged goods) sector, subscription models are disruptors for direct-to-consumer brands. Manufacturing firms have an opportunity to transform their operational model by implementing digital technology, thereby improving operational efficiency, customer service, inventory levels, and profit margin. In the hospitality business, customer journeys can be digitised with one-tap check-ins, digital concierge services, voice-activated devices, chatbots, smart in-room technologies, advanced analytics, virtual-assistant platforms, and enhanced direct bookings for superior customer experience.



WORK-LIFE BALANCE

"During a regular working week, I try to spend at least one day with my family, mostly doing simple stuff like watching TV or a movie or playing some games."

How do you see the tech world innovating in the new reality?

When I speak to CEOs of some of the world's leading enterprises, I usually get to hear that the pandemic has shortened a three-year technology adoption cycle to a three-week one. One of the biggest challenges for the technology community today is how do we sustain this momentum of technology adoption going forward. Technology innovation that supports business propositions should be in a state of perpetual beta, enabling rapid experimentation. Technology must enable enterprise agility and stay relevant to the business context.

Organisations are about people and how they relate to each other. Shared values and shared purpose are at the core of every successful organisation. Technology should become a seamless fabric that connects employees, business processes, physical assets, digital assets, and ecosystems.

How do you see companies coping with reskilling of talent for the digital age?

Technology and business models are changing at such a rapid pace that hiring new talent for every new skill is not just impractical, but also counterproductive. As one of the top IT services brand globally, we attract some of the best and brightest talent and invest on them lifelong, ensuring that we have the industry highest retention rate.

Our approach to talent is strategic — as an organisation that considers our employees as key stakeholders in our growth, we hire and train for careers, not positions. Our ability to



At the TCS golden jubilee celebrations in 2018

cycle through different technology and business model changes, continuously embrace new knowledge and stay relevant, characterises us and gives us a significant edge over our competitors. At TCS, associates have contextual knowledge about our customers' business, their company, landscape, culture, people, etc. This is soft knowledge acquired over decades with permanence of value and is a key enabler for growth and transformation initiatives. TCS selects the best talent in the country through a democratic process, the TCS National Qualifier Test (TNQT); the learning journey starts as soon as the candidate accepts the TCS offer letter. Digitally reimagined, gamified, micro-learning programmes enable anytime, anywhere, self-paced learning journeys. A culture of lifelong learning and innovation, by closely linking learning with careers and rewards, has placed us as the Global Top Employer for the 4th consecutive year, across 29 countries and 4 regions — one in only 10 organisations worldwide to achieve this status.

Companies must invest heavily in reskilling their talent, establishing outstanding learning ecosystems, and reinventing their hiring and learning approaches.

Every company is going through digital transformation in some way. What are some of the highlights from TCS' own digital transformation journey?

TCS' digital transformation has been built around the four technology pillars that form the foundation of any Business 4.0™ organisation — Agile, Automation, Intelligence and Cloud. As a growth and transformation partner for our customers, it was important that we transformed from within in order to help our clients transform.

Using digital technologies, we have been able to transform our talent management through digital skilling. Over 93% of our employees have been trained in Agile and 75% in digital. Our talent acquisition is also completely digitally enabled, resulting in faster processing and a more inclusive onboarding approach. Finance is another function that has been transformed; we generate P&L statements on day 1, and we were the first company in India to hold a virtual Annual General Meeting. Our Enterprise Agile journey has been an important enabler of all these transformations along with our open, scalable infrastructure that supports business agility.

And when the pandemic hit us, all this internal transformation came together to help us transition to Secure Borderless Workspaces™ (SBWS™) which is our new operating model that is highly decentralised, infrastructure-light and collaboration-intensive, powered by our machine-first approach. TR

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Photo credit: Getty Images

Digital industrial @Tata

Industry 4.0 has been the buzzword in the manufacturing industry. It is transforming how manufacturing companies run existing brownfield plants as well as how new plants are being set up. At the core of this transformation is data-led intelligent operations.

Most of the initial use cases focused on production visibility, machine utilisation and quality improvements. However, in India, adoption has been slow due to lack of network readiness and high implementation cost. This trend started changing since 2017, when the equipment costs started coming down and industrial IoT platforms started gaining more adoption. Closer home, our group companies, **Tata Steel, Tata Chemicals** and **Tata Power** have been on their digital industrial journeys of improvement and innovation.



Redefining the future of steel making

Tata Steel's transformation to build nimble and intelligent operations

BY ABHISHEK MANDE BHOT

Tata Steel has consistently delivered value by improving its operations and being an early adopter of technology in the steel industry. In 2017, the company set a goal of becoming the leader in digital steel making by 2025, and in 2018 targeted to deliver $2 billion in EBIDTA improvements. To deliver on this goal, Tata Steel has complemented its process improvement initiatives with digital interventions to innovate and aspire for higher performance.

HOW DID THE JOURNEY BEGIN?

Tata Steel identified adoption of Industry 4.0 as a business goal in 2016 and began with setting up the Digital Value Assessment Team (DVAT). The initial focus was on aligning the business and technology teams and getting everyone in the company to think 'technology-first'.

Here, the company's deep-rooted internal improvement culture proved helpful. Since 2015, a company-wide change initiative called Shikhar 25 has helped drive improvement across the business verticals. When the company started its digital transformation, digital as a lever was included to the Shikhar initiative, making it easier to quantify improvements.

HOW DO YOU USHER CHANGE? START SMALL

The first step in bringing about change is building awareness. Tata Steel enlisted the support of young colleagues to come up with ideas for application of digital technologies in various business verticals through a reverse mentoring programme. Following a selection process involving written exams and interviews, 16 people under 30 years of age were selected to mentor members of the senior leadership, including the MD. The job for the young guns was to discuss technology and its relevance with the respective leader's business vertical team. The mentoring sometimes involved introducing senior leaders to the most basic digital concepts such as search



We aspire to be an industry leader in leveraging digital technologies across our entire value chain, and our investments towards it with a business first approach have been more than remunerative. It has helped us to seamlessly transition into the new normal with enhanced productivity in certain areas of our value chain. Our business decisions continue to be aided by systemic and data driven insights, which will only improve with time. As we settle into the new ways of working, we want to explore the frontiers of technology to enable more offsite work than onsite, even in our manufacturing functions."

Mr TV Narendran, global CEO & MD, Tata Steel

engine optimisation or how augmented reality/ virtual reality (AR/VR) could be useful or how analytics could enable us to do our job better. There were many 'Oh! I didn't know this!' moments among the senior leadership. The following year, the programme was expanded to include even more reverse mentors who were paired with the next level of leadership. This created a significant momentum within the company.

This programme also involved learning missions with other digital native companies, including site visits to USA's west coast and to Europe. These programmes helped build a deeper appreciation for the Industry 4.0 use cases.

The next step was to use that awareness to create business value. Here again, Tata Steel's continuous improvement culture helped create a business-centric and value-driven approach rather than being just a technology-focused initiative.

BUILDING CAPABILITIES FOR DIGITAL TRANSFORMATION

While the awareness initiatives were underway, the team started working on building two programmes to create capabilities. While Digital for All reached out to everyone in the company, MARVEL (Making Analytics Real, Valuable, Efficient and Logical) helped build capability in advanced analytics leading to setting up of the Analytics and Insights Centre, to usher in advanced analytics practices in Tata Steel. The first programme involved conversational video modules which explained concepts like Industry 4.0, IoT, sensors, value of analytics, etc, in a simple way. The programme, made mandatory for all from the shop floor to top floor, proved to be the catalyst for change and created a vast pool of ideas for digital transformation.

Various awareness and learning programmes were also conducted for the union leadership and the blue-collared employees, primarily to allay fears with regard to adoption of technology in

general and to build appreciation for the newer ways of working.

OVERCOMING THE CHALLENGES

At first, three teams were driving plant automation: IT services and digital. To simplify the processes, Tata Steel restructured and brought these teams together to form One IT in January 2018.

Tata Steel — which had been on legacy systems and multi-generational technology platforms — had to augment network, computing, and cyber security capabilities, which it did in partnership with multiple technology partners. "The idea is to build the road before you build the car," says Jayanta Banerjee, group chief information officer, Tata Steel.

The time was now ripe to start executing transformational initiatives.

CONNECTED WORKFORCE

Tata Steel employs ~32,000 employees on roll and ~70,000 contract workers across all locations in India. The connected workforce programme has been designed to cover all of them by providing them with anytime, anywhere computing, working from anywhere, as well as Suraksha.

In 2018, no one could tell with certainty the contract workforce present in a facility during a particular shift. With the connected workforce platform, not only does Tata Steel have that information, but also is able to determine whether they are safe and secure. It also helps track a job's productivity and fix commercial leakage.

Suraksha is an RFID-based worker safety solution developed jointly by Tata Steel and Tata Communications. It provides intelligent insights, offers enhanced decision support using sensors, and enables workplace safety, health and productivity by providing specialised wearables. With the Suraksha card, Tata Steel can ensure safety and security of its people within its premises. Entry of unauthorised people in the plant premises is restricted, and real-time contact tracing during the current coronavirus pandemic is made easier. Importantly, the card does not track people outside the company premises, thus ensuring privacy. For contact tracing, the solution has been further extended to all employees via an app.

Tata Steel's response to the Covid-19 pandemic has been based on the Connected Workforce platform. Using data from employees' travel declarations, the Suraksha card helps identify high-risk employees who may have travelled from potential red zones and prevents



them from entering the premises. Within the premises, it detects violation of social distancing norms by sensing the assembly of large groups of people in any part of the premises and helps perform contact tracing when needed. Simultaneously, camera feeds are used to identify people without face coverings and spot crowding through the AI-based Face Mask and Social Distancing Detection solutions.

CONNECTED ASSETS

The Maintenance Technology Roadmap (MTR) helps prioritise asset classes for adoption of predictive maintenance in a more planned and efficient manner. Tata Steel has developed multiple asset-specific algorithms to predict failures as well as residual life of equipment. This has minimised failure scenarios for mission critical equipment and eliminated unplanned downtime. Tata Steel has collaborated with multiple partners on this transformation, including TCS, Tata iQ and Tata Strategic Management Group.

Helping make this exercise easier is Tata Steel's Asset Monitoring and Diagnostic Centre (AMDC), which analyses high speed data recorded in the plant. This data can be accessed from anywhere, allowing remote monitoring of equipment; thus a plant manager can view all operations within the plant, keep an eye on mission critical equipment and ensure the safety and security of the workforce. The AMDC is also able to intervene and initiate a predictive maintenance process by reading and analysing the data from sensors.

CONNECTED OPERATIONS

Even though all of Tata Steel's plants and mines are automated, all their data has rested in silos. Through the Data Office initiative, data from various parts of the value chain are being connected, making it possible to take more intelligent decisions based on global optima instead of local optima.

The Connected Mining initiative is a good example of this. It brings together process and



Employees working in the control room

fleet information to improve yield and productivity of the mines. A smart mining command centre, built to track real-time operations of the mining activity, has been deployed across iron, chrome and coal mines. By having real-time visibility of key parameters and overlaying analytics on the data, Tata Steel has been able to manage the operations well and enhance throughput and yield of the mining operations.

Similarly, advanced analytics models deployed at Tata Steel's sinter, pellet and coke plants have helped enhance their quality. Another game changer is the Machine Language model that enables autonomous casting by recommending optimum casting speed in real time by considering the input parameters of molten steel and the desired quality of the end product.

Operations research-based optimisation solutions help in cost reduction by optimising production scheduling, distribution network, vehicle and wagon load building and logistics costs. Tata Steel has built the concept of Integrated Margin Maximisation that looks at the entire length of the supply chain to reduce costs of key raw materials like coal, fluxes and ferro-alloys, to determine where to produce and store products, and to reduce cost-to-serve and improve customer satisfaction. Two of Tata Steel's manufacturing sites, Ijmuiden in the Netherlands and Kalinganagar in Odisha, India, are identified as Industry 4.0 Lighthouses by the World Economic Forum.

The real success of digital transformation, however, lies in how it has affected a cultural change within the organisation, including helping the centurion to be agile. "Today, we cannot imagine running any business process without a digital layer," says Mr Banerjee.

Tata Steel is already thinking ahead and building capabilities to control operations in real time and remotely through virtual command centres. Towards that, the company has built



An employee inspecting the rebar stack on the shop floor

digital twins for some of the critical processes. The next step would involve creating digital twins for all critical and complex processes. Once in place, these will enable Tata Steel to move from a predictive approach to a prescriptive approach leading to even higher efficiencies, fewer breakdowns, and more cost benefits.

WHAT DOES THE FUTURE HOLD?

Today, Tata Steel has a remote view of the assets and processes, for example, one can remotely see the functioning of the blast furnace but cannot carry out any corrective actions remotely. To do so, someone still has to physically go to the plant and take some actions. The endgame, as Tata Steel envisages is to be able to control the entire plant remotely through virtual command centres.

That's a tall order and one that involves hugely sophisticated operations. But the plan is to get there in the next three years — well within the company's goal of becoming a leader by 2025 — by leveraging technology. TR

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Mithapur Plant

Embracing **industrial IoT**

The data analytics culture is transforming processes and improving efficiencies at Tata Chemicals' mother plant

BY ABHISHEK MANDE BHOT

Tata Chemicals (TCL) is among the largest soda ash companies in the world with a global capacity of about 5.5 million tonnes per annum. Its Mithapur plant in Gujarat, India, alone has the capacity to manufacture 900,000 tonnes of soda ash per annum. Even though the soda ash segment has been growing, the business is facing increased pricing pressures. To stay competitive, TCL recognised the need to drive operational excellence and embarked on a digital journey.

EARLY SHOOTS

In 2017, TCL partnered with Tata Consultancy Services (TCS) to conduct a Discovery Value Assessment (DVA) at its Mithapur plant. "Increasing efficiency was set as one of the key business objectives," recollects N Kamath, plant head, Tata Chemicals, Mithapur. "And the team set out to identify use cases to deliver the objectives."

Analysis of six months' operational data of the carbonation towers and high-pressure boilers indicated high process variance as a key issue, resulting in loss of efficiency and yield.

"When you reduce variation, you ensure steady efficiency," says Mr Kamath, adding, "And once you achieve steady efficiency, you can find ways to improve it. The carbonation towers were at 67.8 percent efficiency; we set a target of 70 percent." Even one percent improvement in yield, adds as much as $400,000 to the annual margin.

This was an ideal 'digital twin' use case for

carbonation towers and boilers, both of which are critical assets. “In the true spirit of agile, three towers and two boilers were identified as part of the proof-of-value pilot. Our approach was to demonstrate results early and then scale-up to the rest of the towers and boilers,” says Sayantan Roy from TCS who has been spearheading these efforts with Tata Chemicals.

While the team was building a business case, there was skepticism if this was ‘just another technology project’. The project needed to deliver the key performance indicators (KPI) improvements as well as financial savings. This skepticism, in hindsight, became a driver for the results-oriented approach.

AN EYE-OPENING FIELD TRIP

In 2018, a field visit was organised for Tata group companies; from Tata Chemicals, its MD & CEO, Mr Mukundan, led a cross-functional team. The objective was to learn how Industry 4.0 is being implemented to deliver the KPI improvements as well as financial savings.

IMPORTANCE OF HISTORICAL DATA

“Even though we had started the DVA earlier, the field visit made two things happen,” Mr Kamath says, adding, “We got a boost from the senior management, and we returned with the belief that analytics could indeed add value to the plant.”

The plant has data from over 32,000 sensors, stored in multiple decision support systems (DCS), to provide a single view to the operator on how the plant is running. The operator changes certain parameters on the equipment to get the right output. While the DCS does store historical data, it goes back only a couple of months. Decision support systems require operational data of the equipment going back 12 to 18 months.

The first step was getting the historical data in place and an historian implementation was initiated. In parallel, the value assessment exercise was completed for carbonation towers and boilers.

CARBONATION TOWERS

Carbonation is a critical process in soda ash production and it determines the yield of soda ash. Any process variation results in lower yield. A single operator monitors 15 carbonation towers and adjusts control loops based on quality of the results and upstream process variation to get the best possible yield. Since the process is highly complex, even with sophisticated control systems in place, it was not possible to analyse the data manually and act in real time.

With the historian in place, a prescriptive analytics system was developed for the carbonation towers. The new solution didn’t just report data, as was the case earlier, but also recommended actionable insights to the operator. The plant operator is now enabled with advisory to change the temperature, pressure or flow to a very specific value.

These new insights were integrated within the single-pane-of-glass in the control room itself. The operator would execute the prescribed action and change the parameters, using the existing DCS screen. With the digital twin of the carbonation towers, the operator knows exactly what parameters to change and by how much so that the towers work at peak efficiency.

With three towers going live in September 2019 and the remaining 11 in May 2020, the AI-led actionable insights are enabling proactive measures in real time. There are fewer process inconsistencies, average efficiency has improved, standard deviation has substantially reduced and the average yield has improved by 0.5 percent.

BOILERS

The performance and reliability of the power plant are critical in reducing process variations and maximising output. When boilers operate at sub-optimal efficiencies, they consume more fuel.



Walkthrough of Decision Support System with the Soda Ash Team

A low steam-to-fuel ratio also affects the boiler adversely, which in turn affects its availability since maintenance processes have to be run more frequently. All of this increases the operating costs and impacts the profit margins.

To improve the power plant's boiler efficiency, a digital twin was developed. The AI-driven algorithm generates set points on real-time basis which enables operators to correct the processes and thereby improve the boiler's efficiency. Like with the carbonation towers, these algorithms work in the background, and the operator gets actionable insights which in the earlier world was entirely dependent on their tacit knowledge.

In April 2020, the implementation was completed for two boilers. The new insights have brought down the rate of increase in the boiler stack temperature and reduced fuel consumption; thus, operators are able maintain a high steam-to-fuel ratio.

BIG LEARNINGS COME FROM CHALLENGES

The most important building block of an effective data model is clean data across a duration of 12 to 24 months at least. It was decided to build the data model for boilers first. The team found that data for a longer duration was unavailable as the DCS had the capacity to store data for just a month or two. "We quickly shifted our focus from boilers to the carbonation towers where such data was available," says Prasanna Wadke, technology evangelist at Tata Chemicals. If this decision had not been taken, it would have caused a six-month delay in realising outcomes.

To implement the decision support system on the carbonation towers and boilers, the two pieces of equipment had to be independently connected to a local area network. This was not possible as they shared the same IP address with other assets connected to the various distribution control systems across the plant. "But changing the IP addresses of two of the most critical assets required them to be powered down, which would have taken six months. We worked with our IT teams to find a solution that required no down time. This was a breakthrough that helped save time," says Mr Wadke.

From the business side change management was crucial. Workers on the plant floor were given adequate training on the new ways of working and the benefits thereof. "The biggest takeaway is when you're positioning a technology-led transformation with business, you have to quantify savings in cold rupee terms. Most projects fail because they are unable to define that. The Digital Value Assessment approach enabled the upfront quantification of benefits. This made change management easier," he adds.

Like Tata Steel, Tata Chemicals also faces challenges in hiring talent due to Mithapur's remote location. Tata Chemicals worked with TCS as its strategic partner. "Even though we didn't have talent in AI and machine learning (ML), a lot of our managers have Six Sigma certification," Mr Wadke says. "This helped because they could appreciate this kind of an improvement initiative. We also created key roles such as data scientist in-house."

The cross-functional team from TCL and TCS did not just include AI and ML experts but also those who had worked on boilers for 10 years and knew the vagaries of running one. The team also had chemical engineers who had run process plants. "Cross-functional teams don't just bring diversity of expertise, they also ease communication and increase your chances of success," Mr Wadke says.

DRIVING SUSTAINED RESULTS

"To sustain the programme, you need to constantly revalidate the mathematical and data model that has been built. You need experts who understand these models," he says.

TCL has retained a core team, led by a digital advisor, for engaging with the plant managers to ensure operator adoption is smooth and to monitor outcomes. They also plan new use cases for future implementation.

OUR CONNECTED FUTURE

Tata Chemicals is already seeing the benefits. The digital twins for carbonation towers and boilers are delivering savings of approximately ₹5.2 crore per year. As a result, there is strong buy-in of how digital can create an impact, which otherwise would not have been possible.

"We are now looking at digital to offer solutions to many of our problems," Mr Kamath says. Whether it is using ISRO satellites to analyse the colour of the condensers across the unmanned 36,000 acres of salt works or using camera imaging to do a headcount at an assembly point during a drill, digital is offering answers to questions no one thought of asking earlier. "As part of our next project, we are looking to improve the throughput of the cement plant by minimising the variation in clinker quality and reducing unplanned downtime of critical equipment," he adds. TR

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Full compliments to the Mithapur and TCS teams for weaving a digital transformation plan and implementing it in a way that a traditional manufacturing process of over 7 decades has been transformed. Today, TCL's people (operators) leverage digital technology to improve safety, operational efficiency and drive excellence. This programme could not have come at a better time as it has helped us through the Covid-19 lockdown phase. It has helped us to manage operations effectively and match the market demand without impacting efficiency.

We in Tata Chemicals and all its subsidiaries will leverage these learnings and implement digital at the heart of all key processes across operations. Our greenfield plants in Nellore and Dahej have the benefit of starting as digital natives, thereby furthering Tata Chemicals' journey to a future ready organisation."

Mr R Mukundan, MD, Tata Chemicals



Ultra Mega Power Plant at Mundra – analytics driving enhanced asset performance

Creating the utility of the future

Digital technologies enhance asset performance at Tata Power

BY ABHISHEK MANDE BHOT

Tata Power has an installed generation capacity of about 12.7 gigawatts (GW) across thermal, hydro, solar, and wind sectors. "Power generation is an asset-intensive business," says Hasit Kaji, chief digital and information officer, Tata Power, "which is why it is important to keep our operations and maintenance (O&M) expenses at an optimum level. This coupled with the growth the company is planning for renewables has been the focus over the past few years and will significantly increase in the years to come".

Tata Power embarked on a digital industrial journey across its thermal and renewable power plants and kicked off multiple initiatives. Among these is the Reliability Centred Maintenance (RCM) initiative for ensuring high availability of its plants and reduction of O&M costs. Similarly, the Autonomous Power Plant initiative is aimed at improving the operational parameters to cut down fuel spends. At its renewable power sites, the company is leveraging digital to manage remote generation assets through the Central Control Room for Renewable Assets (CCRA) initiative.

RELIABILITY-CENTRED MAINTENANCE

Plant maintenance is based on a mix of reactive, preventive, and predictive techniques. Preventive maintenance, traditionally applied in power plants based on manufacturer recommendations, are overly vague and err on the side of excessive maintenance.

To improve asset reliability and usher in a new paradigm of maintenance, the RCM initiative was launched in October 2016. The goal was to make O&M digital — data and analytics driven. Existing systems were integrated to capture all plant maintenance and operational data for a holistic analysis of asset failure and to formulate accurate predictive asset strategies. The focus was on minimising failure rates, optimising maintenance cost, increasing asset life and uptime. Operator rounds at the site were digitised through

use of field devices which were integrated with the RCM to improve maintenance effectiveness.

What really helped the initiative achieve momentum was involving the O&M teams at all levels since they would be the end users of this initiative. 'One Tata Power way of working' was inculcated right from design to implementation. "But what we needed the most was a shift in perception that data can help everyone do their jobs better," says Vijay Namjoshi, chief – generation, Tata Power.

