Propelling Intel's Growth

2021-2022 Intel IT Annual Performance Report – 20th Edition

Insights From Our CIO

Intel has long been at the forefront of radical innovations that have revolutionized the way we live and work – beginning with the development of the first microprocessor, transforming the world as we knew it by making a new era of computing possible. Over the next 50+ years, Intel has continued to transform industries, driving business and society forward by creating the underlying technology powering the digitization of everything.

2021 marked another notably transformative year at Intel as we welcomed our new CEO, Pat Gelsinger, and his new vision and direction for the company that will plant us firmly at the forefront of the digital revolution for years to come. As Intel embraces a bold new strategy to transform beyond a PC-centric company, to one that addresses the needs of the new data-centric world, significant investments are being made to accelerate innovation, expand our manufacturing capacity and build our foundry business to meet the growing demand for semiconductors globally.

IT has a critical role to play in delivering on our growth strategy, helping our customers transform their businesses and defining the future of work – the "new normal" – as we complete a second year of the pandemic. Through tight partnership with our business leaders, we have prioritized three key transformation areas which will deliver the greatest value and impact for Intel:

- Accelerating Intel's product innovations to market
- Enabling customer scale through intelligent operations and exceptional partner, developer and seller experiences
- Sharpening our business planning and execution that better align our capabilities to support demand

This transformation is about changing our culture, enabling our people, modernizing our technology and driving greater accountability. Through strong alignment with our business partners, we are rethinking traditional business processes and leveraging best-in-class technology solutions to drive significant value realization for Intel and our customers. Additionally, we are continuing to deliver the next generation of Intel's security posture, drive stable and efficient operations, create engaging and productive experiences for customers and employees and build a diverse workforce with rewarding and challenging career paths.

By delivering leading-edge technologies like artificial intelligence (AI), edge-to-cloud computing and unleashing the power of data, we are accelerating our product innovations as we build new fabs, expand our manufacturing capabilities and modernize our solutions. We are achieving a deeper understanding of our customers to deliver exceptional experiences and supercharge Intel's growth through automated intelligence. We are also unleashing the power of our workforce with new services such as AI Everywhere, enabling teams to better utilize AI technology to solve high-value business problems and scale where it matters most for Intel. Our IT organization is readying the next generation of breakthrough technologies that will power new innovations and help our customers capitalize on the fastest-growing opportunities.

Achieving all of this requires the best talent on the planet. Our efforts to create a diverse and inclusive workforce are never complete, though we are proud of our progress, and we continue to set ambitious goals that establish us as leaders in the industry. We are building the workforce of the future by developing the strategic and emerging technology skills required, so that as Intel grows, so do the opportunities for our people.

As we set the course for a new era of innovation and product leadership, we will continue delivering world-class technology and solutions that support Intel's employees and our robust ecosystem of customers and partners around the globe. In this 20th edition of the IT Annual Performance Report, I am delighted to share the progress we have made, the results we are driving with our business partners and the learnings we are taking forward as we continue to transform Intel and the semiconductor industry. I encourage you to share your thoughts with me on LinkedIn or Twitter and visit intel.com/IT to learn more.

Archie Deskus
Senior Vice President and Chief Information Officer, Intel

"IT has a critical role to play in delivering on our growth strategy, helping our customers transform their businesses and defining the future of work."

— Archana (Archie) Deskus, Intel Senior VP and CIO

In this issue

~4,400 IT Employees **SUPPORT** ~121K Employees **AT** 138 Intel Sites **IN** 53 Countries

Diversity

29.4% Female

17.7% URM*

Satisfaction

80% Satisfaction with IT

83% IT Employee Satisfaction

Innovation
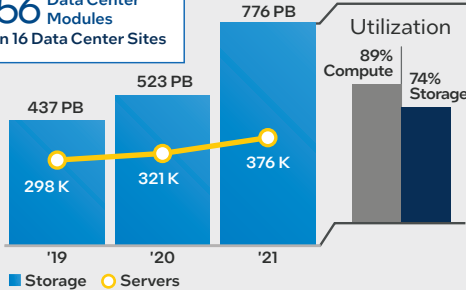
2,493 Invention Disclosure Form Submissions
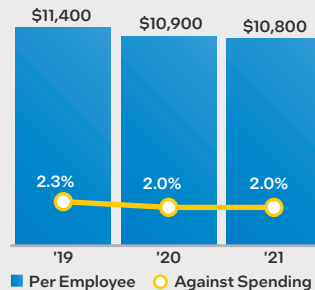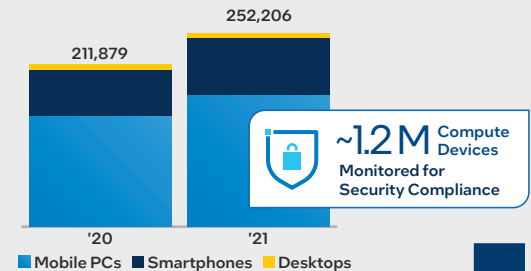
346 Patents Granted

