

TATA COMMUNICATIONS



BECOME A DIGITAL-FIRST MANUFACTURER

Applying smart tech to
innovate through disruption
with Tata Communications.



DIGITAL MANUFACTURING - IT'S A NECESSITY, NOT A CHOICE

Smart manufacturers understand change is necessary. According to EY, two out of every three CEOs of large industrial companies will increase digital and technology investments this year.¹ They're doing this because competitiveness tomorrow depends on successful transformation today.

¹ Is Your Digital Strategy Fit for the Manufacturing Future?, EY

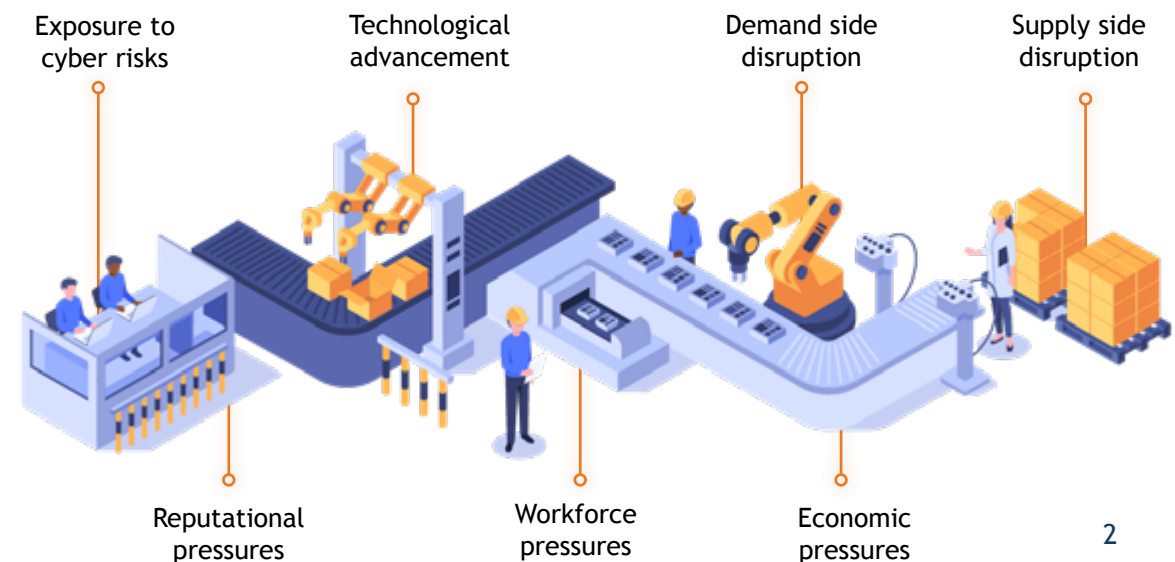
Technology has given us the opportunity to navigate our biggest challenges, generate fresh value, and gain competitive advantage through more effective collaboration, identification and response to problems, and simplicity when bringing new products to market.

However, the adoption of digital technology has often happened in a piecemeal and siloed way to address specific needs rather than as part of a holistic strategy. This approach carries long-term risks - increasing costs, introducing new vulnerabilities, and limiting firms' future agility.

To remain competitive and reap the full benefits of digital transformation, manufacturers must adopt a comprehensive and integrated approach, ensuring they build a platform that meets today's needs and tomorrow's unpredictable demands.

Having led these journeys for thousands of global leading manufacturers, we at Tata Communications want to share our insights and breadth of expertise to advance the industry as a whole. This eBook introduces a framework that provides manufacturers a path toward a successful digital transformation so you can realise tangible benefits and drive competitive advantage.

Being digital-first means navigating disruption



ABOUT THIS EBOOK

- 1 Introducing the Tata Communications CIOs framework
- 2 Connect your ecosystem, drive out inefficiency
- 3 Innovate for better products and enriched experiences
- 4 Optimise your way toward your future business
- 5 Sustain and secure your infrastructure to ensure business continuity
- 6 Tata Communications for the digital-first manufacturer



INTRODUCING THE TATA COMMUNICATIONS CIOS FRAMEWORK

Tata Communications is the complete digitalisation Partner. We pull together all the strands of your digitalisation, from the edge to the cloud and back again, for the truly digital-first manufacturer. But what does it mean to be digital-first? Our definition of digital-first is using a complete digital operating model to revolutionise the manufacturing process, overcome challenges, and embrace innovation to set manufacturers up to thrive in the future.