While implementing the RCM, foundation elements like equipment codification, classification, failure mode effect analysis (FMEA), and data quality were taken up across all divisions. With a well-defined hierarchy conforming with international guidelines (ISO 14224:1999), assets were codified and classified based on criticality across all divisions. As data was central to the analysis and maintenance strategy, data quality in the SAP system was ensured. FMEA is one of the most important steps in the RCM implementation. It involves creating an exhaustive list of failure modes of equipment, causes, possible actions to prevent failure or reduce its impact in the future. As no published asset failure catalogue existed for the power utility sector, Tata Power created its own asset failure catalogue. The core implementation team, constituting cross-domain experts and OEM representatives, carried out the FMEA.

Workshops were conducted across divisions on how to formulate maintenance strategy based on data analytics. IIT (Indian Institute of Technology) professors in reliability engineering were brought in to train the team on data analytics. Aakar, an NGO based in Ahmedabad, Gujarat, helped the plant workforce adopt this new way of maintenance through skits and ground-level activities.

Following its successful implementation in December 2019, the solution is being used by all divisions for day-to-day maintenance activities such as asset health management, maintenance strategy optimisation, and operator routes. Advanced analytics is providing plant leaders granular views into assets and helping them take more informed decisions. This initiative has enabled Tata Power define optimum maintenance strategy for critical assets, resulting in improved mean time between failures (MTBF) and mean time to repair (MTTR).

Tata Power is the first power company in the country to adopt data analytics for asset performance management in the O&M value chain.

AUTONOMOUS POWER PLANT

While the RCM is helping improve maintenance parameters, other digital interventions are improving operational efficiency. The most notable is the Autonomous Power Plant (APP) initiative. This is a first-of-its kind in the Indian power sector for improving the operational regime and the plant heat rate.



Trombay control room — pioneering the use of technology



The power sector is going through a huge transformation due to the integration of electrical technology with IT. This is facilitating utilities like us to improve productivity and provide real-time data and information. Consumers too play an active role in usage of electricity. This along with decentralised energy is changing the way energy is being produced and consumed.

To continue serving our consumers we are investing resources in development and adoption of new and safe technologies. All our upcoming projects – grid-scale and distributed renewable plants, distribution networks and service-led businesses – are packed with smart digital processes and data analytics. We have been expanding our operational footprint and setting new benchmarks for operational efficiencies using technology solutions and redefining paradigms."

Mr Praveer Sinha, MD & CEO, Tata Power

"As part of the Autonomous Power Plant programme, a 'digital twin' was piloted for the boiler at the Maithon Power Plant. Following successful outcomes from the pilot, the digital twin implementation is being scaled up," says Mr Kaji.

Heat rate is the function of many variables; an operator manually adjusts the operating parameters during transient condition like load throw-off, coal quality changes, etc, to achieve the best possible levels. However, due to the sheer number of variables, it is not possible to manually maintain parameters at optimum values to achieve the best heat rate consistently.

Based on the operations data collected over 24 months, the digital twin uses artificial intelligence (AI) and machine learning (ML) based models to assess these operating variables. It provides real-time advisory to the operator to run the plant in the most optimal manner. This has resulted in improvement in the unit heat rate. "After validation of the AI/ML models in part load and full load regime, the models will go-live and then model advisory will be used for control room operator guidance," says Mr Namjoshi.

A reduction of 1 kcal/kWh of heat rate in a thermal power plant can result in annualised savings of around ~₹30 lakh. "This year, we are looking at a reduction of 10 kcal/kWh of heat rate, and over the next 2-3 years we are looking at a reduction of 20-30 kcal/kWh," says Mr Kaji. Thermal power contributes to the majority of Tata Power's overall generating capacity. While it is sweating its thermal power assets, Tata Power is also growing its renewable sites by ~6 times (reaching ~15GW) by 2025.

CENTRAL CONTROL ROOM FOR RENEWABLE ASSETS

To enable real-time monitoring, diagnostic and analysis of assets of all renewable energy plants, Tata Power set up the CCRA in 2019 in Trombay, Mumbai. Tata Power has about 3GW of renewable

energy generation capacity. Of this, CCRA has a view on 1GW with a plan for extending it to the balance capacity of ~2GW by this financial year end, with a provision to further extend it to future capacity additions.

Asset monitoring and data analysis enables the company to forecast how much power it can generate the following day by accounting for factors such as weather conditions, asset conditions, etc. Accurate forecasting is crucial to the generation business as power companies have to comply with their declared capacity. While 15 percent variance is allowed, anything outside of that is considered a deviation and attracts a penalty. Apart from assisting the forecasting team to minimise these penalties, CCRA also serves as a single source of truth for all renewable energy assets across sites.

"Earlier, the performance of the renewable energy sites was getting monitored at the plant level because we didn't have data at the turbine, solar panel or inverter level," says Ashwinikumar Patil, CEO of Tata Power Renewable Energy Ltd. "So, we started collecting data at the granular level by connecting the sites to a central control room. Now that we are getting this data, we have a better sense of where things are going wrong and are building algorithms that send automated alerts to the site team that can then take proactive actions to correct the problem," he adds

The first phase of CCRA was operational in July 2019 for about 1GW of renewable capacity across 18 locations, including for 15 wind energy sites and three solar energy sites. These assets were connected to CCRA using an IoT platform for the first phase. For the second phase of implementation, Tata Power has developed an open source in-house platform that would implement advanced analytics for performance modelling, predictive maintenance, and early detection of problems.

To create an in-house talent pool, Tata Power launched the Data Analytics and Insights Academy. A select group of employees was chosen to undergo a three-month programme on descriptive analytics under the mentorship of academic and industry experts. The first batch completed training in March 2020, and they have already started applying the learnings across multiple initiatives. The academy continues to train batches and is integral to building Tata Power's competency in advanced data analytics.



Mithapur Solar Plant – remote management of renewable assets across India

Early benefits of CCRA are already evident. Tata Power Renewables saves ₹1.6 crore per year which on per unit basis is an industry benchmark. The proactive identification of low-performing inverters across all the renewables sites has enabled Tata Power to take corrective actions with the OEM. This has improved conversion efficiency by 2–3 percent and generation as well.

Even as these initiatives are helping improve asset performance, Tata Power is already planning ahead and exploring the possibility of leveraging these platforms to provide service to external customers. "This can be a good business opportunity," says Mr Kaji, adding, "All we need is to connect the plants, collect the data and run the models. Our algorithms are proven and ready to run." TR

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Future of work @Tata

Tata group companies are setting digital benchmarks for how enterprises will need to operate in the future

Companies, led by few sectors and functions, had embarked on a shift to multi-location and remote work environments. With the pandemic, this has become an enterprise-wide transformation, cutting across sectors, and is transforming how we work and how we attract and engage talent. Some Tata companies had invested early in building resilient operating models that, with slight modifications, enabled them to adapt. A few other Tata companies have embraced the crisis to introduce new business offerings.

Whether it's borderless workspaces, improved security and connectivity performance or collaboration via virtual reality, companies like **Tata Consultancy Services** and **Tata Communications** are setting trends for the future of work for themselves and their clients.



Photo credit: Getty Images

Photo credit: Getty Images



Borderless workplace for the new normal

TCS' Secure Borderless Workspaces™ is transforming how companies can operate in a hyper-distributed and exceptionally remote model, seamlessly integrating people, processes and technology

BY ANURADHA ANUPKUMAR

In March 2020, as countries around the world went into lockdown in response to Covid-19, organisations were compelled to quickly adapt to the 'new normal' for business continuity. Tata Consultancy Services (TCS) saw the crisis as an opportunity to reimagine remote working. As Rajesh Gopinathan, CEO & MD, TCS, stated in the Q4 earnings call in April 2020, "It's about time. Our current operating model is a 20-year-old legacy. In some ways, this crisis actually leapfrogs us into a new model."

However, even before the Secure Borderless Workspaces™ (SBWS™), the company had been working towards building more flexible and agile

workspaces. The borderless workspaces concept is an extension of TCS' Open Agile Workspaces (OACW) framework which was part of their Enterprise Agile 2020 strategy. "SBWS leverages all our prior investments and incorporates learnings and best practices around network management, a standard service delivery environment, cloud-enabled governance processes, use of digital collaboration tools, and an internal Security Operations Centre benchmarked to the best in the industry," said Mr Gopinathan, in the company's Annual Report, 2019-2020.

ENTERPRISE AGILE 2020: A SPRINGBOARD FOR SBWS

In 2017, TCS embarked on the Enterprise Agile 2020 journey, which included the implementation of location-independent practices through the OACW model.

"The motive was to ensure that every type of work, not just agile projects, could adopt location-independent delivery practices, scale up or down, naturally leverage the distributed nature of talent in global organisations and provide an on-demand operating environment powered by cloud, collaboration, security and monitoring tools and techniques," says S Sukanya, head, Delivery Governance & Excellence, TCS.

The Location Independent Agile™ model helped TCS overcome the constraints of colocation, while providing invaluable insights on workforce mobility, empowerment, collaborative behaviour, productivity and, above all, the necessity of digitised remote work assignment, progress monitoring, and governance processes. Enterprise Agile 2020 acted as the foundation for SBWS and was instrumental in the successful transition to the new secure borderless model.

GLOBALLY NETWORKED TALENT CLOUD



SECURED BORDERLESS INFRA
Powered by hardened assets, secure remote connectivity options, network bandwidth management, cloud enabled infrastructure, Cyber Security Operations Centre



FLEXIBLE WORK ARRANGEMENTS
Made possible by health, safety, and ergonomic guidelines, the ability to use BYoD (bring your own device)



REMOTE DELIVERY TALENT AND COLLABORATION
Nurtured through new set of roles, skills, engagement channels and collaboration platforms



DIGITAL WORK MANAGEMENT
Implemented by superimposing TCS iQMS on digital platforms for defining, executing and governing the work and interactions digitally



THE SBWS SWITCH: 450,000 EMPLOYEES IN WEEKS, NOT MONTHS

In the first week of March 2020, TCS pivoted to the SBWS model. Within three weeks, the company transitioned from 100% work being delivered from approved facilities to over 95% of work being performed remotely. "With SBWS, our associates were able to seamlessly and securely connect to TCS/customer networks and systems," says Ajit Menon, chief security officer, TCS. "We observed the teams not only delivered as per the service-level agreements but also handled the peaks and troughs of transaction volumes. Customers appreciated the model for bringing in resilience and delivery innovation to their businesses, especially during the lockdown."

SBWS combines secure borderless infrastructure, digital work management, remote delivery talent and collaboration, and flexible work arrangements. It thus provides a pre-configured operating model for securely connecting, working and collaborating.

Thus, TCS' globally networked 'talent cloud' has helped to:

- **Democratise talent acquisition and deployment** by enabling access to a larger skill pool, going beyond tier 1 or tier 2 cities as associates work from their hometowns
- **Enable remote talent development** by using collaboration tools and technology to re-orient training programmes to virtual modes
- **Redefine talent engagement strategies** by employing real time, consistent and relevant communication, encouraging social collaboration, and leveraging culture and diversity to brace the mindset and work ethic shift

LARGE CHANGE INITIATIVES AREN'T EASY, BUT PEOPLE MAKE IT HAPPEN

Implementing the SBWS model involved equipping TCS' workforce — 450,000 associates across 46 countries — with everything they needed to



Photo credit: Getty Images

No looking back: Vision 25x25

Mr Gopinathan has stated TCS would "not go back to where they were"; the success of SBWS implies that it would be the company's new operating model, going forward. In his letter to shareholders, he wrote, "This has given us the confidence to come out with a bold new Vision 25x25.

Principles of Vision 25x25:

- By 2025, only 25% of employees will be needed in office at any given time
- A TCS employee would need to spend at most 25% of their time in an office
- Only 25% of a project team may be required in one location/city
- Leveraging TCS Machine First Delivery Mode™, project teams can deliver 25% more throughput

"While we switched to SBWS with some trepidation, it is amazing to see how human potential rises to the occasion," says Mr Subramaniam. "We find our teams to be highly collaborative – reaching out to colleagues for help, mentorship and assistance – as they typically do when at office. In fact, we are seeing tremendous improvements in velocity, throughput and the quality of work being done."

continue working seamlessly from home, while ensuring rigorous security measures were in place.

Although TCS had built the mechanisms of borderless connectivity with OACW, the task of providing associates — many of whom had moved to their hometowns — with TCS devices and hardening them in advance, required collaboration. TCS' internal functions formed agile cross-functional teams across infrastructure, admin, security, HR, and others, to achieve this daunting task in a short time. "From day one, we understood that internet connectivity at associates' homes would be a critical aspect in the success of SBWS; to ensure associates get better throughput, we worked with mobility partners to have such solutions in place," says Alok Kumar, VP & head – Delivery Infrastructure and Shared Services, TCS.



A critical aspect was ensuring security of devices that had moved from secured working environments (TCS offices) to unmanaged environments. While all SBWS solutions had security aspects embedded, TCS also increased its vigilance and monitoring on servers and services, end points and perimeters, besides deploying additional tools across these three layers. Each endpoint/laptop is closely monitored 24x7 by TCS' Cyber Security Operations Control, which can detect any malicious activity and quarantine a machine, even if it is not in office.

DRIVING ENGAGEMENT AND INCLUSIVITY

The SBWS model has the potential to create long-term positive impact on people, environment and economy. "We believe that the idea of remote work will encourage more participation by women in the country's workforce," says NG Subramaniam, COO & executive director, TCS. "Further, location-agnostic flexibility will help businesses generate employment opportunities in tier 2 cities and rural areas, thereby reducing urban sprawl and helping heal the environment around cities."

94% of associates are largely happy with the model, citing benefits such as work-life balance, more time with family, reduced stress due to zero commute time, cost savings on rentals in metros, and more time to invest in hobbies. TCS also worked to resolve the challenges that emerged — such as anxiety due to overlapping of work and personal hours, technical glitches from third party network service providers, lack of office camaraderie — through the OneTCS platform that informally connects colleagues with each other. TR

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Photo credit: Getty Images

Prioritising **business continuity**

Tata Communications is enabling enterprises respond to changing priorities with agility powered by solutions for a Secure Connected Digital Experience – Anytime and Anywhere!

BY ANURADHA ANUPKUMAR

Enterprises are facing a future of doing business that is redefined by dramatically reduced face-to- face interactions with customers, partners and employees. The rules of engagement are being completely rewritten. As companies explore these new operating models, they are also looking to deliver exceptional and innovative customer experiences, enhance operational productivity and efficiency, manage risks, build agility, and drive growth.

Even before the pandemic forced us to alter how we live and work, many leading enterprises were actively evaluating new models of work. These models ideally ensure that employees and partners can securely access company applications hosted onsite or on multiple clouds from different locations on different devices; teams can collaborate seamlessly over robust, safe networks; and organisations can guarantee business continuity and customer service through digital platforms.

ENABLING ZERO TRUST SECURITY WITH HIGH PERFORMANCE

A unique solution and a key pillar of Tata Communications' SCDx platform is its zero-trust security solution, NetFoundry, designed to provide secure access to applications onsite or on multiple clouds, while ensuring optimum performance.

This is complemented by cloud network security solutions, and identity and access services to further ensure employees are connecting through authorised devices only, thereby enabling zero trust access for the remote workplaces.

Incubated by Tata Communications, NetFoundry, an independent subsidiary of the company, distinguishes itself through zero-trust security, which is especially useful as remote working becomes the standard and organisations look for secure solutions that support employees, who are using a variety of devices, including personal or corporate laptops as well as desktop PCs, and connecting with a range of broadband and other consumer internet connections.

"Zero-trust insists that multiple layers of authentication and security key-based trust be established, and that default access should not be given to any endpoint in the network," says Surendran Naidu, DGM, Solutions Engineering, NetFoundry. "There has to be an approach of least privilege access, ie, you are given access to only that which you need, not to everything." Zero-trust platforms facilitate micro-segmentation — splitting an organisation's network into multiple micro-segments or app points — so that even if the corporate firewall is breached in one micro-segment, the entire network is not compromised.

Since the NetFoundry solution is software defined, it can be deployed within days, thus unlocking a level of agility, automation and innovation that would not be possible with the hardware-dependent networking architecture that many organisations still rely on.

Moreover, the solution delivers connectivity over an enhanced internet overlay that routes data traffic directly along best performing paths, improving network performance by 3x –10x and overcoming challenges like packet loss, instability, and throughput issues that are common with applications running over consumer grade internet connections.

ENABLING WORKFORCE SAFETY IN PHYSICAL WORKPLACES

As organisations permit a slow trickle of employees back into workplaces and prepare for a post-Covid scenario that allows a larger return of the workforce, questions are arising about how technology can ensure safety in physical workplaces.

Tata Communications' Connected Worker solution helps regulate and enforce Covid safety protocols across the workplace with contactless entry and exit from an organisation's premises, helps maintain social distancing, and assists

Photo credit: Getty Images



in contact tracing and health monitoring of employees along with an alarm feature that signals about hazardous zones. “This is a solution we have deployed with our IoT-based devices, sensors and applications,” says Amit Sinha Roy, global head, Marketing & Communications, Tata Communications, adding, “When you go back to work, how do you manage a safe and contactless workforce? Starting with contactless badging-in, so you don't physically touch a device like a fingerprint reader, to managing social distancing with proximity indicators, the solution offers a safe working environment for employees. It also enhances worker productivity with adjacent solutions leveraging real-time tracking capabilities that can be further integrated with other enterprise systems.” This solution runs on Tata Communications’ pan-India LoRa network infrastructure, a low power IoT network technology that is a key global standard.

ENABLING CUSTOMER SERVICE FROM ANYWHERE

The shift in work locations during Covid-19 has deeply impacted contact centres that have had to adapt to serving their customers from wherever their employees are. BPO/KPO companies have to contend with ensuring secure end-to-end transactions between their customers and employees, maintaining the integrity of customer and employee data, upholding regulatory compliance and enabling a move to the cloud with minimum disruption of business continuity.

“We are offering a unique, differentiated solution to our KPO and BPO clients — Contact Centre as a Service (CCaaS),” says Mr Sinha Roy. “In many cases, call centres have applications that are not on the cloud, but they need to now be able to connect with those applications and serve customers from home. Our CCaaS solution enables them to access their call centre application from anywhere.”

Along with anywhere-anytime availability, CCaaS ensures high-quality service leveraging Tata Communications’ voice, data and video connectivity. This lowers total cost of ownership, and enables faster time to market, fraud detection and prevention capabilities, and scalable deployment.

ENABLING CONTACTLESS CUSTOMER INTERACTIONS

Most businesses are realising that the pandemic has significantly altered customer behaviour and expectations. Customers are now demanding a truly contactless, connected and omnichannel experience as they make purchases. At the same time, they expect that their experiences and transactions are secure and consistent.

Tata Communications’ Digital Customer Experience Platform delivers a fully integrated, personalised experience, with a range of innovative tools powered by artificial intelligence, natural language processing, integrated bots, social media integration, workforce optimisation, WebRTC (web real-time communications), and video collaboration.

The platform transforms customer engagement and sales process by providing secure, immersive in-store like experiences to customers without having to leave their homes. At the same time, the platform drives salesperson productivity even as they operate remotely by enabling them with all the capability, data access and tools that they could leverage to drive engagement at the physical workplace.

“We are co-creating a digital ecosystem of solutions that shapes a new world with a new tomorrow. We see great opportunities ahead, as organisations look to harness the power of technology to transform their business models and drive competitive differentiation and sustainable development,” says Mr Lakshminayaranan, MD & CEO, Tata Communications. TR

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Photo credit: Getty Images

Awesome CX @Tata

Tata Review looks at Tata group's four retail brands (**Titan, Trent, Croma, Tata CLiQ**) to find out how digital is fuelling customer engagement and how technology is changing the consumer experience within these Tata companies

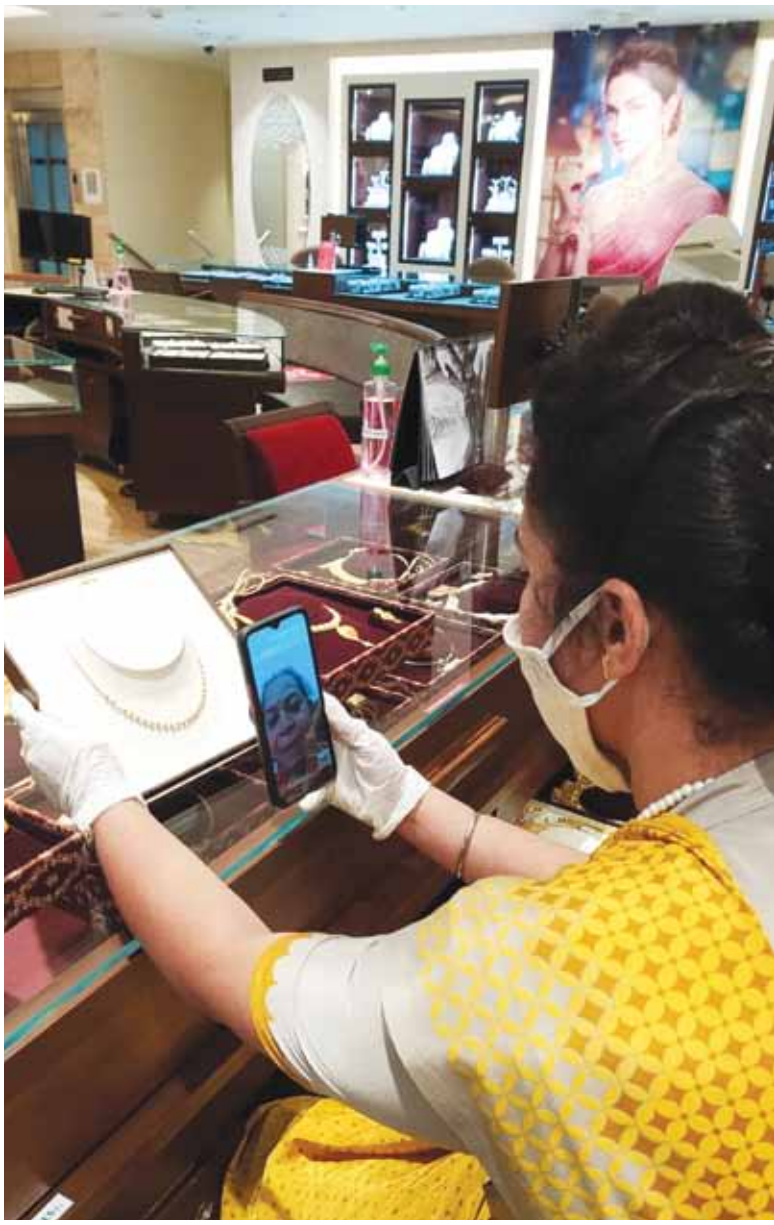
The 'Omni' present **Titan**

The retailer's omnichannel strategy is to up its customer delight and customer engagement quotient

BY SANGHAMITRA BHOWMIK

With 1800 stores, 5 product lines and 17 brands across the country, the need to adopt digital was never a choice but an imperative for Titan, India's most recognised brand. Starting its digital transformation journey in 2016-17, Titan embraced every aspect of this transformation — digital operations and supply chain, machine learning (ML) to forecast procurement needs, artificial intelligence (AI) to predict trends, and an omnichannel network to increase customer delight.

