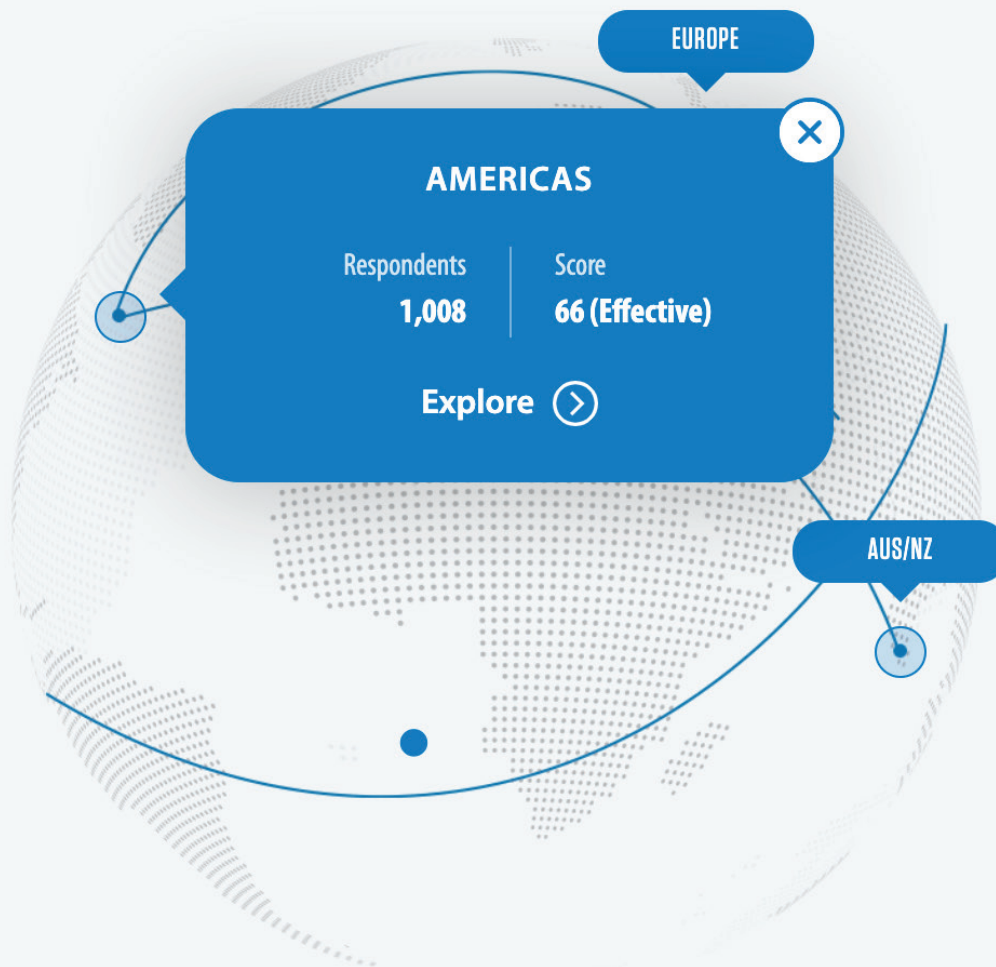HIGH TECH AND MANUFACTURING

CLOUD UNLEASHES INDUSTRIAL DIGITIZATION, UNLOCKS NEW CAPABILITIES

$414 Billion in Profits can be Gained Using Cloud for Business Growth: Infosys Research

EXPERIENCE CLOUD RADAR

Introduction

Multiple facets of technology continue to shape the world. Today, cloud computing is revolutionizing how businesses communicate, operate and innovate. In their latest Cloud Radar study, Infosys Knowledge Institute examines how high tech and manufacturing companies are putting cloud computing to work in their business lines. High tech and manufacturing includes three industries – high technology, industrial manufacturing and automotive – where cloud computing is making a significant impact and paving the way to faster growth and success. As a group, this cluster demonstrated the best performance in putting cloud to work for business benefits.

With a single connected car projected to generate 30 terabytes of data per day and a smart factory projected to generate a petabyte of new data daily, high tech and manufacturing businesses are turning to cloud for storage and scalability to exploit an unprecedented quantum of data.

The fast-growing tech industry is on pace to reach $5 trillion in revenue in 2021 and is projected to see a 5% compound annual growth rate (CAGR) through 2024.[1]

In an industry where speed, agility and flexibility are paramount, the cloud helps tech firms stay ahead of the competition. For manufacturers, cloud computing offers more accessibility and data sharing between operations and their partners to create greater transparency and efficiency across the entire value chain. The cloud also enables improvements across the automotive supply chain – from suppliers and automakers to dealers. As a result, they are maximizing uptime, improving production quality, optimizing productivity and enhancing the customer experience.

