



A sustainable supply chain transformation

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A sustainable *supply chain* transformation

We catch up with Dhaval Desai, Principal Group Engineering Manager at Microsoft, to witness a massive and sustainable supply chain transformation at the tech giant...

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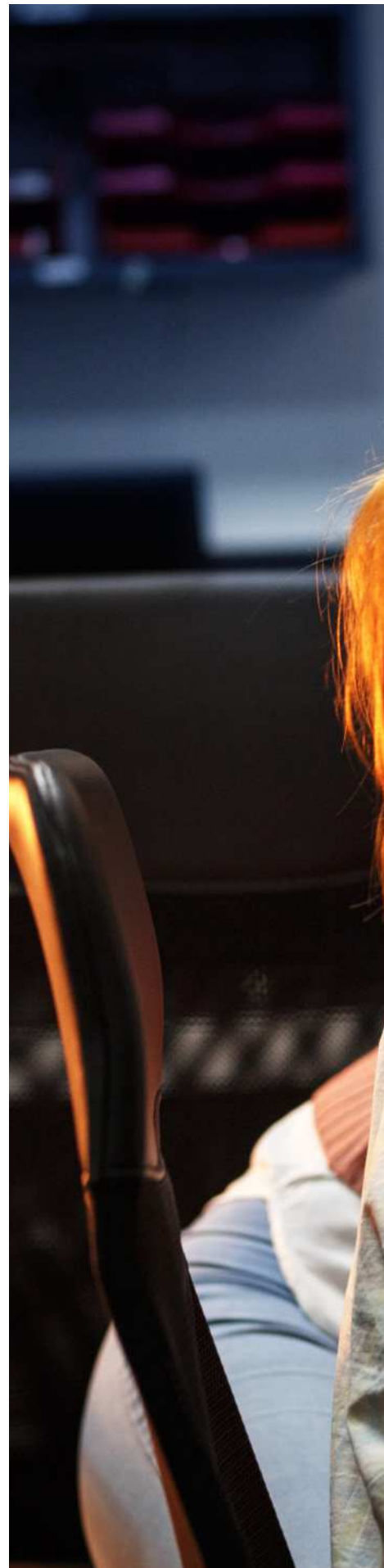
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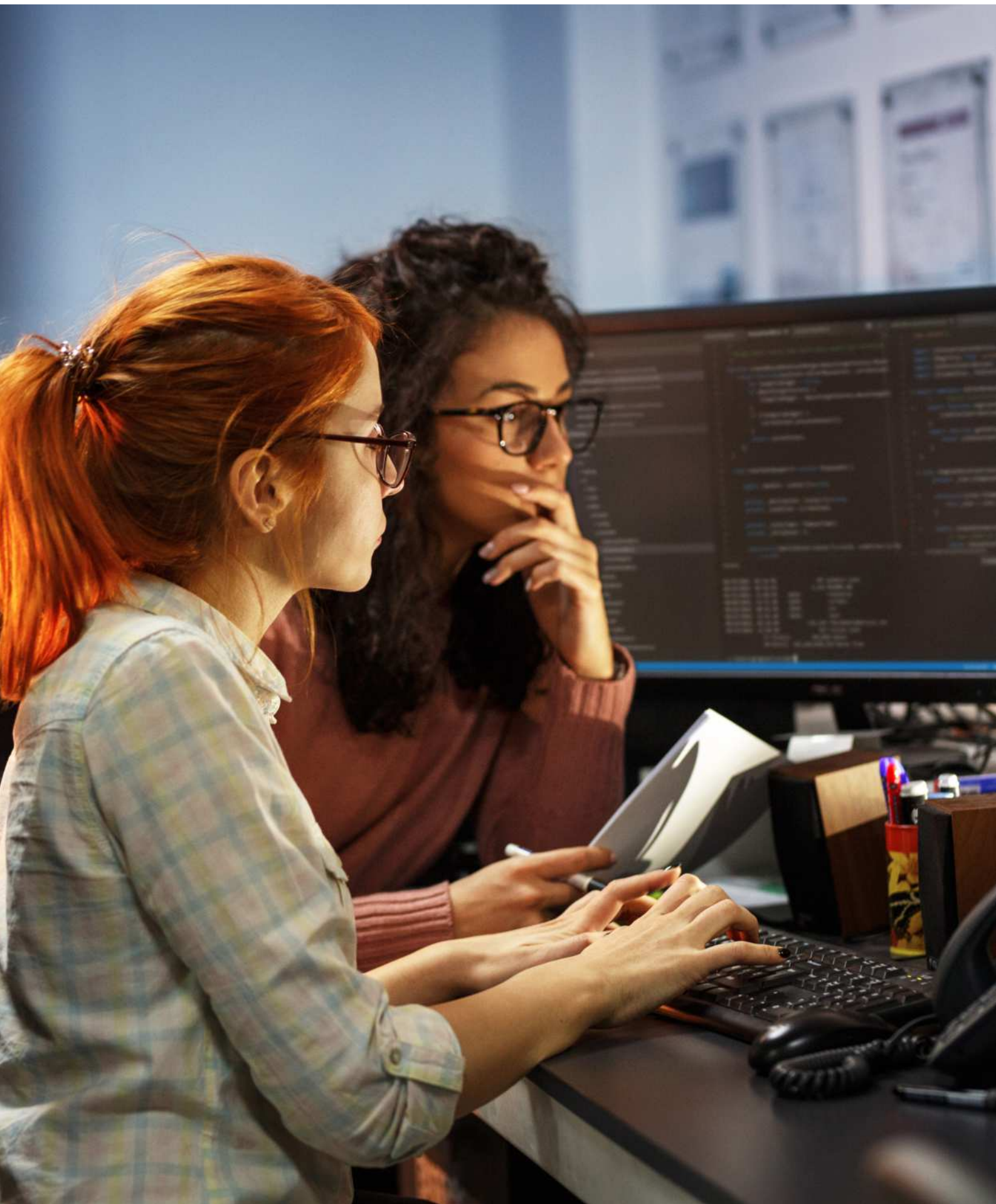


