Destination: Digital
Industrial manufacturers move toward transformation at light speed — despite the pandemic
By now, it’s clear that the COVID-19 pandemic is driving the need for digital transformation in virtually every field, and the industrial sector is no exception. Manufacturing companies that made major progress before the shutdown — for example, enabling seamless experiences for customers and suppliers — are now much better positioned to take advantage of new opportunities and pursue innovation as the global economy begins its recovery from the virus. Far from forcing organizations to put technology initiatives on hold, the pandemic has accelerated the pace at which companies of all types are pursuing digital transformation.

As the world emerges from the pandemic, the time is ripe for manufacturers and industrial companies to employ new business models, debut innovative products and services, and revolutionize operations. Getting there requires modernizing and updating the data foundation on which their businesses have run for decades, and then applying advanced technologies that enable the transformation. The problem: This requires collaboration between functions that, in most cases, are still strictly siloed. Efforts to bridge the gaps and learn new ways of working are more than worthwhile — they’re essential.

Long before COVID-19, Tata Consultancy Services (TCS) and its partner, Honeywell, embarked on significant digital transformation initiatives. But as the pandemic unfolded, both found themselves grappling with unprecedented challenges as they shifted from traditional to nearly all-digital environments with employees working remotely from home. In this Executive Conversation, coauthors Sheila Jordan of Honeywell and Subhash Sakorikar of TCS open by describing their companies’ rapid responses to COVID-19, then share their insights on how other organizations can embark upon their own digital-transformation journeys today and in the future.

Honeywell’s High-Speed Switch to Remote Work

Honeywell’s digital initiative began more than five years ago, as the company launched an aggressive strategy to transform its own environment as well as those of its customers. The company’s overarching vision is to leverage data and digital technology, including connected sensors and controllers, to help its customers improve productivity, customer experience, safety, compliance, and sustainability.

Sheila Jordan, coauthor of this Executive Conversation, joined the company as chief digital technology officer in January 2020 partly because she wanted to play a role in the company’s prominent digital strategy. Honeywell is digitizing the entire organization across finance, HR, contracts, engineering, and the company’s five businesses. More than 40 active digital programs are happening companywide, and every function and strategic business unit has its own digital agenda.

Sheila was on Day 59 in her new role when the pandemic forced the company to transition to a remote work setup virtually overnight. This was an effort of impressive scale: Honeywell employs 103,000 employees across 70 countries who, prior to COVID-19, didn’t traditionally work from home. Outfitting them all with laptops and re-designing the company’s network to enable remote working was a
significant challenge, but one that the company needed to address before continuing its digital transformation efforts.

Honeywell had to ensure that its call center agents had sufficient bandwidth to work from home — a significant issue in many countries. The company also needed to come up to speed with daily use of virtual work tools, such as videoconferencing programs. Like most organizations, Honeywell had used these platforms before but never as the mainstay of how it did business. That all changed immediately.

Yet it took Honeywell just eight days to get its global team outfitted and ready to carry on from home — a point of pride for the company’s leadership. Because of this rapid deployment, the company kept nearly all its digital transformation programs in flight while addressing the unprecedented demands of the pandemic.

Naturally, Honeywell did reprioritize some projects and made a few adjustments in terms of operations. The company mastered the use of virtual platforms and used smart devices to host virtual tours and testing, and also adjusted the management operating system (MOS) for its project teams.

The company fast-tracked its adoption of virtual platforms and used a variety of features to make it feel as if people were collaborating face to face. Employees also learned how to master notifications that send urgent messages that beep until a response is received, set up hypercare bridges to mimic the onsite “war rooms,” and used breakout-room functionality to effectively manage larger meetings. And managers have encouraged video meeting participants to turn on their cameras to improve their focus and prevent multitasking.

In addition, the company has leveraged smart technology from Honeywell Safety and Productivity Solutions RealWear glasses, which are fully integrated with the company’s collaborative tools and 100% voice-controlled, to do virtual factory tours and remote business ownership acceptance testing. Honeywell optimized its MOS, leveraged best practices from the scrum framework, and held sunrise and sunset calls for visibility of tasks and accomplishments. The company has also adjusted working hours to project-specific needs, neatly balancing all time zones to get the best from all its regions while still trying to achieve a comfortable work-life balance for employees.

TCS’s Prompt Pivot to Digital — for Itself and Its Clients

TCS also swiftly established a “new normal” for its 488,000 associates via its Secure Borderless Workspaces (SBWS), notes Subhash Sakorikar, the other coauthor of this Executive Conversation. This transformative operating model enables remote access for employees, sets up a strong cybersecurity framework, and supports all project management systems and practices to ensure that work allocation, monitoring, and reporting continues as seamlessly as possible.