"In the post-COVID world, business stakeholders across the spectrum are looking to increase investments toward digital transformation in their respective areas. The asks for investment dollars are creating a more acute need to justify where the dollars should go."

Rajiv Puri

Vice President – Manufacturing Strategy and Partnerships, Infosys

The high tech sector, which represents 43% of the cluster, uses the cloud to boost automation, enable real-time operations and reimagine their business models.
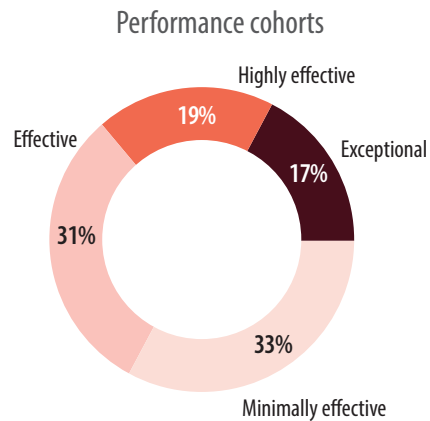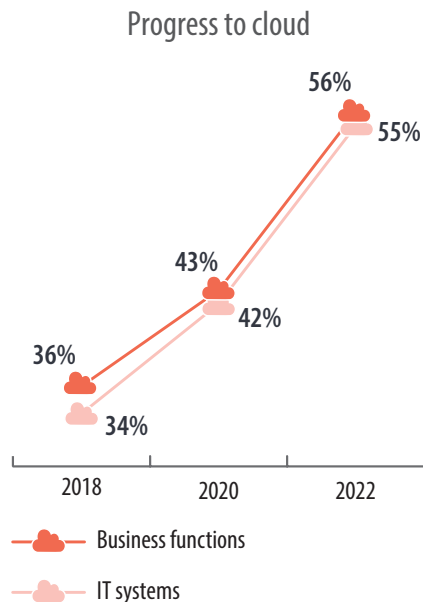
Growth in cloud adoption

Across industries, cloud adoption is accelerating at an expeditious pace. From 2018 to 2020, the proportion of IT systems that migrated to the cloud doubled from 11% to 21%. While COVID-19 was a catalyst in that surge, enterprises will continue to embrace the cloud's benefits. Infosys findings show, by 2022, cloud adoption will again double, and 42% of enterprise infrastructure, applications and platforms will be housed on the cloud.

From an industry perspective, the high tech and manufacturing cluster leads the charge in both cloud adoption and performance. Infosys found 36% of this group's respondents fall into their top two performance cohorts as either highly effective (19%) or exceptional (17%) cloud users. This high level of effectiveness translates to greater results for these enterprises, including faster profit growth, more efficient cloud migration, better cloud spend management and effective use of data and artificial intelligence (AI).
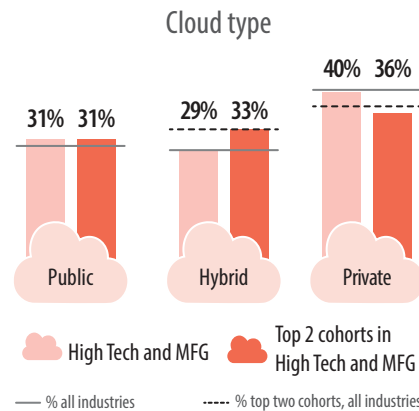
These speed and capability benefits can only be obtained when an enterprise reaches at least 60% cloud adoption. In the case of the high tech and manufacturing cluster, it ranked highest out of the six industry clusters, with 20% of respondents having 60% or more of their IT systems in the cloud. While there is still much work to be done, data shows these industries are making a concerted effort toward full cloud adoption.

Performance cohorts

- Highly effective 19%
- Exceptional 17%
- Minimally effective 33%
- Effective 31%

The high tech and manufacturing cluster intends to accelerate the shift of their IT and business systems to the cloud in the coming two years.

Progress to cloud

- 2018: 36% / 34%
- 2020: 43% / 42%
- 2022: 56% / 55%

☁ Business functions
☁ IT systems

Of the respondents rated highly effective or exceptional in their cloud adoption efforts, 36% of their systems are housed in the private cloud, 31% in the public cloud and 33% in a hybrid cloud solution.

Cloud type

- Public: 31% 31%
- Hybrid: 29% 33%
- Private: 40% 36%

☁ High Tech and MFG
☁ Top 2 cohorts in High Tech and MFG

—— % all industries
----- % top two cohorts, all industries

Infosys found that the top two cloud performance cohorts tend to house their systems in multiple cloud types. Overall, high tech and manufacturing respondents utilize the public cloud more than any other industry cluster in the study. According to research firm Gartner, global public cloud service revenue is forecasted to reach $306 billion in 2021 and $364 billion by 2022.[2]

After growing incrementally at just under 10 percentage points from 2018 to 2020, the cluster respondents say they plan to boost that pace to 13% more cloud adoption by 2022.