In the past four years, Microsoft has gained more than 80,000 productivity hours and avoided hundreds of millions in costs. Did you miss that? That's probably because these massive improvements took place behind the scenes as the technology giant moved to turn supply chain management into a major force driving efficiencies, enabling growth, and bringing the company closer to its sustainability goals.

Expect changes and outcomes to continue as Dhaval Desai continues to apply the learnings from the Devices Supply Chain transformation – think Xbox, Surface, VR and PC accessories – with cross-industry experiences to the fast-growing Cloud supply chain where demand for Azure is surging. As the Principal Group Software Engineering Manager, Desai is part of the Supply Chain Engineering organisation, the global team of architects, managers, and engineers in the US, Europe, and India tasked with developing a platform and capabilities to power supply chains across Microsoft. It's an exciting time. Desai's staff has already quadrupled since he joined Microsoft in 2021, and it's still growing. Within the company, he's on the cutting edge of technology innovation testing generative AI solutions. "We are actively learning how to improve it and move forward," he tells us.

Supply chain may be behind the scenes, but it's forward-looking and massive. Just how big? Consider this: supply chains at Microsoft make contributions to two key business segments: Personal Computing and Intelligent Cloud. These business segments account for two-thirds of the \$211.9 billion in revenue Microsoft posted in fiscal 2023. In other words, the size and complexity of the Microsoft supply chain easily rival the size and complexity of many Fortune 500 companies.





SUPPLY CHAIN TRANSFORMATION TRANSFORMATION TRANSFORMATION

Matching capacity to cloud business expansion

Microsoft's cloud business is experiencing unparalleled growth, outpacing competitors with a remarkable 20% growth rate and a leading data center footprint. This success can be attributed to their extensive network of over 200 data centers, with plans to add 50 to 100 more centers annually. These centers house several thousand servers globally, making Microsoft's supply chain a crucial component of their growth strategy.