Infrastructure

56 Data Center Modules in 16 Data Center Sites

776 PB
523 PB
437 PB

376 K
321 K
298 K

Utilization
89% Compute
74% Storage

'19   '20   '21
■ Storage ○ Servers

IT Spending

$11,400 $10,900 $10,800

2.3%   2.0%   2.0%

'19   '20   '21
■ Per Employee ○ Against Spending

IT Managed Devices

252,206
211,879

~1.2 M Compute Devices Monitored for Security Compliance

'20   '21
■ Mobile PCs ■ Smartphones ■ Desktops

USD >1 B
Revenue influence through partnership with sales

USD 1.3 B
Direct business value delivered through new solutions

USD 1 B
Supply chain savings from global trade optimizations

Silicon Design & Product Engineering

USD ~200M
Capital avoidance achieved through 1% area reduction

Avoided 3-Month Delay
Using machine-readable flow, saved one stepping

59% Compute Capacity Increase
Allowed product design acceleration with increased utilization and cost efficiency

Manufacturing

50% Reduced Test Time
Machine learning and predictive analytics drove test effort optimization while maintaining quality

Smart Factory Automation
Use of advanced analytics to process more than 6B sensor data points per day per factory enabled information extraction in 30 seconds vs. 4 hours

Enterprise

Virtual Assistant Center
~1.3M self-healed and >70K self-help fixes

One Unified Developer Experience
Consolidation of 26 microsites improved our customer experience for 2M unique users

AI Deployment in 25 Minutes
Our proprietary solution enabled us to automate and accelerate deployments of AI models to production

Data as of January 1, 2022. Employee count represents an average of beginning and end of year.
*U.S. Under-represented Minority (URM) Diversity: 11.2% Hispanic; 5.5% African American; 1% Native American.

Transforming the Future of Intel

Automation, artificial intelligence (AI), a modern infrastructure and efficient processes are supercharging Intel's capabilities – setting us up for the future. Our clear path to success lies in combining faster times to market, a strong focus on great experiences for our customers, developers and sellers, and streamlining business planning and execution.

Accelerating Intel's Product Innovations to Market

We are focused on cutting product development time by accelerating the decision-making process and reducing waste across the product-development lifecycle, while maintaining the highest level of quality. To accomplish this, we are streamlining our data and business processes, standardizing our technologies, modernizing our data center infrastructure and expanding our AI capabilities.

Product traceability is foundational to our business transformation. We are connecting data from the moment a product is conceived, through customer delivery, until its end of life. Our Bill of Material & Trace solution provides our software and silicon

engineering teams with visibility to components across the product lifecycle (PLC). This improves product quality and delivery time by minimizing redundancies in development and debugging processes, resulting in better customer satisfaction.

Connecting our data solutions and establishing scalable frameworks enable simplified business processes. This year, we helped transform processes in our development criteria at each milestone, improving synchronization between design and manufacturing. We've simplified our silicon development criteria by 75%, our PLC collaterals criteria by 45% and have consolidated 40 governance checks into one intellectual property (IP) design business process.

Cloud-based technologies, standardization, unified data and AI are enabling us to achieve customer scale.

Simplifying business processes improves our engineering efficiency, a key ingredient for our acceleration. We're consolidating our engineering flows for zero-touch software and hardware development pipelines, focusing on moving to cloud-based technologies and driving standardization across DevOp disciplines. Intel's state-of-the-art high-performance computing (HPC) environment for silicon design is vital for this. We'll discuss more about that on page 11.

We continue to leverage the power of AI as a key enabler for accelerating product development. Solutions we have deployed allow us to streamline pre-silicon validation for our processors, eliminating more than 20% of post-silicon bugs. This earned the team an Intel Achievement Award – the company's highest internal recognition for high-impact projects. Additional solutions have reduced test-time by 50% without impacting quality and can accurately predict faulty units, identify root causes and enable workarounds to avoid yield loss.

Achieving Customer Scale

To achieve Intel's strategic growth outcomes, we are focused on delivering highly valued experiences and capabilities to our complex and ever-growing ecosystem of developers, partners and customers. It's critical that their interactions with us are seamless, regardless of the channel they use. Accomplishing this requires us to span Intel's diverse portfolio of products, services and software. In partnership with our Sales and Marketing Group (SMG), we have defined three key strategic priorities to accomplish this:

1. Streamline foundational customer data across all our processes.
2. Deliver scalable and engaging experiences to our developers, partners and sellers.
3. Unleash data-driven and automated intelligence for operations.

Customer engagement spans a broad range of interactions across numerous channels and processes, entailing everything from product design and manufacturing to sales, marketing, pricing, rebates and more. If data from these interactions is not connected, we lose the opportunity to glean important customer insights, which is why we are integrating and unifying foundational customer data across all our processes. By breaking down data silos, we understand our customers better, accelerate decision making, provide personalized experiences and give sellers a competitive edge. Unified Customer Data (UCD) accomplishes this through end-to-end modernization of Intel's customer account data-management strategy, allowing us to identify customers across all their interactions with Intel. We've developed a standard data model and data quality governance using a new cloud-based master data management solution. We are focused on integrating this single trusted source of customer data with our core customer processes.