Using SBWS, TCS enabled remote working for 95% of its workforce and established cloud-based governance for more than 23,000 projects during the pandemic. The statistics illustrate the strength of the company’s digital collaboration: At this writing, SBWS has enabled more than 35,000 online meetings, 406,000 calls, and 3 million messages at TCS alone.

And the company expects to make the digital approach permanent, as illustrated by its “25 by 25” vision: By 2025, TCS expects that just 25% of associates will work in TCS facilities at any one time, with employees spending only 25% of their time in the office. Within project teams, only 25% of members will be co-located. The initiative is expected to generate a 25% increase in velocity throughput — and enable longer-term societal benefits by providing many more equitable job opportunities.

During the pandemic, TCS deployed SBWS models at multiple client organizations. The company also helped its own engineers and those at many of its client companies access high-end computational systems via the cloud so they could do virtual engi-

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neering, simulation testing, and product testing from home. Those capabilities came together quickly in the pandemic environment, compared with the many years that the process might have taken before the shutdown.

In addition, TCS assisted many automotive and industrial manufacturing clients as their companies resumed work online after brief production stoppages during the pandemic. Across functions, throughout the end-to-end supply chain, Subhash and his TCS colleagues assisted these companies as they adapted quickly to remote work, then forged ahead full steam with digital. But the challenges weren’t yet over for the company’s automotive clients; they next faced a worldwide chip shortage caused by the hyper-increase in tech-device sales during the COVID-19 pandemic. In fact, many automakers paused production due to the shortage “epidemic.” TCS responded by assisting automotive clients — and those in other industries also heavily reliant on chip-laden connected devices — with using data and analytics to build resilient supply chains designed to help prevent future shutdowns.

Beyond the Pandemic: Building a Foundation for Transformation

Clearly, data is the lifeblood for true digital transformation. Yet putting in place a solid foundation with accurate, high-quality data and governance policies is among the trickiest parts of the process, due to legacy data from multiple enterprise systems throughout the supply chain. That’s because most large industrial and manufacturing companies have a wealth of data, but it’s stranded in disparate systems — for instance, in multiple enterprise resource planning (ERP), customer relationship management (CRM), and manufacturing execution systems. Stitching that data together is what drives digital transformation. TCS believes that using artificial intelligence (AI) and machine learning (ML) on top of that wealth of data will unlock experiences and innovations that companies can only dream of today, such as intelligent products or new business models that will drive future manufacturing.

Whether organizations want to create incredible digital experiences for their customers, partners, and employees, or let data insights lead them to the next game-changing innovations, there are competing imperatives. As TCS often reminds its clients, priority-setting should flow from an organization’s overall goals and digital strategy.

TCS also believes that most large, well-established companies will have to address technology debt as an inherent part of transformation. It’s not enough to merely update technology and keep going with existing processes. The biggest opportunity, for the largest gains, comes from upgrading or replacing technology and using that as an impetus to reengineer and simplify processes.

For its part, Honeywell views digital as the ultimate way of creating better experiences for itself, its customers, and its partners. To that end, the company has undertaken a major consolidation of systems and a data rationalization effort, expecting to be down to 10 core ERP systems by the end of 2021 — a major improvement.

Meanwhile, as the world emerges from the pandemic, it’s a good time for companies in general to reassess their technology priorities. Charting a pathway away from legacy technology should be a major part of that discussion. TCS and Honeywell both recommend conducting an inventory of end-of-life systems, figuring out how to upscale and upgrade the technology where possible, and replacing it in other cases.

Making Cross-Functional Connections

Many initial attempts at digital transformation fail because they rest on a sole group or function. In TCS’s opinion, most large manufacturers seeking to go digital need to start with a substantial shift in mindset.

As with all large initiatives, change management is best led from the top. Communicating up and down the organizational chart is an ongoing task; both TCS and Honeywell have seen many organizations fall far short in this regard. People need to see and understand the big-picture vision before they buy into digital transformation. Employees will likely need help understanding why transformation is necessary, what it consists of, how it affects their specific jobs, and when it is happening. People also need incentives to work for the good of the digital initiative rather than optimizing their efforts for their own subgroups.

TCS believes that digital changes the game because it’s cross-functional. For example, take a familiar consumer experience: booking international travel on a smartphone. With just a few quick taps, users can buy airplane tickets, select seats, check in for their flights, reserve hotel rooms and rental cars, and even view restaurant
recommendations based on their travel history and preferences. When configured properly in advance, the technology provides a surprisingly seamless experience.