To support this explosive growth and drive down costs, Accenture and Avanade developed a comprehensive roadmap for Microsoft's Capacity Supply Chain and Provisioning (CSCP) division. This roadmap aimed to accelerate cloud revenue, enhance agility, and align with Microsoft's sustainability commitments. The result was the implementation of five transformative solutions: Warranty Transformation, Planning Transformation, Product Data Model, Blockchain, and Control Tower. These solutions revolutionized every aspect of Microsoft's supply chain and earned them recognition as a Top 10 Supply Chain by Gartner.

In 2023, the team further optimized their supply chain by merging these solutions into a unified structure. This consolidation increased velocity, efficiency, and delivered significant cost savings. Looking ahead, as the demand for GPUs continues to rise, Accenture and Avanade are excited to continue strengthening their partnership with Microsoft. Together, they aim to leverage the world's largest and most sustainable compute infrastructure to further advance generative AI capabilities.

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**Empowering cloud
supply chain:
Microsoft's control
tower redefines
efficiency**



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AN EARLY EDUCATION IN SUPPLY CHAIN AND SOLUTIONS

Desai's supply chain experiences go back to his childhood, when he closely observed the operations at a factory that his dad ran. "From the early days of my childhood in India, I got to experience what supply chain actually looks like," Desai says. The factory produced traditional cotton garments, like saris. "Though I didn't know the words 'supply chain', I observed many of its processes such as how to procure raw materials and how to plan what needs to be manufactured and in what sequence it should be done – plus the transportation of the goods and selling to consumers. When I got introduced to the supply chain world as an adult, I was able to relate to the core concepts. I had seen those processes on a small scale come to life. And that's where I believe my passion for supply chain was born."

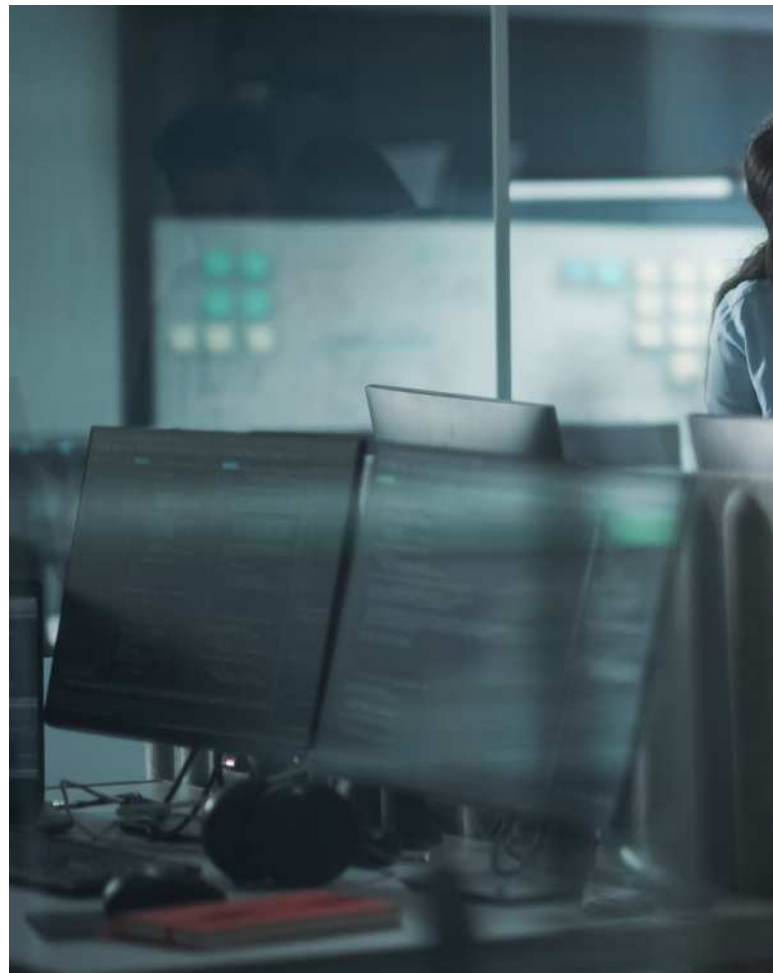
Desai also observed how his father constantly worried about managing an often volatile labour market, especially during peak demand – like for the festival Diwali. His solution will sound familiar to technologists of every stripe: build in redundancies.