Providing scalable and engaging experiences for customers requires a platform that provides interactive insights on how Intel can best suit their needs. For this, the Unified Experience Platform (UEP) collects and synthesizes all customer interactions across the company.

For example, when you – a customer – access an online white paper one day and contact a seller the next, that seller can view the same information and use it to provide a more tailored experience.

Providing scalable and engaging experiences for our developers, sellers and partners helps to ensure they have the information, connections and tools they need. We launched the Intel Developer Zone (IDZ), which eliminated a maze of microsites and complex permissions that our technical audience had to navigate to access resources. We consolidated 26 developer microsites into a single resource in just eight weeks. IDZ is a one-stop shop for more than 400 software tools, software developer kits (SDKs) and libraries, Intel® oneAPI 2022, and an improved DevCloud environment that includes the latest Intel technologies. It better enables software and hardware developers to build great solutions with Intel technology – harnessing innovation and fostering disruption.

In parallel, Intel's sales teams are scaling to meet the diverse needs of a growing and complex customer base. Our Sales Assist application analyzes a wide range of customer data and provides AI-based actionable insights, enabling account managers to better identify key areas to help our customers. Sales Assist integrates with our customer relationship management (CRM) tool, providing 15 types of sales assists to more than 1,600 sellers for 7,800 accounts. Last year, Sales Assist provided 51,000 assists and garnered an 86% positive rating. We've also continued to grow our Sales AI platform, which had an impact of USD 300 million in total revenue in 2021.

To underscore the need for data-driven, automated intelligence for operations, we are improving our rebate program. Every year, Intel distributes billions of dollars in rebates using a manually intensive process. Last year, we defined a standard end-to-end process for handling rebate agreements and modernized our rebate system, which enabled automated validation. Since then, we have automated more than 38% of our rebate payments and will complete the remainder this year.

Business Planning and Execution

As we simultaneously design and manufacture increasingly complex products, we are focusing on improving our business planning and execution. Our goal is to meet customer expectations and scale new products by standardizing and simplifying our business processes, establishing connected and trusted data flows with modern data platforms, and developing solutions with great experiences that help end-to-end supply-and-demand visibility and control.

Integrated with our CRM tool, Sales Assist provides 15 types of assists to more than 1,600 sellers for 7,800 accounts.

In 2021, it provided 51,000 assists and had a total revenue impact of USD 300 million.

Scaling Business Operations for Advanced Products

The next generation of Intel's modular products is the most complex in our history. It consists of internal and external silicon with a greater number of product combinations. This complexity is forcing us to change how we plan, source, make, sell and deliver the products and key capabilities necessary to move the company forward. We are creating a unified planning process with integrated tools that will orchestrate a cohesive demand response both internally and externally. We're also implementing product bill of materials (BOM) enhancements that can support the complexity of these new products and are automating our collaboration capability with key partners in areas such as forecast management and logistics. New capabilities will improve our supply chain floor-to-floor visibility and manage material entering or exiting a new manufacturing flow at various points versus the more serial and traditional flow.

At the end of 2020, in partnership with Intel's manufacturing and supply chain operations, we developed new capabilities for complex products integrating multiple chiplets and key product intercepts. Bolstering our planning efficiency and process visibility, these new capabilities include product data management (PDM) and master planning schedule solutions, factory and external silicon visibility, and integration with external silicon and key raw material providers. These capabilities ensure that we are able to orchestrate the entire network, ensuring smooth factory operations.

Managing Supply Chain Risk and Uncertainty

Intel's supply chain is vast and complex. Each year, we fulfill more than a million orders and ship more than a billion units. It's not easy to stay ahead of the game – especially as we have grappled with the pandemic, supply chain constraints and mobility restrictions.

With the business changes, logistical challenges and regulatory responses that are inherent in today's dynamic market, managing supply chain risk and uncertainty is a core focus for our supply chain organization. Intel has launched initiatives across our sourcing, procurement, contract lifecycle management and supplier relationship management platforms. This includes implementing a Country-of-Origin initiative to address complex regulatory regimes and reduce tariff risks, all while improving

our compliance and auditability – which yield, or avoid, significant tariff costs. Additionally, Intel has put in place an Integrated Risk Management platform to oversee all our risk planning and mitigation efforts, including the ability to proactively manage risk in our raw materials supply base.

Integrated Business Planning

With today's product and supply chain complexities, a strategy for long-range planning is paramount. Our integrated business planning transformation is focused on the one- to three-plus-year horizon and will synchronize Sales, Manufacturing and Finance on our long-term strategies. Due to the level of capital investment required to advance our Intel IDM 2.0 strategy, we're enhancing our integrated planning for factory construction, equipment installation and qualification.