Contemporary digital experiences span multiple functions within a company and its value chain — including marketing, branding, pricing, packaging, finance, and distribution — and require coordination and sharing of information. This happens automatically, but there are people and policies behind each of these functions. Those involved must understand the need for connected data sources and be able to recognize the possibilities that open up as digital information becomes standardized and accessible.

In TCS’s view, a connected experience in manufacturing spans the end-to-end process of design, procurement, production, logistics, and post-sales support. That experience now extends to building and integrating with ecosystem partners such as distributors, dealers, customers, partners, service providers, and even government agencies. TCS believes that everyone in the organization needs to commit to cooperation and collaboration that drives digital. No one group or department can deliver digital transformation on its own. As digital drives building trust and transparency of information across and beyond the enterprise, a solid organizational approach to change management is imperative for success.

Of course, early adopters have set up centralized digital organizations, which have an advantage in that their employees tend to be systemic thinkers with horizontal views of the organization. First, they see the organizational blueprint and how everything connects. Second, they are accustomed to engaging with people across functions. Both are

“To Women in Tech: ‘Stay in the Game’

Longtime industry IT leader Sheila Jordan reflects on the need for progress in gender representation in technology.

After decades in IT, I have sat on many advisory boards for technology companies. I’m connected to the other female IT executives on these boards. We created Silicon Valley Women’s CIO Network. There are now 28 CIO members, up from eight when we started three years ago. We’re making progress.

A big part of our responsibility is making sure that IT organizations and technology opportunities are available and appealing to women. It’s been proven that decisions made by diverse groups of people are better than those made by a homogenous group. So how do we increase the number of women in tech, particularly in leadership roles?

It starts with educating our girls. We must do more to get them motivated to stay in STEM programs — science, technology, engineering, and math. That effort needs to begin at the grade-school and middle-school levels, then continue into high school, college, and beyond. We want to make sure they have a fair chance of getting a good education that includes exposure to technology and other STEM disciplines.

Then when they come into the workforce, we need to make sure we’re increasing the rates at which women are hired into — and remain in — technology roles. Those efforts have gotten better, but they still need improvement.

I would just say to all the girls, young women, and older women who are interested in being part of the technology sector: Don’t check out. This really is a great career field. It’s super challenging. We need smart, creative, curious people. We actively encourage girls and women to participate. The world is opening up and accepting us; the historical barriers are coming down. Jump in the game. We need you.

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crucial to assisting the organization’s digital journey. This has also enabled selection of the right technologies and optimizing costs related to these by having organization-wide cross-functional experiences.

Establishing Essential Elements
The most important prerequisite to digital transformation is improving data quality, accuracy, security, and governance. The co-authors of this paper don’t want to minimize the scope required for this effort — it’s a complex process that deserves significant, dedicated time and resources.

In tandem with such a data “renovation,” organizations need to know which projects drive the most strategic value. This is another major undertaking, often done with the help of a partner to help identify good proof-of-concept (PoC) projects.

Digital is a new way of doing business; customers and businesses need to see progress to maintain their support. There are no more multiyear development cycles. Waiting for full functionality and perfect testing is out; minimum viable product is in. PoCs are important because the organization needs to see results fairly quickly to keep up momentum. Businesspeople are now fully adapted to the consumer model in which they expect that everything is a work in progress.

For example, most consumers know that smartphones and apps need updates regularly. If a feature doesn’t appear in one release, it will show up in the next one. Organizations serious about digital transformation need to take a similarly flexible approach to digital projects. Each should be manageable in size, with no long-awaited “big-bang” finale. Honeywell, for example, aims to deliver something every 30 to 60 days on many of its key transformation programs.

(In terms of another type of transformation, TCS and Honeywell both strongly emphasize the importance of encouraging women and girls to pursue careers in the “STEM” fields — science, technology, engineering, and math. For Sheila’s take on this important issue, please see: “To Women in Tech: ‘Stay in the Game.’”)

Harnessing Data-Driven Opportunities
Digital opens the potential of new business models, customers, products, and services — new ways of life and work. The opportunities are beginning to come into focus in a variety of industrial segments. TCS is seeing automotive companies exploring new offerings with data at the core, such as usage-based car insurance. If they can correlate the data about customers and their driving records, about the product and accident history, and combined geospatial and demographic data, they have a whole new way to go to market. Other sectors have looked at the possibilities of selling products-as-a-service — usage-based gas turbines, for example.