At Tata Communications, we've created the **CIOS framework** to help manufacturers plan and implement their digital transformation strategy in a holistic, forward-looking way, building Sustainable truly Connected, Innovative, Optimised and Sustainable operation.

Throughout the next few pages, we'll outline ways and reasons for you to **Connect**, **Innovate**, **Optimise** and **Sustain** through the modernisation of technology for lasting impact in a changing world.

Connect



Innovate



Optimise



Sustain

CONNECT YOUR ECOSYSTEM, DRIVE OUT INEFFICIENCY

All manufacturers know supply chains are imperfect. 90% of manufacturers reported significant or partial disruption in the past two years.² Supply chains are filled with blind spots, potential missteps, and bottlenecks ready to trip up and drive inefficiency.

Yet, if you can bring your suppliers, employees, customers, partners, and infrastructure together to operate as one - the potential is there to supercharge your performance with better transport efficiency, enhanced traceability, and reduced incidence of waste or scrappage.

Not just connected, but hyper-connected for real-time, end-to-end visibility, collaboration, and capability gains:

- ➔ Increase agility with the ability to add new suppliers quickly or change suppliers at short notice to fill gaps and enable fulfilment.
- ➔ Reduce supply chain risk with real-time visibility and better planning capability that help manoeuvre around geopolitical unrest and protectionist measures that restrict materials and escalate costs.
- ➔ Reduce errors from a reliance on manual processes and manage complexity across dispersed supplier networks.
- ➔ Create seamless user experiences of a complex IT estate comprising legacy systems and multiple cloud-based applications.
- ➔ Enable your workforce to collaborate effectively wherever they are and meet the needs of an increasingly hybrid workforce that requires new forms of remote communication.

² Manufacturing Supply Disruptions Could Last into 2023, The Manufacturing Leadership Council

³ Overcoming Barriers to Multitier Supplier Collaboration, McKinsey



Integrating supply chain activities can boost profitability **by 50%**³

HOW CAN WE HELP CONNECT YOUR ECOSYSTEM

Human-machine interaction is the future of manufacturing, but this requires a secure, connected digital foundation. Tata Communications can help you create a digital ecosystem built on the following:

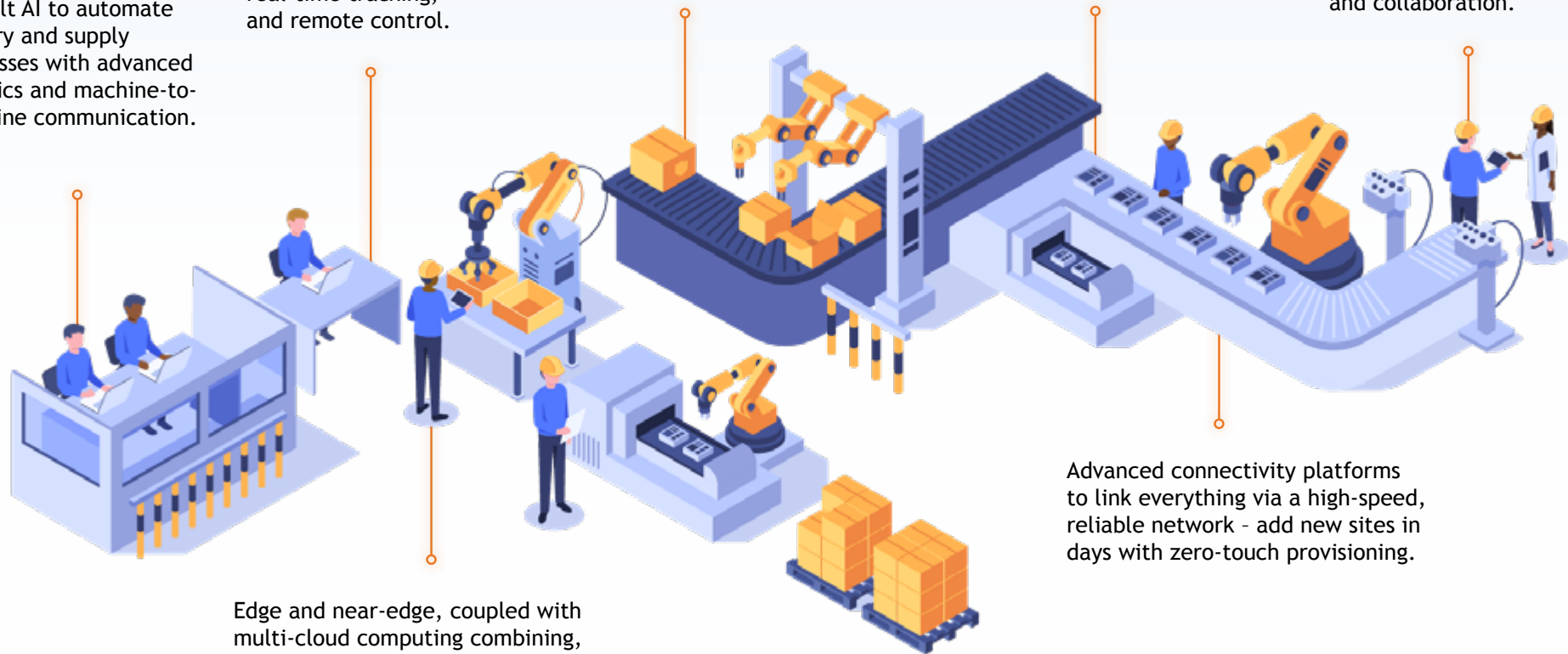
Edge computing with in-built AI to automate factory and supply processes with advanced robotics and machine-to-machine communication.

