

Cognizant[®]

Embracing a More Connected Future Using IoT

Investing now can help future-proof companies in a radically changing world

Prologue

Proactively adopting IoT solutions helps companies get smart faster – and adapt to a rapidly changing environment. Yet not all companies are succeeding with IoT adoption.

We wanted to learn why. And according to a new study jointly run with market research firm ESI ThoughtLab, companies with more robust and mature IoT programs are moving more quickly from concepts and pilots to solutions at scale. IoT maturity is a strong predictor of success and ROI.

This suggests organizations take a hard look at their digital maturity and their path to IoT adoption, benchmark to industry peers and set a roadmap to success. Is your organization on the right track?

Contents

- 2 **Prologue**
- 4 **New today. A newer tomorrow:** A note from Randal Kenworthy
- 5 **Accelerating IoT adoption:** Five vectors
 - 6 **The Anywhere Enterprise:** Promoting flexibility and remote operations
 - 7 **The Future of Production:** Automating industrial processes
 - 8 **The Road to Success:** Improving CX and resiliency through digital
 - 9 **The Operational Prescription:** Increasing efficiency in healthcare
 - 10 **The Smart Space:** Building better, safer infrastructure
- 11 **Understanding Digital Maturity:** A note on methodology

New today. A newer tomorrow. That's IoT.

Today, organizations are adopting the Internet of Things (IoT) in various ways, benefiting from new applications and gaining new capabilities.

Two decades after the phrase *The Internet of Things* entered our lexicon¹, the ability for machines to talk to each other and perform complex tasks without human involvement is has become reality.

In practical terms, however, it has taken longer for IoT to take hold in many businesses than anticipated. Companies had to gauge the scale of investments necessary to adopt IoT, were concerned about security and data privacy, and needed to ensure their organization could evolve to new, digital ways of doing business without disruption.

Today, IoT allows organizations to future-proof operations during challenging times, implementing new capabilities and building resiliency at lower cost. The C-suite conversation is no longer about whether to transform the business and leverage IoT. It is about how to best do it.

When implemented as part of a coherent, comprehensive organizational strategy, IoT systems need not be prohibitively expensive. Companies we work with are using IoT to improve operations and productivity even as the economic outlook remains uncertain. They are using these new systems for remote monitoring and to improve product quality and service delivery.

A [recent study by ESI ThoughtLab](#) assessed the digital maturity of organizations across various industries and geographies. We learned that companies face fewer hurdles in adopting IoT than other technologies such as artificial intelligence (AI) and software engineering, and that IoT deployments are easier as businesses become more digitally advanced.

IoT enables businesses to build the requisite resiliency to adapt to an ever-changing world. IoT can help organizations use information to automate decision-making, retool and digitize processes, enable remote work, and ensure that the production of goods and delivery of services is as seamless and safe as possible. This study affords companies the opportunity to critically evaluate their own IoT maturity and develop a more rigorous roadmap to achieving IoT.

Randal Kenworthy

VP, IoT Strategy and Advisory
Cognizant IoT and Engineering Services



Accelerating IoT adoption: Five vectors

Accelerating IoT adoption is enabled by a convergence of technologies that make devices accessible and smart: lower-cost sensors, increased processing power, cloud connectivity, and AI algorithms. But while progress toward IoT adoption is expanding, advances are uneven from industry to industry.

Our study, conducted by ESI ThoughtLab, is based on a survey of 2,491 executives and in-depth interviews with a representative sample of participants. The study showed that principal reasons for inconsistent adoption of IoT across industries include:

- The lack of an organizational strategic roadmap.
- Program management skills for IoT.
- Necessary internal acumen to build new operations around IoT.

To improve their success, organizations must benchmark to peers, determine where they are on the road to digital adoption, adopt a clear and coherent strategy, and make the investments necessary to survive and thrive in the challenging new business environment brought on by the pandemic.

In the pages that follow, we highlight some of the report's findings and introduce five key vectors along which accelerating IoT implementations offer promise, describing how companies are implementing IoT to improve operating models as they adjust to a constantly evolving new normal:

- I Vector #1: The Anywhere Enterprise – Promoting flexibility and remote operations**
Increasing resiliency to more effectively manage a remote and rapidly evolving workforce while maintaining a secure infrastructure.
- I Vector #2: The Future of Production – Automating industrial processes**
Incorporating automation into key industrial and production processes, from digital twins and modeling to real-time, AI-supported data analysis for decision-making.

- I Vector #3: The Road to Success – Improving customer experience**

Implementing data solutions and metrics to better track asset performance and help boost revenue and profitability while improving customer experience.

- I Vector #4: The Operational Prescription – Increasing efficiency in healthcare**

Using edge, cloud and medical technologies, healthcare organizations can provide better care at better prices while optimizing supply and promoting improved patient outcomes.