"We started investing early in what the industry calls digital. We eliminated the distinction between digital and IT. Our systems today at Titan are one continuous integrated map. This allows us visibility of stock from manufacturing to supply chain to a product up on e-commerce to delivery. It is not just our stores but also our warehouses across the country that are integrated into the system," says Krishnan Venkateswaran, chief digital and information officer, Titan.



SEAMLESS EXPERIENCE ANYWHERE, ANYTIME

Titan's omnichannel retail network is an all-inclusive platform tying up every aspect of the customer journey. To be rolled out in parts over the next few years, it will allow customers a chance to browse the entire range of Titan products, look

through integrated store inventory from across the country, create shortlists, reserve or order products, request a design or customise colour, request a gift wrap and pay online.

"We are not trying to compensate for the physical store. We are exploiting the power of digital to create these rather different and enjoyable consumer experiences. We seek to combine the best of the store with the best of digital. To this end, we have opened all the channels of communication with and for our customers," says Mr Venkateswaran.

The Covid-19 pandemic and the subsequent lockdown has accelerated digital adoption. Titan stores have opened shutters, but footfalls are still low. Further, the impulsive shopper, who would enter a store based on her or his mood has been replaced with a cautious one, who wishes to use their time at the store efficiently. Titan recognises these behavioural changes and now offers a video calling option wherein a sales manager at the store will showcase the merchandise either through WhatsApp or a video calling app or live chat. Customers can even shortlist products, and then book an appointment to visit the store to check out the shortlisted items. The store sanitises the products and keeps them ready for viewing. That's not all, Titan is also offering home display services where a salesperson visits the customer's home with the shortlisted merchandise.

ENDLESS AISLE

The omnichannel platform also makes Titan's Endless Aisle a reality, allowing customers to browse through the national inventory and order the latest pieces or mix-and-match from the inventory. For small stores with limited inventory, the Endless Aisle is a boon, as customers can now explore the entire inventory. This has resulted in increased average ticket size across small stores.

Titan's online channels, site and app have been enhanced using chatbots and augmented

Photo credit: Getty Images



Forecasting and designing trends

Yashwanth K, head of Analytics and Insights, Titan, talks to Tata Review on what it takes to make the forecasting model relevant

Tell us a little about Titan's forecasting model?

Our first experiments with forecasting began about three years back when the head of Merchandising for the jewellery division requested us to explore the possibility of forecasting sale.

Forecasting for jewellery, however, is particularly difficult due to factors such as the seasonal nature of the business, high peaks during festive seasons, the effect of gold price on demand, and so on. The team took up the challenge and initiated pilot projects. After many iterations, experimentations and learnings, we were able to build a model with fairly good accuracy.

The success of this pilot helped build confidence with the merchandising team, and we were able to extend forecasting to other areas and applications across the company.

The current accuracy levels of most forecasting models is over 90 percent. We are now able to forecast at more granular levels. For instance, predicting store sales helps the retail team to set targets or predicting sale at the category or stock keeping unit level helps the merchandising team in inventory planning.

For the forecasting algorithms to give near accurate predictions, you have to input future event information, such as planned discount offers, marketing campaigns, new product lines, etc.

We have also repurposed the forecasting technique to predict the effect of planned interventions. For instance, we use forecasting techniques to compare sale impact of promotions such as 'gift with purchase' vs '20% discount'. In effect, we simulate such scenarios to determine the most efficient option from the return on investment perspective.

What are the guiding principles for this forecasting model?

The first principle for building a forecasting model is to acquire a thorough understanding of the forecasted metric. Stakeholder discussions and domain expert interviews are useful in identifying causal variables and underlying factors which need to be considered in creating the solution. Further, understanding the current heuristic or rule based methods gives valuable insights for building the model.

Next is about using an agile and iterative approach. Starting with small pilots and subsequently scaling up help to avoid potential rabbit holes. In our initial journey with jewellery, we started forecasting for a few categories, select stores before scaling up to forecast for all categories, all stores.

The third principle is about constantly measuring and analysing the performance of your forecasting models. No model can be permanently good. Many factors such as customer, environment, market and competition changes can affect prediction and lead to deteriorating model performance. It is therefore critical to frequently evaluate alternate approaches, experiment with new techniques and analyse errors to build newer, more accurate models. In the post-pandemic environment, we have had to completely rebuild our models due to significant changes in our customers, markets, and the economic situation, to deliver accurate results.

Can you tell us a little about Converge?

Converge is a tool built using cutting edge technologies. It uses AI and leverages a family of algorithms called generative adversarial networks to augment our designers' capabilities and create new watch forms, thereby providing inspiration to our designers. The underlying technology involves two connected neural networks: the generator (artist) and the discriminator (judge). The generator creates watch images and the discriminator evaluates whether the generated image meets watch design aesthetics. Hence the two inter-connected networks feed one another and, at the equilibrium, are able to imagine novel watch patterns.

The tool can also blend multiple watches intelligently into new designs. Currently, we are working on improvements and feature enhancements such as the capability to upload own designs to make this tool more effective.

In jewellery, we have deployed a style-transfer based approach, which can load the 'aesthetic' from everyday objects/textures and apply them to jewellery pieces. TR

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reality platforms that allow customers to try and buy from the comfort of their homes. For instance, a customer can try a pair of spectacles by uploading a photograph, compare different frames, send a photograph of a family member or friend to know what suits them best.

WELCOMING HYPER-PERSONALISATION

Widespread use of techniques such as personalised targeting, segmented messaging and recommendation systems are helping Titan deliver effective campaigns.

Listening to our customers, understanding their motivations and analysing their feedback are all aspects which help shape Titan's campaigns. Analytics and ML techniques are playing key roles in identifying the right customers, suggesting the right products and optimising the right content to deliver impactful campaigns.

With 18 million consumers, selecting the right customers to target, with the right product and at the right time for every campaign can be a major challenge. To address this challenge, Titan has built Prometheus, an automated model lifecycle management platform, to manage Titan's ML models.

Campaign models hosted in Prometheus enable Titan to target customers using propensity scores and leverage personalisation using segmentation models. "The machine learning models assign a propensity score to every customer. These propensity models help run campaigns far more efficiently for Titan. The automation aspect takes away a lot of burden from the modelling team, and hence we are able to spend more time on solving new challenges for our businesses," says Yashwanth Kumar, head of Analytics and Insight, Titan.

Prometheus is helping improve the annual ₹800 crore revenue uplift currently being generated through campaigns. Titan is also using real-time recommendation systems by leveraging both online and offline data to make product suggestions at customer-facing applications.

FUTURE WILL BE MORE DIGITAL

In the coming months, Titan is piloting vending machines for Fastrack products. The machines will be installed at airports and customers can check online for the closest Titan vending machine, buy an item and pay for it. Customers will receive a five-digit code and can connect to the machine with their phone and pick up the product — a first of its kind in India.

Titan has many such innovative ideas to improve customer delight. The augmented reality experience allows customers to invite family and friends to join a shopping experience and help make a purchase decision in real time.

"Making this transition wasn't easy. There are inherent challenges in a multi-brand operation. This combination of physical product, digital experience and physical experience has taken some time to perfect and going ahead we hope to continue enhancing the digital buying experience," says Mr Venkateswaran. TR

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The **hyperlocal star**

With end-to-end automation of processes and systems, StarQuik plans to win the war for online supermarket supremacy one locality at a time

BY ABHISHEK MANDE BHOT & SANGHAMITRA BHOWMIK

Gaurav Juneja and K Radhakrishnan aren't the usual career retailers. Between them, their career paths have traversed investment banking, management consulting, distribution and logistics, FMCG and retail. So, when in 2014 they co-founded GrocerMax, a grocery service for the National Capital Region (NCR), little did they know that they were embarking on a journey to create a hybrid hyperlocal business model.

Rechristened StarQuik in 2017, under Trent Ltd, the company mixes inventory-style grocery service (like Bigbasket) with marketplace style model (such as Grofers in an earlier avatar) to create a unique business model.

It all began with understanding the *kirana* store model and how it makes money. Says Mr Juneja, "Everything in a small *kirana* store is about stock turns." Stock turns or inventory turn is the number of times a store's inventory is replaced over a period. The apparel business has a stock turn rate of two to three times a year (industry standard), but a grocery store has stock turn of 20-24 times a year. "Anything that turns fast will have lower margins and that is the holy grail of this business," he says, adding, "This business is determined by how well one can turn the stock around, and this is the fundamental building block for us."

The Indian consumer market — currently at $600 billion — is poised to grow its online retail business, especially in the groceries segment. "However, unlike mobiles or electronics or even apparel the battle for the online supermarket won't be won centrally. This battle will have to be fought at the local level — one locality at a time," they say.

A mantra Mr Juneja and Mr Radhakrishnan were quick to realise and implement via their hyperlocal business model — StarQuik.



PERSONALISING PRODUCT OFFERINGS

StarQuik understands that customer demands vary across localities. So, a customer in area 'A' could have a different preference for daily consumption items and brands as against a customer in area 'B'. The same is true for regions, cities, and so on. Since StarQuik is fully integrated with StarBazaar, the hypermarket and supermarket chain from the Trent stable, the company has the advantage of offering a customised, yet locally available inventory of products.

StarQuik's validation process confirms every order and highlights missing items and other discrepancies.

Further, StarQuik works closely with StarBazaar's category and supply chain teams, to ensure store inventory integration so that online shoppers get to see products in stock.

"You have got to be joined at the hip with the operations team at the store, and we did not get it right straight away. Both the teams have been working towards reaching the balance," says Mr Juneja.

It is these insights that help StarQuik create hyperlocal promotional offers, keeping in mind buying patterns in localities and customer order mix. Besides, the size of the store, pickup and delivery operations also play a part in planning these offers.



PRODUCT ASSORTMENT

Picking, packing and dispatch lie at the heart of StarQuik's business model, yet it is not without challenges. Simple FMCG or dry goods are often pre-packaged and therefore easy and faster to pick, but the job gets tricky when fruits, vegetables and loose goods are added to the mix. Unlike other products, there is no homogeneity in products as far as groceries goes. Frozen items need to be packed in thermal bags; tomatoes may get mushed; eggs and bottles need to be handled with care. Add to this, the myriad real-world challenges that a picker faces such as in-store customers, store arrival delays, packaging woes, and price difference.

To combat these challenges, StarQuik has developed a robust picking process — both in terms of operations and the app algorithm. To begin with it localises the picking process, depending on location and nature of the order. It has a stringent picker protocol — maintain low picker count at the store, pick in small baskets and stay away from heavy customer traffic aisles within the store.

"Our picker app is designed to inform the picker about the number of thermal bags or crates he may need when he begins picking an order. This is something the algorithm automatically advises. The picklist too is created as per the store layout so that the picker optimises his way through the floor. We advise our pickers to pick fast and accurately and maintain the fill rate. There is a lot of training

given to the pickers. We also train them to optimise their time on the shop floor and even handle customer queries," says Mr Radhakrishnan.

This multipronged approach is what makes it possible for StarQuik to pick the right quality, the right quantity and deliver on time.

DELIVERING LOCALLY

The last mile is always the toughest. Once picked, orders are broken down into delivery routes and matched with the delivery vehicle based on geo codes. The live routes are shared with delivery staff, who then collect orders from the dispatch area and proceed for doorstep delivery to customers. The delivery staff has a delivery app to handle returns, on-the-spot refunds, etc.

StarQuik use bikes, vans, autos and in some cities electric vehicles to deliver the goods; the mode of transport depends on the size of the order and the delivery destination — all worked out by StarQuik's algorithm.

"Our delivery associate is the one serving the customer, so we have tried to streamline this interaction by minimising conversations using technology. Whether it's a return, a refund or a quality problem, the algorithm handles the transaction, minimising interaction and making delivery personnel complementary to the process," says Mr Radhakrishnan.

AUTOMATING THE PROCESSES

The entire value chain at StarQuik is digitised and the process completely works on algorithms defined at the back-end.

When customers place orders, the back-end algorithm automatically tags the orders to a particular store and delivery location. Deliveries are then bunched up by delivery slots, and the picker at the store receives live orders to be picked and delivered for the upcoming delivery slot on that day on their picking app. The picklist is updated real time as per delivery dates and slots. StarQuik also has a validation process that confirms every order and highlights missing items and other discrepancies. The business model involves StarQuik buying the goods from StarBazaar and then selling it to customers. StarQuik's robust back-end integration with StarBazaar, which is fully automated, reduces transaction time and assures seamless customer delivery.

"Such a model needs to have a high level of automation of processes, bolstered by technology. Our technology takes into consideration every little detail. For instance, the algorithm considers weight discrepancies in fruits, and hence calculates the cost accordingly; orders can be a heady mix of various items so it advises the picker on how many crates and thermal bags would be required. Our algorithm is tuned to make the necessary logic, making it the winner," says Mr Radhakrishnan.

The post-pandemic environment has seen a rise in online grocery shopping, resulting in sharpening StarQuik's focus on the way ahead. "We are looking at ways to add more capacity in a given store, increase the number of delivery slots, and liaise with more StarBazaar stores," they remark, even as their marketing proposition Assan grocery promises to home deliver goods with the trust of Tata. TR

What makes StarQuik tick?

- **Think 'online + offline' and not 'online & offline':** One of the significant cost drivers in a grocery e-commerce business is the cost of delivery. By aligning with the StarBazaar store network, StarQuik has no need for setting up separate delivery counters.
- **Platform thinking for the competitive edge:** Integration with the store's enterprise resource planning system has eliminated inventory and back-end processes. Besides, the customer engagement layer is built in a manner that the overall platform can be leveraged to adapt to different use cases.
- **Make things simple to make them better:** The barcodes of items are mapped to the picker app to ensure no mistakes while picking up items from the store for increased efficiency.



Photo credit: Getty Images

Croma 2.0

Croma is redefining the next frontier of retailing with its Store of the Future

BY SANGHAMITRA BHOWMIK

Customers are not just buying products anymore; they are seeking experiences, connections and inspiration — and digital is increasingly playing a critical role in the journey. Customers now are spending more time online than ever before. In the consumer electronics and durables category, window shopping has moved online — the first exploration for any new purchase is typically online. And, a significant part of convenience purchases in this category like accessories, consumables and downstream products have also moved online. With evolving customer expectations, growing digital influence and unprecedented events, the retail industry is seeing a tectonic shift towards an accelerated path of innovation.

"We are no longer happy waiting for the customer in the store. We want to be part of the conversation online, and we see a competitive advantage available if we make our expertise in the category evident to customers online. Also, we want to provide a strong online shopping experience, to our existing store customers to tap into the convenience products market," says Ritesh Ghosal, chief, Marketing & Insights, Croma.

With a vision to be India's leading Electronics Retailer, Croma has embarked on a journey to lead the change and drive a new experience for its customers. Such transformations require an organisation to build new capabilities at an accelerated pace — launching new services, creating experiential stores, building the universal commerce foundation, building flexible supply chain models with newer last-mile fulfilment options. Croma is doing just that, defining the customer engagement arc by digitally reimagining every

aspect of business process and customer touchpoint.

"Our focus on delivering a rich and engaging customer experience all through the engagement lifecycle from discovery to disposal has required us to reimagine customer journeys across all touchpoints, build back-end digital capabilities and solutions to power them, and drive change management across the organisation to be digital ready," says Naresh Gavara, general manager, Business Transformation, Croma.

DESIGNING THE NEXT FRONTIER OF RETAIL EXPERIENCE: STORE OF THE FUTURE

The Store of the Future roadmap — developed in partnership with Tata Consultancy Services (TCS) — required a thorough understanding of customers' aspirations, needs and wants while pushing the boundaries to create a superlative customer journey from inspiration to purchase and post-purchase engagement. Consumer electronics continues to remain a category which is deeply-researched with the highest levels of engagement — where the relationship between the retailer and the customer extends way beyond a transaction into installation and demo, repairs, warranty, and other services and upgrades. Croma understands the need to be the partner for the customer in their entire journey, as a guide to help make their lives 'Brighter Every Day'. The transformation is designed to maximise Croma's biggest assets — expertise in electronics (store associates and category teams), large pan-India store network and a loyal customer base.

Croma's Store of the Future aspiration is built on five key tenets:

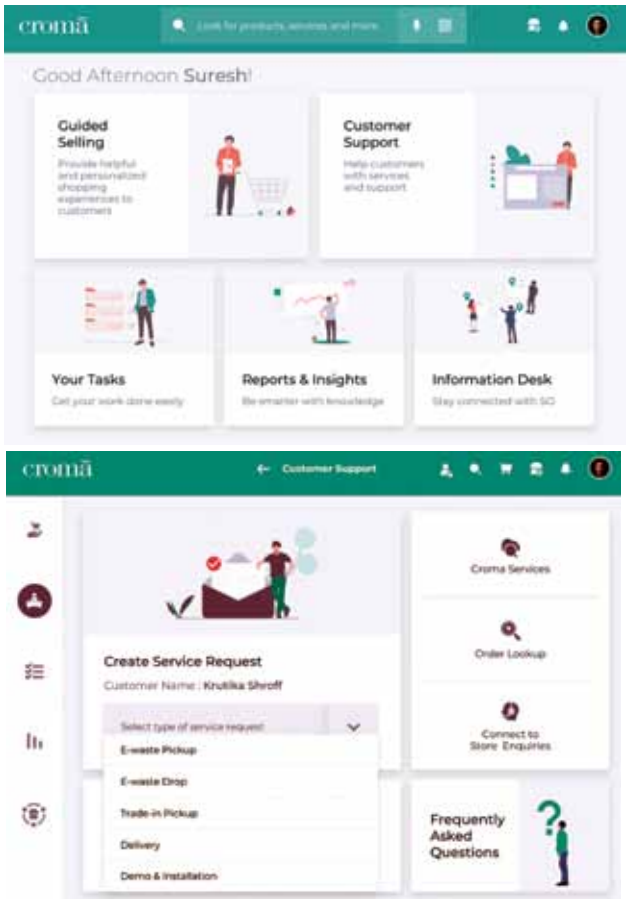
- **Purpose-centric** – Helping customers meet their holistic needs and wants by building a long-term relationship with the brand
- **Expertise and guidance** – Leveraging Croma's strong expertise and experience to offer expert advice and guidance beyond shopping needs
- **Experiential** – Allowing customers to experience the rich product assortment while making it exciting and engaging at every touchpoint in the customer journey
- **Fast and convenient** – Orchestrating a frictionless journey across channels by offering products and services to customers on-demand — what they want and when they want, with expedited deliveries
- **Personalised** – Building a deep understanding of their customers' context and needs, to curate the customer journey meaningfully And rightly so, Croma stores are on the cusp of this disruption by redefining the retail experience to meet customers' demands of experience, guidance and serendipitous discovery while serving as micro-fulfilment centres.

LAYING THE FOUNDATION FOR AN OMNICHANNEL EXPERIENCE

At the heart of Croma's transformation journey is the vision to offer a world-class omnichannel experience. To manage the exponential customer touchpoints and increased order volumes, the foundational business processes, organisation models and associated systems and infrastructure must be robust and scalable.

The omnichannel transformation offers customers convenient journeys such as online order deliveries within three hours, browse and buy products not-in-store via interactive Endless Aisle, check out anywhere in the store using mobile checkout. The solution also enables customers to buy across various channels with universal features like Follow-me Cart, My Wish List and My Account.

Starting its transformational journey last year, the retailer is creating fresh designs with reimagined journeys for its digital channels to provide the deeply engaging 'Croma experience'. The solution includes a new global design;



Store@Home: Experience digital product discovery and guided shopping

reimagined journeys for quick browsing, shortlisting, bundling, selection and checkout. The integrated enterprise offers customers greater visibility of the store for stock availability, pricing, schedule store-visit, store-pickup, post-sales services amongst others. It is designed to leverage the digital disruption to make the engagement as exciting as ever with voice, vision and video driving the next frontier of customer experiences.

Improving business resilience through a robust supply chain network, refining visibility and tracking of inventory and orders across channels have been the key themes to strengthen the backbone.

STORE@HOME: INNOVATING PRODUCT DISCOVERY AND GUIDED SHOPPING

In the consumer electronics category, product discovery and research are the key factors in decision making. Croma is innovating in digital product discovery through the Intelligent Buying Guide, enriched catalogues, intuitive search, contextual product bundle recommendations and various digital self-help tools for shopping, seeking on-call assistance with store colleagues, and even initiating hassle-free payment.

A big part of the product discovery process in electronics is expert assistance in store. The Store@Home feature connects customers to store experts via a video call instantly (or scheduled) to experience a physical store and its products from home and seek expert advice from store colleagues. The journey orchestration is unique in ways that it intelligently maps the experts based on customer's needs and allows for continuation of the expert advice through the journey which may span a period of time. It allows for building the cart together as well as sharing the experience with friends and family; thus, replicating the in-store browsing experience.

Coupled with personalisation and recommendation, customers are aided throughout the engagement with relevant product recommendations, best-fit offers and contextual communication across all digital channels.

COGNITIVE WORKFORCE

Store associates across Croma stores have been empowered to serve as the custodians of customers' brand experience. They have been enabled with intelligent tools like handheld devices to assist customers as well as optimise their own operational tasks. The Store Colleague app helps Croma associates access relevant customer information, for instance, order history, preferred brands to provide personalised recommendations and assistance, while aiding in the entire customer engagement span of product recommendation, shortlisting, payment, financing, deliveries and post-purchase queries and services.

Croma has also embarked on improving

business efficiency by enabling store colleagues to perform multiple store activities efficiently, improving visibility and tracking of inventory and orders across channels, and offering support to business teams to easily configure and manage offers across channels.

The transformation is not limited to stores and online channels but also to effective personnel training and deployment. Processes are being reimagined to manage both on-field technicians and service centres — right from onboarding, training, allocating jobs to reviewing performance and providing ratings.

"Going forward, Croma is geared up to build digital capabilities to sharpen understanding of customer and business performance, including managing people, while emphasising on security and privacy," says Mr Gavara.



PIONEERING SERVICE TRANSFORMATION

Croma aspires to be the one partner for all its customers' electronics needs — be it the inspiration, serendipitous product discovery, product education, or product services and upgrades. Croma's promise of a 'Brighter Every Day' doesn't end with the customer purchasing a product. Croma is simplifying the entire service journey from raising a new request to tracking the status and, finally, to making the payment online. Croma offers a multitude of service plans such as protection plans, memberships, on-demand service, tech support, e-waste disposal, and at-home consultation — all tailored to the customer needs and showcased digitally in relevant journeys. Going a step further, Croma helps customers manage information of all home devices at a central place for ready reference and provides useful reminders/ notifications (eg, invoice details, warranty plan and additional protection plans linked to the product and device serial number).

"Croma is also building a large service centre network to gain greater control on service delivery and offer superior service levels and experience to customers. Multiple back-end platforms are being developed to build a strong collaboration with brands, service centres and on-field technicians for better visibility and faster delivery of services," says Mr Gavara.

WAY FORWARD WITH EXPERIENTIAL STORES

Croma is redesigning its stores to elevate the sensory experience across product discovery and interaction. Store designs that aid in customers' journeys by presenting interactive product discoveries, new service portfolios coupled with digital tools for omnichannel experience, and self-healing capabilities will define the next frontier of purchasing experience. TR

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Engineering **CLiQs**

Tata CLiQ's journey of digital marketing maturity creates multi-moment experiences for its customers through offerings like Tata CLiQ Luxury and more

BY SANGHAMITRA BHOWMIK

As one of the leading multicategory e-commerce retail brands in the country, Tata CLiQ is always looking to attract eyeballs, make a pitch, close a sale, and gain a follower — a multipronged marketing agenda that strengthens its brand positioning by creating a trusted marketplace for the discerning shopper. Hence, the team is constantly investing in building their marketing efficiency.