From that experience, Desai drew another fundamental business lesson: "I saw that every challenge has a solution."

EMPOWERING EMPLOYEES ACROSS THE ORGANISATION

When Desai arrived at Microsoft in 2021, COVID was still wreaking havoc with the global flow of goods. The technological landscape in the supply chain at Microsoft was mixed, according to Desai. "We leveraged our Azure platform, and we definitely had a few SAP systems. We also leveraged our first-party systems, such as our Dynamic 365, Power Apps platform, and a few third-party systems, apart from SAP."

But the systems had challenges. They



were siloed. They were based on function and weren't tightly integrated. "We were not in a position to get the right level of insights into our data to utilise its power. These problems were identified before I joined and so the work had already started, but I soon became part of that journey."

So, Desai's initial mandate married his deeply ingrained understanding of supply chain with his understanding that all problems were made to be solved: He wanted to be sure that everybody and anybody could solve a supply chain issue at Microsoft. His principal tools: SAP applications.

SAP is Desai's sweet spot. Before joining Microsoft, Desai spent 14 years at SAP helping his Fortune 500 clients manage their supply chains. SAP gave Desai a front row seat to a wide range of customers. "We'd integrate the improvements previous customers had requested." This was a source of enormous



satisfaction: “My influence was not limited to the customers I worked with directly, but to every customer who eventually adopted that particular product.”

Desai took away another important piece of wisdom from his years at SAP. “I learned to understand customer processes closely across many industries,” he says. Processes would vary in critical ways depending on industry – say life sciences versus high tech. But Desai also found commonalities across his portfolio of clients – and this enabled him to craft models that he could translate across industries. The result: “I was able to not only help customers adopt our solution from SAP’s perspective, but to adopt successfully at scale.”

“When I got to Microsoft I asked myself: How could I bring my experience from different industries to standardise processes so that so we have the right

capabilities, processes and systems that can support our growth? At the same time, you need that agility in your supply chain to support the changing business models from a Cloud Supply Chain perspective. So that was one big ask.” Devices were already in full swing on a transformation, which gave Microsoft an edge in handling the challenges of COVID. So, Desai considered: “What are the next business models? How do we make our supply chains even more efficient and scale to newer heights?” The results were outstanding.

SUPPLY CHAIN TRANSFORMATION

Desai is now increasing his attention to supply chain improvements for the cloud division, where growth is explosive. “The cloud is the heart of the digital transformation journey corporations are undertaking globally. This is pushing demand for Azure. We need to build, deliver clusters/racks/



servers while maintaining these assets on a continuous basis,” says Desai.

Benefits from Devices Supply Chain transformation over the years were now being recognised. Microsoft grabbed first place for both Gartner’s Supply Chain Breakthrough of the Year and the Process or Technology Innovation of the Year awards in 2023*. Behind the award is Microsoft’s sentient supply chain that is both predictive and optimises in real-time or near-real time. “This meant building end-to-end (E2E) visibility, from tracking every raw material to finished goods sales, returns and repair operations,” Gartner writes. Net visibility went from 20% of datapoints to 92% of the 50 million datapoints captured daily – all while eliminating silos. Decision-making went from eight weeks to a few days.

The benefits translated into other

real-world benefits. Garner writes that Microsoft managed “a cost avoidance of \$550 million while increasing sales and improving efficiency” in its device supply chain.