The AI factory for low latency for remote manufacturing with zero-touch provisioning, real-time tracking, and remote control.

Trust architectures to protect data in transit through the chain and distributed endpoints.

Immersive connectivity platforms and tools to add features like IoT for visibility as assets move through the ecosystem.

Collaboration tools for effective real-time communication and insight sharing across the high IQ worker estate to drive knowledge management and collaboration.



Edge and near-edge, coupled with multi-cloud computing combining, to drive easy and flexible cloud access to apps on-demand from wherever is needed.

Advanced connectivity platforms to link everything via a high-speed, reliable network - add new sites in days with zero-touch provisioning.

INNOVATE FOR BETTER PRODUCTS AND ENRICHED EXPERIENCES

Customers today expect more. In fact, a Salesforce survey found that 84% rank the experience a company provides as important as its products and services.⁴ Fortunately, technology has allowed manufacturers to meet this demand by elevating experiences and driving product excellence.

Great customer experience (CX) in manufacturing is built on the use of connected solutions that underpin collaboration and provide insights that help personalise engagements and products. Focusing on CX brings the manufacturer and customer closer together, and the use of intelligent and connected warehouses and production facilities will help revolutionise services and product quality.

Engage customers with consistently rich experiences.

- Embrace technology to deliver experiences that deliver value. Build loyalty by meeting user demands for higher standards - sleek interfaces, instant feedback, and increased customisation.
- Seamlessly integrate direct and indirect channels to market and meet users' need for delivery that suits their engagement preferences, such as an omnichannel approach.
- Extract actionable insights to improve/ personalise experiences from increasingly robust and extensive customer and product usage datasets.
- Make every interaction valuable so customers realise the advantages of your products and associated customer services.

71%
of consumers now
expect brands to
deliver personalised
interactions⁵

⁴ State of the Connected Customer Report Outlines Changing Standards for Customer Engagement, Salesforce News

⁵ The Value of Getting Personalization Right—or Wrong—is Multiplying, McKinsey

Create excellent products, be the point of difference.

- Differentiate by bringing products and features to market faster to meet the demands of an increasingly competitive, fast, global market where lifecycles are short.
- Evolve capability and avoid commoditisation by working collaboratively with customers to create unique, market-leading product distinction.
- Maximise yields and develop following generation production capabilities at pace to ensure costs and product prices remain consistent for high demand.
- As customers look for manufacturers to shape products that cater for their requirements, customer data will become a vital enabling factor.
- Ensure product quality is consistent and excellent with robust controls that help you stay ahead of customers' rising demands.



50%
of revenues across
a range of industries
come from products
launched in the past
three years⁶

⁶ The Product Life Cycle is in Decline, Supply Chain Magazine

HOW WE HELP INNOVATE PRODUCTS AND EXPERIENCES

Increase customer satisfaction, deliver world-class experiences, and enrich product offerings with Tata Communications, helping to bring you closer to your customers:



Collaboration tools for omnichannel interaction with customers and suppliers to support rapid product development.