Six months back, Tata CLiQ found itself at the far end of 'emerging' when it undertook the digital marketing maturity model (DMM) diagnostic survey to evaluate its brand maturity level. "Of the four categories — nascent, emerging, connected and multi-moment — into which the survey typifies organisations, we were somewhere between 'emerging' and 'connected'," says Kishore Mardikar, chief marketing officer, Tata CLiQ, "which is good, but we aspire to move to be 'multi-moment'."

THE FULL-FUNNEL APPROACH

Tata CLiQ rejigged its marketing tools to engage with the customer as one continuous journey. Thus, the marketing efforts combined all of the upper-funnel campaigns to build awareness of the brand and create the pull; the middle-funnel campaigns designed to drive actions such as app installs, first shopping, and wishlisting; and the lower-funnel campaigns that close the sale with personalised marketing and recommendations.

This integrated approach does not view customers in different stages of buying but understands the context to plan an appropriate marketing intervention. This is especially true



"Our endeavour has always been to have meaningful conversations, not just transactions, with our consumers. And this journey of digital maturity is a step in that direction — rooted in digital marketing and rippling across the organisation. We are getting ready for the era of extreme personalisation."

Mr Vikas Purohit, CEO, Tata CLiQ

of the digital space, where customers experience myriad influences and impressions.

However, integrating the efforts requires a significant number of things such as data flow and coordination among teams and, more importantly, understanding the purpose of a non-intent buyer, who is browsing at a point in time, vis-à-vis a buyer with intent. "The entire process should be agile, efficient and seamless. The first thing we did was work on our audience and messaging," says Mr Mardikar.

DEFINING YOUR AUDIENCE

Traditionally, digital commerce sites adopt a spray-and-pray approach to market themselves where the number of messages and their reach become primary. However, Tata CLiQ has defined its own definition set for the target audience. For a retailer that is heavily defined by brands, Tata CLiQ makes a distinction between shoppers. "The brand conscious shoppers, who apply brands as their first filter and ignore the rest, are our target audience — the ones whom we can provide an authentic brand experience. The Tata group stands for trust. We want to leverage this trust, especially in this environment of open marketplaces, where anybody can become a seller and authenticity is often compromised," says Mr Mardikar.

TALKING TO THE AUDIENCE

Unlike traditional offline media platforms where communication is largely homogeneous, the digital medium allows personalised communications to a cohort of online shoppers. Tata CLiQ defines its audience by their demographic profile, shopping affinity, interests, and behaviour like the propensity to download the app, etc, that help the marketing team to create specific creatives. Tata CLiQ uses this as the guiding principle while developing and implementing the communication strategy across its digital ecosystem. The timing and frequency of campaigns are measured to understand 'how much is intriguing', 'what's interesting' and 'when it's annoying' to the audience.

"Finding the right content for every stage of the shopping journey is very important. Every piece of content gives us an opportunity to inspire or nudge

audience
Influence valuable audiences throughout the funnel

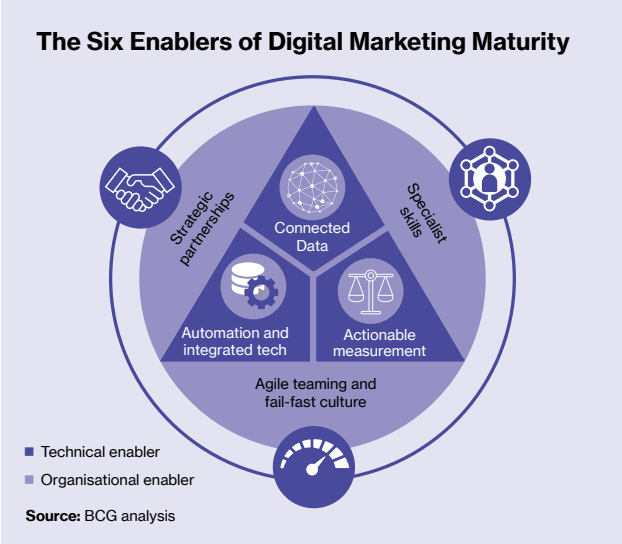
assets
Deliver attention-driving intuitive experiences across digital touchpoints

access
Efficiently reach and control your identified audiences across all channels

organisation
Improve decision-making and results by working collaboratively across teams

atttribution
Accurately measure and value customer touchpoints

automation
Optimise marketing operations to drive profitability and growth



the customer to take action," says Mr Mardikar.

Interestingly, Tata CLiQ doesn't believe in creating the 'sale is on' like content. One of the early adopters of content marketing through their online magazine *Que*, Tata CLiQ often brings out content relevant to customers at the discovery and exploration stage in the journey; this content is then marketed and showcased on platforms like Facebook and/or Google. Additionally, the focus on personalised and relevant content results in most large-scale campaigns at Tata CLiQ having about 10,000-15,000 creatives and medium-scale campaigns with 2000+ creative variants (including videos and social media posts).

AUTOMATING THE DMM JOURNEY

Automation is the next big milestone in Tata CLiQ's DMM journey. Six months after defining its audience and integrating campaigns, Tata CLiQ is creating a central repository for data on audiences and a mechanism to share the knowledge across teams. It hopes to achieve this in the coming months so that it can provide its customers multi-moment experiences.

Tata CLiQ has been ticking all the right boxes of the DMM model and building capability towards a true multi-moment marketing company, as it builds its offerings like Tata CLiQ Luxury and more. TR

tata.review@tata.com

Recreating luxury online

Tata Review speaks to Rina Shah and Gitanjali Saxena of Tata CLiQ Luxury to understand what it takes to be the number 1 online luxury store

Why luxury?

This division was envisaged three years back, when there were no online luxury stores. Tata CLiQ Luxury aims to serve customers, looking for premium to luxury brands, with discerning choices. It is a niche market but nonetheless there is a demand; this is evident from the number of premium brands launched in India each year.

What's the challenge?

As these are high-ticket purchases, the customer expects a high level of authenticity and service. The fact that we come from the Tata group and work with and provide service directly from the brands, gives us an edge. We offer the same warranties a branded store offers.

Replacing the brick-and-mortar experience?

In India, the kind of real estate premium brands seek is limited. Moreover, the market size doesn't justify opening and store upkeep. Tata CLiQ Luxury offers these brands a pan-India coverage with dedicated online space. With 50% of the customer base coming from tier 2 and tier 3 cities, we offer a larger market for these brands. Our marketing and branding promise a high-end brand experience to the customers. The special Tata CLiQ Luxury app and website, designed to enhance customer experience, are our differentiators. Besides, we also ensure no fluctuations in price and adhere to the brand image and style. Brands have complete control on

what and how they speak to their customers.

How do you replicate the brand narrative?

Our marketing strategy is about telling the brand story, not about discount and sales; it is about exploring and discovering what a brand can offer. Our strategy is aligned with the brands in an omnichannel format so that customers have the same experience whether they buy online or in a store. Even our communication and marketing is aligned with the brand's positioning and narrative. For example, we replicate the tonality or brand character, language and visual merchandising used by Mont Blanc in their stores. If Diesel is celebrating a global campaign, we repeat it on our website and social media.

While launching new categories, we do intervention projects where we pick up a category and co-create an exclusive range like we did for the Tata CLiQ Luxury Gourmet store or the Sneaker store. We also do trend projects as it helps us expand our offerings and understand our customers better.

Balancing global and local brands?

We make a clear demarcation between our global luxury line, including brands of foreign origin; and the Indian luxury line, which are brands with Indian heritage or craftsmanship but equally luxurious. For the customer also we have created two distinct journeys, as we believe that the two lines require a different look, feel and tonality.

While our global brand line has 150 brands, the IndiLuxe line has a host of home-grown brands – a mix of established designers and discovery labels – that are exclusive and rare. The line has sold dresses in the ₹5,000 to ₹15,000 price point and exclusivity comes from the fabric, handloom and the craft used. For the IndiLuxe line, we take the 'project' route to tell the craft's story to our customers. The shawl and apron projects are examples of it. Campaigns are structured to give the customers a chance to discover the brand's uniqueness and craftsmanship.

What's in store?

We want to move out of the wardrobe and enter the premium beauty segment. Besides, we are looking at introducing home and lifestyle as a category, as we believe that these categories will not only help to identify opportunities but also appeal to our customers.

Recreating the experience

For an online luxury retailer, our biggest challenge is making the buying experience real for our customers. And, Tata CLiQ Luxury's unboxing experience creates that magic moment. As all our products are delivered in a black leather box, customers love the packaging and many of them have shared their special unboxing experiences on social media platforms.

Tata CLiQ Luxury has also introduced a dedicated luxury customer service where a trained agent speaks the right language of the brands and handles customer queries effectively. We also have a centralised WhatsApp number for customer queries. Our aim is to create a paradisiac experience for the customer as if they are at a luxury store – CLiQ-ing away shopping! TR



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Digital-first outlook, industry-first innovations



Photo credit: Getty Images

Photo credit: Getty Images

The remarkable growth in customer centricity is revolutionising every aspect of business, with data and digital at the heart of it. It is fuelling a trend towards shorter product development cycles, personalised offerings and connected experiences.

From cars and appliances to watches and jewellery to food, Tata companies are integrating intelligent data to deliver products that are increasingly customised, connected and contextual. They are always learning and building industry-first innovations along the way. Like **Tata Motors'** indigenous Connected Vehicle Platform, which is transforming India's mobility experience; or **Tata Chemicals'** proprietary data analytics platform, which is transforming nutrition products.

Tata Review gets a behind-the-scenes look at how Tata companies are powering smart products for a new decade of consumers.

Driving in the **connected experiences**

Tata Motors is powering smart products for a new decade of consumers

BY MONALI SARKAR & MUNIRA PATEL

The digital consumers are demanding delightful and personalised customer experiences, and the automobile industry is adapting and responding to these changes. The definition of 'experience' is now beyond the driving experience to include purchase and ownership. Moreover, the whole concept of shared ownership is bringing structural changes to the industry.

Tata Motors has developed its future vision of mobility with a focus on CESS — Connected, Electric, Shared and Safe. At the core of the vision is the Connected Vehicle Platform (CVP) to connect vehicles, store and analyse data, and build applications for consumers. In an industry first, it has been developed as a common platform across commercial, passenger and electric vehicles (CV, PV and EV). Tata Motors has decided to extend the same IoT platform for manufacturing operations as part of the future Industry 4.0 strategy.





From left: Tata Sons Chairman N Chandrasekaran, Tata Sons Chairman Emeritus Ratan Tata, Tata Motors CEO & MD Guenter Butschek, and Tata Motors PVBU president Shailesh Chandra at the Nexon EV launch

THE BUILD STORY

Tata Motors' first foray into connectivity was with FleetMan for CVs in 2012, and they have 2 lakh+ connected vehicles already on the roads. As part of this initiative, Tata Motors worked with an external vendor to introduce this capability. However, with digital becoming a key driver, Tata Motors adopted a bold approach to leverage connectivity based on three key levers:

- 'Connected first' and not as an afterthought: Tata Motors broke away from the market norm of retrofitting kits to make vehicles connected through aftermarket devices. They made a strategic call to build connectivity in the product development process; thus building products and subsystems to be seamlessly compatible with future connectivity features. Tata Motors' vehicles are able to leverage this connected capability better than retrofits when it comes to introducing features.
- Build once, use many times: Tata Motors started the project with the vision of building a common connected vehicle platform for the entire portfolio across PVs, CVs and EVs. Tata Motors has leveraged this unique approach to transfer the benefits of technological advancement to all its vehicles at the same time. It puts the power in the hands of the marketing and sales teams to decide which feature to enable at what price.
- Own your future: Given the strategic nature of this capability, Tata Motors made the decision to own the platform end-to-end. The USP of the CVP lies in its structured and layered approach, which enables Tata Motors to build meaningful insights into different business aspects. It also creates opportunities for data monetisation and downstream value-added services — a win-win for the customer and company.

The work began in mid-2018 with the deployment of a cross-functional team. "We created an internal white paper on the overall approach strategy, technology stack, collaborations, deployment strategy, governance model and go-live timetable," says Rajendra Petkar, chief technology officer, Tata Motors. "Following the executive committee's agreement, we went into execution mode considering the aggressive timetable we had laid down for ourselves."

For building the platform, Tata Motors leveraged the strengths of the Tata group — working with Tata Elxsi, Tata Communications, Tata Consultancy Services (TCS) and Tata Technologies (see 'Architecting Change Together') — to make it possible.

Architecting Change Together

The CVP is built in four layers with Tata companies bringing their domain strengths to different layers.

Layer 1 comprises the telematics unit in the vehicle, capturing all the data.

Layer 2 provides connectivity from the vehicle to the cloud.

Layer 3 is the cloud-based IoT platform. It is the heart of the system where the data is consolidated, enriched with information, and segregated into streams and lakes, enabling various departments to apply analytics to the relevant data. This can then be driven downstream to the application layer.

Layer 4 is the marketplace with a rich set of APIs to aid the development of apps like Z Connect for Nexon EV.

To build layer 3, Tata Motors partnered with Tata Elxsi, a company that's been at the forefront of advanced driver-assistance systems and autonomous research for a decade. Besides, the company had Centres of Excellence for IoT/5G, artificial intelligence and data analytics, virtual automated testing — all building blocks of the future of mobility — in place.

"Tata Motors wanted to own an IoT platform that covers automotive IoT use cases starting from connected cars and expandable to Industry 4.0 to transform internal operations," says Gomathy P, CVP programme head at Tata Elxsi.

The ask? First, focus on data as the most important component in the system. Tata Motors wanted to unify and synergise data and analytics across product development, customer use cases, allied businesses and service networks. Consolidating all data into a singular platform would also make it more manageable to apply a uniform data security policy.

Ms Gomathy says, "We partnered as the integration partner and cloud-based IoT platform vendor to develop an indigenous CVP that provides unified data platform services based on our IoT middleware. This was best suited to provide the data aggregation and platform integration services to realise the expected common standard technology stack and platform. It delivers the scalability and high performance required to support Tata Motors' entire range of EVs, CVs and PVs."

Second, along with an innovation platform, Tata Motors wanted a digital business delivery platform. Ms Gomathy adds, "Their vision is to be a digital service provider as well. To do so, there had to be a digital economy platform — where we can measure what is being consumed, associate a value and offer a service like rent a car. It's a new thought for automotive OEMs (original equipment manufacturer). They wanted an enabler platform that would sustain the future of their business and be scalable."

CHARMING THE PV CONSUMER

The Nexon EV was the perfect candidate for launching the CVP and the connected vehicle experience for consumers. EVs rely heavily on software due to large dependence on power electronics for drivetrain and battery management, making it a digital product at the core. The CVP foundation enabled Tata Motors to build 30+ features (like remote vehicle operation, navigation and location-based services) for enhancing customer experience. The gamification module enables customers to benchmark themselves against others on efficient driving, safe braking behaviour, etc.

One of the key aspects of building a great connected customer experience is collaborating with other players in the ecosystem. By connecting Tata Power's charging stations to the EVs platform, Tata Motors took the first steps towards building an EV ecosystem.

"Traditionally, our relationship with customers was limited to transactional activities like selling vehicles and servicing them at regular intervals," says Shailesh Chandra, president, passenger vehicle business unit, Tata Motors. "The CVP provides the



Third, it had to be future proof. Ms Gomathy says, “Ours is not a closed-box technology. It will run in a continuous development and integration mode. We must be open to the changing tech scape and security environ and keep upgrading. That is where the cloud becomes relevant. What goes inside a car is difficult to change often but if the intelligence is in the cloud, if the cloud follows the true spirit of DevOps and if it is done in a continuous integration and development model, you are future proof.

“Future proofing also comes from technology choices. This solution is built on micro services, not as a monolithic brick. So, if any service or functionality needs an upgrade, it can be done without taking a downtime. It is agile.”

Tata Motors also leveraged Tata Communications to provide connectivity at layer 2. The CVP includes a multi-profile embedded SIM, hosting two networks at any point in time for uninterrupted connectivity; Tata Communications provides the network services for this.

Tata Technologies, as the engineering partner, provides support on developing the application layer, data management layer, and end-user applications at layer 4.

TCS, as the IT partner, manages the cloud infrastructure.

“The One Tata ecosystem is already at the heart of our CVP,” says Mr Wagh, “and opportunities exist to partner and leverage digital products and services being developed by group companies.” TR

ability to create unique and sustainable customer experiences throughout the vehicle ownership lifecycle. The most common example is upgrading vehicle features through software-over-the-air updates, breaking the standard business model for upgrading vehicle/features via model years or mid cycles.”

IT IS ABOUT STYLE AND SUBSTANCE IN THE CV MARKET

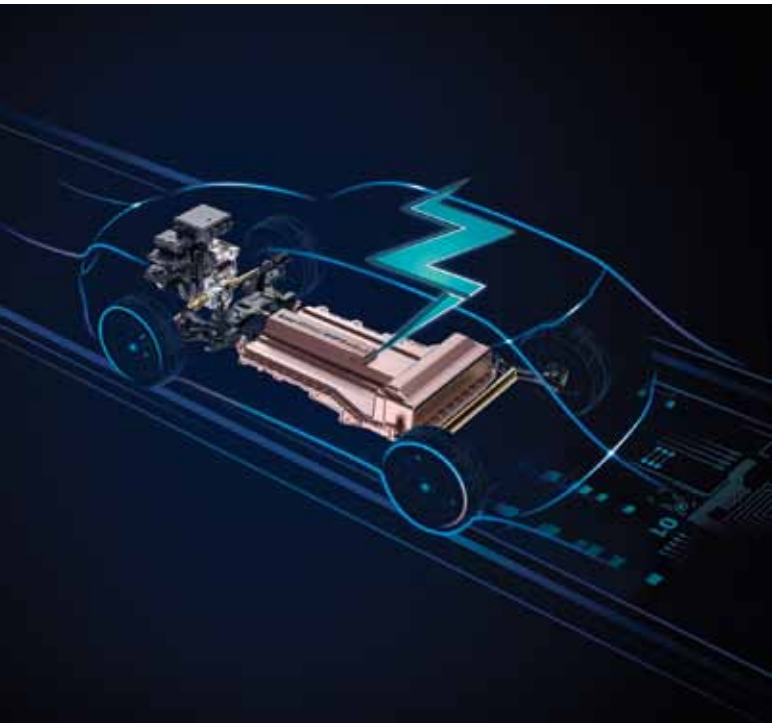
For the CV market, the story goes beyond just delivering experience to enabling Tata Motors’ customers to stay competitive by improving their profitability.

In July 2020 Tata Motors launched Fleet Edge, an application using the CVP as its foundation. Built as a modular platform, which can be scaled up to offer a wide range of solutions with third-party applications through APIs (application programming interfaces), Fleet Edge offers features like track and trace, geo-fencing and alerts, driver behaviour monitoring, and fuel efficiency monitoring. These can be tracked by the customer or fleet manager through an intuitive

representation on the online portal or app.

"The Indian CV market is very cost sensitive. For any new solution to succeed here, it must offer significant value addition to the customer's business at the right cost. Extending past basic vehicle data, the CVP aggregates information across the vehicle's lifecycle, including operational and financial data, to deliver insights relevant to multiple stakeholders in the value chain," says Girish Wagh, president, Commercial Vehicle Business Unit, Tata Motors. "Fleet Edge is uniquely positioned to enable our customers to improve their operational efficiency and, hence profitability. It will, in turn, help them better serve their customers profitably. Beyond Fleet Edge, CVP will enable online storefronts, products for drivers, mechanics, and other key stakeholders."





BEING FUTURE READY

Tata Motors is betting on the CVP heralding a paradigm shift in the way customers relate to their vehicles and to the company. Over 80% of Indian consumers think that increased connectivity will be beneficial to them in the longer term, and around 94% of them are ready to pay more for connected features, reveals Deloitte's Consumer Automotive Study 2020. In an industry facing significant headwinds, the launch of the CVP has given Tata Motors a distinct competitive edge.

"Challenges across different lines of business have been largely about balancing customer demands, experience and capital costs," says Mr Petkar. "PV and EV customers, being owners and drivers, are more concerned with personalised benefits. In the CV space, fleet owners concern themselves with business benefits, looking for optimisation levers and operational intelligence to maximise the vehicle's total cost of ownership.

Tata Motors' roadmap is to put the CVP — already architected to leverage 5G which is expected to propel adoption of connected vehicle — into every new vehicle. Combined with its reach across segments, the platform will give Tata Motors the advantage of getting the largest data set in the auto market. Tapping into that data is going to drive the next generation of revenue streams like vehicle personalisation services and shared mobility.

Tata Motors has invested early in creating the foundation of a digital ecosystem, and all that it needs to do is to 'connect' the dots. It is always easier to do it in hindsight, but more exciting to do it looking ahead! TR

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AI for the gut

Mapping the future of nutrition and wellness with Tata Chemicals

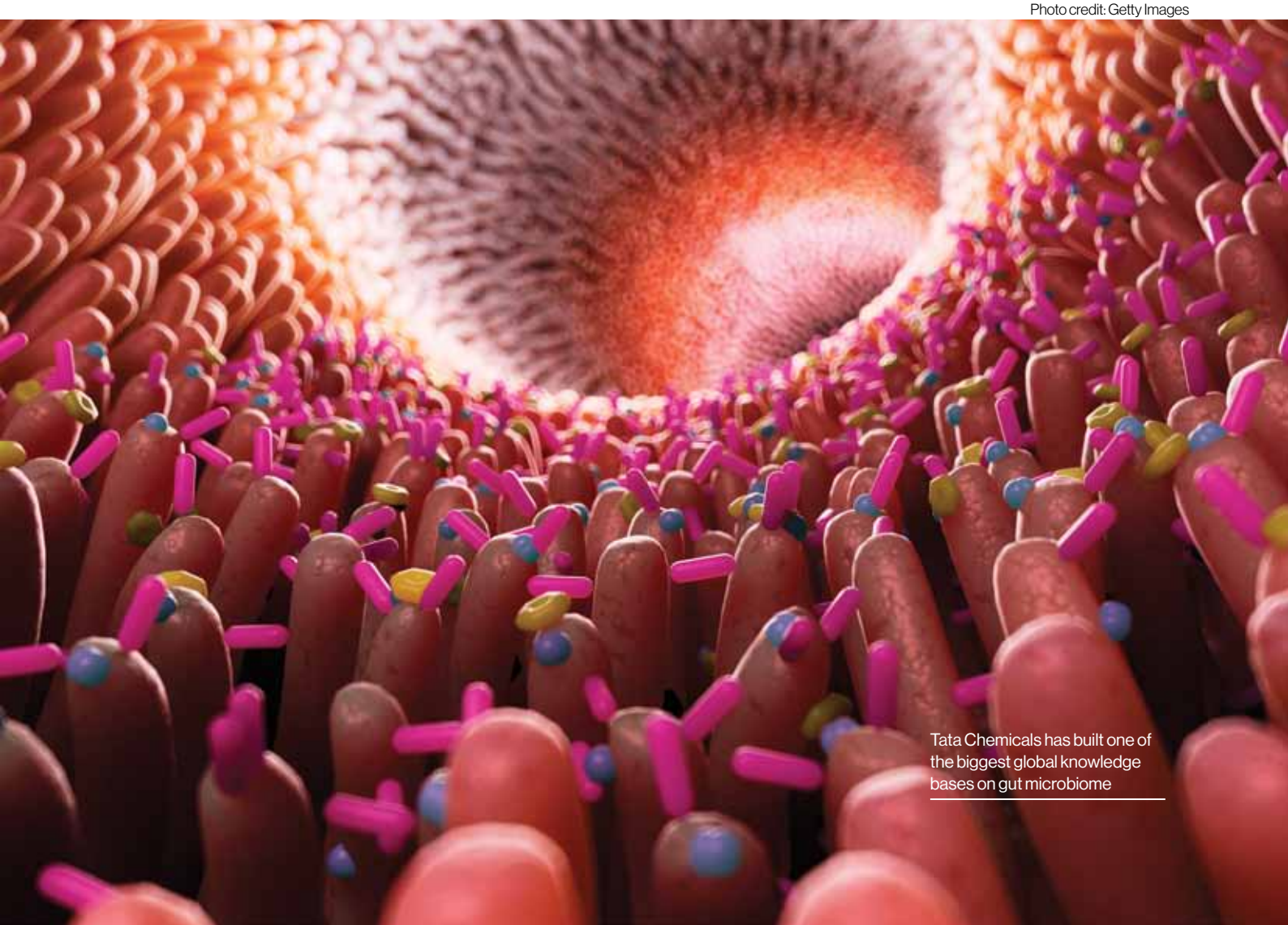
BY MONALI SARKAR & MUNIRA PATEL

Increase in lifestyle diseases and growing consumer awareness of wellness had already given the nutraceutical sector across the world a boost in recent years. And then 2020 happened. It brought a dramatic surge to the sector due to the Covid-19 pandemic and the resultant uptick in the consumers' desire to build immunity. Thanks to its timely digital forays into product innovation, Tata NQ, the nutraceutical business of Tata Chemicals, was well-poised to build on this with agility.

