KORE

Why IoT Projects Fail: Six Critical Capabilities You Need to Consider






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The current state of IoT success (or lack thereof)

Despite the rising and rapid pursuit of IoT by companies across virtually every industry, the complexity of this new world of technology continues to outpace its potential. As organizations attempt to navigate the unforeseen intricacies of the IoT ecosystem, challenges arise and businesses suffer from delayed time-to-market, slowed revenue realization, technology incompatibilities, budget overruns, and even complete project failures. Ultimately, the lack of IoT success is evident as:

60%

60% of IoT initiatives stall at the Proof of Concept (PoC) stage[1]

26%

Only 26% of companies have had an IoT initiative that they considered a complete success[1]

33%

33% of all completed IoT projects were not considered a success[1]

Why are IoT projects failing?

Even the simplest IoT solutions are highly complex, requiring the integration and management of many different components, services, systems, and processes. Many organizations learn the hard way that traditional IT expertise does not always translate to IoT, and there are myriad unanticipated capabilities, skillsets, and other resources required to successfully implement IoT. In fact, 60% of organizations stressed that IoT initiatives often look good on paper but prove to be much more difficult than expected.

In order to join the 26% that considered their IoT initiative a complete success, companies must "expect the unexpected" and examine all of the potential considerations and components. By thoroughly planning for six critical IoT capabilities, organizations are poised to successfully launch an IoT project, maintain the success of an active IoT implementation, or reverse the fate of a deteriorating IoT initiative.

1. IOT STRATEGY & READINESS

45%

45% of companies that had an unsuccessful IoT initiative cited lack of IoT vision or strategy as their greatest challenge[2]

Half

Half of companies cited ROI/ making the business case as the top barrier to realizing the full potential of IoT[3]

20%

Only 20% of companies' IoT strategies consider business model transformation or new revenue streams[3]

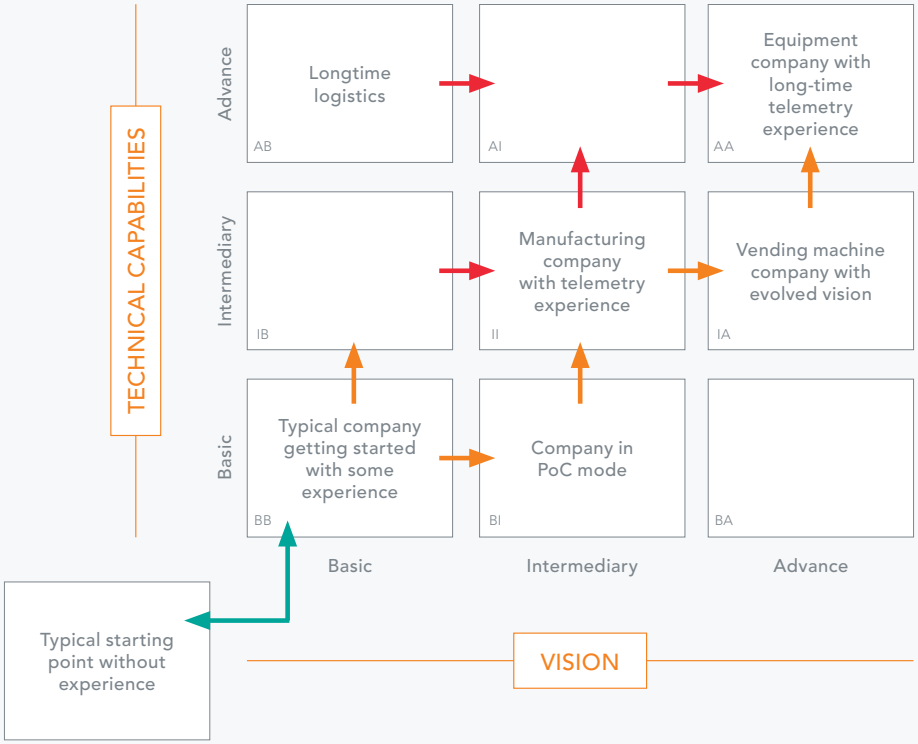
The foundation of any successful IoT implementation is an attainable, targeted, inclusive IoT strategy that accurately and honestly considers an organization's current IoT maturity level and resource availability, targets specific business processes, and covers all potential areas of IoT solution deployment and management. Key challenges during this area of IoT project development include:

- A lack of understanding of organizational "IoT readiness"
- Misalignment between business goals and IoT priorities
- Failure to develop a truly comprehensive IoT strategy

These challenges can all result in budget overruns, delayed time-to-market, or even complete project failures

1. IOT STRATEGY & READINESS - **BEST PRACTICES**

Before strategic planning begins, organizations should conduct an "IoT Readiness Assessment" to thoroughly evaluate current IoT maturity levels and provide the baseline, contextual information required to create and execute against an attainable IoT strategy.



Once IoT readiness has been properly assessed, strategy development can begin. It is critical that IoT strategies start small, targeting specific business processes. Supporting this claim, 66% of companies that were successful with IoT report that they purposefully pursued smaller, strategic IoT initiatives to develop expertise and a technology base for larger projects[2].

With focused IoT plans, companies can better understand where selected business processes take place – globally – which back-end systems they are integrated with, process security requirements, etc. thus guiding many of the strategic decisions that follow including:

Global Footprint Requirements	Integration Requirements	Security Requirements
Solution Architecture	Middleware Integration & Management	Partner Selection
Sourcing Strategy	Piloting Process	Project Organization
Project Governance	Device Selection/ Development	Network Technologies

10%

More than half of companies claimed they use 10% or less of the data generated from their active IoT solutions[2]

18%

Only 18% of U.S. organizations claim to have an advanced or optimized level of IoT data quality[4]

$20B

By 2020, it is estimated that more than $20B annually will be spent on analytics to support IoT applications and drive insights[2]

The potential benefits of IoT applications and the data that they generate are arguably just as important – if not more – than the capabilities the IoT solutions themselves can create for businesses. However, many businesses miss the opportunity to drive revenues and generate actionable business intelligence due to:

Improper

Improper application integration and related data collection restricted to select systems

Insufficient

Insufficient in-house resources for application development and management

Complex

Complex or undefined processes for deriving value from data analytics

Businesses should seek an open-architecture approach to accelerate the development of new and proprietary applications, as well as simplify their integration into existing platforms, applications, and back-office systems (i.e. ticketing, accounting, inventory, CRM, etc.). These services enable companies to accelerate time-to-market, and set the stage for robust, cross-functional analytics.

Among those using IoT generate incremental revenue, 55% said they were leveraging IoT data to create new services, and 44% said IoT was creating data and analytics they could sell outright[2]

With integrated applications and a holistic approach to data collection and analysis, there are three levels of IoT data that organizations should be considering to diversify revenue streams and improve business outcomes. These include:

USAGE DATA Associated with the network component of the IoT solution	Proper management enables billing optimization, facilitation of threshold management, as well as identification of customer propensity trends
META DATA Associated with the edge device of the IoT solution	Proper management of enables device troubleshooting and maximized uptime, ensures device security, and ultimately optimizes device performance
SENSOR DATA Associated with the IoT application and the solution-specific information it generates	Proper management lays the foundation for improved business analytics and intelligence, enabling optimized application performance and the resources needed to monetize IoT data

20%

20% of IoT adopters need help measuring and tracking ROI[5]

49%

49% of IoT adopters say IoT is used with analytics to support decision making[5]

30%

30% of business leaders cited integrating disparate data as one of the biggest challenges in building out IoT capabilities[2]

Effective reporting and associated analytics on IoT solution performance are critical for long-term returns on IoT investments. By configuring, tracking, and monitoring key business and operational metrics, businesses can practice continuous improvement and optimization of their IoT solution to improve day-to-day decision making and business outcomes. With that said, many businesses struggle with:

Simplifying

Simplifying data collection from multiple providers to enable a single view of operational analytics

Tracking

Tracking and measuring key business metrics related to IoT solution performance

Applying

Applying operational intelligence to enhance efficiencies and reduce costs

Businesses should strive to gain the most consolidated, detailed view possible of IoT solution performance data to maximize efficiencies and productivity while controlling costs. Key business metrics will be unique to each organization, however primary examples include network status, asset health, job efficiency, operator compliance, and maintenance requirements. In fact, only 7% of businesses with strong analytical capabilities are challenged to gain value from IoT[6].

Regular reporting on IoT solution components gives companies access to stored, historical data to improve predictive maintenance, avoid operational challenges, as well as enhance budget planning and operational forecasting. Businesses that combine robust reporting practices with comprehensive, user-friendly data visualization capabilities are empowered to easily and quickly identify trends and predict future needs. Best practices in this area of IoT leverage performance dashboards and table-based, graphical displays that can be customized to extract the specific information needed from varying departments or organization functions.

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Struggle

A recent survey found that connectivity is the top struggle among IoT solution designers[7]

Challenges

Unexpected, ongoing costs associated with connectivity and related maintenance were among the top challenges of 35% of organizations with active IoT deployments[8]

Technology

Organizations with 1,000+ connected devices use an average of 4 network technologies to achieve required coverage and resiliency[5]

For IoT solutions to live up to their potential, reliable, scalable, and efficient network connectivity – and the appropriate IoT device technologies – are critical. With hundreds of carrier, network, and equipment options to choose from, businesses can quickly become overwhelmed with:

Managing

Managing multiple IoT connectivity providers and platforms to achieve network coverage for all operational geographies

Maintaining

Maintaining complex processes for device provisioning to selected networks and regional logistics' management

Assuring

Assuring optimal IoT device selection and integration and associated device management capabilities

4. CONNECTIVITY & CARRIER MANAGEMENT - **BEST PRACTICES**

When selecting a network provider, organizations should seek a partner that can provide secure connectivity on a global basis, multi-IMSI and eSIM capabilities, as well as IoT devices and related services. By leveraging a single provider for multiple, related IoT services businesses are empowered to simplify, accelerate, and scale their IoT deployments.

According to a recent publication from McKinsey, global coverage under a single contract and strong, intelligent network switching capabilities should be top considerations when selecting a connectivity provider[9]

GLOBAL, MANAGED CONNECTIVITY	Access to multiple different carrier networks and network technologies via a single partner simplifies IoT connectivity management and enables global expansion and scalability
MULTI-IMSI & ESIM CAPABILITIES	Proper management of enables device troubleshooting and maximized uptime, ensures device security, and ultimately optimizes device performance
IOT DEVICES & INTEGRATION	Turnkey solutions consisting of pre-integrated IoT devices with selected network technologies accelerate speed-to-market and further simplify operational IoT deployment processes

25%

By 2020, it is predicted that more than 25% of identified enterprise attacks will involve IoT[10]

32%

32% of IT leaders cite security as one of the top barriers to IoT success[10]

82%

82% of IoT adopters say security is a critical factor in IoT decision making[5]

Securing and controlling your IoT networks, devices, applications, and data transfer is absolutely essential for optimal IoT performance and reliability. Inadequate network infrastructure and IoT security protocols can prevent businesses from properly scaling their IoT deployments and expose their solutions to costly security breaches. Common struggles in this stage include:

Identifying

Identifying and selecting proper wireless network infrastructure technologies that are designed to support scalable IoT solutions

Implementing

Implementing various solutions for device, network, application, and data security – from varied providers – resulting in a fragmented IoT security approach

Failure

Failure to enhance IoT security with proper data encryption and connectivity options

5. NETWORK & SECURITY MANAGEMENT - **BEST PRACTICES**

The first step for successfully managing this area of IoT is ensuring the network infrastructure that you have selected for your IoT project is optimized for IoT deployments. Many major carrier networks were designed to cater to consumer demands which do not directly translate to IoT requirements. Businesses should leverage network technologies that are secure, scalable, and adaptable to support specialized monitoring capabilities often needed for IoT functionality and performance.