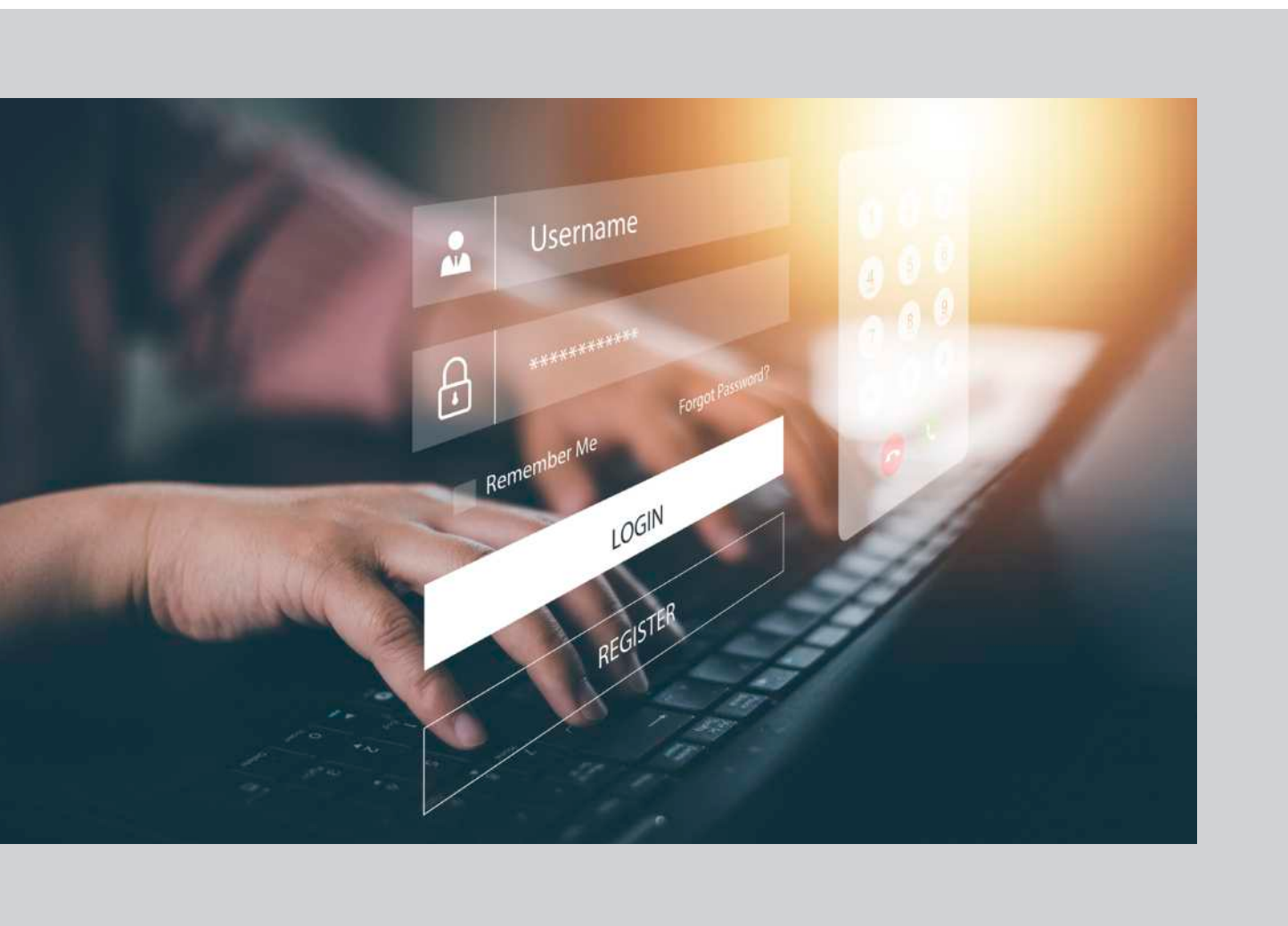
“We tasted success in devices. We were pushing boundaries. Now we are taking the learnings to see how we can apply them to the cloud supply chain,” Desai says. For example, Microsoft is looking to make a connected system architecture. “How do we make the best use of the off-the-shelf products in the market with our home-grown solutions? How do we fulfill our requirements AND get a competitive edge?” Anyone engaged in digital transformation understands the delicate balance between the efficiencies of readily available solutions that need to be fine-tuned to specific situations without making the system overly complex.