Finance Modernization

We are extending visibility and transparency of business operations all the way to our financial systems. The goal is to connect all of our forecasting models and automate the handoffs and processes across revenue, inventory and capital and operating expenses. We are working to enable connected and functional data that will improve operational decision making and enable differentiated methods of capital planning. As we plan and build new factories, forecasting the necessary capital and tracking spending are essential for measuring progress and making decisions. Additional capabilities – such as increasing leverage of our core enterprise resource planning systems and automation – drive efficiencies for our finance team and accelerate the pace of information downstream to decision-makers. By modernizing and automating routine transactional processes, we can empower the finance organization to become a strategic advisor on Intel's transformation.

Dig Deeper

- Discover the All-New IPA Web Page
- Improving Sales Account Coverage with AI White Paper

Fueling Business Growth

As Intel invests in growth, IT is there to enable those investments to improve manufacturing operations, boost design capacity and build a highly functional hybrid workplace.

Enabling the Factory of the Future

Intel is investing heavily in increasing factory capacity to support growth in our manufacturing and expanding foundry business. IT provides the underlying systems that make our factories smarter, faster and more efficient. In 2021, we partnered with manufacturing to deliver more than USD 451 million in value by improving labor efficiency, equipment productivity and quality yield. We remain focused on the future and are readying the next set of manufacturing technologies that will power new breakthroughs. The use of AI and automation will only increase as Intel builds new fabs and expands existing facilities to accommodate additional products and process technologies.

In 2021, we made major strides in several areas related to Factory of the Future technologies. Virtual reality (VR) and augmented reality (AR) hold immense promise for the manufacturing

process, particularly when it comes to maintenance, reducing training times and increasing employee efficiency. Many companies have been slow to adopt these technologies due to the administrative overhead of provisioning and maintaining fragile and expensive equipment. However, after seeing impressive results, Intel now considers them critical to our operations. Our team has provided the infrastructure, processes and tools necessary to make AR and VR enterprise-ready.

We also use AI solutions that cluster and classify manufacturing failure patterns known as gross failure areas (GFAs) to accelerate end-of-line yield. This function was previously performed by yield analysis engineers at Intel's silicon wafer fabs. Manual detection, however, cannot scale to meet our growing number and volume of products. Our AI solution, with its advanced machine-learning algorithms, autonomous end-to-end detection and integration with existing yield analysis tools and systems, is

much more efficient, resulting in faster remediation and improved overall yield. We're expanding this approach to find inline problems quickly and accurately, such as failing tools, fleet mismatches and process parameter shifts.

These solutions are unique to Intel and enable the early detection of GFAs (including issues that would not have been identified by a human). We can also detect multiple GFAs on a single wafer, enabling multiple root causes to be fixed simultaneously. With these solutions deployed across all Intel factories, one factory can easily communicate an issue to the others, providing 100% coverage of wafers and lots and a 90% accuracy rate when it comes to detecting baseline patterns.

We are always retraining our models, creating algorithms to identify new patterns, and because of our Copy Exact infrastructure, scaling across all our factories. These solutions will continue to expand over time, improving end-of-line yield for more products and fine-tuning new silicon process technologies.

Continual Improvement of Manufacturing Operations

Our work laid the foundation for many of Intel's most impressive manufacturing achievements in 2021. The use of sensors for predictive maintenance helped us achieve an availability rate of 99.98% across all factories, surpassing our 2020 performance rate by 37%. With AI applications such as ChartBot, we reduced our per-wafer cost by 26% and reduced manual data mining by half. Currently, we have 128 new AI and analytics projects in

manufacturing that are expected to provide significant value to the enterprise.

One of our great pandemic success stories has been the development of a hardware and software platform for use by technicians from our remote operation center (ROC) to monitor and control factory operations from home, something we continue to invest in today. Intel was recognized for this work in 2021, winning both the CIO100 and Future Edge 50 awards. The ROC has delivered improved remote operations and monitoring capabilities, as well as proof of concept for AR applications. There's great potential for such applications in the areas of remote training and remote assists for on-site equipment repair. Based on the ROC's success, we're looking at ways to implement a more centralized set of operational models to optimize our factories across multiple regions and unlock significant cost savings.

The Foundry Business and Federal Contracting

As part of the IDM 2.0 strategy, Intel Foundry Services launched in 2021 and will offer manufacturing services to semiconductor designers outside the company. We also announced plans to expand manufacturing operations in Ohio, Arizona and New Mexico. Intel has expressed strong
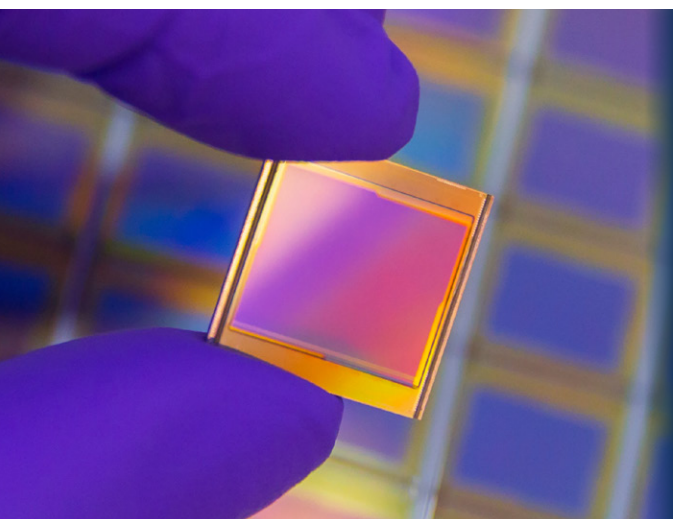
Our 2021 Manufacturing achievements include:
- 99.98% availability rate
- 37% decrease in customer impact
- 26% reduction in cost per wafer

