# Technology at the Heart of Manufacturing, and at the Forefront of Enabling Competitiveness

The manufacturing sector plays a key role in making a product that will appeal to the end user or consumer. There is global competition influenced by energy requirements, skilled labor shortage, supply chain placement, an intricate global sourcing environment, and the increased focus on customization. New advanced technology allows you to innovate, optimize processes, shorten cycle times/downtimes, and improve effectiveness, productivity, and overall efficiency while improving the quality of manufactured goods and decreasing production costs. Bringing them together, securely, across great distances is the final challenge that the right technology can conquer adeptly.

## The Average Company in the Cloud*

**25-49**
Cloud Tools Used

**10**
Number of Cloud Vendors

*ComputerWeekly, April 2023

## Backbone Solutions for Manufacturing

**Cybersecurity |** Bringing many manufacturing platforms together is a feat in itself; managing and securing them takes things to a whole other level. Making sure the policies, solutions, oversight, and training are in place should be part of every technology conversation and continue over time. The secret is to limit exposure and be prepared for the worst-case scenario by making that scenario as small as possible. There is so much at stake – from ensuring the continuity of day-to-day operations to protecting valuable Intellectual Property (IP) and R&D. In an increasingly competitive landscape, as data breaches increase, companies will want to do business with other companies that protect themselves. This includes having Business Continuity/Disaster Recovery (BCDR) strategies in place to protect against loss of revenue and reputation. Taking Cybersecurity seriously, and keeping information/operations safe, is a marketable advantage you can use to competitively position your manufacturing operations.

**Cloud + Intelligent Networks |** Companies, including manufacturing operations, are becoming increasingly reliant on connecting and working with their growing number of Cloud-based services. As business tools transform into online platforms (e.g., Infrastructure-as-a-Service (IaaS) and Software-as-a-Service; SaaS), they need to be able to connect, remain secure, and manage these solutions. Connectivity approaches (like SD-WAN) allow data, which often leaves Network boundaries transferred to external third-party platforms, to remain secure and accessible with a higher quality of experience – the low latency your manufacturing floor/machine apps/robotics require, bandwidth on demand for scalability, and redundancy to ensure smooth operations. As a manufacturer, your clients will also require demonstratable standards for security and control, as any vulnerability or inefficiency impacts their business. Cloud gives an unparalleled level of integration, management, and oversight while allowing you to concentrate on your tasks. It also offers a level of expertise and maintenance (upgrades, updates, new technology adoption) that non-specialists can't match.

**Data Management/Regulatory Oversight |** Depending on your operations – a dedicated manufacturing facility, or with multiple customer activations – you may have a variety of risk and regulatory compliance standards occurring at one time. Having the systems in place to secure and segment operations may even be a requirement to compete for a particular assignment. Taking a zero-trust approach is often the best approach, as key management may be inadequate, and encryption is just the first step.

**Multi-Cloud Strategies/Management Strategies |** As identified in the stat above (the average company in the Cloud), most organizations use multiple different Cloud tools, from many vendors – making sure they work together, have the visibility you want, and can be easily managed is a requirement in itself, that should not be overlooked. Examples range from Identity and Access Management (IAM) Systems which help unite control of various Cloud services under one single interface (eliminating the need to manage user profiles in each Cloud platform) to finding solutions that integrate other solutions, or simply encompass more of your needs. Having oversight is important, offering the ability to audit information across multiple Cloud platforms, seeing where and when information is being accessed, and allowing you to see any abnormal Cloud activity. Automation can also give you faster response, increased agility to respond to new opportunities, reduce project lag, and offer integration with the Network's Intrusion Detection System (IDS) to flag any suspicious behavior.

# Technology to Adopt, and Move Ahead

**Artificial Intelligence/Machine Learning (AI/ML) |** With sensors comes data. Artificial Intelligence and Machine Learning let you work with this information and get more value from it. AI analyzes data faster and more thoroughly and removes the inconsistency of human judgment about adjustments that need to be made. This can be extremely important in a manufacturing environment. In the short term, using the constant flow of real-time data lets you quickly make changes to lower defects, avoid downtimes, and increase profitability. Over the long haul "big data" can drive strategic business decisions, providing a validated reasoned path forward. You can also look back at historical data to identify trends, behaviors and predict future demand. This can help reduce stock levels and storage requirements while avoiding shortages.

**5G & Edge Computing |** The fifth generation of mobile data Network technology (5G) enables manufacturers to easily connect their IIoT technology and leverage data collection and data processing within devices such as smart machines and sensors (referred to as Edge computing). Manufacturers can create a private 5G network on their premises, giving them superfast data speeds without the need for cables while realizing significantly improved data security.

**Industrial Internet of Things (IIoT) |** The Industrial Internet of Things (IIoT) is where interconnected devices are used in manufacturing and industrial settings to collect data that can then be used to enhance the manufacturing process. Sensors are a perfect example, gathering data at many points on many machines to help manufacturers understand how they're performing, optimize maintenance processes (using AI to detect failure patterns, allowing preventative action), reduce machine downtime, and even predict when things will go wrong. This can be applied to new equipment or even old legacy machinery.

**"Smart" Connected IoT Devices |** IoT has changed how products are manufactured, and what types of products are manufactured. There are now "smart" versions of everything from vacuum cleaners to toasters, and the trend for smart products shows no sign of slowing down. Manufacturers will increasingly have to explore ways of giving customers the intelligent products they expect. The connected nature of the product also offers a chance to see how the product performs over time, providing a sample size beyond anything you could hope for in a testing facility, information that can influence small or large changes to the products you are manufacturing.

## We Understand the Manufacturing Industry

Expertise provides better results and takes time to develop. Our team has experience working with organizations like yours who work in the manufacturing space. We understand your concerns and can help find the solution(s) that meet your needs and requirements. As vendor-agnostic technology professionals (with access to over 200 tech Providers) we will work with you and your requirements – budgetary, regulatory/compliance standards, and timelines – to achieve the outcomes you want, because we work for you!