5G to speed up connectivity for real-time monitoring across the factory and supply chain.



Cybersecurity to demonstrate safeguarding of customer data at rest, in transit, and at distributed endpoints.



On-demand cloud for flexible access to apps and systems ensures a consistent high level of customer service and quality control.



Next-generation SD WAN connectivity for consistent network performance, which reduces downtime that could impact customer service, delay fulfilment, and support high-tech production.



Connected services that combine smart devices to add extra value for customers and provide real-time data to help predict future behaviour/demand, provide feedback, and enable maintenance.

OPTIMISE YOUR WAY TOWARD YOUR FUTURE BUSINESS

With shipping costs for containerised freight from China on the rise, manufacturers can use smart technology to enhance competitiveness. This can be achieved by increasing process efficiency, decreasing production cost per unit, and increasing first-pass yield.

On the shopfloor, use of technology like Industrial IoT devices are expected to increase operational efficiency, but manufacturers need to look toward a broader optimisation approach for bigger gains with technology that enables them to flex, decentralise, and enhance working models so they appeal to a new generation of necessary skilled workers.

Transform costs today, lead tomorrow's competition

- So much cost is beyond manufacturers control, they need to find efficiencies from those areas they can control inside their own operations.
- Manufacturers need to find ways to maintain a competitive cost base or find alternative forms of differentiation as global competition drives down prices and budget-constrained consumers look for affordable options.
- Skills shortages are leading to increased wage inflation so manufacturers must make the best use of automation, AI, and remote workers to decrease reliance on expensive on-site resources.
- Demand is becoming less predictable, yet manufacturers need scale to adapt to changing preferences. This breeds inefficiency and demands more cost-efficient ways to scale up and down to meet demand.
- Continued reliance on manual systems restricts productivity. The need to embrace digital tech to create efficient and scalable processes is more pressing than ever.

We helped Essar reduce costs by 25% and time to market by 20% by embedding global access to business-critical applications

[Find out more](#)

Retain and attract the best talent with a great working environment

- Manufacturers need to attract talent or find ways to do more with fewer people as the sector is suffering acutely from labour shortages in highly skilled areas.
- Redesigning networks and IT will help adaption to a more distributed workforce as the next phase of the shift away from traditional working to a more flexible arrangement established during COVID-19.
- Health and safety is always a high priority for manufacturers, but in a time where skills are in short supply, those that put workers first are more likely to attract and retain talent.
- Lagging behind in digitisation is hindering flexibility and productivity and making manufacturing a less attractive place to work, especially for younger staff.

80%

of manufacturers say about half the total workforce will be fully remote over the next three years⁷

HOW WE HELP OPTIMISATION FOR LEANER MANUFACTURING

Next-generation SD-WAN networks reduce infrastructure costs and provide consistent performance. As the bedrock infrastructure, they enable remote access and make apps available for hybrid work.



Connected services assisted by 5G facilitate high speed/low latency, which in turn powers remote factory monitoring and improves the health and safety of workers through predictive maintenance, remote diagnostics, enablement of sensors, wearables, and automation of dangerous tasks.



Connected services also increase machine life, improve product quality, increase throughput and reduce costs, while 5G also enables rapid connectivity of multiple IoT devices at lower cost.



Cloud enables efficient access to platforms that enhance the employee experience and do so on a flexible cost base aligned to actual usage rather than scaled for peak usage.

SUSTAIN AND SECURE YOUR INFRASTRUCTURE TO ENSURE BUSINESS CONTINUITY

With security front of mind, manufacturers have been cautious around digitalisation. Over a third of UK manufacturers say potential productivity gains have been hampered by a reluctance to invest in connective technology because of new cyber risks.⁸ Overcoming this reluctance demands robust solutions that can quickly detect, prevent, contain and respond to threats, keeping your operations, IP and data safe while allowing you to take advantage of all that Industry 4.0 technology has to offer.