> Using automation, we shortened design task turn-around by 60% and reduced compute requirements by 45%.
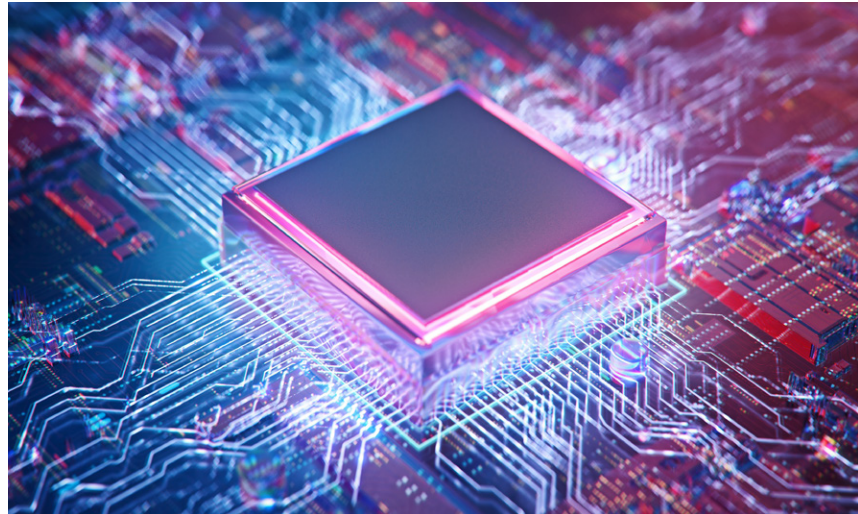
support for provisions of the CHIPS for America Act, a bill in the United States (U.S.) Congress that promises to revitalize U.S. semiconductor research and development, increase chip-manufacturing capacity and grow the semiconductor workforce, all of which are essential measures to bolster supply chain resilience and domestic production. IT is enabling Intel's growth strategy by providing capabilities to scale from early design engagement to high-volume manufacturing supply logistics, by enabling protected, unified and seamless collaboration between companies, and providing secure data access and protection of design data.

This past year, we expanded our Government Security Solutions Program to ensure the enterprise stays in compliance with the government's security ordinances, which includes maintaining secured environments to protect government data. On this front, we established an environment to enable secure collaboration on sensitive documents for the United States Government (USG). For the Intel Federal secure boundary, we submitted our score for safeguarding Covered Defense Information (CDI) and Cyber Incident Reporting to the Department of Defense (DoD) Supplier Performance Risk System (SPRS). This is a precursor for our Cybersecurity Maturity Model Certification, which is necessary for doing business with the DoD. We completed an enterprise-wide assessment of security protocols against industry standards and preparation was done on a proof of concept for a Secure Design Environment to handle export-controlled International Traffic in Arms Regulations (ITAR).

Expediting the Design Process With HPC

High-Performance Computing (HPC) is vital when it comes to design and innovations of nanometer and angstrom-level process technologies. Hyperscale HPC allows Intel's silicon engineers to design complex chips running billions of transistors apiece, which are key to speeding up today's demanding workloads.

Managing Intel's HPC environment, with its ever-growing demand for server and storage capacity, is one of our top priorities. Demand for compute capacity has increased annually 31% on average over the past decade – but it spiked to 43% in 2021. We responded by adding a million cores of Intel® Xeon® processors to our HPC environment last year for a total of 3.3 million cores. We also increased the environment's storage by 70%, exceeding the annual storage growth rate of 39%, for a total of 653 PB.

Our HPC environment is now in its sixth generation. Between 2005 and 2020, we oversaw a 293x growth in tapeout compute capacity. We take a disciplined approach to change management and run our data centers like factories, enabling a 107x reduction in compute issues impacting tapeout. We hold the deep expertise Intel has built around HPC workloads. Our management of Intel's HPC environment gives us the ability to collaborate closely with design engineers to right-size batch jobs for improved turn-around time.

Our HPC team made significant strides in 2021. By creating dedicated HPC clusters, they shortened a complex stage for a new system-on-a-chip product from two weeks to a single day. We bolstered the

efficient use of compute and storage hardware by using policy-based automation to identify targets for waste reduction. HPC and design engineers worked together to reconfigure the way computing power is allocated to batch jobs, which enables more compute capacity for critical jobs. These efforts resulted in a 45% reduction in compute required for critical tasks and a 60% improvement in turn-around time.