HOW THE JOURNEY BEGAN

"Differentiation in our products comes from the strong science on which they are built; products from the nutritional business are no exception," says KR Venkatadri, chief operations officer, Nutrition Science, Tata Chemicals.

Photo credit: Getty Images



Tata Chemicals has built one of the biggest global knowledge bases on gut microbiome

Mr Venkatadri, who was earlier the chief innovation and digital officer at Tata Chemicals, adds, "We knew that our prebiotics — FOSSENCE (fructo oligosaccharide or FOS) and GOSSENSE (galacto oligosaccharide or GOS) — impact health through the gut microbiome. The mode of action is what we wanted to learn. This initiated our study of microbiome, big data and mining of the data."

Microbiome is the scientific name for the complete set of micro-organisms — trillions of them — living in our bodies. And the gut, also known as the second brain, is home to 10 times the microbial cells than the whole body. Prebiotics act as food for the good bacteria in the gut and reduce the pathogenic or bad bacteria. In early 2015, Tata NQ began looking to further their knowledge of Indian gut microbiome.

"While the United States and some European countries had commissioned a few studies at that time, no large-scale mapping study had been done here," says Rahul Gupta, business head, Nutritional Solutions, Tata Chemicals. "We were the first to conduct a large-scale pan-India microbiome study.

Working with big data tools developed by Tata Consultancy Services (TCS) to tackle the massive amount of data generated by the billions of unique micro-organisms in the gut, Tata Chemicals began to gain understanding of the microbiome in relation to unique Indian parameters. They also completed one of the longest prebiotic intervention studies in the world to understand how FOS works on the microbiome.

"The realisation came that if we want to build the next generation of product line, it is of utmost importance to understand how these products work, what are the health benefits and how they are delivered," says Dr Anirban Bhaduri, senior scientist, Tata Chemicals. "We had to use big data concepts for any form of understanding and to find uniqueness and trends that we could translate to our products."

So, in 2017, Tata Chemicals formed its own data analytics and bio-informatics team at the Innovation Centre in Pune to build proprietary platforms to connect nutrition, microbiome and host wellness.

WHAT WE BUILT

"Being a new field, most of the common big-data analytics methods cannot be applied to it. It required customised development," says Mr Venkatadri. "We saw this as an opportunity and developed proprietary analytics methods that have enabled us to draw new insights."

Eight patent applications have come out of this, providing a competitive edge to Tata NQ in identifying new business opportunities, reducing product development time and time to market, controlling development costs, and aiding process optimisation and product positioning.

Tata Chemicals, in many ways, is playing a pioneering role in this space, especially in India. Dr Bhaduri explains, "There are a few MNCs working on it, but we are doing it differently. Ours is a predictive approach where we guide the innovation. For example, when some Western companies launched gut health products in India, the efficacies that were high in the European market couldn't be replicated. The composition of the Indian gut is different. We, on the other hand, had data to model the efficacy of different products for different subjects.

"We have built one of the biggest global knowledge bases on gut microbiome, mapping subjects across geographies, age groups, genders, sedentary habits and other parameters. This helps us ask questions like what kind of ingredients act best in which geographies and which age groups. These are scientific questions, but they give us insight into the business in terms of areas that can be developed, market potential and product positioning. This is critical because what matters in the end is the claim that you have on the



Did You Know?

Photo credit: Getty Images

100MN
neurons line the gut, known as the second brain

10X
microbial cells in the gut than the whole body

70%
immune cells reside in the gut and interact with microbiota

90%
of serotonin, the 'happy hormone', is synthesised in the gut

20
hormones are produced in the gut

product, which is a direct link to your brand. If you can't support your claim, you will face challenges."

WHAT THIS MEANS FOR BUSINESS

Acceptance of in-silico methods for new product development (NPD) in the nutritional business is growing globally. They not only cut down the uncertainty involved in jumping into a clinical study too early but also require lesser investment and time.

In the case of FOS — one of Tata NQ's flagship products — what was known initially was that it was a basic prebiotic for gut health. Since it had a sweetness with zero glycemic index, it could also be considered as a sugar replacement. The in-silico methods developed at Tata NQ spotlighted other use cases. FOS's impact in the biosynthesis of vitamin D3 meant it had potential in the vitamin market. The fact that it could modulate a specific set of bacteria meant it could help improve immunity. It also revealed the predominance of *Prevotella copri* in the Indian gut, a micro-organism that is not as prevalent in the western gut.

"Its role in arthritis is well-noted," says Mr Gupta. "The insight allowed us to look at formulation possibilities like FOS-Green Tea Complex. We recently filed a patent on this complex, and it is in early stage of product development."

Insights like these are helping Tata NQ grow its prebiotics business. Revenue from FOS, which is now being manufactured at the company's state-of-the-art greenfield facility in Andhra Pradesh, grew by 59% to ₹65.15 crore in FY20. The product also saw a widening customer base globally. While the Covid-19 pandemic is likely to defer new product introduction in its other businesses in FY21, Tata Chemicals is expecting growth opportunities from the nutraceuticals business.

In addition, Dr Bhaduri says, "Apart from product development and business development, this knowledge base also helps with the regulatory aspects of NPD as it can flag off potential concerns."

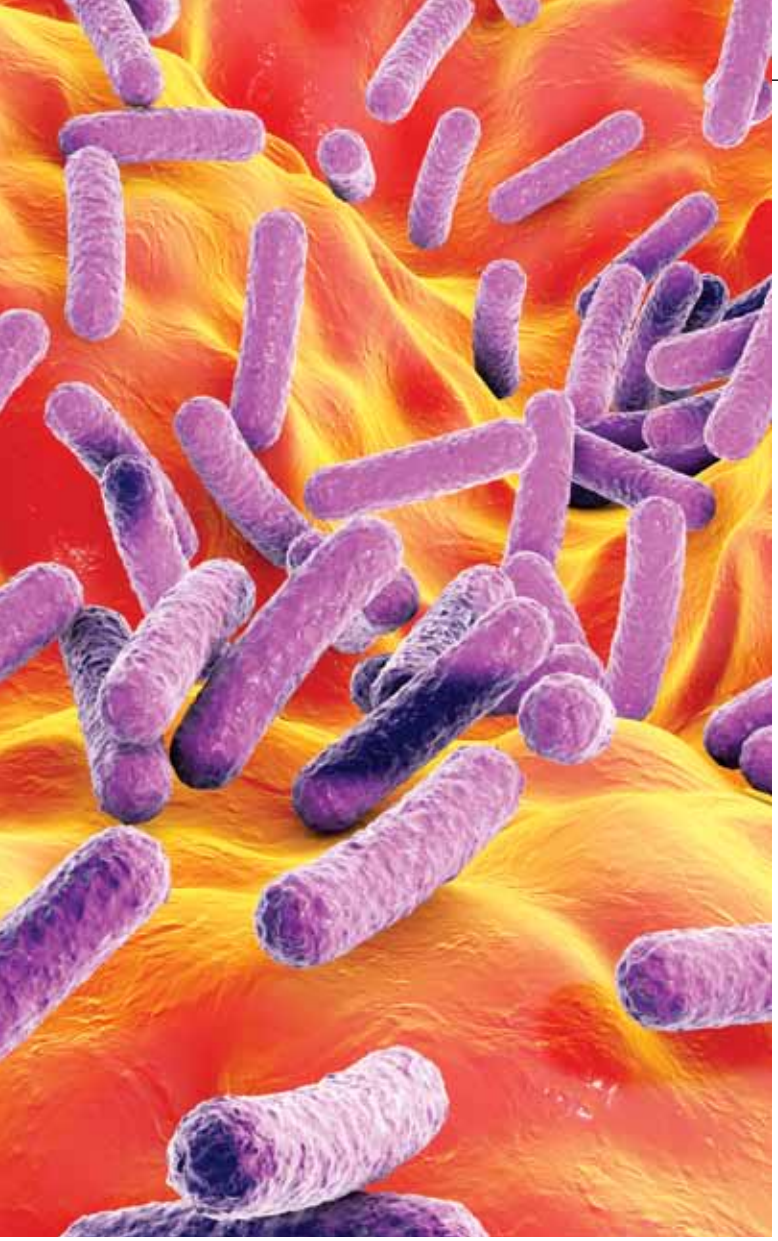


Photo credit: Getty Images

Prebiotics act as food for the good bacteria in the gut

WHAT IT MEANS FOR YOU

For the scientists at the Tata Chemicals' Innovation Centre in Pune — where insights from the microbiome data are being developed into solutions — this credibility and what it means for the end consumer are key motivators. Dr Bhaduri says, "At the end of the day, customer centricity is important. What we are trying to achieve from all this is the assurance that what we claim on our products is what the end consumer gets."

Tata NQ's FOS, a B2B product, reaches consumers through bakery snacks, beverages, nutri bars, cereals, confectionaries, dairy and health supplements. The company's machine learning and bio computing tools allow it to provide better understanding of biological, geographical, cultural and other factors that can be taken into account by its customers to determine the right food design for a cluster segment.

"If such analytics tools have consumer interactions or interfaces, it puts the power in the hands of the consumer to gain more understanding and design their own nutrition choices," Mr Gupta points out, drawing attention to the next phase of the journey.

The proprietary microbiome analytics platform is the foundation on which Tata NQ is building its response to the growing consumer preference for hyper-personalisation.

Mr Gupta says, "We are developing a platform called vGUT to provide personalised nutrition and wellness information. It is powered by machine-learning algorithms. The base data set is a combination of what's in the public domain and the data from our in-house clinical studies. It allows users to feed in their microbiome data and receive personalised recommendations of types of foods/ingredients to take and to avoid. The prototype has been built; we are at an early pilot stage to validate the system."

This platform can be used by the industry to develop custom nutrition products targeting a segment and be mimicked for data sets beyond microbiome. Scientists at Tata NQ have already begun to explore opportunities in personalised skin care and personalised medicine.

Mr Venkatadri says, "The unique microbiome technology developed at the Innovation Centre can also be leveraged beyond Tata Chemicals by companies like Tata Consumers Products Ltd, Inzpera, Tata Medical, etc."

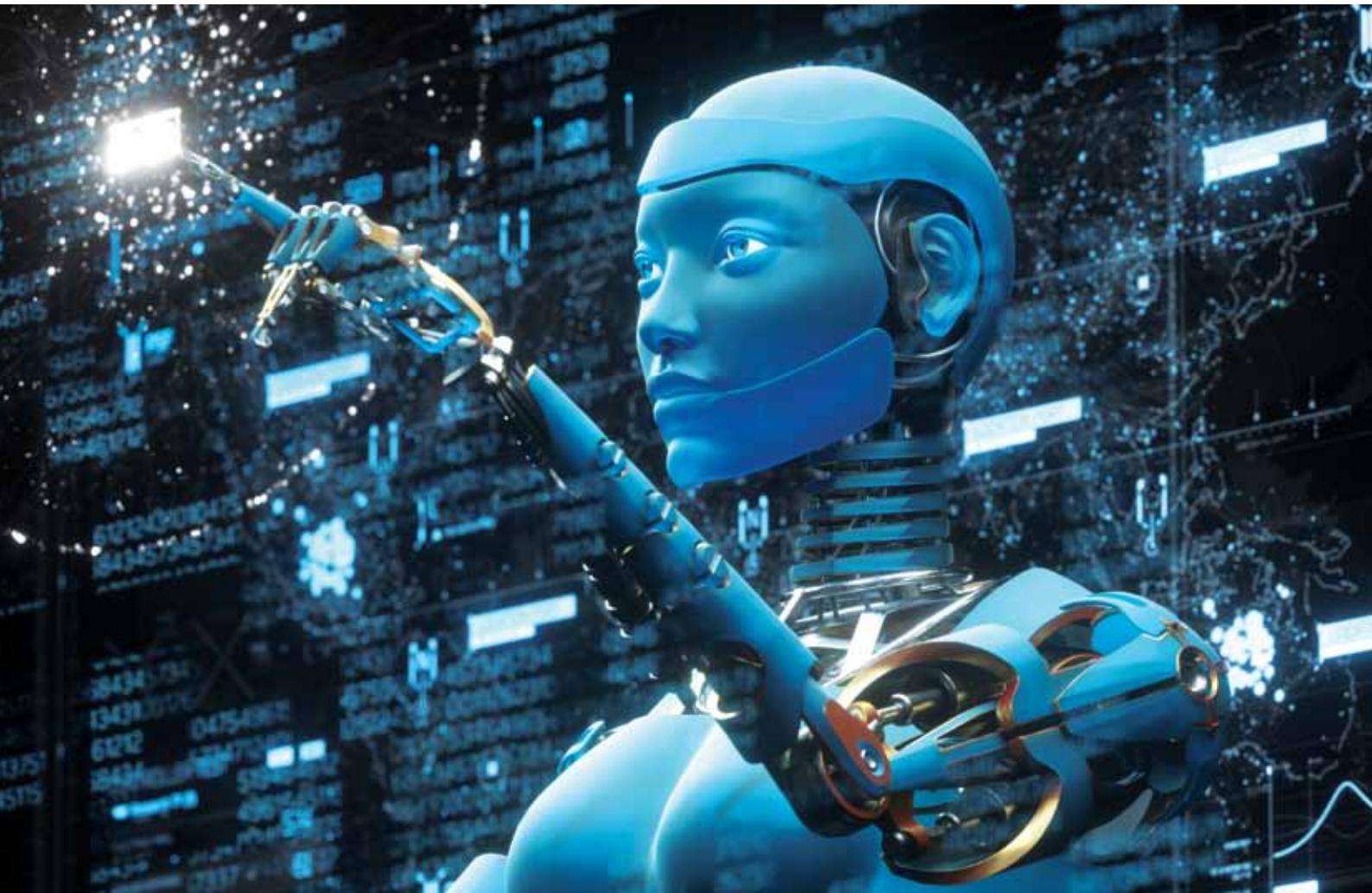
He adds, "With Covid, the need for addressing immunity-related aspects and the focus on health has increased tremendously. We are working to leverage this business requirement. We would like to leverage digital and analytics interventions at every stage of product development. We are reimagining the business model, and it is transformative." TR

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Building insights @Tata

As enterprises embarked on their digital transformation journey, one of their key priorities was how to become an intelligent enterprise that can enable the rapid conversion of data into insight for effective decision making, operational efficiency and, overall, to provide delightful experiences to their customers – all in real time. The financial services cluster companies of the Tata group have significantly invested in data as a strategic lever in their pursuit to become intelligent enterprises. This has enabled **Tata Capital, Tata AIA,** and **Tata AIG** to innovate, and respond better and faster during the pandemic. With focus on data and AI-driven insights, they are redefining customer experience, ways of working, and shaping new product offerings.

Photo credit: Getty Images



Simplifying **lending**

Striving towards a future-ready Tata Capital

BY HAROON BIJLI

Photo credit: Getty Images

In the last decade, the consumer buying behaviour has changed significantly. With increased online commerce, consumers are expecting their lenders to keep pace with the digital transformation for both offline and digital lending. Click-and-buy behaviour is getting extended to click to borrow!

Tata Capital has been investing in digital capabilities over the last few years. They have built multiple products and tech platforms, and teams with skills that range from data analysis to artificial intelligence. Together, these form the foundation of the digital vision of Tata Capital — to be a future-ready intelligent enterprise.

"Our Digital pillars have two thrust areas," says Shallu Kaushik, digital head for the Retail Business of Tata Capital. "Delivering a high-quality customer service and experience is core; it requires us to keep ahead of the curve at all times, and we are constantly evolving in this space. The other area is the transformation of the lending value chain, which comprises three levels — front-end transformation, distributor journeys, and back-end transformation."

HI! I'M TIA

The consumer is spoilt for choice when it comes to interacting with Tata Capital from voice bots to WhatsApp. The thinking behind this strategy is to be present on all channels, web and mobile apps, to facilitate customer interaction. The unified customer service bot, TIA, is present across all digital touchpoints of Tata Capital. Besides Alexa and Google, you can get in touch with TIA on the company's website or app to find out about the service you are looking for.

To engage in a conversation on WhatsApp, add the Tata Capital service number (75067 56060) to your Contacts list and say, "Hi". The conversation just takes off from there. In fact, if you are a Tata Capital customer, you can even avail a pre-approved personal loan or top-up, through the WhatsApp conversation. These are some of the initial use cases and more are being built.

At Tata Capital, the lending process is fast, easy and sanctions are communicated on the

> *"Our digital transformation strategy is focused on growth, innovation and enhancing customer experience. We use technology to continually enhance customer journeys, create new platforms, simplify processes, optimise costs and identify new avenues for growth."*
>
> **Ms Abonty Banerjee,** chief digital and marketing officer, Tata Capital

same day. Critical to the turnaround time is the implementation of score-based decisioning for customer applications — retail as well as small and medium enterprises. Tata Capital is the pioneer in using this technique amongst non-bank financial companies.

All of these has helped Tata Capital continue to serve its customers without any disruption in times of the Covid crisis. In fact, the investments made in digital assets over the last few years has helped in these times. "Currently, over 55% of all customer requests are serviced digitally, up from 15% a few quarters ago," says Mr Kaushik.

THE FINTECH ECOSYSTEM

A distributor — individual agents or small enterprises — visits an applicant's residence or place of business for completing formalities, and it usually involves paperwork. "Distributors bring in a significant portion of the lending business; hence digitising the distributor relationship and enhancing their experience is important," says Mr Kaushik. Tata Capital has built an app which enables distributors to process information from customers and give instant approvals.

Tata Capital worked with a fintech partner from its technology partner ecosystem to build this app. The app starts from scanning and uploading the hard copies to checking eligibility instantly by connecting to the relevant data sources (credit rating body, GST, vehicle data, etc).

Today, almost 90% of the distributor-led acquisitions and transactions across all products are taking place through this channel and the adoption is a testament to the great experience.

AUTOMATING THE BACK OFFICE

Digital transformation at Tata Capital is across the board. Critical functions such as bank recommendations, banking activities, loan terminations and refunds have been automated using robotic process automation (RPA), thereby reducing full-time equivalents (FTEs) by 40% on an average. Besides, RPA can be scaled to multi-task and deployed 24x7, to minimise operational cost, as well as to collect and serve data points for use throughout the organisation, thus enabling the intelligent enterprise.

THE 'WITH' COVID WORLD

The prolonged lockdown has led to a significant rise in adoption of digital channels by the consumers, and it is not expected to reverse even when things return to normal. The post-lockdown, 'with' Covid, world will give rise to new opportunities, new journeys and new risks, and Tata Capital is ready to take them on with the strong digital foundation it is creating. TR

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Unravelling digital lending @ Tata Capital

When a customer applies for financing online:

- For existing Tata Capital customers, the decision is made using a Tata Capital scorecard, taking into account, among other data, her credit history at Tata Capital.
- A top-up or an additional loan is quickly disbursed and often communicated to the applicant within the same process in minutes.
- For a new customer, data from a credit bureau such as CIBIL and for vehicle loans from Vahan is looked up. With an Aadhar-enabled KYC (know your customer) process, an approval is immediately communicated if all the criteria are met.
- If not, an offline process, either through phone or other tools is initiated for further details and steps.

Smart decisions for life

Tata AIA is adopting digital channels to drive business and stay customer focused

BY HAROON BIJLI

Photo credit: Getty Images

Life insurance in India is one of the most under penetrated sectors. This is due to multiple reasons ranging from lack of awareness to accessibility. The market opportunity is huge and over the last few years, the industry has accelerated its adoption of digital technologies to increase its reach and to win over more business.

As part of its transformation journey with clearly outlined business goals in the last five years, Tata AIA has put in place a clear roadmap to leverage emerging technologies and data in order to build a customer centric and intelligent enterprise.

The results are supremely encouraging. Over the past year, the digital channels have accounted for up to 95% of the business and with the lockdown it has increased to nearly 100%. In fact, in June 2020, the company's digital backbone enabled Tata AIA to underwrite the highest total life cover value in the industry, all public and private players included.

THE DIGITAL JOURNEY STARTS AT THE FIRST CUSTOMER TOUCHPOINT

The data-driven approach starts at the customer prospecting stage itself where digital marketing and segmentation allow for targeted communication to potential customers. For example, promotional campaigns like income tax saving opportunities aimed at taxpayers during filing season encouraged potential buyers to engage with an AI-powered chatbot that answered queries and provided guidance.

Once the customer is onboarded, a 'suitability analysis' takes place, where the customer is asked a set of questions. Based on the customer's responses, prepackaged offerings are suggested to him or her. This simplifies the buying process and sets the tone for a quicker and clearer decision making on part of the customer. "The intent here is to ensure that the customer's needs are taken care of, rather than us pushing them or taking decisions on their behalf," says Sachin Goel, chief technology officer and head of digital for Tata AIA.

During the buying process, Tata AIA has the capability to dynamically waive off documentation requirements if the customer is eligible for such a provision. Data, however, remains at the centre of decision making to enhance customer experience.

SOLVING THE COMPREHENSION GAP

In the life insurance industry, the gap between what the agent or relationship manager has sold versus what the customer has understood, is referred to as mis-selling. The problem occurs when customers do not really understand the details of the policy, for example, product features or details such as the limitations of the cover or caveats — and go ahead with buying the policy.

The insurance regulator, IRDAI, puts the onus of reducing this gap on the insurance company.