- I Vector #5: The Smarter Space – Building smarter infrastructure**

Implementing solutions to conserve energy, monitor environmental safety and implement safeguards to protect employees, customers and other stakeholders in commercial and residential facilities.

IoT offers an enormous opportunity to develop new business models; products and services; and revenue streams. While IoT technologies are mature, many organizations still lack the expertise, skills and market vision to embrace them.

Companies investing in IoT are seeing robust returns – with 66% on average reporting moderate to high gains. For leaders, this jumps to 76%. Even more than half (58%) of beginners report healthy returns.

The average share of companies seeing moderate or high returns on IoT is well above the percentages for some other new technologies, like AI and digital assistants This suggests that even stronger investment in IoT would make business sense.

– ESI ThoughtLab Survey



Vector #1: The Anywhere Enterprise

Promoting flexibility and remote operations

Organizations today are increasingly managing a remote workforce. They need to promote operational resiliency, while maintaining a secure infrastructure.

Enabling remote operations allows businesses of all types to protect workers while improving customer service.

We helped the equipment services division of a global Fortune 100 consumer goods provider to revamp antiquated, manual, paper-based processes for managing and servicing its massive inventory of equipment assets, as well as expedite order-tickets for parts and on-site equipment repair and servicing.

Chief among its challenges was ensuring that the right equipment, including specialized parts and tools, were available as needed at installation, servicing and refurbishing centers, allowing service personnel to install and maintain assets in a single visit, reducing costs and improving productivity.



We deployed remote asset-tracking and management, including barcode RFID and IoT devices. The company gained real-time visibility into equipment operations and performance

across multiple geographies, which increased labor productivity while reducing service costs, inventory loss and dependencies on multiple third parties for information management and record-keeping.

OUTCOMES

Digitized 3 million paper-based transactions to better track assets and parts.

Automated inventory and materials tracking to eliminate manual tasks.

Eliminated costly and slow inventory updates by moving to a digital just-in-time approach.

Reduced lead time for supplying equipment to customers from 4 to 5 weeks to just minutes.

Companies face fewer hurdles with IoT adoption than other dimensions of digital transformation. ... IoT deployment becomes easier as firms become more digitally advanced. Given the lower barriers to implementation and high potential returns, no wonder companies are planning to focus more heavily on IoT development over the next three years.

- ESI ThoughtLab IoT Survey



Vector #2: The Future of Production

Automating industrial processes

IoT allows manufacturing organizations to automate critical processes and enable flexibility in managing production flows, while enabling managers to optimize operations.

IoT can not only streamline processes but also integrate operational technologies with enterprise IT. Using AI, digital twins and modeling, organizations can perform real-time data analysis for decision-making and share critical feedback with design and marketing teams.

One of our clients sought to improve operations at more than 100 global facilities. Few of its assets were instrumented with sensors that could support data analytics, and the company lacked visibility into fundamental production metrics. It also faced limitations when communicating and coordinating between facilities. As part of its successful transition to Industry 4.0, the company implemented digital twins, machinery sensors, Bluetooth shop-floor connectivity, and dashboards that allow managers to monitor production machinery worldwide via a secure private cloud.

The result is a single, virtual production hub facility, in which state-of-the-art industrial process management software validates real-world solutions before pushing them to its global operations. This promotes product quality,



improves productivity and creates new efficiencies. This IoT nerve center allows the company to explore, showcase and test

processes; pilot and implement pragmatic, real-world solutions that drive return on investment; and troubleshoot in real time.

“Moving from technology to product and then from product to marketing is a very long process. Usually a single kind of technology will not give solutions or make a product. It requires the integration of multiple emerging technologies. That integration is challenging and time consuming.”

– Jian Wei Zhang, President, Tellhow Intelligent Engineering
(cited in the ESI ThoughtLab IoT Survey)

OUTCOMES

100+ facilities and thousands of machines and production lines connected via Industrial IoT platform

Dashboards monitor asset performance, yielding insights for decision-making.

\$100+ million in cost savings and profitability gains over a five-year period.



Vector #3: The Road to Success

Tracking performance and optimizing customer experience

Traditional manufacturers should adopt IoT rapidly. The good news is that focused projects yield promising results.

Industrial manufacturers have more slowly adopted IoT than companies in other sectors. For such organizations, however, investing in cloud infrastructure, edge computing and data analysis can yield significant returns quickly.

A Fortune 1000 manufacturer of heavy equipment for commercial use was experiencing stagnating revenue growth – which in part it attributed to the increasingly high quality and durability of its products – leading to longer product replacement cycle times. The company sought to evolve to a model where it offered information services alongside its products, while reducing its reliance on external third parties for data for analysis.