In 2021, we added 59% more compute capacity in our design mega hub data center. This allowed us to accelerate product design with our highest utilization and cost efficiency to date. Our innovations and smart use in disaggregated servers, network-attached storage, new network topology and an extremely energy-efficient and low-cost data center facility design has delivered more than USD 720 million in value over the past year. Our data center techniques have allowed us to achieve unit-cost levels three times lower than hosting design workloads on public cloud infrastructure.

Evolving our Multicloud Strategy

Like many organizations, over the last decade, we have been evolving our cloud strategy. We initially built our enterprise private cloud, recognizing

the potential for increased agility, scalability and substantial cost savings. Historically, we have employed both private and public cloud resources, offering choice and flexibility in addressing our business needs.

Our multicloud strategy lets us use the public cloud to foster innovation and agility. It also enables us to maintain a security posture that helps protect Intel's valuable data, regardless of where it is stored, and improves the user and developer experience.

Although we've had a multicloud strategy for several years, we continually try to streamline and enhance it. As our cloud service providers and technologies evolve, we will evaluate (across people, process and technology) and update our strategy and apply new best practices as needed.

Scaling Artificial Intelligence

From making products more efficient to assisting salespeople and automating tasks that were once done manually, we're using AI to turn data into insights and insights into real-time, automated actions through every level of Intel's operations. Significant value was delivered from solutions that were implemented across manufacturing, validation, sales and marketing.
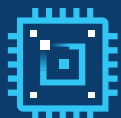
Ten-Year Design Environment Efficiencies:
- 44% savings with disaggregated server innovation
- 17% higher performance with a NUMA-Booster solution
- 35% higher performance from faster servers

Manufacturing complexity grows in direct relation to the number of products Intel designs, produces and supports. Adding to this complexity is a shortfall of workers with knowledge in AI. In response, we're building an AI Center of Excellence, pairing AI with existing knowledgeable workers to automate some of their judgement-based tasks and significantly improve their productivity. Intel has more than 500 AI solutions in production that use several different algorithms achieved through our ability to scale. We envision a day when thousands of AI solutions are applied to a limitless range of business challenges. Our AI work has won the Intel Achievement Award four times in the last three years.

We've been able to accelerate and automate the development, deployment and maintenance of machine-learning models thanks to Microraptor, a set of machine-learning operations (MLOps) we built, which are reused across multiple AI platforms to enable AI at scale. Microraptor's continuous integration, delivery, automation and reuse of building blocks allow our data scientists to spend more time concentrating on model development instead of deployment details and business processes. We can now deploy new models in 25 minutes or less; in the past, this process would have taken days or weeks. Also, Microraptor's systematic quality metrics minimize the cost and effort required to maintain the hundreds of models we have in development.

Staying competitve requires Intel to focus on continuously improving battery life and maximizing performance. To achieve this, we are building AI inside. In partnership with Intel's Client Computing Group and Data Platform Group, we are embedding AI algorithms into Intel products that dynamically adjust the power limits of our processors based on the application's workload. This means you get added turbo burst when needed and extended time in turbo for sustained workloads. We're also using novel algorithms to reduce chip voltage at lower temperatures to improve battery life and performance. The next generation of Intel® Core™ processors will include more than 20 AI solutions across all layers of the product. These AI solutions will do everything from defining how chips balance battery life and responsiveness to maximizing performance. The algorithms have contributed to performance gains of more than 40% for specific workloads and a 5% increase in battery life for some mobile devices.

Finally, we launched the "AI Everywhere" program, a central knowledge base that Intel employees can use to grow their AI skills. This collection of self-service tools shows how a vast range of problems can be solved with AI and consolidates resources to be shared across the company. A key part of the program is upskilling employees through coaching, mentoring and consultation. We also provide on-demand tailored AI deliverables for our business units.

Dig Deeper

- Data Center Strategy Leading Intel's Business Transformation White Paper
- Green Computing at Scale White Paper
- Push-button Productization of AI Models White Paper
- Building an AI Center of Excellence Blog
- Increasing Product Quality and Yield with Machine Learning White Paper

Inspiring and Investing in Our People

Our employees are instrumental to Intel IT's growth and transformation. Our recent shift in business strategy poses not only new opportunities for our IT employees, but also opportunities to renew our obligations to one another as a community and a culture.

We're building the organization not just for today but for the future as we grow. Diversity and inclusion are core components of our growth strategy, and we believe they make us a more vibrant and innovative company. We strive for a Responsible, Inclusive and Sustainable world, Enabled by technology (RISE). While we're proud of the diverse representation in IT, being slightly higher than Intel overall, we continue our relentless pursuit of attracting and cultivating a diverse and inclusive set of employees. Both Intel and IT remain committed to our initiatives to double the number of women and underrepresented minorities in senior leadership roles and exceed 40% representation of women in technical positions.

In 2020, we conducted "listen and learn" sessions to better understand diversity and inclusion challenges employees face and heard their ideas for improvement. We believe this is an important step in addressing these issues. Personal experiences and accounts from our team members are powerful and provide us with better insight to how we can cultivate a culture that overcomes them.