Before smartphones and video recording became commonplace, a call was often made to the customer and a telecaller asked specific questions and recorded the conversation.

Many companies continue to use similar processes or have migrated to using text-messaging. But Tata AIA pioneered a solution capability called Video Pre-Submission Check (vPSC), the pilot for it started over three years ago.

This process is set within the customer journey wherein the customer responds to a set of questions on video. Using AI techniques, the video is matched with the photograph submitted and an informed decision is taken on whether to approve the customer, have more checks in person, or request for another video, or reject the purchase.

"The recording happens as part of the customer journey itself, and sits on the point-of-sale applications directly. It helps solve a real problem in the industry and helps us at the claim stage as well," says Mr Goel, adding, "We have been doing this for a couple of years; our solution is fairly flexible. We can even send a link for recording via WhatsApp or via an agent. This came in truly handy during the Covid-19 lockdown and testimony to its success and significance are the calls that we received from our industry peers enquiring about this capability.

"Many insurers use text or calls, but that isn't of great help if there is a dispute during claims. Video data, however, is generally more convincing."

HUMANOIDS IN ACTION

Life insurance is generally a long-term contract, usually for 20 years at least. Premiums are almost always automated. "There isn't much opportunity to do out-bound calls unless there is a problem. We use analytics to segment profiles which have a propensity to surrender, and we use personalised communications to ensure retention," says Mr Goel. For others, there is just a reminder call unless they have missed payments.

Customers have a multitude of service options ranging from the website to WhatsApp to social media and chatbots. Intelligent automation in servicing has paid huge dividends with self-service soaring to unprecedented levels of 82% pre-Covid and 91% during Covid.

DEEP LEARNING FOR UNDERWRITING

Underwriting is one of the most complex processes in the life insurance business. Over 55% of overall business and 85% of non-medical business at Tata AIA is passed through an automated decision management system that follows a rules-based model to make underwriting decisions.

For the medical insurance business, the policy necessarily goes to a human underwriter, which is often time-consuming and slows down the underwriting process. "For this, we have deployed deep learning models based on the data that the company already has. These models have been developed to mimic complex underwriting decisions and tell us which policies should be approved," says Mr Goel.

At this point, the manual process runs in parallel to the automated, deep-learning model, and helps with approval decisions with more decision-making information being available.

"Life insurance is a complex business. The value of our covers is very high, often running into several crores. Using data, AI and deep learning, we are well on the path to make underwriting, which is at the core of our business, simpler while, at the same time, enabling our customer to make smarter decisions," says Mr Goel.

After all, insurance is about ensuring peace of mind and intelligent application of digital technologies is helping Tata AIA achieve newer goals. TR

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Serving up **convenience**

Tata AIG is leveraging data and insights to deliver superior and convenient experiences

BY HAROON BIJLI

Photo credit: Getty Images

Aspiring to be a data-driven intelligent organisation, Tata AIG embarked on its digital journey much before the outbreak of the pandemic. When the virus-enforced lockdown went into effect earlier this year, Tata AIG was in a good position to respond with agility. At the heart of this digital transformation is the company's strategic leverage of data and insights to deliver superior and convenient experiences.

DATA-DRIVEN CUSTOMER RETENTION

Acquiring a new customer is far more expensive than retaining an existing one, or so goes the famous marketing adage. And, certainly, spray and pray isn't a smart way to retain or market to new customers. It's here that Tata AIG's customer retention propensity model comes in.

"Using the model has led to over 80% improvement in the conversion rate for our digital campaigns," says Anith Paul, vice president – Retention. The model has helped Tata AIG develop marketing tactics smartly and its impact is visible. The company is now focusing on continuous improvement as the model 'learns' more and more through analysing data and delivers more accurate results.

Over the past two-three years, Tata AIG studied several variables such as premium payment mode, repeat business, premium amount, discounts, claims, insurance value, and CIBIL status to glean insights. The company collated, cleansed, and performed exploratory analysis on the data to develop their unique perspectives on it.

The process was not a siloed activity. In fact, the findings were shared with all stakeholders and feedback sought, to adopt an experimentation approach. "We also had several cases where the marketing teams and agencies said that certain results do not sit right intuitively. This led to further iterations, learning, and experimentation," states Mr Paul.

For example, some customers were perfectly comfortable with online transactions, while others required a call or 'soft reminders' to nudge them into renewing their policies on time. The model also identified customers who were most likely to exit, so strategies were created to persuade them to stay on.

The customer retention model has made life easier for customer-facing staff including telecallers and agents. Tata AIG can now share information and insights based on the model to create more personalised scripts for the calls. For agents, it has reduced the customer-retention burden.

PAY-AS-YOU-DRIVE PREMIUMS

Can you imagine paying your car insurance premium based on how much and how well you drive? Well, it is a distinct possibility with Tata AIG's telematics solution.

The solution called 'Auto Safe' is a GPS-

enabled chip on a device that is installed in your car. It measures the distance you travel in a year; your driving style, including braking and acceleration rates; and more. At present, the product — Usage Based Insurance (UBI) Private Car Policy — is sold through select agents in Ahmedabad, Pune, Mumbai and Delhi for limited car models. The chip, installed by a trained agent, provides an insight into your driving style on the accompanying mobile app and device.

"In the next phase," says Navneet Bhatt, vice president & head – Auto & Actuarial Analytics, "Tata AIG is working on more advanced features that calculate the premium pricing based on your driving behaviour and prices the renewal premium accordingly."

Launched in June 2020, under the Insurance Regulatory and Development Authority of India's (IRDAI) regulatory sandbox, the flexible package — as against the conventional year-long policies — enables policy holders to choose between slabs based on distance travelled. Going ahead, Tata AIG intends to launch few more products under IRDAI's regulatory sandbox.

HASSLE-FREE INSPECTIONS

In the general insurance segment, a risk engineer inspects the business facility of a prospect or existing customer for risk assessment purposes. For this, the engineer often has to travel to remote locations, where most factories are located, to conduct inspections and enable underwriters to provide a premium quote to the customer.

Time, however, will not expand to meet the needs of a growing market. Besides, experienced risk engineers can only do a finite number of assessments in a given timeframe because the job often involves extensive travelling.

Sudhir Khare, who heads the Property and Energy vertical for Tata AIG, narrates the story of a newly commissioned chemical plant at Dahej in Gujarat, India, which had to be assessed during the lockdown. Instead of travelling to Dahej, Tata AIG's risk engineer worked from home and used a mobile app exclusively developed for digital inspection, to capture visuals from the factory site, feed in critical data, and record conversations with onsite engineers and managers.

"In less than 24 hours, we were able to close the business and receive the premium cheque. Such instances reinforce our belief in the potential of digital innovations. In the longer term, this will create an impact on several aspects — costs, turnaround time, transparency, and efficiency," says Mr Khare.

The mobile app not only captures photos and videos, but also generates customised reports which can be shared immediately with the customer. To reduce the possibility of fraud, the app has built-in geo-location tagging which ensures that the data captured is from the desired location. All data is stored on the cloud. If a claim arises due to fire or any other accident, Tata AIG can access the information instantly to better evaluate the claim. The data also serves as a knowledge repository, which is useful for 'training' the AI models.

To implement the solution Tata AIG followed an agile process, where weekly releases were tested with the field teams even as they were being developed. This helped users a great deal in making the solution really easy-to-use with minimal guidance.

Tata AIG now is looking at making this solution available to agents, brokers and other third parties in their ecosystem, as well as to customers who might like to do a self-assessment before renewal.

As the insurance industry continues to evolve at a rapid pace, Tata AIG's investments in leveraging data and artificial intelligence to drive smarter business decisions will place it ahead of the curve. As the insurance industry pivots, Tata AIG aims to be ready not only to capture opportunities but also to lead with industry-first solutions. TR

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TATA INNOVISTA
Celebrating Innovation 2020

On September 11, 2020, innovators and senior leaders across the group joined the first virtual Tata Innovista event to recognise the best innovations in 9 award categories. *Tata Review* congratulates all the winners.

And the winners are...

Sustainability Impact Innovations

Football Story of Jamshedpur Football Club

Tata Steel


Chanakya Chaudhary


Mukul Choudhari


Ashish Kumar


Atul Kumar


Jal Sonpal


Prashant Godbole

Dare to Try

SISME: A Complete Solar-power Solution for Homes

Tata Steel & Tata Power Solar


Rohit Roy


Ajith Shetty


Narasimhamurthy SV


T K Rout


Puja

Piloted Technologies

Innovative Module Design to Improve EV Costs

Tata Motors European Technical Centre & Jaguar Land Rover


David Hudson


Graham Gest


Graham Cowles


Paul Haney

Coke from Non-coking coal

Tata Steel


Uttam Singh


Debjani Nag


Abhishek Kumar


Ajinkya Meshram


Pratik Swarup Dash


Sudhanshu Kumar

Improved 22kt Hard Gold Alloy

Titan Company


Sanjay Ranawade


P Radhamanalan


Arun Brakash S


Manthira-moorthi S


Munisamy P


Ravichandran S

Design Honour

DigiOMR powered by TCS iON Paper

Tata Consultancy Services


Ramaswamy Venguswamy


Viral Shah


Arun Brakash S


Giscard Ferrao


Sachin Naik


Shobhit Shukla

Impact Design 2.0 - ALFA Arc

Tata Motors


Pratap Bose


Ajay Sharma


Anupam Shukla


Graham Wadsworth


Tony Hunter

Core Process Innovations

Digital Hand for Hot Metal Temperature Measurement

Tata Steel


Uttam Singh


Ramdasu Bhaskar


Ashish Agrawal


Ayush Mishra


Basant Singh


Dhiren Patnaik

Machine Learning for Sticker Breakout Prevention

Tata Steel & Tata iQ


Sudhansu Pathak


Ranjay Kumar Singh


Aditya Nema


Akshay Khullar


Satrajit Kar

New Product & Service Innovations

TCS IP-led Customer Journey Solution TwinX

Tata Consultancy Services


Rajesh Purwar


Jasjit Singh


Kaustav Bhattacharya


Senthilvelan Natarajan


Usha Suresh

Premium Tough Modular Platform – Tata Intra

Tata Motors


Aniruddha Kulkarni


Prashant Thakare


Anand Dungarwal


Chetan Chawadimani


Ravindra Deshmukh

Ultra-light Laser Cut Tube Jewellery

Titan Company


Revathi Kant


Abhishek Rastogi


Karthikeyan K


Naresh S


Pooja Kabra


Saloni Kaushik

Business Support Innovations

New Product Sustainability Assessment Profile

Tata Steel (Europe)


Heather Wijdekop


Nick Coleman

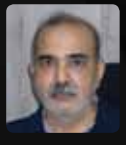

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Providing **rightful access**

The Tata Trusts has been striving for the cause of migrants since 2006, and its technology portal is now boosting the efficacy of its efforts

BY CYNTHIA RODRIGUES

If there is anyone who unwittingly became the face of the coronavirus pandemic in India, it was the poor Indian migrant who epitomised the worst of hardships suffered. Who can forget the sight of migrants — whole families, carrying their meagre belongings and their kids on their shoulders — trudging long miles on foot or using whatever means of transport they could afford to return to their villages?

Their sufferings forced the entire nation to acknowledge the predicament of lakhs of people whose value has been undermined even as their labour kept the economy running smoothly.

In the aftermath of the lockdown, teams from the Tata Trusts made a number of calls to migrants in two states, in an effort to alleviate their misery and give them information about health and benefits that the government announced after the lockdown.

RAISING CONCERNS

Shikha Srivastava, head – Migration and Urban Habitat, Tata Trusts, says, "The Tata Trusts has been working on the migration portfolio since 2006. We started with an exploratory study to understand the issues that unskilled and semi-skilled migrants working in the unorganised sectors face. We were one of the first organisations to raise their concerns at different forums."



TCS partnered with Tata Trusts to create the Migration portal

The Trusts set up 100 Apna Seva Kendras (support centres) in three high-migration source states — Rajasthan, Uttar Pradesh (UP) and Odisha; and three destination states, where the migrants work — Gujarat, Maharashtra and Telangana.

When potential migrants walk into a centre, they are met by the contact persons who interact with them and draw up the family profile. These people ascertain the schemes the migrants are eligible for, the schemes they have applied for, and the documents they possess. They help migrants by filling out online applications for documents required. They also follow up to ensure the benefits reach the migrants. The highlight of this outreach is that the contact persons speak to the migrants in their own language, exuding patience and the willingness to listen.

BIRTH OF THE PORTAL

Over the last decade and more, the forms were filled manually. About 18 months ago, the Trusts sought to streamline the system. Tata Consultancy Services (TCS) stepped in, customising its 360 platform to create a migration technology portal that offers a database of all migrants and links them to benefits from various states. TCS did the work pro bono.

One of the portal's key offerings involves the matching of migrants with benefits and schemes that they may be entitled to. The portal provides a dashboard for each kendra, showing how many people have applied for the various schemes and how many schemes have been availed.

Ms Shikha says, "We support migrants by linking them to entitlements and government schemes, helping with financial inclusion and legal counselling and, to an extent, by connecting them to skilling or non-farm-based livelihood opportunities."

The portal proved its worth in Rajasthan and UP, where it was first put to work. "The portal helps us collect data about beneficiaries.



COVID RESPONSE

As part of its Covid-19 response, the Trusts plans to extend the scope of work on the portal to cover Jharkhand, Chhattisgarh and Madhya Pradesh over the next six months.

STATUS REPORT

Total number of beneficiaries through the portal:
1,86,183

Total number of service scheme linkages offered:
74

Beneficiaries benefitted:
11,07,000 in UP
2,34,000 in Rajasthan
3,29,935 in Odisha

It profiles the migrant and his household and suggests schemes they can avail of," she adds. For example, construction workers are eligible for about 20 schemes under the Building Construction Workers Welfare Board. Elderly persons receive an old-age pension.

The portal streamlines the process of application for schemes and documents, and tracks application status. Once the benefits arrive, it maintains a record on the system. If the application is rejected, it flags the missing documents.

IMPROVED WORKING CONDITIONS

The Trusts is now working at a deeper level with the industries that employ the largest number of seasonal and vulnerable migrants, to bring about systemic improvements in their lives. Says Ms Shikha, "We work with the construction and brick kiln industries, where migrants often find themselves living and working in very exploitative conditions. At brick kilns, the condition is compounded by the fact that migrants move with their families, including very small children. So we try to set up day-care centres and early childhood care and learning centres."

The Trusts' first working experience with Tata Realty offers a striking example of how the best intentions combined with good action can transform the lives of migrants for the better. At Tata Realty's construction site in Thane, near Mumbai, the Trusts' team worked onsite, using the portal to link the migrant labourers to entitlements.

Buoyed by the success of this experience, the Trusts will be organising similar activities at other construction sites of Tata Realty. Going forward, the Trusts will provide the Tata Realty team guidance on handling the liaison activity themselves.

CREATING SCALE

The portal has helped the Trusts reach out to more people efficiently. With a view to scaling up the programme, the Trusts worked out different models in each state to make the Apna Seva Kendras more self-reliant. The earlier model involved working with non-governmental organisations (NGOs) that received grants.

The Rajasthan model was set up in partnership with an NGO. In UP, the Trusts initiated local youth as entrepreneurs and trained them to manage the kendras and work with migrants. In Odisha, the model worked closely with the state government's Labour department; the kendras were set up in gram panchayats.

Of the 100 kendras functioning in all, about 30 are connected to the portal. The kendras in Odisha are linked to the government system. They are not currently connected to the Trusts' portal.

NEED FOR CHANGE

One of the greatest advantages of the technology portal is that it enables the kendras to maintain a family profile of migrants and track the benefits they have received and those they need to receive. The need for accurate information is crucial. "When you have the right data, you can plan better," states Ms Shikha, adding, "the figures provided by successive censuses made no demarcation between those who moved across cities for work and those who were socio-economically backward and in need of aid."

"Even when migrants move from one district to another within the same state, they lose access to the subsidised public distribution system. They are forced to buy food at market rates, which takes up a major chunk of their meagre income," says Ms Shikha, adding, "The 'One Nation, One Ration Card' scheme aims to ensure the delivery of food security entitlements to beneficiaries in all the states and union territories but this plan is still in its infancy. In fact, all schemes need to be portable so that migrants can take advantage of them, no matter which part of the country they are living in."

MILES TO GO

The pandemic has brought into focus the inequalities under which migrants and their families labour. "The rural economy cannot support migrants, and they will have to return to work. When they do, we hope it will be to improved social security measures and better housing and working conditions. It's a long journey towards that goal, and the Tata Trusts is up to the challenge," she adds. TR

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Empowering **superwomen**

Tata Power's online marketplace, SaheliWorld, enables vulnerable communities to become self-reliant in these difficult times

BY CYNTHIA RODRIGUES



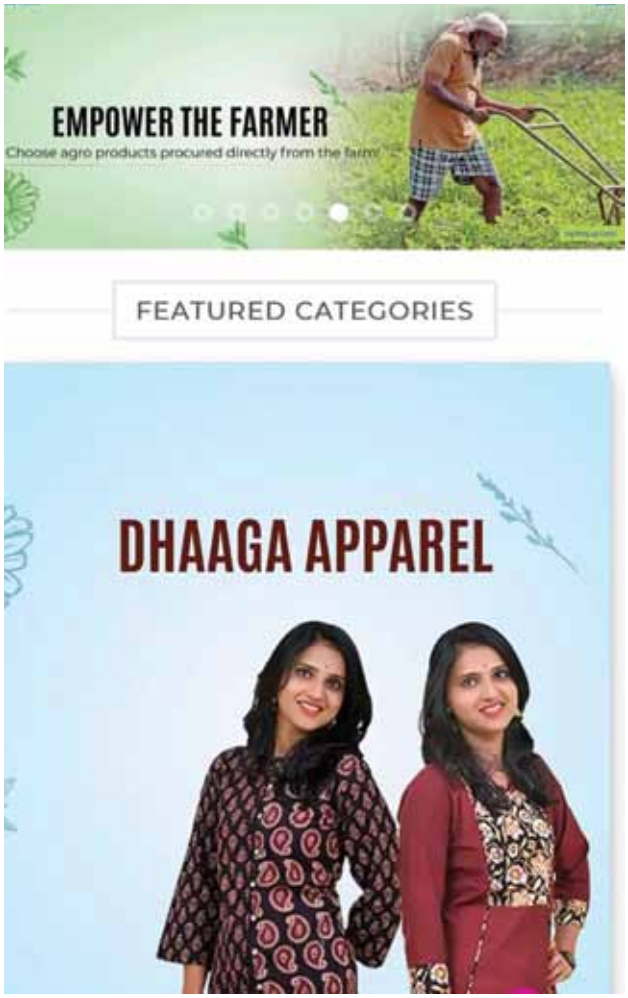
For the 14,325 members of women's self-help groups (SHGs) and 12,736 farmers who are registered sellers on the Tata Power-promoted e-commerce site, SaheliWorld.org, Tata Power has been a true friend and a morale booster.

Providing skilled women and industrious farmers the right platform to sell their wares and farm produce, Tata Power has not only ensured employability but also provided the means to earn their livelihood in this pandemic-induced uncertain times.

LOCKDOWN RESTRICTIONS

"The lockdown was a catalyser in setting up of SaheliWorld.org. With strict restrictions in place, members of our women SHGs found it increasingly difficult to sell their products and earn a living," says Shalini Singh, chief, Corporate Communications and Sustainability, Tata Power, adding, "We therefore pushed for an online marketplace to help our communities as well as the buyers who were unable to step out to shop."

The outcome of this pressing urgency saw SaheliWorld.org go live within three weeks of the idea being presented. "The advantage of having your own e-commerce site is that you can put any of your products up for sale; we are selling Covid





essentials like gloves, handmade cotton masks for adults and kids, as well as apparel, herbal products and even farm produce," says Ms Singh.

GOING TO MARKET

"We received a quick approval for our payment gateway and streamlined all the other formalities. From our earlier experience with Amazon Saheli, we had gleaned a lot of insights which proved useful in planning and launching SaheliWorld," states Ms Singh, adding, "An e-commerce setup cannot be run without a delivery partner. On purchasing a product, customers receive an email invoice, informing them about the delivery timeline."

Our SHGs are all registered vendors with their own GST numbers. Once the products are sold, their earnings are directly remitted to their bank accounts. The platform is monitored and managed by Tata Power and its partner vendors.

It's still early days for SaheliWorld, and Tata Power is taking it slow and steady. "We have a focused and curated approach. We do not want to spread ourselves too thin by deliberately increasing our portfolio in an attempt to compete with big e-commerce players. Our goal is to provide livelihood and a fixed monthly income to our sellers," notes Ms Singh.

SPREADING THEIR WINGS

SaheliWorld has seen repeat customers to the tune of 25 percent. While Dhaaga products have been bestsellers, herbal products are also flying off the virtual shelves. The bulk of the sales and eyeballs come from India, but the site has had viewership from abroad too. We intend to do a web traffic analysis for our site to understand and improve the target customer reach.

We also plan to introduce innovative and seasonal products like umbrellas painted with *Warli* art (a style of tribal art), handmade *rakhis* (embellished, colourful threads) and other items

SHOPPING CART

Vendor base:
14,325 SHG members
12,736 farmers

Total sales:
₹13,562 in 40 days

Number of masks sold:
6.9 lakh (through SaheliWorld.org and direct orders)





Through SaheliWorld, Tata Power is living up to its commitment to help communities and lives

to keep buyers' interest high. For the seasonal products, introduced by the SHGs, two designers curate the collections, source the material and suggest designs for the artists to work with.

ONLINE LEARNING

The designers also provide online training to Dhaaga artists to widen and enhance their product range. Recently, some women members received training in creating beaded and embroidered jewellery.

"The women are talented and eager to learn; besides, regular training has honed their skills. All they needed was someone to help them with the market linkages. That's where SaheliWorld stepped in. We built and strengthened the back-end and enabled them to take their products to market. Today, the women are well attuned to the demands posed by cycle times and delivery dates.

"By providing work to women artisans, skilling them, and offering the SaheliWorld platform to sell their wares, Tata Power is living up to its commitment to its communities who can work from the safety of their homes. To be able to work from home during these times is a blessing," remarks Ms Singh.

The best thing about SaheliWorld is that it has empowered its vendors. Farida Shaikh, who has been stitching fabric masks, says, "I am so glad to be working on a product not just to earn money but also to protect people." SaheliWorld has given thousands of women like her a chance to be part of something meaningful while staying safe and caring for their families. TR

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5 DECADES OF TRANSFORMATION

The origin of the Indian Information Technology (IT) industry is interwoven with the history of Tata Consultancy Services (TCS).
Established in 1968, TCS pioneered the IT industry back then and is globally the fastest growing IT services brand today.
TCS has not only helped clients transform their businesses but has also reinvented itself well ahead of every technology wave over the past 50 years.