We implemented a telematics-based connected vehicle platform to proactively monitor vehicle



health for fleet equipment owners, to anticipate service needs and improve equipment run-times. We helped the company develop its own device for data gathering, allowing the business to monetize vehicle performance and safety data to help buyers improve compliance with national

maintenance standards, while using data for product development.

Our client became a market leader in providing valuable diagnostic data to fleet vehicle buyers, to help them control costs.

OUTCOMES

Reduced vehicle downtime by 30%, saving \$40 million monthly.

Improved service turnaround times by more than 70%.

Saved about \$30 million in annual warranty costs.

Firms moving fastest in overall digital transformation are ... furthest ahead in the use of IoT – 53% are maturing or advanced.

– ESI ThoughtLab IoT Survey



Vector #4: The Operational Prescription

Increasing efficiency in healthcare

Healthcare and life sciences companies can gain significant operational improvements by implementing IoT. Using edge, cloud and analytics, healthcare organizations can provide better patient care while optimizing efficiency and outcomes.

Managing supply and materials inventory in the healthcare and life sciences sectors is particularly complex. Having the right supplies on hand for every procedure at every facility is essential. It's a challenge that can be met using IoT.

We worked with a global Fortune 500 medical products provider to revamp its applications ecosystem to provide a comprehensive, connected view of materials management for critical care and surgical supplies, linking hospital systems and inventory data to its ordering and supply chain management systems.

Our solution relied on AWS and edge processing to monitor supply levels at participating hospitals and networks, delivering information that enables them to optimize materials management and provide for faster resupply and better customer service.



Enabling data insights that allow adjustments to inventory flows in real time, we improved inventory picking accuracy. This helps ensure medical procedures are not delayed due to a lack of specialized supplies. It also allows inventory

fulfillment on-premises through automated dispensing, and provides hospitals with customizable subscription models for bundled products, services and support based on each institution's or network's needs.

Almost three-quarters [of life sciences companies surveyed] are making significant investments in IoT and ... seeing higher returns than other sectors. Innovations are sweeping across the industry, from smart wrist bands and wheelchairs to microchips placed in human organs and pills.

- ESI ThoughtLab IoT Survey

OUTCOMES

Reduced rush orders, manual orders and restocking by 25%.

Enabled scheduled staging of required supplies prior to procedures.

Optimized on-premise inventory management.