tough for those looking to provide value and stability. Those challenges have had a direct impact on Desai and his work as he seeks to enhance the supply chain landscape at Microsoft. “When we look at the supply chain from an end-to-end perspective, right from designing of the product, we have got to make sure that we are not involving any components or any supplier which are tainted based upon the regulations of the country where we operate and sell our products and services.”

That’s not all. Desai says he must ask: “How do we define our planning processes to be agile if there are changes happening? We need to be in a position to respond to those changes in a much more efficient and quicker way.”

From there, Desai says he needs to think deeply about product sourcing. “How do we

bring the right level of resiliency as a part of sourcing, to make sure we don’t increase the risk associated with sourcing strategies? And do we have a resiliency plan to mitigate the risk as and when they come in? Do we have end-to-end traceability within our supply chain? Are we in a position to identify the risks associated with our supply chain before they have a significant impact? And then can we mitigate and improve the overall resiliency of our supply chain? How do we make more data-driven decisions, versus having users or people interrupting the flow? How do we manage the data and the human intelligence to deliver the right impacts?” According to Desai, the answer is data. “If you have data-driven insights and data-driven decision-making processes, then you improve that decision by adding human intelligence on top of it.”





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As with devices, the heart of the system must be great data. “We need to establish a digital thread with our data and leverage it in an efficient way to give us the right insights.” Without that, efforts to use predictive and generative AI will fall short of their potential.

As he did at SAP, Desai is looking for solutions at Microsoft that answer to specific needs while taking advantage of supply chain commonalities. Only now his toolbox has gotten more powerful than ever thanks to generative AI, where Microsoft has an edge, and the Microsoft internal toolbox.

PEOPLE POWER

Microsoft has one other critical superpower: its people. Desai likes to say that he is deeply focused on the classic golden triangle of people, process, and technology. “These three critical pillars have to work in perfect harmony to deliver the objectives and the goals you have set,” he says. “Microsoft’s culture is very people-centric. There’s a lot of focus on nurturing talent, helping people to grow, and creating the right leaders in the organisation who can take us forward. Our supply chains are growing and are extremely critical to achieve our mission to empower every person and every organisation on the planet to achieve more.”

Microsoft made it clear to Dhaval that he was being trusted to build the capabilities needed to deliver a world-class supply chain management function at the company. “Microsoft looked to me and said, ‘Now you come from this industry and you have this experience, so help us build the right team, so that we can scale and grow.’”

Dhaval then set about talking to his internal customers, the stakeholders he’s accountable to, to understand their pain points, challenges, and opportunities rather than simply driving through technology to solve the problem. Once he had a good perspective of what needed to be done, he

set about building a team that could drive the change using technology.

EXPERT SUPPORT

Historically, in supply chain, Microsoft leveraged the expertise from its consulting partners coupled with a limited set of in-house experts. But Microsoft soon realised that it needs to strike the right balance between in-house experts and leveraging consulting partners. “We wanted to increase the pool of in-house experts while continuing to work with our consulting partners such as Accenture, EY, and boutique firms like CloudPaths.”