Half of companies considering IoT say they have the internal skills to manage security[5]

Because IoT security is highly complex and must be administered over all components of an IoT solution, organizations should seek an IoT partner that is dedicated to IoT security and follows best practices on an internal basis, as well as externally to customers to deliver a holistic approach to securing IoT initiatives:

INTERNAL SECURITY CAPABILITIES	Superior data encryption
	Cybersecurity management framework based on ISO27001
	Secure device and user registration and authentication to restrict potential communication with unapproved hosts
	Next-gen network firewalls and Intrusion Prevention System (IPS)
	Third-party vulnerability assessments
EXTERNAL IOT SECURITY OFFERINGS	Flexible, comprehensive Virtual Private Network (VPN) options to enable complete encryption of all in-flight data traffic

6. ENDPOINT LIFECYCLE MANAGEMENT & MANAGED SERVICES

60%

60% of organizations stressed that IoT initiatives often look good on paper but prove to be more difficult than expected[1]

48%

48% of IoT adopters need help implementing their solutions[5]

One-Third

More than one-third of IoT adopters need help with ongoing IoT solution management and maintenance[5]

With IoT strategies in place, individual components vetted and selected, and pilot solutions in testing, many businesses feel they are ready to bring their IoT solutions to market and start generating ROI. However, organizations are often unaware of how difficult it can be to deploy, manage, and sustain a healthy IoT deployment, underestimating the required resources and expertise. This can result in:

Unexpected

Unexpected IoT ecosystem challenges and complexities associated with moving IoT solutions from PoC to production

Delayed

Delayed realization of ROI due to cumbersome lifecycle management and resource demands

Inability

Inability to sustain IoT success when repairs, replacements, or end-of-life issues arise

In order to achieve long-term IoT success, businesses must carefully plan for the entire IoT lifecycle including the deployment, operational management, as well as sustainment and support phases. By properly executing best practices in each of these areas, businesses are presented with a clear path to optimal solution performance and continuous ROI generation.

75% of IoT adopters have increased use of partnerships to deliver/manage IoT solutions[5]

Due to the significant resources and experience demanded for proper IoT lifecycle management processes, businesses should be encouraged to find an IoT partner that can support and complement internal teams to increase the value delivered by IoT projects. Key capabilities and areas for consideration include:

DEPLOYMENT PHASE	OPERATIONAL MANAGEMENT PHASE	SUSTAINMENT & SUPPORT PHASE
Demand Forecasting	Help Desk Support	Triage Support
Order Management	Service Assurance	Claims Management
Staging & Kitting	MNO Operations	Re-Staging & Kitting
Inventory Management	Endpoint Monitoring	Advanced Exchange
Site Surveys	Network Monitoring	Re-Installation & Activation
Installation & Activation	Release Management	OEM Warranty Management
Asset Management		End Of Life Disposition

These six critical IoT capabilities can be applied for organizations operating in many different industries, presenting an opportunity for a broad range of IoT use cases:

FLEET

- Fleet Management
- Fleet Telematics
- Field Servicing for Fleet Vehicles

HEALTHCARE

- People Tracking
- Out-Patient Monitoring & Connected Medical Devices
- Home Healthcare Delivery

LOGISTICS

- Cold Chain Monitoring
- Container Tracking
- Warehouse Optimization

INDUSTRIALS

- Inventory & Resource Tracking
- Equipment Monitoring
- Industrial Field Servicing