In 2021, we began implementing programs to improve. We now offer a sponsor/protégé program for our female and underrepresented minority leaders that matches them with our most senior IT leaders. Protégés can seek career guidance and advocacy from their sponsors as they progress through their careers.

Our Women@IT program provides additional support for career development in IT through community, connection, information, inspiration and motivation. This program includes "lean-in circles," where small peer groups meet around the globe to learn and share experiences, a mentoring program with confidential coaching and encouragement, quarterly IT industry talks, and an annual Women@IT leadership summit. In 2021, the summit focused on leadership and how employees can apply these aspects to their careers to move themselves – and Intel – more rapidly forward. While the Women@IT program is focused on advancement of women, we encourage and welcome engagement for all members of our global IT team.

Recognizing we had more to do to improve representation and retention of our Black/ African American employees, Intel initiated the Talent Keepers leadership program as a career-development pilot. Designed for Black/ African American employees across different levels of the organization, the program includes career development guidance as well as additional engagement strategies for managers to ensure proactive inclusion, feedback and equal opportunities.

We want IT to be full of rewarding and challenging career paths, where our employees feel as though they can grow as the company grows. We're committed to creating an environment where IT employees are continually learning new skills to empower their career paths and are receiving honest feedback and praise.

We are proud of our progress in these areas but know our work – when it comes to employee engagement, diversity and inclusion – is never done. Our most recent employee engagement survey saw an increase in every category we measure with an overall IT employee satisfaction rating of 83%.

IT is proud to be an engaged part of the new One Intel.

Building a Hybrid Workplace As Intel Grows

Providing flexibility and rich experiences is key to a productive global workforce. Our goal is to enable remote and on-site work where it drives the best output and ensure everyone has appropriate access to the systems, resources and opportunities they need to thrive. IT was already investing in the remote working model before COVID-19, working to make Intel location-agnostic and leveraging outstanding talent wherever it might be found. The pandemic, however, compressed years' worth of change into a matter of months. Almost overnight, we saw attitudes and preconceptions about remote work change. With these changes came opportunities to improve operations, deepen collaboration across companies and teams and accelerate change to better serve end-users.

Intel is reimagining how we work and collaborate when employees return to the office – whether it be for a few days a week or a few days a month. As a global corporate leader, Intel is committed to being a "hybrid-first" company and will lead by example to help define what the workplace of the future looks like and how it operates. IT is doing its part and focusing on providing a dynamic, flexible and inclusive workplace that enables all of Intel's 121,000-plus employees to execute quickly and efficiency.

Ninety percent of Intel's employees state that, even after their sites fully open, they would prefer to work in a hybrid model. We're taking that to heart and will be adopting three working models: on-site, fully remote, and hybrid. Within those models, we must consider three broad employee communities: business office, engineering and manufacturing. That said, we still believe human connection fuels innovation and we need to evolve the way we do business – from voice calls to online meetings and instant messaging.

We're modernizing Intel's hybrid workplace while supporting employee growth in several ways. This includes moving to a more standardized environment to eliminate equipment compatibility issues. As employees shuttle back and forth between home office and onsite work, different laptops, chargers and peripherals can create barriers to productivity.

Intel is reimagining how we work and collaborate to create a modern, hybrid workplace that enables remote and on-site work, improves operations and deepens collaboration.

In this new way of working, we've focused on creating a more balanced and inclusive meeting experience for in-person and remote attendees. Traditionally, remote callers have been at a disadvantage, as in-room meetings tended to overlook virtual attendees. Through a combination of modernized meeting software and in-room technologies, we've upgraded the meeting experience to provide phenomenal audio and video capabilities with crisp sound activation that vividly brings the meeting experience to remote workers and gives them a stronger presence in the room to foster stronger collaboration.

We have also freed employees from VPN requirements by moving shared drives to the cloud, providing not only an excellent mobile experience, but enabling a better work-life balance in an ever-changing pandemic landscape. Massive investments in network optimization ensure an equitable experience for employees regardless of their location. Our move to the cloud means new hires, who might not get to meet their colleagues in person, can build a rapport with them through technology. Digital whiteboarding for virtual map days, virtual breakout rooms for small-group discussions and the ongoing expansion of our video capabilities allow co-workers to connect and engage from anywhere.

To combat this, we're taking a page from our manufacturing environment's Copy Exact methodology and moving to a standard plug-and-play model to create consistency that's critical for employee productivity. We're also proactively managing supply chain issues to support increased employee hiring and to maintain a three-year laptop refresh cycle. Our priority is to provide our employees with the high-performance computing products they need to do their jobs effectively.

We're driving productivity and collaboration by:
▪ Establishing standard, plug-and-play equipment
▪ Modernizing meeting software and conference rooms
▪ Replacing VPNs with a better, cloud-based experience

Intel IT has freed employees to work seamlessly from home, onsite or anywhere.

Taking Operational Excellence to the Next Level

To power Intel's growth and transformation, IT must be a best-in-class organization driven by a One Intel mindset that spans company culture, processes and data. At the same time, we must meet the challenges of an ever-changing world head-on. Let's look at some of our foundational capabilities that help propel Intel forward.