Corporate reputation is also on the line around environmental impact, however. At the same time, as manufacturers look to expand their capabilities in a secure way, they're looking at the same technology for new ways to uncover efficiencies, appeal to customers, secure investment and attract scarce talent. In fact, 65% of manufacturers see technology as having a significant role in sustainability, and many others see tech as the way to enable their ESG agendas.⁹

Excellent security is a vital growth driver

- IP and data are a manufacturers' most important assets, yet the need to secure them and protect against cyber risk shouldn't stand in the way of competitiveness and productivity gains.
- Distributed ecosystems and remote working have made manufacturers more susceptible, so work is needed to extend security beyond closed networks to include remote workers and supply partners.
- The shift to smart factories filled with connected devices and data increases the attack surface for cybercriminals, so devices requiring internet connectivity need appropriate security in place.
- Convergence of OT/IT has removed the traditional separation of IT network, data security, and operational and process security. A new dynamic approach to corporate IT security is necessary.

78%

of manufacturers rate protection against new cybersecurity risks as high priority¹⁰

⁸ Cyber Security in Manufacturing, Make UK

⁹ Plex, 7th Annual State of Smart Manufacturing Report Sustainability/ESG Edition, 2022

¹⁰ Momentum ITSMA, CBX Survey Wave 2, 2022



ESG insights are now essential metrics

- Falling behind on ESG commitments can have a significant reputational impact - increasingly, consumers are choosing to buy from manufacturers with strong ethical credentials.
- At the same time, shareholders are demanding more on sustainability, health and safety, and ethical working practices, yet manufacturers are struggling to demonstrate progress.
- Employees are factoring sustainability strategies into decisions about where they work, and a strong ESG performance is becoming critical to attracting talent.
- With more than 600 ESG reporting provisions globally - and varying demands for voluntary and mandatory disclosures - manufacturers need help to ensure compliance in a complex environment.

Hybrid working can reduce
emissions per employee

by 29%¹¹

¹¹ Decarbonizing a Work from Anywhere World, Salesforce



HOW WE HELP MAINTAIN SECURE AND SUSTAINABLE BUSINESSES

Assess the effectiveness of your security controls, reduce risk, and enhance your reputation by identifying and plugging gaps in your security and sustainability strategies:



Cloud-based services reduce the need for hardware in data centres or on your company site.



Governance, Risk and Compliance management quantifies and reduces risk and ensures compliance with regulations.



Managed SASE provides Zero Trust protection for distributed endpoints.



Advanced network security as a managed service safeguards cloud workloads, networks, endpoints and communications from ransomware, alongside advanced threats and other malware.



Consolidating WAN edge infrastructure under a single SD-WAN platform removes cost and complexity, saves energy, and accelerates data transmission for faster back-up of large files with the option to encrypt for end-to-end protection.



Monitoring energy use with networked sensors for heat, pollution, radiation or noise - and also adds traceability through the supply chain and manufacturing processes.



BY PARTNERING WITH TATA COMMUNICATIONS, YOU ALSO GAIN...

Global infrastructure and support

Our network is spread over 200+ countries and territories, ensuring reliable and secure connectivity worldwide, while our global team of experts provides round-the-clock support to ensure service excellence.

End-to-end solutions

Our cloud-agnostic services are tailored for the specific needs of manufacturers from the edge to the cloud and back again so you can focus on your core business.

Secure and reliable connectivity

We prioritise security and provide robust measures to protect data and systems from cyber threats and safeguard critical infrastructure.

Industry expertise

Our understanding of your unique challenges and breadth of expertise allows us to deliver customised solutions to address specific manufacturing requirements.

Innovation and future focused

Access cutting-edge technologies and solutions that enable manufacturers to automate and unlock new opportunities.

Scalable and flexible

Our services scale with your growing needs and adapt to your changing requirements to ensure agility and competitiveness.

The background of the advertisement features two female technicians in a factory or industrial setting. They are wearing white hard hats and dark blue work uniforms with reflective silver stripes. One technician is in the foreground, looking towards the right, while the other is slightly behind her, looking towards the camera. They are working on a piece of industrial machinery. Overlaid on the image are various digital and technical graphics, including blue circuit lines, bar charts, and circular progress indicators. In the top right corner, there is a semi-transparent blue box containing a white TATA logo and some digital data elements like a bar chart and the number '0.0021'.

TATA COMMUNICATIONS



START YOUR DIGITAL-FIRST JOURNEY TODAY

Revolutionise your operating models
and set your business on a path to
sustained growth by contacting us.

Let's talk

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