"Technology businesses really grasp the potential of utilizing cloud with AI to unlock greater value in the data they possess. Further, automation and automatic data collection will increase the volume of data coming into enterprises exponentially. Last century's technologies will not be able to keep pace, therefore it is imperative for savvy business leaders to expand their use of public cloud with AI and automation to manage and extract value from the growing petabytes of data that they observe."

Komal Jain

Vice President – Communications Media & Technology, Infosys

Shift from defensive to offensive priorities

No one could predict the COVID-19 outbreak would have such a cataclysmic effect. Manufacturers felt the impact across areas including dispatching technicians to repair machines, finding alternate suppliers in the event of shortages and engaging with customers spread across regions and geographies. Manufacturers have taken the lessons seriously and have doubled down on digital transformation leading to greater cloud adoption across areas.

Enterprises were forced to shift initiatives and restructure their business to combat the challenges brought on by the pandemic. While
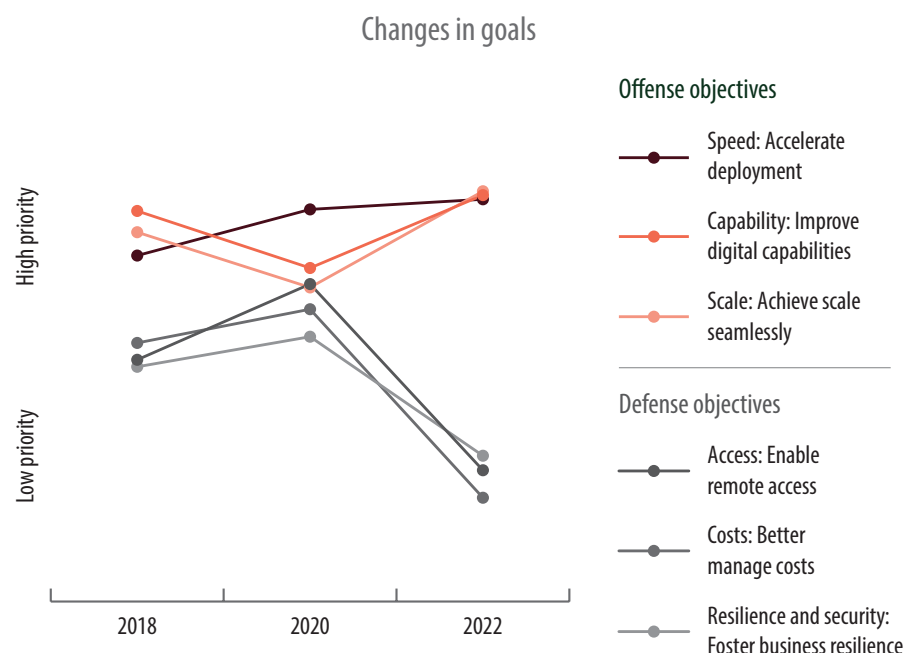
many were forced to focus solely on defensive priorities during the pandemic, the high tech and manufacturing cluster targeted both defensive and offensive goals. Their top objective in 2020 was to speed up cloud deployment. But to enable employees to work from home, they also concentrated their efforts on providing their workforce with mobile access.

As businesses shift their cloud adoption goals over time, the result is a bow tie model that plots a severe decline in defensive strategies by 2022 and a climb in offensive priorities. For this cluster, resilience and security

did not rank as a top motivation for shifting to cloud. But, as we discuss later, security is the chief concern overall, and even more keenly so for top performers in the cloud.

The high-performing high tech and manufacturing cluster is now looking beyond efficiency and capitalizing on AI to drive innovation.

This cluster was rated as an above-average performer in AI and data usage as it enables them to simplify tasks, augment capabilities and create a persona-driven digital experience.

Changes in goals

High priority

Low priority

2018   2020   2022

Offense objectives

Speed: Accelerate deployment

Capability: Improve digital capabilities

Scale: Achieve scale seamlessly

Defense objectives

Access: Enable remote access

Costs: Better manage costs

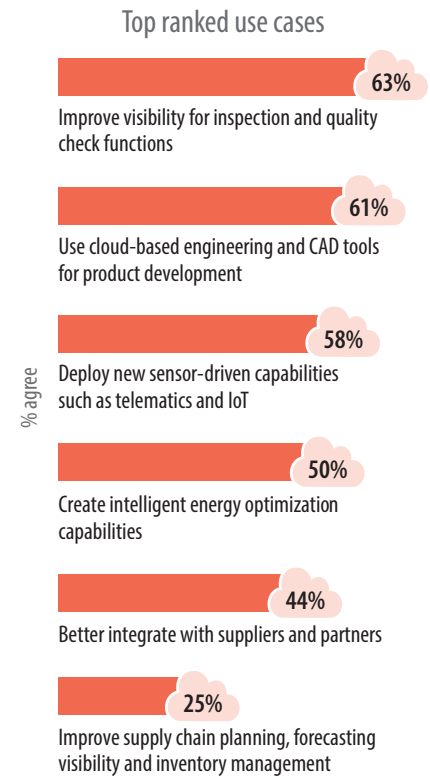Resilience and security: Foster business resilience