Partnering with experienced supply chain experts is critical to remaining competitive. Accenture research shows that supply chain maturity is accelerating, with the average digital maturity in supply chain jumping to 48% now from 39% before Covid hit. “Microsoft has a unique challenge in keeping up with global demand for cloud computing capacity. It’s understood that where supply chains are concerned, accelerated digitisation of end-to-end processes is essential to achieve the scale and maturity that this growing business requires. Accenture is proud to be a critical partner in Microsoft’s supply chain journey to enable this growth by establishing a world class supply chain. Accenture has tapped into its global Supply Chain experts to re-imagine business processes, providing technical expertise in SAP and non-SAP domains to design and deploy these capabilities at scale,” says Mahesh Narayan, Technology Lead for Accenture at Microsoft.

MITIGATING RISK: DATA, DATA, DATA

The world is in an unpredictable state and of course the effect this has on supply chain is myriad. Rising costs, demand and inflation, plus geo-political crises and increased regulation in certain sectors have made life



A CIRCULAR ECONOMY MINDSET

From the start, Desai thinks about the entire life cycle of supply chain products – from transportation to usage and repairs and the opportunity for reuse of parts at the very end. The company works closely with contract manufacturers, system integrators, and suppliers to make sure the processes and the tools are in place to meet its needs and protect its interests. “When we deliver the product, we have to make sure we are doing it in a responsible, sustainable way,” he says. “We want to make sure we are choosing a mode of transport that reduces the carbon impact. We also want to make sure the devices we are producing are repairable by consumers or the channel partners within

the industry – improving returns on their investment and promoting sustainability.”

And at the end of its life cycle, Microsoft sends the hardware to its circularity centre. “We start harvesting the parts out of it. We harvest as many parts as possible, so that way we can bring back those parts back into the supply chain and consume them. Right from design to the customer returns, to circularity centres, we cover the end-to-end lifecycle and develop the processes that work together.”

Microsoft is committed and working towards optimising its end-to-end supply chain from a sustainability perspective and has pledged to be a carbon negative, water positive company by 2030. “While designing



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– Mahesh Narayan, Technology Lead for Accenture at Microsoft.

the product, we want to choose the components in a way that will minimise our carbon footprint,” he says. This isn’t easy. Scope 3 carbon emissions from contractors are the biggest contributors to carbon emissions and the hardest to manage. “When we plan for the products, we want to make sure that the factory we choose has the lowest sustainability impact. Same applies from a sourcing perspective. When we do the supplier selection, we don’t want to solely focus on the price, but also want to assess the carbon impact. And when we deliver the goods, we want to choose the right mode of transport. Can we go for ocean or rail to reduce the impact from a sustainability perspective?” Progressive

supply chain management is strengthening the function at Microsoft and giving it much needed agility.