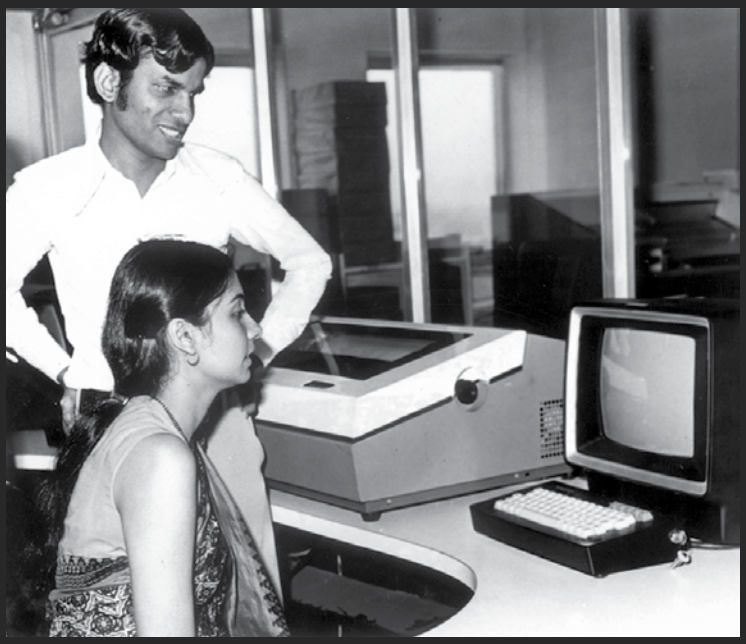
This photo feature brings together the journey from the 3rd industrial revolution to the 4th industrial revolution unfolding amidst us, from the lens of one of our own, TCS.

1968–1978

When Tata Computer Centre – a shared utility space set up in 1966 at Nirmal Building, Nariman Point, to address the computing needs of group companies – went under-utilised, the leadership at Bombay House decided to remodel it as Tata Consultancy Services (TCS).

Text by: **Tejal Pandey**
Design by: **Jude Rodrigues**
Photo courtesy:
Tata Consultancy Services Archives

1972 was equally significant. It marked the start of TCS' partnership with Burroughs to distribute and support Burroughs products in India and to build software for export to various Burroughs units and clients across the world. The Hospital Accounting system conversion from a Burroughs Medium Systems COBOL to a Burroughs Small Systems COBOL – which the TCS team managed without a Burroughs computer, using a filter in assembly language on their ICL 1903 to parse the source code – was historic for being the first recorded instance of an offshore software delivery, done using automation, 45 years ago.





The next noteworthy achievement came in **1974** when S Mahalingam, then a young chartered accountant who was part of a six-member team of coders based in Mumbai (then Bombay) with two members onsite, wrote specifications for a financial accounting software package for Burroughs computers, which was sold to a couple of building societies in the UK – it was TCS' first-ever project involving the complete software development lifecycle.

By **1976,** TCS had crossed over $1 million in export revenues, winning the top exporter award from the Engineering Export Promotion Council, 1976-77.



THEN UNION MINISTER FOR COMMERCE MOHAN DHARIA (RIGHT) PRESENTS THE TOP AWARD OF THE ENGINEERING EXPORTS PROMOTION COUNCIL TO FC KOHLI

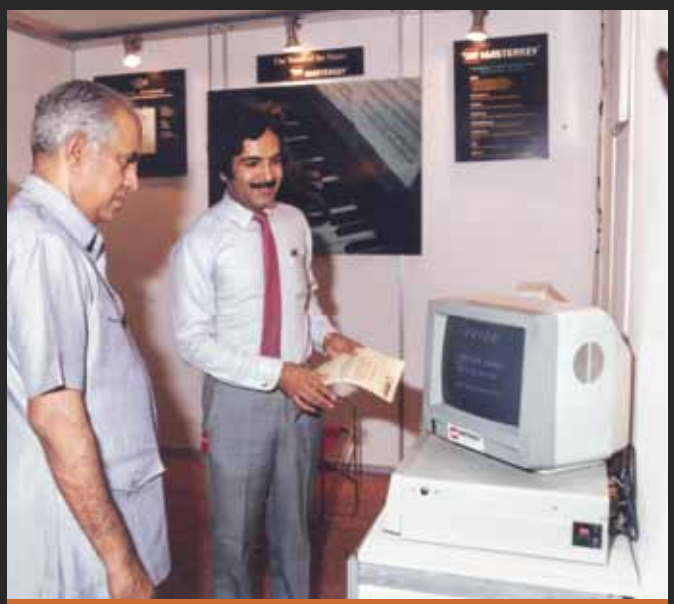
1979–1988

The next decade saw TCS evolve rapidly. From setting up its first overseas sales office in New York in 1979, headed by S Ramadorai, to bagging their first and largest offshore project out of the Delhi office for Swiss National Bank (SNB). The project teams realised the value of meticulous planning to meet deadlines with precision and emphasis on quality.

The scale and complexity of creating an end-to-end advanced system to manage customer relationships for Western Trust and Savings Limited (WTSL) in **1981,** which involved 135-person-years' effort, gave TCS an in-depth knowledge of the retail banking sector, the know-how to execute large projects and mastery over IBM mainframe technology.



Between **1982-88,** TCS saw an explosion of new technological inventions. These included the Advanced Data Dictionary (ADDICT), a global repository of project information with a vast and advanced nomenclature, giving users a holistic view of a project; the Falcon (Fast Access Local Computer Network), the first fault-tolerant, multi-user, multitasking Windows-type capability; and Casepac, a computer-aided software engineering tool for IBM mainframes.



THEN SECRETARY, DEPARTMENT OF ELECTRONICS, GOVERNMENT OF INDIA, DR KPP NAMBIAR, AT TCS DELHI DURING THE PRISM DEMO

By **1987,** the IBM mainframe Centre of Excellence was set up in Chennai (then Madras) with the installation of the imported IBM 3090 mainframe, making it the largest mainframe site in India for several years; thereby opening up IBM mainframe business opportunities for TCS.



The creation of the Tata Research Development and Design Centre (TRDDC) in **1981** at Pune, envisioned by FC Kohli, was the paradigm shift in what became TCS' trademark focus on computer aided software engineering – a structured, tool-driven approach to software development using process automation.

1989–1998

This decade saw some major shifts, with TCS winning and successfully delivering large deals that catapulted it on the global map. It also marked a change in leadership with the founding CEO handing over the baton to the next generation of leaders.

1989 started with TCS signing a $10 million deal with the Swiss Securities Clearing Corporation (SEGA) to design, build, and implement the world's first real-time domestic and cross-border securities clearing and settlement system.



THE SIGNING OF THE SEGA DEAL MARKED TCS' ENTRY ON THE GLOBAL STAGE, COMPETING WITH A SELECT SET OF LARGE CONSULTING FIRMS FOR EXECUTING LARGE, COMPLEX PROGRAMS INVOLVING DEEP DOMAIN EXPERTISE



1996 saw FC Kohli stepping down from his executive role, after being at the helm for 22 years, and S Ramadorai taking over as CEO.



TCS Ambattur, the first of its kind software factory, resolved the Y2K bug by remediating about 700 million lines of code, by leveraging special, automated tools developed for the Y2K conversion.

1999–2009

The core of the Global Network Delivery Model™ (GNDM™) – across 140 centres in 19 countries – was formed in the early 2000s. The global e-business development facility saw TCS' business expand exponentially in India and overseas with operations in China, Uruguay, Hungary and several centres across the USA.



Having signed its first $100 million deal with GE Medical Systems, the largest single contract ever won by an Indian software services company till then, TCS crossed $1 billion mark in annual revenue a year later in **2003.** Then CEO S Ramadorai formally unveiled the vision statement, 'Top 10 by 2010', a goal achieved in 2009 with TCS ranking among the top 10 global IT service-providers in terms of revenue, profitability, number of people, and market capitalisation.

2004 saw TCS debut at the National Stock Exchange (NSE) and Bombay Stock Exchange with an initial public offering (IPO), termed the largest in India at the time by a private sector company.



THEN CHAIRMAN RATAN TATA (NOW CHAIRMAN EMERITUS), FLANKED BY CEO S RAMADORAI AND EVP PHIROZ VANDREVALA, TAPS A KEY TO LIST TCS ON THE NSE AFTER A BLOCKBUSTER IPO



In **2009,** TCS reorganised itself into a customer-centric agile structure, with each vertical owning its own P&L. In the same year, N Chandrasekaran (Chandra) took over as CEO & MD, succeeding S Ramadorai who led TCS for 13 successful years.

2010–2020

TCS bagged large projects like the Citigroup project and the ₹10 billion Passport Automation project of the External Affairs Ministry, Government of India. Putting N Chandra's 'Default is Digital' term into practice, TCS drew up a Digital Reimagination framework to help enterprises become smarter and deliver a superior customer experience. To reskill its workforce at scale, the company launched the Digital Learning platform that offers multi-layered and multi-device learning formats. This decade also saw cloud platforms crossing the $100 million revenue mark. In February 2017, the then CFO Rajesh Gopinathan, now CEO & MD, TCS, took over the reins from N Chandrasekaran who was appointed as the Chairman of the Tata Group.

Crossing $10 billion in revenue next, TCS went on to acquire French IT services firm ALTI SA, one of the top five package implementers in France; and in **2014**, Mitsubishi Corporation's IT arm in Japan followed by Saudi Arabia's first all-women BPO centre in Riyadh.





RAJESH GOPINATHAN, CEO & MD, TCS (3RD FROM LEFT), AT THE LAUNCH OF THE TCS PACE PORT™ NEW YORK, A NEW CO-INNOVATION, CO-CREATION AND ADVANCED RESEARCH CENTRE ON THE CORNELL TECH CAMPUS, IN JUNE 2019

Business 4.0™ is the wave of digitally-enabled change breaking over organisations across the world. This new-age transformation paradigm, developed by TCS as a thought leadership framework in **2017,** identifies four critical business behaviours – mass personalisation, creating exponential value, leveraging ecosystems, and embracing risk built on the mindset of harnessing abundance. Using the four technology pillars: cloud, intelligence, agile and automation, companies can grow, sustain and adapt on a large scale in a future-ready manner.

TCS **today** is voted globally as the fastest growing IT services brand of the decade. It is not only one of the best companies to work for, fostering a culture of gender and geographic diversity, but also the first IT firm to top the $100 billion market capital.

Even in the face of unforeseen and unprecedented events, like the ongoing Covid-19 pandemic, Business 4.0™ organisations like TCS which are purpose-led, resilient and adaptable are best placed to recast themselves successfully for the post-pandemic world.



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Privacy in the times of **hyper-personalisation**

Businesses should leverage data privacy, protection and assurance as a competitive advantage in their digital transformation journey

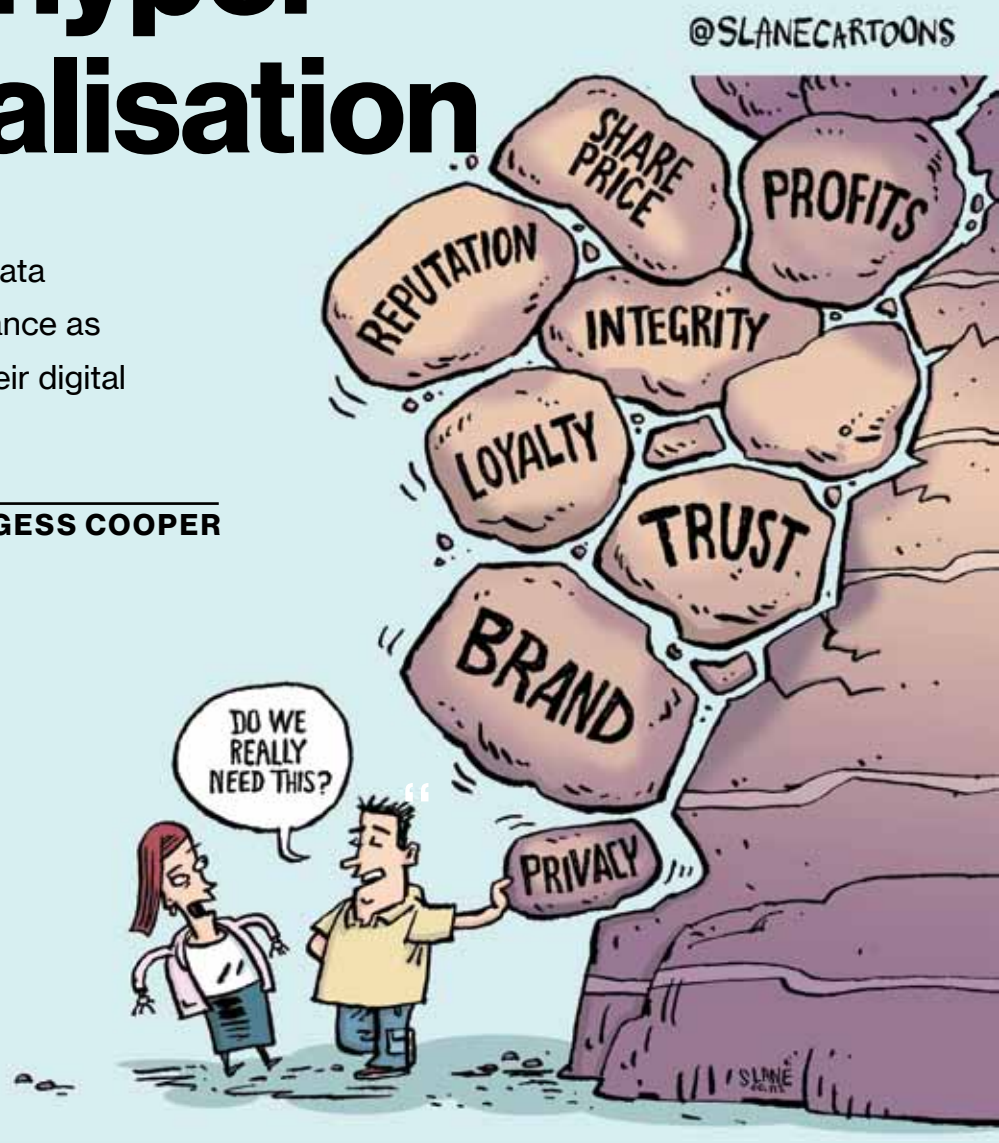
BY SHIBASHISH ROY & BURGESS COOPER



Shibashish Roy *is assistant vice president, Group Digital, Tata Sons*



Burgess Cooper *is partner, Consulting Services, Ernst & Young*



"All human beings have three lives: public, private, and secret."
– Gabriel García Márquez

Human beings are social animals, and we are wired to share our lives with other humans. As we evolved, so did our ways to share data from recitals to the printed book. With the advent of computing in the late 19th century, our rate of generating and analysing data went up with a focus on productivity.

PAST DECADE – A GAME CHANGER

The past decade has seen an exponential growth in the volume of data generated, especially user-generated data.

Any transaction, click, cursor hovering on the screen, device type or for that matter any digital action generates a 'data exhaust' which is leveraged to know more about the consumer. When used properly, the consumer enjoys an exciting brand experience with on-the-ball item recommendations, single click checkouts, customised look and feel on web pages and many other features to make them feel like the centre of this universe.

In more recent years, society has also seen the dark side to this phenomenon. From the Equifax crisis to Cambridge Analytica, significant concerns exist around definition of private data, usage of data by businesses, security of the user data and many others. In a recent research, it was identified that 41% of consumers don't believe that companies care about the security of their data and 73% of the consumers said trust in companies matters more than it did a year ago. The challenge is both around complexity of the problem and devising a simple, understandable solution for all of us.

Given this background, governments are drafting data privacy regulations to safeguard

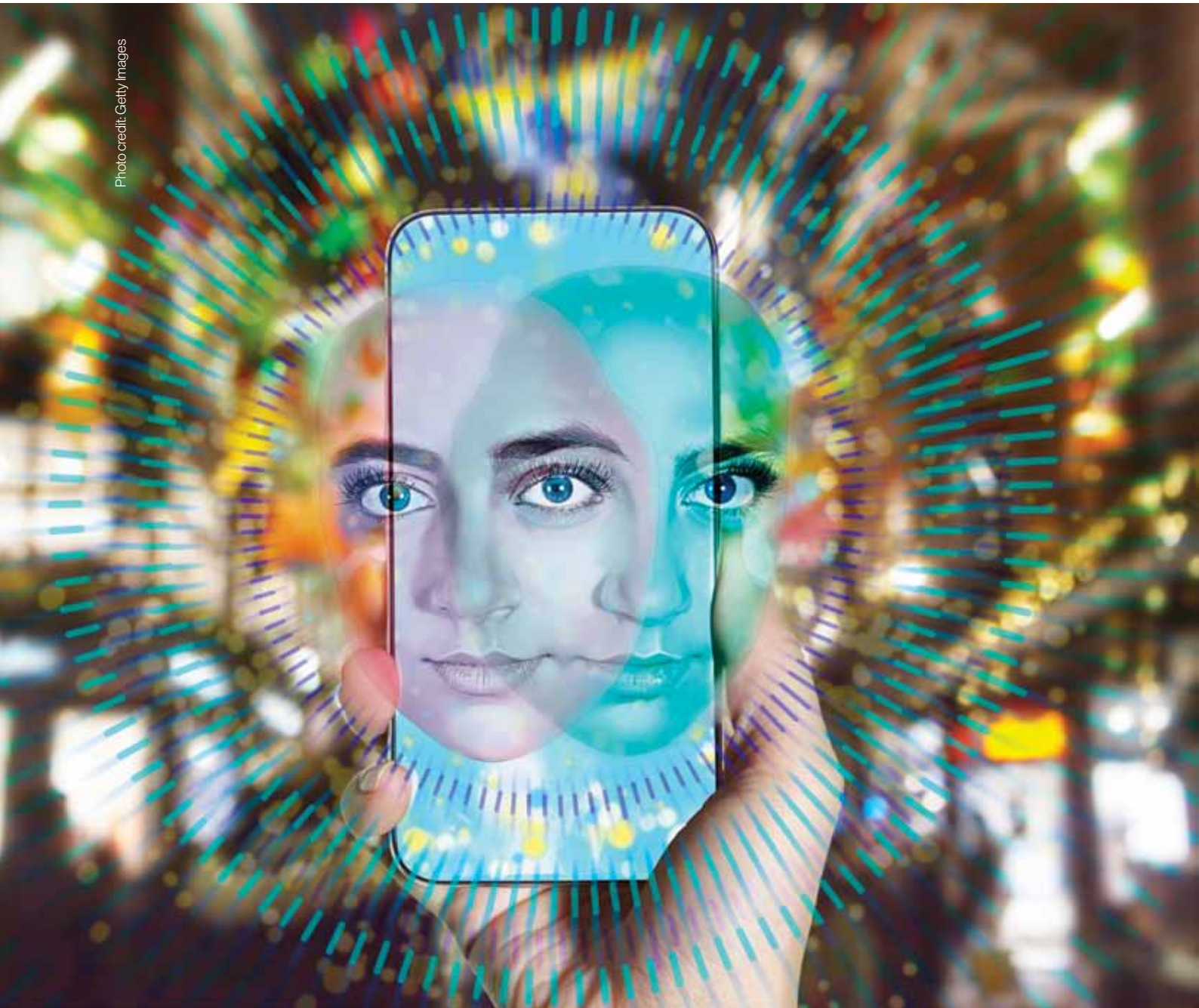


Photo credit: Getty Images

the interest of their citizens. These regulations empower consumers to take ownership of their data and how it can be used. For the millennials and Gen Z, where digital is default and privacy is a fundamental right, trust in a brand is expanding to include how they manage and leverage personal data. According to a benchmark study, 97% of companies recognised they were realising benefits such as competitive advantage or investor appeal from their privacy investments (~$1.2 million per company annually).

However, when new data privacy regulations were implemented, it seemed like the future of data privacy was just to receive privacy notices until the inbox fills up. While the businesses are balancing between compliance and experience, they face a ticking time bomb for implementing the privacy regulations in parallel. These regulations have checks on companies, but their focus is not to curb business. Their goal is to keep everyone honest about their obligations and rights. For data privacy implementations to be successful, the focus should be on building a robust and modular approach which should evolve as the implementation progresses to take care of new scenarios, laws, etc.

WHAT NEXT?

The Tata brands have always been blessed to enjoy the trust of Indian consumers. As we reimagine experiences for the digital consumers, we should leverage data privacy, protection and assurance as a competitive advantage. At the core of it, we should respect privacy as a fundamental right. Here is a set of seven easy-to-follow tenets to get us started.

1. You shall not be greedy: Ask as much data as you need, not as much data as you can get. Why ask for the hobbies when all the consumer wants is to order a burger?

2. Think before acting: As we build experiences, brands should look to incorporate privacy in the design itself and build robust consent mechanisms. These should be incorporated while building systems and not 'layered'.

3. Glass houses are best: Adopt simple mechanisms to share the purpose of data collection with the consumer. Inform the consumers in a simple and truthful manner and be rewarded with their trust. Communicate often to convey the changes simply.

4. Build deeper connects: Businesses will need to build tie-ups, leverage data and deliver unique experiences to engage the consumer. While digital business ecosystems will be natural winners, businesses will need to exercise caution about who they partner with and have effective data sharing norms.

5. In god we trust, but still deploy the aircraft carrier: As businesses acquire more data, it becomes a fiduciary duty to protect it. Businesses will need to build enough cybersecurity measures to protect systems and data and, more importantly, the consumer.

6. Enjoy a data detox: Brands should periodically evaluate the data elements which are stored. If not being used and/or not needed from a regulatory perspective, it may be best to do a clean up to reduce risk exposure.

7. You shall not covet: Each business will have different paths to reach the holy grail of happy consumer, happy regulator and happy shareholders. What works for a business is purely dependent on its business model.

In summary, if our businesses process only the data they should, make the right asks of teams, be transparent, and carry their share of the responsibility with honour and not mere compliance, we will not only build 'privacy' into the DNA of our businesses but also put our brands into the baskets of the growing digital generation. TR

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Winning in the era of **intelligence**

The question is no longer “should we” but “how do we” adopt analytics in our businesses

BY VIJAYA DEEPTI

Analytics today is where technology was a few decades ago. While technology has shaped new business models and transformed the way of doing business, analytics has the power to lead us into new ways of working. We are at an inflection point where analytics will transform our businesses. Maturity models, assessments and diagnostics unravel the current state and help identify future potential.

SO DO CONVERSATIONS!

“Analytics is a dark art” is how a loyalty head explained the solution to the chief marketing officer (CMO). A few months later, he was showing the CMO how a ‘k-means clustering’ algorithm unearthed micro-segments of customers exhibiting similar behaviours across a hundred attributes!

Such conversations validate that the question is not “should we” but “how do we” adopt analytics to change the way we work and impact business?

SOLVING THE HITHERTO UNSOLVED

It has been proven that analytics helps identify hidden process variations over time and is used to model behaviours and actions of users and consumers.

A company was faced with the challenge of identifying a fault in the product of a manufacturing process. While the existing solution was able to predict all instances of faults, there were too many instances of false alarms. Using analytics reduced false alarms by 75 percent. This demonstrates



Vijaya Deepti *is the CEO of Tata Insights and Quants (Tata iQ), a division of Tata Industries Ltd*

the impact of analytics in a manufacturing setup.

In this case, the team looked beyond the obvious data. For example, they looked at not only the slope of temperature change but also the relationship of the temperature with neighboring points. The journey doesn't stop at 75 percent, and the model is being continuously fine-tuned to improve effectiveness.

However, this journey is iterative and requires a never-say-die attitude to achieve the desired outcomes.

DRIVING VALUE

Develop a portfolio mindset: Consider analytics investments as a portfolio of opportunities in the way a venture capitalist would. Most may give steady returns, some may fail while some may give a big payday.