Emerging use cases for cloud

As the cluster upgrades its cloud performance, they use cloud technology to streamline operations and create new opportunities to propel their business. When asked what their top use cases are for the cloud, this group looks to improve visibility during quality checks (63%), advance product development with cloud-based engineering and CAD tools (61%) and deploy new sensor-driven capabilities (58%). For this cluster, using cloud to improve integration and supply chain ranked as less valuable use cases.

Enhancing supply chain visibility requires cooperation and collaboration across multiple value chain partners and therefore is more complex to address via an IT solution. This is possibly slowing the adoption.

Top ranked use cases

63%
Improve visibility for inspection and quality check functions

61%
Use cloud-based engineering and CAD tools for product development

58%
Deploy new sensor-driven capabilities such as telematics and IoT

50%
Create intelligent energy optimization capabilities

44%
Better integrate with suppliers and partners

25%
Improve supply chain planning, forecasting visibility and inventory management

% agree

"Manufacturers are looking for ways to link data across design, engineering, PLM, shop floor, and field service functions to unlock a digital thread to orchestrate operations in real time. This is possible only through massive cloud adoption by moving manufacturing systems and data to the cloud."

Nitesh Bansal

Senior Vice President and Global Head – Engineering Services, Infosys

Industry concerns about cloud

Cloud technology advancements create many opportunities for enterprises, yet some still have concerns with cloud migration. Although not a key reason why companies are moving to the cloud, security in the cloud is the top concern for the high tech and manufacturing sectors. Infosys industry experts believe Industry 4.0, which takes automation and computerization to an entirely new level, may be driving higher than average security fears. But lack of security protocols and planning also play into this concern.

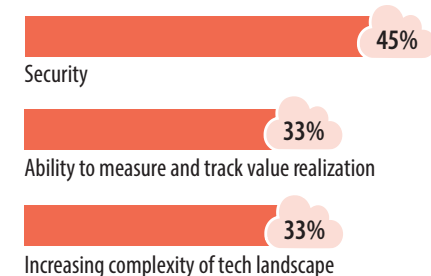Cyber-attacks are still a major threat to businesses. In the manufacturing sector, four in 10 manufacturers said their operations were impacted by cyber incidents in 2019[3]. In the automotive sector, advanced communications and safety features are creating greater cybersecurity risks. Today's average car contains up to 150 electronic control units and about 100 million lines of software code that can be compromised.[4]

Following security concerns, these industries are worried about their ability to track and measure value realization. Enterprises are under constant pressure to justify spends and deliver results.

The increasing complexity of the technology landscape has also kept some enterprises in the high tech and manufacturing industries shifting to the cloud. Legacy systems are a common occurrence across these industries and hamper quick adoption of the cloud as companies balk at the idea of revamping or making large-scale changes to existing systems to make them cloud-ready.

Top 3 concerns

45% Security

33% Ability to measure and track value realization

33% Increasing complexity of tech landscape

Conclusion

Forward thinking by tech businesses helped drive the high tech and manufacturing industry cluster to the top-performer position in the Infosys study. The future forecast shows these industries will continue to employ offensive initiatives that increase deployment speed, improve digital capabilities and foster resilience across the enterprise. Cloud is the critical component to meet enterprise demands as these three industries evolve.

Cloud technology will enable the manufacturing industry to heighten production, provide faster delivery and stay more securely connected with business partners and consumers.

In the automotive arena, fast-evolving consumer behavior will force enterprises to balance their investments in CASE principles (connectivity, autonomous, sharing/subscription and electrification) with

overall costs to maintain profitability. Cloud-based systems will be key in reducing costs, increasing their business agility, and enabling scalability for the future.

The tech industry will find many growth opportunities during its digital transformation. As they move to software as a service (SaaS) models and on-demand, real-time business systems, the cloud will be necessary to orchestrate it all.

References

1. IT Industry Outlook 2021, CompTIA, November 2020

2. Gartner Forecasts Worldwide Public Cloud Revenue to Grow 6.3% in 2020, Gartner Inc., July 23, 2020.

3. Manufacturers Industry Targeted: 156% Increase in Cyberattacks in Q1, Rizwan Virani, alliantcybersecurity.com, June 23, 2020

4. Automotive Cybersecurity: New Regulations in the Auto Industry, Arndt Kohler, securityintelligence.com, September 24, 2020.

About Infosys Knowledge Institute

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