CONSTRUCTION

- Material Tracking
- Equipment Monitoring
- Remote Workforce Monitoring

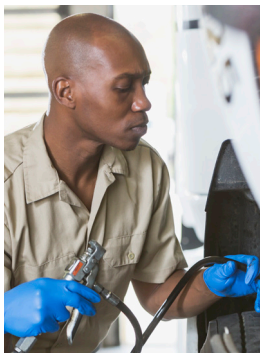
INSURANCE

- Usage Based Insurance (UBI)
- Automated Claims Processing

AUTOMOTIVE

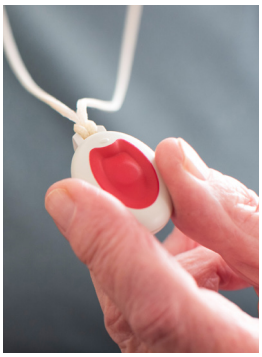
- Stolen Vehicle Recovery
- Vehicle Telematics
- Field Servicing & Repairs

Proven Results



46% FLEET

46% of transport and logistics companies are using IoT for large scale business transformation to improve productivity, safety, and operational efficiencies



$158B HEALTHCARE

The Healthcare IoT market is projected to be worth $158B by 2022 as providers implement patient-centric solutions to improve quality of care and deliver better outcomes

$41B LOGISTICS

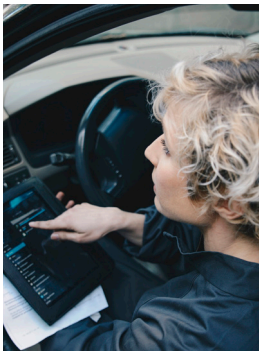
The global market for connected freight and logistics solutions is estimated to be worth $41B by 2022 as logistics companies seek to increase visibility, productivity, and security

$933B INDUSTRIALS

The global market for industrial IoT solutions is estimated to be worth $933B by 2025 as companies look to improve asset maintenance for reduced disruption and downtime

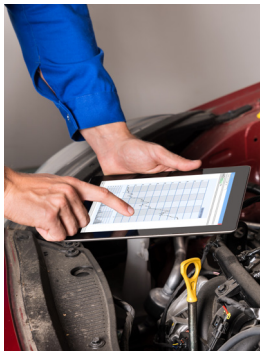
$160B CONSTRUCTION

It is estimated that companies in the construction and mining industries can save $160B by implementing IoT systems to reduce downtime and improve worker safety



$42B INSURANCE

The IoT insurance market is projected to be worth $42B by 2022 as insurers look to automate outdated processes, encourage safer drivers, and improve customer experience



270% AUTOMOTIVE

Global market growth for connected cars is estimated at 270% with more than 125M cars expected to ship with embedded connectivity by 2022

Benefits of proper execution for each capability:

Enables

Comprehensive IoT readiness assessment and strategy development enables increased return on IoT investments and improved business outcomes

Maximize

Deliverance of unique IoT applications maximize project value, and advanced visibility into IoT data enables valuable business intelligence

Empowers

Understanding data traffic and usage patterns empowers proactive, accurate assessment of IoT project functionality