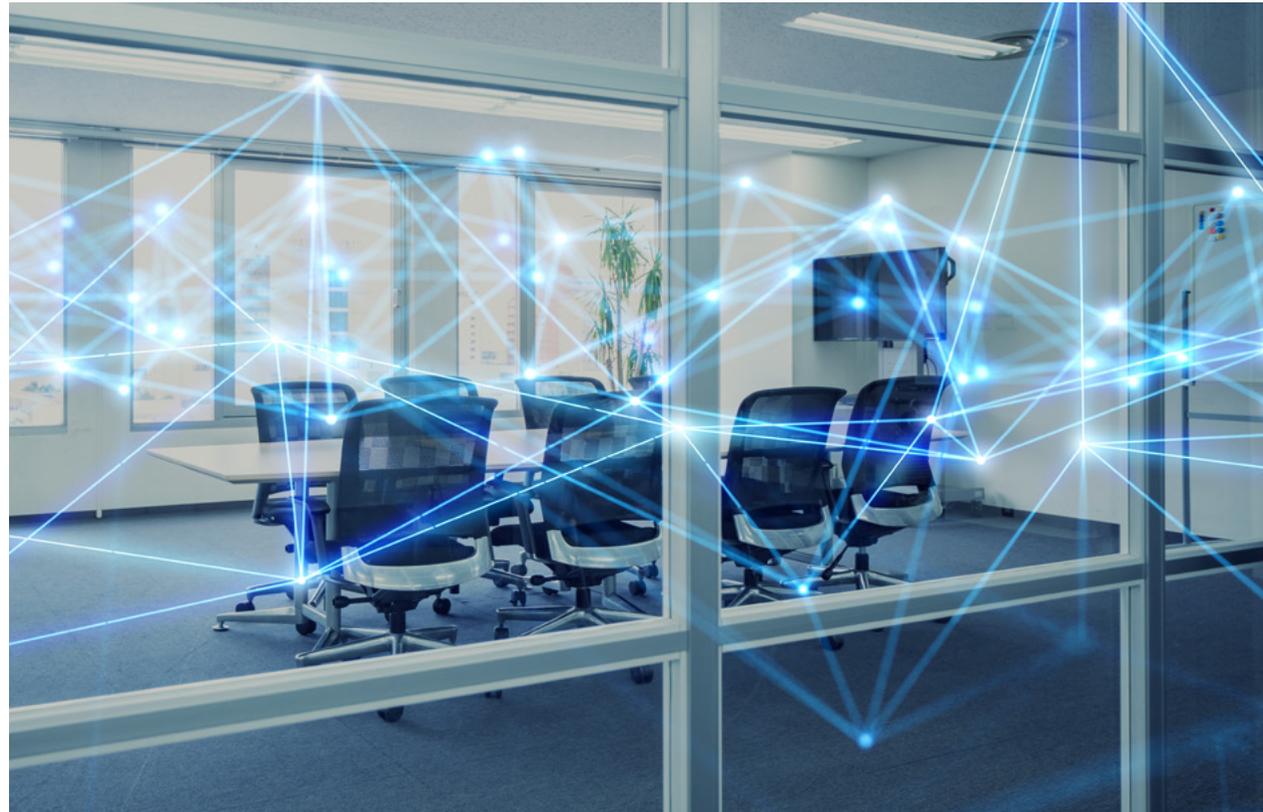
Vector #5: Smart Space, Safer Space

Building better, safer infrastructure

IoT solutions are helping commercial and residential facilities conserve energy, monitor environmental safety, and implement safeguards to protect employees, customers and other stakeholders.

Monitoring real estate facilities has long been an important component of planning spaces in building management systems (BMS). Post COVID-19, such systems are mission-critical for ensuring a safe working environment.

We developed an IoT strategy for a new digital infrastructure and environmental systems management function for a leading global real estate investment trust (REIT). We then implemented an end-to-end IoT ecosystem that encompassed the REIT's disparate BMS, using sensors and a cloud solution, for one of its larger residential holdings. Working with deployment partners and civil engineering consultants, we supervised instrumentation of more than 10,000 individual residences and common areas to further guide the integration of systems and HVAC and water pump equipment data.



We created a digital twin of physical systems for environmental and health safety management

replicable across other holdings in the client's global real estate portfolio. We embedded dashboards that reduced the complexity of managing multiple properties and reporting on various systems and equipment. Our solution reduced maintenance and labor costs, allowing our client to reinvest its cost savings in improving amenities that enhance the residential community, while improving resident safety.

“A key point for any firm looking to digitally transform is to establish both short- and long-term goals and look for a system that can meet both sets of needs... By choosing a system that is scalable and flexible, companies can get the most out of their digital investment over the long haul.”

– Jay Sachetti, Director, IoT Alliance – Eaton Lighting
(cited in the ESI ThoughtLab IoT Survey)

OUTCOMES

Projected operational costs will decrease more than 8%.

Attained direct savings from a \$4.2 million green-city tax incentive to fuel new program aspects.

Reduced need for mechanical fixes, lowering labor costs by more than 8%.

Understanding digital maturity: A note on our methodology

We partnered with ESI ThoughtLab to survey 2,491 executives, in an effort to identify ways to help organizations develop a roadmap for successful IoT deployment. The results were validated by evidence-based performance metrics.

The study examined how firms across 13 industries and four regions are harnessing new technologies to transform their strategies, processes and performance results. ESI ThoughtLab also interviewed senior executives from more than 25 companies across industries and countries.

Digital maturity scores were derived from survey questions related to three dimensions:

- What stage of development is your company at, in the following areas of digital transformation now?
- What percentage of revenue comes through traditional channels and was influenced by digital?
- Which of the following benefits is your company receiving from digital transformation today?

Calculated scores for each dimension were then combined into an aggregate digital maturity score. Each respondent was then assigned into one of four maturity stages based on the distribution of scores:

Leaders in digital transformation:

80th percentile and above

Advancing digital transformation:

55th percentile to 80th percentile

Implementing digital transformation:

30th percentile to 55th percentile

Beginning digital transformation:

30th percentile and below

Adoption of IoT is expanding across industries, from connected cars and manufacturing equipment, to remote medicine and wearables, and to digital banking; and telematics-enabled insurance. But progress is uneven. Over half of the digital leaders are advanced in their IoT applications, compared with just 11% of beginners. So why is there such a gap?

– ESI ThoughtLab Survey

Learn More

For more information and to find out more about Cognizant IoT solutions, visit www.cognizant.com/loT.

About Cognizant Digital Business

We help clients build digital businesses and innovate products that create new value – by using sensing, insights, software and experience to deliver on what customers demand in the digital age. Through IoT, we connect the digital and physical worlds to make smart, efficient and safe products, operations and enterprises. Leveraging data, analytics and AI, we drive intelligent decisions and anticipate where markets and customers are going next. Then we use those insights, combining design and software, to deliver the experiences that consumers expect of their brands. Learn more about how we're engineering the modern enterprise at cognizant.com/digitalbusiness.

About Cognizant

Cognizant (Nasdaq-100: CTSH) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 194 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us [@Cognizant](https://twitter.com/Cognizant).



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