Look beyond the obvious: Value may be found in areas not earlier identified; hence it is imperative to measure value more holistically. Consider a solution built for reducing logistics cost from the plant-to-distribution-centres, but during implementation future stock-outs were also identified as value levers.

Quantification beyond financial: The focus for most enterprises starts with leveraging analytics to drive financial impact. With increased adoption, analytics can be deployed for an 'all pervasive' approach across the enterprise, as processes do not operate in isolation.

Stitching solutions with ecosystem partners: It is a repeated refrain that "We have not found a partner yet that has all the skillsets needed to deliver this solution for us." Companies today have realised the importance of ecosystem partners with varied capabilities to develop analytics solutions.

While companies are leveraging market research and category penetration reports, a wealth of data such as macroeconomic indicators, commodity prices, etc, is available to draw inferences from it. These data sources find applications across industries and problems, and data aggregators can be an integral part of the ecosystem.

EMBRACING ANALYTICS AS ONE'S CULTURE

Enterprises have seen the value analytics brings to their core operations.

Having a data strategy goes a long way in ensuring that analytics is effectively leveraged. Analytics models are truly useful when they leverage internal and external data and its integration into the existing systems and processes.

Successful cultural transformation requires:

Leadership commitment: An enterprise-wide focus with the direct involvement of the CEO helps set the right tone. In many companies, senior business leaders are championing analytics initiatives.

Enabling structure: Building enabling structures such as centralised and decentralised teams, digital champions for each unit or function, and setting up an analytics Centre of Excellence.

Capability building: Invest in building newer capabilities in-house with support from partners.

ANALYTICS IS CENTRAL TO OUR DIGITAL FUTURE

Tata group companies have embarked on this journey and have made the right foundational investments in talent, organisational structures and technology. Sustained leadership commitment and engagement will be a key enabler in making this happen.

Our group culture of innovation and disruption, is accelerating this shift to embedding analytics into every aspect of doing business. The rate of change in digital has been unprecedented, and analytics is no different. But surely, analytics will be intrinsic to the digital transformation of every enterprise. TR

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The **golden age** of **design**

Digital Design is becoming the catalyst for creating differentiated products that factor in global socio-environmental concerns

BY FABIAN BIRGFELD

Digital design seems to have become the magic bullet that brings customer delight and operational efficiencies to new and existing business ventures. It therefore begs the obvious question: how?

HISTORY OF DESIGN

To begin with, there is no need to reinvent the wheel, as design is not a new concept. It emerged as a discipline at the beginning of the industrial revolution in the early 18th century. As technology replaced human labour, designers along with engineers developed machines and production flows to execute specific tasks as efficiently as possible. But technology also began to change how people interacted with one another, which created the desire for symbols and icons — brands — that would provide purpose and unite people. One of the most iconic brands of this era was the German electricity company, AEG. In the early 20th century its executive creative director and architect, Peter Behrens, developed what is arguably the first comprehensive design language, defining all aspects of how the brand interacted with the customer.

Over the past 100+ years technology has radically changed with the digital replacing the analogue, but the design mandate remains unchanged. Today data analytics drives the fourth industrial revolution. Our mobile devices keep track of where we are, our online shopping history reveals our preferences, and our social graph informs how we engage with the world around us. The primary task of design is to translate these complex and abstract data workflows into meaningful experiences that are simple and delightful to use. Designers also need to develop brands that are omnipresent across an increasingly fragmented and ever-changing digital ecosystem of myriad screens and platforms. These are not easy tasks!

APPROACH TO DESIGN

As the co-founder of Apple Inc, Steve Jobs, said, “Design is not just what it looks like and how it feels. Design is how it works.” The challenge for designers is to find the right tools to communicate their ideas in a way that is clear, engaging and exciting. Everybody who needs to implement the design proposal such as engineering, marketing or operational divisions need to fully understand what is proposed and seek constructive feedback. Design proposals should be simulated and prototyped to be tested with real users before they are rolled out at scale.



Fabian Birgfeld *is CEO and co-founder of W12, a TCS Interactive Design Studio. He is a trusted partner in product strategy and service design for global brands*



Any corrections during or after development can be costly, even fatal. The digital economy moves fast. Timing is of the essence.

The most common pitfall in digital design is for the design process to take too long, or development to start before the key elements of the designs are firmed. The process of designing digital experiences is no different from designing physical experiences. For example, architects and digital designers both deal with large projects where many disciplines need to work together to realise something that does not yet exist. A shared vision aligns and enables the team to make it real. The construction of a high-rise does not start before the architect has designed the entire building. Otherwise it would be very likely that the building would turn into a permanent construction site.

Similarly, development of digital experiences should not start before everybody is clear of how it will work and look. Digital designers just like architects can avoid mistakes by having a project governance structure that clearly defines each team member's responsibility, informs each discipline's workstreams and deliverables, and resolves any interdependencies and de-risks costly delays with a project plan.

DESIGN WITH A VISION

Finally, design with a vision and mission. What differentiates 'good' from 'bad' design is the ability of the design to make a difference to the customer, employees and business. As the man-made world overtakes the natural one at an increasing speed, it raises the question of how to preserve a world that allows humans to be human. The mission of design therefore is to create a desirable, intelligent and sustainable world.

Designers today integrate environmental and social awareness into physical products. Automotive designers explore alternative power sources for their vehicles while augmenting, assisting and automating driving. Product designers embrace sustainable manufacturing and recycling, to minimise any adverse environmental impact.

However, in the digital world with virtual experiences, awareness of social consciousness is not so evident. While changes in the production process and recycling reduce the overall negative impact on our environment, real change and a reversal of destruction requires a fundamental shift in attitude along with significant behavioural change. That is where digital design can play a great role by becoming the catalyst for change.

HOLISTIC APPROACH TO DESIGN

As we enter the era of hyper-personalisation, a new approach is needed to go beyond the individual and to consider the whole, the collective and the context of engagement: our environment, society and culture. Universal principles define what kind of world we want to create. They provide the foundation to go beyond the status quo to create something new and better, something unique to a brand and its offering. Another prerequisite is to create consistent experiences across a digital ecosystem that is increasingly fragmented across many different screen sizes and platforms. A contextual design approach coupled with a principle-based design process creates sustainable and efficient solutions in the digital era.

Brands will have to embrace change driven by principles that people can believe in. If they do not, technology can and will create the necessary transparency for caring customers to make the right choice based on what's good for each one individually and on what's good for all of us. TR

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Experience Taj@home

Qmin food delivery app delivers your favourite specialities from IHCL's iconic restaurants at your doorstep

BY FARAH DADA

The incessant rain and the lockdown-imposed confinement that day in early August put a damper on my mood. Just when I was wondering what to do to lift my spirits that the thought 'good food is good mood' flashed through my mind. And, the next thing I knew I was downloading this app called 'Qmin' on my iPhone. Qmin — Qurated Quality Quisine — is the Indian Hotels Company Limited's (IHCL) food delivery service, offering choicest dishes from signature restaurants of the Taj to denizens in Mumbai, Delhi, Chennai, Bengaluru, Kolkata, Hyderabad, Pune, Jaipur, Lucknow and Guwahati in the comfort of their homes.

TAJ@HOME

In Mumbai, where I reside, the app opened to a well-designed page, displaying the restaurants where I could place my order. Each hotel has a well-crafted menu divided into

soups, starters, main course and desserts, and diners can select from a wide variety of gourmet delights. Alongside the lip-smacking image of each dish is mentioned its spice level, possible allergens, portion size, price, complimentary condiments, as well as *halal* and *Jain* options, making the culinary selection fairly straightforward. A star badge on the dish signifies it is the chef's favourite.



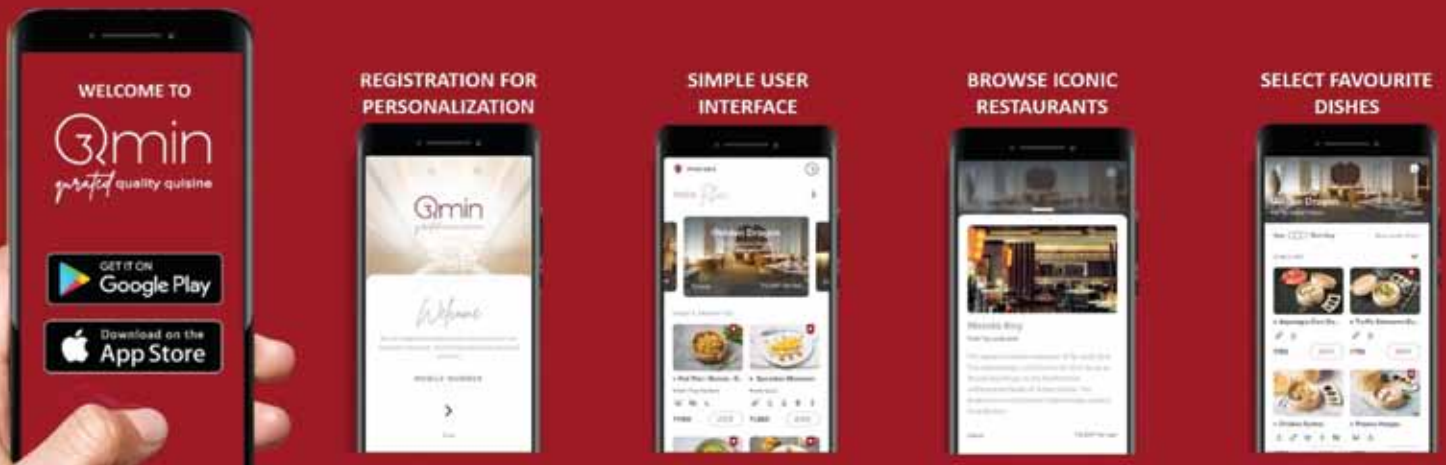
Pad Thai Gai from Thai Pavilion

EPICUREAN FEASTS

As Qmin allows you to curate a menu from multiple restaurants in a hotel, for my first order, I opted for two famous restaurants at The Taj Mahal Palace, Mumbai — the Golden Dragon, famous for its Chinese cuisine; and Souk, known for its authentic eastern Mediterranean dishes.

Qmin App experience

- Opens to a page, displaying restaurants in your city from where you can place take-out menu orders
- Select your favourite dishes, including the chef's favourites, from the signature restaurants of IHCL's Taj, SeleQtions and Vivanta brand of hotels
- Select a la carte dishes from different restaurants in a hotel
- Place a minimum order of ₹1500
- Choose a preferred delivery slot, available every half an hour, starting from 1pm to 4pm for lunch and from 8pm to 12.30am for dinner
- No packing or delivery charges
- Online payment gateway to minimise physical contact



The journey to realise Qmin

For a hospitality brand that has been the leading name in luxury for more than 150 years, Qmin marks an important milestone in IHCL's digital transformation journey. The idea to embrace digital and find a way for Tata products to reach consumers' homes during the pandemic initially came from the Chairman's office. So, when the businesses of IHCL hotels were hit due to the lockdown, IHCL's MD & CEO, Puneet Chhatwal, initiated the idea of creating a food delivery platform.

Amidst the national lockdown, the Qmin app was conceptualised, designed, developed and launched within 90 days on June 25, 2020. Developing the app from the ground up, however, involved a sharp learning curve to understand the F&B business operations, to deliver a great dining experience to food buffs and bring Taj to their homes.

The Tata Strategic Management Group created the business plan and strategy; the Group Digital team from Tata Sons built the technology for the product along with customer journeys and offerings, and Tata Digital built the tech to realise the product while IHCL created the magic in their kitchens.

Agility was key at every stage of the app-building process. For the Order Management System (OMS), the core of all delivery apps, it was decided to use an additional module of the existing restaurant management system, which contained in-built menus of the Qmin restaurants. This way around saved nearly eight weeks of product launch cycle time.

Bringing the plan to fruition, especially during Lockdown 1.0, was fraught with challenges. Several master chefs and cooks had returned home in the wake of the pandemic. The other top concerns were sourcing ingredients to prepare the dishes for a photoshoot; then arranging for a photographer and ensuring his and the hotel staff's safety, as he went photographing the 150+ dishes from one property to another. Of utmost importance was ensuring that the food delivered by Qmin met IHCL's quality, brand and safety standards.

IHCL took ownership of the full journey from cooking to packaging and delivering. The cooked food had to be packed in eco-friendly containers, retaining its quality and taste, as well as aesthetically aligning with the brand philosophy.

"A standard operating procedure was compiled to ensure that at every stage from sourcing ingredients and raw materials to food preparation and packaging, our restaurants adhered to the Food Safety and Standards Authority of India and World Health Organization guidelines. The delivery team also went through an orientation and a food handler's test to ensure every touchpoint of Qmin has a certified food handler who delivers to your doorstep safely," says Akshay Tripathi, general manager, IHCL.

The prevailing 'new normal' environment is slowly but surely placing Qmin at the heart of business with both loyal Taj customers and food lovers taking to the app for getting their favourite dishes delivered to their doorstep.

Qmin in some ways answers the question most luxury brands worldwide have been asking themselves: What does luxury mean when your customers can't come to you?

A lot, as it turns out, if only you can find a way to reach your customers and offer the experience at the tap of a screen! TR

By Abhishek Mande Bhot



A Taj gourmet meal delivered at home in eco-friendly packaging

Qmin extends IHCL's F&B offerings by leveraging a digital platform – designed and developed in collaboration with Tata Digital – to address the growing consumer demand for online gourmet food delivery services. The Qmin app is currently available in Mumbai, Delhi and Bengaluru and will soon be launched in other cities.

Features

- Is available both on Google Play Store for Android users and App Store for iOS users.
- Requires only four basic mandatory inputs: name, email ID, contact number and pin code, primarily to display restaurants within your serviceable vicinity.
- Has an elegant interface, providing a seamless user experience.

At 8pm sharp, a sanitised vehicle arrived with food parcels — *Crispy Aromatic Duck* and *dumplings* from the Golden Dragon and tangy *Moutabel* dip with *Khoubz* and *Mnaish Bi Zaatar* hot breads, *Lamb Talas Kebabi,* and *Omali,* a famous Egyptian dessert, from the Souk. The contactless delivery was done in accordance with IHCL's stringent safety and hygiene protocols. The eco-friendly packaging, using bio-degradable material and customised insulation boxes, ensured that the dishes retained their flavours, texture and taste.

PRESIDENTIAL DELIGHTS

For my next order on Qmin, I chose the President's fine dining outlets. *Som Tum* salad, *Pla Nueng Manao* and the *Pad Thai Gai* — all authentic Thai dishes — came from the Thai Pavilion while the scrumptious thin crust *Salmone Affumicato* pizza reinforced my belief in Trattoria's reputation for preparing the most inventive pizzas in town. The delicate *Neer Dosas,* wrapped in banana leaves, were the perfect accompaniment for the spicy Mangalorean *Pomfret Fish Gassi* and the tempered *Coconut Chutney* from the Konkan Café. The *Tub Tim Grab* with the alluring flavour of sweet chilled coconut milk added the perfect finale to the epicurean feast.

Going forward, IHCL plans to integrate Qmin with its loyalty programme. It also plans to launch the Gourmet Qmin Shop, offering delicatessens and artisanal foodstuff. More power to the Qmin app! TR

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Shifting gears - in life and in data

Yashwanth Kumar's *ikigai* moment with analytics has motivated him to do cutting-edge stuff at Titan

BY ESTHER CABRAL



When he tells you that riding the 'Tail of the Dragon' — America's number one motorcycle and sports car road measuring 11-mile-long with 318 curves — on a bike is on the top of his wish list, and in the next breath speaks about business analytics, machine learning (ML) and artificial intelligence (AI), you size up Yashwanth Kumar as someone who is fun-loving, loves venturing into the unknown, yet means business.

A Titan veteran, Mr Kumar has worked across varied business units in diverse functions. He joined the company as a management trainee and worked in retail, sales and as channel manager for large format stores. He then set up the Consumer Insights and Analytics function for the Watches division and now heads Analytics & Insights (A&I) at Titan Company Ltd.

IKIGAI MOMENT

"My goal at the start of my career was to explore roles and functions, before deciding on my final calling. A key reason to join Titan was to learn and grow by working in diverse roles across businesses. I eventually found my *ikigai* moment with analytics. It checks all the boxes for me — I am passionate about the field, understand it well, and I can make a positive contribution," says Mr Kumar.

An IIM-Ahmedabad alumnus, he is currently engaged in making Titan a data-and-analytics led firm. He also manages campaign delivery of loyalty programmes, besides handling capability creation for AI and ML technologies through tools and platforms.

"We have a few ongoing AI pilots, which are leveraging a cutting-edge technology called Generative Adversarial Neural Networks in the design area. For watches, our tool, Converge, helps to create innovative designs. In jewellery, we have deployed style-transfer-based models, which load the 'aesthetic' from everyday objects and apply them to jewellery pieces," he says. To drive self service capability, Titan's network analysis tool, ThirdEye, helps retail managers identify prospective store locations.

BUSINESS IMPACT

"Customer centricity undergirds business decisions at Titan. As the world turns to digital, it is imperative to embrace A&I, a critical aspect of digital, to stay competitive and relevant. In fact, a key aspect of Titan's transformation journey is embracing phygital — a seamless integration of offline and online customer experiences," says Mr Kumar. His team plays a key role in identifying the right customers using propensity modelling, creating customer segmentation models and leveraging recommendation systems to suggest the right products to customers at the right time.

The A&I team at Titan, under his guidance, has explored areas such as sales and scenario planning, demand planning, promotional planning, and sourcing. The success of initial pilots led to wide ranging adoption of forecasting to deliver significant value through inventory savings, better merchandise throughputs, and optimised promotional spending among others. Using A&I, in FY2019-20, Titan has had over 700 engagements across functions such as retail and sales, merchandising, marketing, CRM, manufacturing, finance and HR, whereby it delivered attributable revenue of over ₹1,000 crore. "We also deliver targeted, personalised campaigns through our loyalty programme. Last year, we reached out to 1.7 lakh customers by executing over 2,500 campaigns and generated around ₹800 crore incremental revenue," says Mr Kumar.

TECHNOLOGY EVANGELIST

A member of NASSCOM's Centre of Excellence for Data Science & Artificial Intelligence, Mr Kumar finds his current role as technology leader both challenging and rewarding, as he networks with specialists from academia, leading firms, vendors and partner organisations to help understand the subject from multiple perspectives and broaden his overall understanding.

"Working independently on small projects helped me get hands-on experience as well as assimilate the finer nuances of the A&I field. Of course, I had to undergo training in programming, data management, ML, etc," says Mr Kumar whose expertise has contributed to making Titan's businesses result oriented.

A&I, NOT JUST A BUZZWORD

According to him, the chief impediment in digital adoption is not having shared goals, not investing in the right people, not having a progressive culture, and heavy dependence on outsourcing. Any or even some of these factors can potentially derail the implementation process. Besides, scarce talent in the field and constant need to upgrade skills can make it more difficult. "Analytics is an evolving discipline that combines features from domains like business knowledge, computer science and mathematics. It requires continual reskilling and knowledge updating.

"In the long term, increasing demand and continual innovation will fuel demand for analytics professionals. If you think you have what it takes to become one, then research topics, learn tools, enrol in courses and try experimenting to gain the right skills and experience to make the transition," says Mr Kumar.

No wonder, top global and national firms across sectors acknowledge analytics adoption as a critical success factor. TR

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Bringing digital to Mithapur

The metamorphosis of Narasimha Kamath from an electrical engineer to a digital champion at Tata Chemicals

BY CYNTHIA RODRIGUES

Narasimha Kamath is the driving force behind the digital journey of Tata Chemicals' plant in Mithapur, Gujarat. An electrical engineer, he heads operations at the plant.

The depth of his experience and his learning mindset have made him the right person to drive the slew of digital initiatives that are set to transform the company's massive plant complex in Mithapur. Digital industrial solutions are enabling Tata Chemicals to drive improved efficiencies in its soda ash, power plant, salt and cement plant operations.

He says, "By the early 2000s, most of our operating plants at Mithapur had moved from manual operation to automated systems. Even though we had standard operating procedures in place, there were still differences in the manner of operations. We realised that there was an opportunity to improve the operations, and that the key to doing that lay in going digital."

INSPIRATION TO ACTION

What inspired Mr Kamath to embark on this digital journey was his own experience of how digital inputs could enhance a company's business excellence endeavours. He says, "At Tata Chemicals, I had been fully involved in Manthan, our business excellence programme, and in our other initiatives like Udaan and Adapt. I had learned the importance of taking analytical and informed decisions as part of learning from our failures and improving our processes. In today's era of Industry 4.0, many improvement opportunities are digital led and technology driven."

He adds, "Our COO, Sanjiv Lal, visited the GE Brilliant Factory in Pune and GE Digital in the USA and shared his learnings on how their plants were being monitored for performance from their headquarters in Atlanta. This inspired us to take up the project, Digital Way."

The initial investments in digital value assessment with Tata Consultancy Services (TCS)



Mr Kamath (right) and a colleague, participating in the International Coastal Cleanup Day at Mithapur beach

as partner helped convert the inspiration into action. "The team from TCS showed us how effective data and analytics could be in reducing variabilities and maximising efficiencies. Any errors could be checked while the process was on, saving valuable time," says Mr Kamath. After the assessment, Tata Chemicals kicked off a pilot project in three carbonating towers of the soda ash plant to showcase the benefits of digital adoption in the plant.

"Prior to this," says Mr Kamath, "our systems were automated, but we didn't have intelligent systems which could guide us on the best way to operate. The digital tools made our systems more predictable and reliable."

Following the success of the pilot, Mr Kamath and his team scaled up the digital twin for the remaining 12 carbonating towers. Similar progress was made at the power plant where digital twins are improving boiler efficiency. New use cases have been identified for the cement plants as well.

EMBEDDING DIGITAL

Mr Kamath and his team are excited about the digital transformation opportunities at Mithapur. He says, "Most of us, including our operators, joined at a time when the plants were manually operated. So when we began our digital journey, they were unsure and even sceptical about the value that digital would bring to their operations. Now that we have seen the power of data and analytics for ourselves, we are eager to unlearn our old ways and embrace new ways of working."

These initiatives have also proved to be effective in Tata Chemicals' attempt to embrace its next generation workforce who are digital natives. Young graduate engineer trainees are quick to appreciate the worth of digital technologies in improving the efficiency of operations.

Mr Kamath is now looking forward to the benefits that will accrue to the company once the digital transformation unveils its full range of possibilities. He says, "Our current pipeline of digital projects includes not just plant operations but covers the entire spectrum of our operations like safety, environment, security, supply chain, material management, and customer interface among others."

BEYOND BUSINESS

Busy as he is with ensuring that the plant complex at Mithapur leverages the power of digital to its full potential, Mr Kamath still finds time to do justice to his other responsibilities. Passionate about safety, he strives hard to ensure that the plant operations remain incident free.

He is also a part of the steering committee of the Tata Chemicals Society for Rural Development and takes a keen interest in community programmes, especially in the areas of education, affirmative action and the environment. He also engages with local farmers and local community heads for development of villages in and around Mithapur.

He says, "Off duty, I encourage others in Mithapur township to participate in sports tournaments and cultural activities. I also manage to find time for some of my hobbies like music, sports, movies and solving Sudoku puzzles."

As they say, successful digital adoption starts with business and with Mr Kamath in the driver's seat, Mithapur is well positioned to seize every new digital opportunity that comes its way. TR

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