This isn’t an entirely new model, but with the advent of connected products and the amount of data from the industrial internet of things sensors, there’s a whole new ability to satisfy customer needs differently. There’s no question that transformation holds infinite potential for efficiency improvements, but the real gains lie in development of new business models and product innovation.

What makes these opportunities possible is connecting traditionally siloed data. For decades, industrial companies have tried to join their two different worlds: information technology that runs the business (such as ERP and CRM systems) and operational technology that governs real-world systems (such as building controls and automation equipment). IT and operational technology (OT) weren’t designed to work together, and these systems (and their data) remain walled off. Senior executives have long lamented their inability to get a “shop-floor-to-top-floor” view of data. Digital transformation promises to finally provide them with that big-picture view. For all those reasons, TCS is currently focused on helping its clients — including many of the world’s leading organizations — become digital businesses.

As TCS has observed across its automotive and industrial footprint, B2C expectations are coming to B2B and the industrial space, rising with the “Amazon-ification” of customer experience. Customers want to know not only where their orders are now, but when they will arrive, or where they are in production. Digital
information exchange and transparency are becoming important in building trust. Thanks to these digital technologies and connectivity, those shop-floor-to-top-floor and top-floor-to-customer-door views are becoming realities.

Honeywell’s leaders see a future where the IT/OT domains are connected and constantly learning, thanks to AI and ML. Operations can be run from the company headquarters or another central hub. People are free to work on more strategic tasks and empowered to be experts. That’s the promise of Honeywell Forge, the company’s enterprise performance management (EPM) software-as-a-service that provides a holistic view into operations.

Such an EPM platform brings a unified operating model that enables autonomous controls and measures performance against goals. For example, managers can get a quick view of asset performance on a unit and aggregate level, enabling them to adjust automatically or by exception to boost productivity or head off problems. Managers can get rapid insight into energy usage and performance against sustainability goals. EPM has much to offer the manufacturing supply chain across process, discrete, and hybrid sectors.

If there’s an alert that a process has gone out of scope, the operator can see that and take action right in the EPM platform. It’s like being the air traffic controller for thousands of facilities across the globe, from a single location.

Honeywell believes EPM will transform the way large enterprises operate by providing that all-important global data view. EPM uses AI and ML capabilities that will unlock insights.

The obvious gains are significant cost savings from elimination of manual processes, increased productivity, and reduced travel and truck rolls. Even more interesting for the C-suite is the opportunity to accelerate digital transformation and better connect operational data — both genuine game-changers. For organizations struggling to quantify the advantages in real terms, Honeywell’s consulting team can help customers think through and quantify the true value that EPM can bring.

If one thing is certain, it’s this: Digital transformation is essential and the effort to achieve it ongoing. The work can be daunting, but the possibilities are exciting. No one can afford to pull back now.

Sheila Jordan is chief digital technology officer for Honeywell. In this role, she is responsible for driving digital technology transformation across the company. She has broad oversight and responsibility for IT infrastructure, services, and data management and governance, as well as for supporting the expansion of software development in support of Honeywell’s digital initiatives, go-to-market offerings, and customers’ solution needs.

Previously, she was senior vice president and chief information officer at Symantec, senior vice president of communication and collaboration IT at Cisco Systems, and senior vice president of Destination Disney at Walt Disney World.

Among other awards and honors, she was named among the “Top 100 Women in Technology” in 2021 by Technology Magazine as well as a “Woman of Influence” by Silicon Valley Business Journal and one of the top 25 women leaders in cybersecurity by The Software Report, both in 2019. She serves on the board of directors for Slack Technologies Inc. and FactSet.

She received a bachelor’s degree in accounting from the University of Central Florida and an MBA from the Florida Institute of Technology.

Subhash Sakorikar is director and head of strategy, growth, and transformation for automotive and industrial manufacturing at Tata Consultancy Services. Based in Troy, Michigan, he is responsible for driving revenue through growth and transformation services for the automotive and industrial industry solutions unit. He leads a diverse global team of more than 500 professionals serving client companies, including many in the Fortune 500. Previously, Subhash worked as industry advisor and director of customer experience at TCS. Prior to TCS, Subhash worked with Tata Motors and Tata Hitachi Construction Machinery as industry manager for construction and mining equipment and in many other leadership roles as a regional and national product manager for over a decade, overseeing sales, service, and product management operations.

He received a bachelor of engineering degree with honors from SGSITS and an executive postgraduate diploma in management from XLRI, India.
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