Standardizing Our Business Practices and Data

Intel generates and uses vast amounts of data – but data has limited value if it can't be trusted or is inaccessible and disorganized. In the same way Unified Customer Data (discussed previously in "Achieving Customer Scale") standardizes our view of customer-related information, similar data initiatives are happening across Intel.

These initiatives are supported by several capabilities. Our Find Data capability provides access to an enterprise-wide data catalogue that's vital to understanding, managing and trusting data for governance and business purposes. And our Enterprise Data Catalog helps employees easily find, trust and understand data in common business language. Additionally, Datasets@Intel allow business units to share datasets via a central depository.

Data Governance Framework

Organizations need a clear connection between data strategy and business strategy, with every employee understanding their role in harnessing the value of data. To enable this, we implemented a new data governance framework to cover critical customer, product and supplier information. The framework focuses on policies and standards, data integrity, data literacy and data management, while minimizing risks to data security and privacy regulations.

Modernizing Our Technology

Like many organizations, we continue to find ways that reduce technical debt across the company while pursuing new and exciting opportunities to modernize.

Intel IT invented disaggregated servers in 2016, which has enabled us to refresh CPU/DRAM modules without involving adjacent components that remain up to date. Over the last six years, we have expanded our use of disaggregated servers, which has helped drive down total cost of ownership (TCO) and total cost to the environment (TCE). We have now deployed 220,000 disaggregated servers, using 13 different motherboard designs. So far, our results have led to a 44% reduction in refresh costs, a 77% reduction in technician time spent on refresh, an 82% decrease in the shipping weight of refresh materials and a more than 50% reduction in e-waste.

In the HPC environment, we're moving from bare metal to a container-based private cloud solution, providing an enhanced experience for design engineers and addressing issues of scalability, performance and flexibility. We have automated tiered storage management, so data that's not used as much is moved into less-expensive storage solutions, saving Intel millions of dollars a year.

We've also upgraded our end-user and support experience to better serve Intel employees in the hybrid work environment. By enhancing our tools to provide our employees a single "pane-of-glass" view, they can better monitor the health of their devices. This has enabled us to provide self-help and self-heal (silently detect and fix the issues) technical solutions where possible through our Virtual Assistance Center (VAC). The VAC is an in-house tool that we have developed and built over a period of time. This is deployed across all our end-point devices and enables the end-user computing team to auto-detect and auto-resolve issues that arise. We also launched AskIT, a chatbot built on a conversational AI platform that provides fast and accurate technical help when needed. In 2021, these new tools resolved more than 1.3 million issues (with 70,000 fixed via self-help), reduced the number of IT incident tickets by 30% with a 40% faster resolution time and allowed our service desk to meet its service-level agreement 95% of the time with an escalation rate of less than .05%. All of these innovations support the long-term objective to provide end-users with the right tools to fix issues without IT help-desk support.

Securing the Enterprise

A solid security posture is critical for enabling an enterprise in a modern IT world. For decades, information security control relied on perimeters to gate access – meaning those inside the perimeter were "trusted" and could access most applications and services. With the growth of mobile technology and the cloud, we're moving to a zero-trust security model, which takes into account the context of the user, device, location and risk to dynamically define security policies to control who can access what.

This approach enables Intel to create a beyond-the-edge security strategy that allows policies to be enforced across devices and applications, regardless of hosting or device type. This universal access model provides per-application connectivity instead of full corporate network access. It also allows us to route cloud traffic directly through the internet, enabling business data inspection while preserving privacy. The zero-trust model is essential for protecting critical IP, data and assets in flexible and distributed environments. We'll continue to adopt new capabilities as they mature to improve employee productivity, while keeping Intel both secure and legally compliant.

In 2021, the external threat landscape showed a marked increase in both the sophistication and frequency of cyberattacks. Our Cyber Risk Reduction team worked with executive sponsors, business representatives and application owners to conform to a single cybersecurity framework. If something is connected to Intel's network, it will be visible, compliant and correctly managed.

CSO 50 AWARDS

CISO CHOICE AWARDS

Dig Deeper

- Intel Takes On E-Waste With Disaggregated Servers Blog
- Disaggregated Servers Drive Data Center Efficiency and Innovation White Paper
- Next Step to Multicloud: Native Cloud Security Controls White Paper

Looking
to the
Future

The past two years have brought fundamental changes to our industry and business. As we shift from moving fast under fire to applying the lessons we learned to create the culture we want to carry forward, we are more focused than ever on delivering on our growth strategy.

In times of crisis, technology has proved paramount – accelerating transformation faster than anyone believed possible. Going forward, we have the opportunity to maintain the same sense of urgency and innovation to deliver meaningful results for Intel and our customers, as we continue to create world-changing technology that improves the life of every person on the planet.

Keep an eye on the future by joining us on our journey at **intel.com/IT**.

Read more from our IT leaders and subject matter experts on the **Intel Community**.

intel.