Simplifies

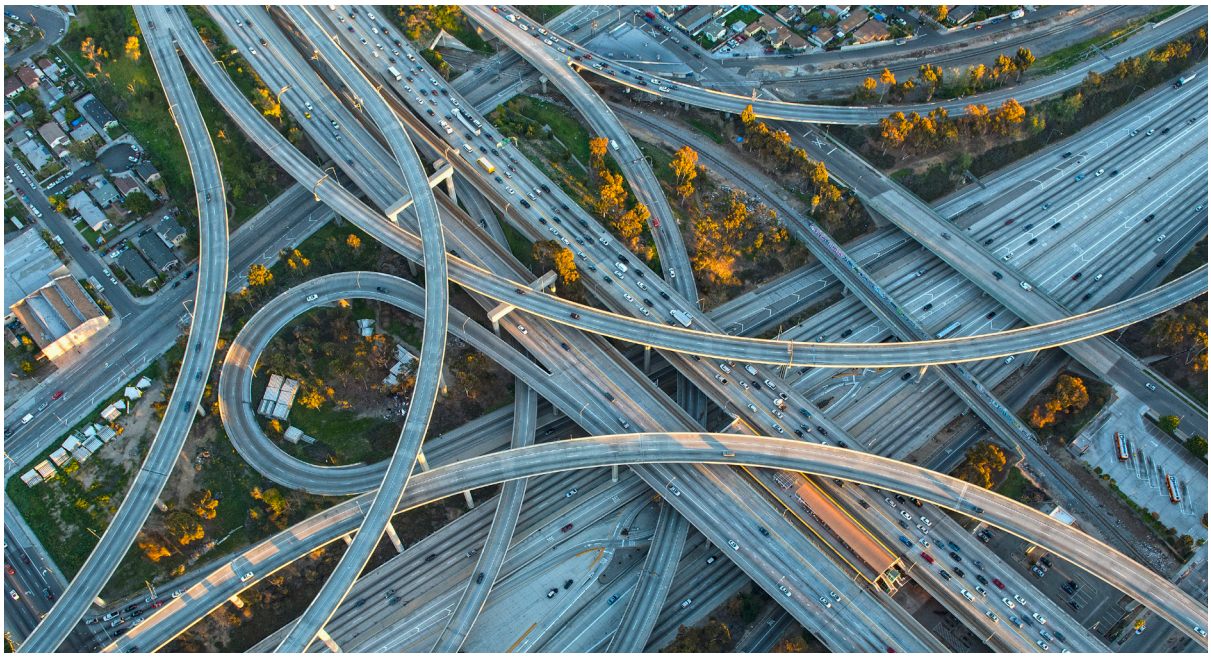
Streamlined, consolidated connectivity and carrier management simplifies the IoT solution ecosystem, freeing up valuable resources

Enhances

IoT-optimized network infrastructure enhances flexibility and control, with the ability to implement proper security measures to protect against data breaches and attacks

Ensures

IoT lifecycle management and related managed services ensures long-term IoT success from the inception of the project through to completion



Next Steps: Partnering for Success

Mastering the technologies, acquiring the skillsets, and dedicating the resources required to manage each area of IoT solution management in-house are not realistic next steps for the vast majority of organizations. This is where IoT partners come in, providing the expertise, products, and services needed to support successful IoT initiatives. In fact, a recent study found that organizations that are most successful with IoT engage their IoT partner ecosystem at every stage, from strategic planning to post-deployment analytics[1].

Organizations should seek a partner that can span all six IoT capabilities, empowering companies to:

Bring together the right mix of highly complex technologies to **simplify the complexity of IoT** and enable streamlined, scalable IoT solutions

Tap into industry expertise, resources, and partnerships to **bring IoT solutions to market more quickly**, efficiently, and cost effectively

Ensure that **IoT solutions are operating to their full potential** and delivering the highest level of value to maximize returns on IoT investments

KORE

Learn more about how KORE can simplify IoT complexities so you can concentrate on growing your business.

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Sources
1. https://newsroom.cisco.com/press-release-content?articleId=1847422
2. http://info.forbes.com/rs/790-SNV-353/images/Hitachi%20IoT%20Report.pdf
3. https://www.capgemini.com/wp-content/uploads/2017/07/new_study_by_capgemini_and_idg_on_iot_finds_how_to_use_iot_to_create_new_revenue_streams.pdf
4. https://www.iotforall.com/3-big-data-challenges/
5. Vodafone Barometer
6. https://sloanreview.mit.edu/projects/data-sharing-and-analytics-drive-success-with-internet-of-things/
7. https://iot.eetimes.com/solving-for-iot-connectivity-challenges-design-and-test-best-practices/
8. https://www.tatacommunications.com/wp-content/uploads/2018/02/The-Importance-of-Connectivity-in-the-IoT-Roadmap.pdf
9. https://www.mckinsey.com/featured-insights/internet-of-things/our-insights/taking-the-pulse-of-enterprise-iot
10. Gartner – Leading the IoT