COMING NEXT

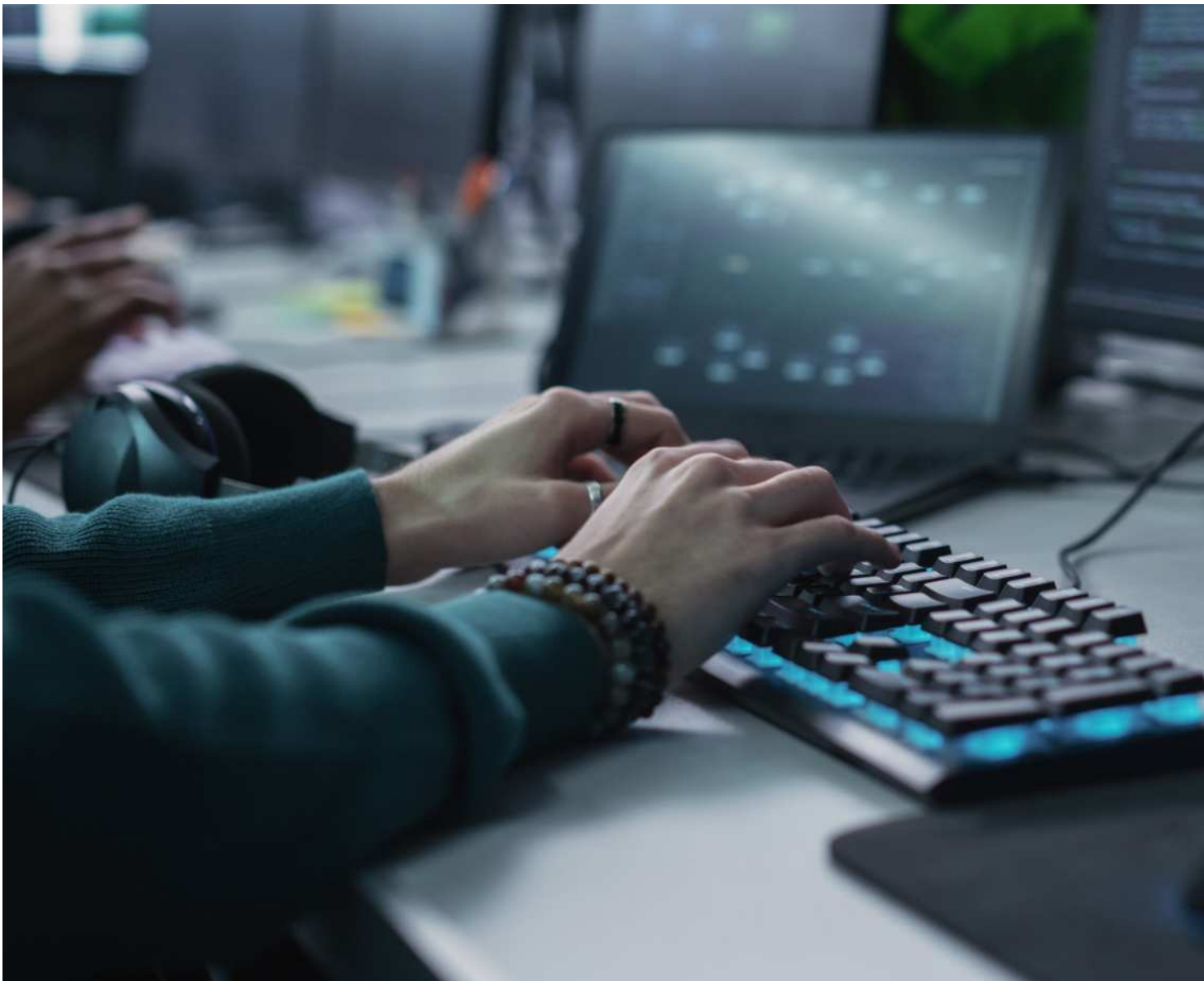
Desai is optimistic about achieving his goals, especially when considering the potential of harnessing emerging technologies like AI. “I’m proud to say that Microsoft is leading the generative AI wave and has already identified a good number of use cases. We are excited to harness the power of generative AI and its positive impacts on supply chains. This is a big opportunity.”

Microsoft is rising through the ranks of the 25 Garner Supply Chains, which assesses the sophistication and successes

of supply chains in key areas like flexibility, sustainability, and risk management. The company is already on an upward trajectory. In 2023, Microsoft rose to number seven from number 10 in 2022.

“This is the decade of supply chain. Before the pandemic, supply chain was not seen as a strategic entity that helped with the operations of an organisation. But in the post-pandemic era, that’s no longer the case. Every organisation is looking at

the supply chain as a strategic function. Because they realise that it’s the supply chain that will eventually help achieve the goals and objectives of the organisation. So now, supply chain officers play an important role in the organisation’s strategy and growth plans. And as a supply chain professional, I’m very happy and proud about that. And what makes it more interesting for me is that I am working at Microsoft in their supply chain world. I’m working for one of



the best organisations with a novel mission to help every individual on the planet to achieve more. To have that culture, to have that purpose, to have that recognition and the commitments Microsoft has made to sustainability, makes it very exciting.” ■



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– Dhaval Desai, Principal Group Engineering Manager, Microsoft

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