



Internet of Things (IoT) for Business: Architecture, Connectivity and Pilots



Internet of Things (IoT) for Business: Architecture, Connectivity and Pilots

Introduction:

Many organisations buy sensors and connected devices yet never move beyond a stalled trial, because nobody linked the use case, the network, the data and the cost. The Internet of Things IoT pays back only when architecture, connectivity, security and vendor choices are made together. This Core Concept course trains business and technical professionals to design IoT solutions from device to dashboard, choose between Wi-Fi, BLE, LoRaWAN and cellular options, secure and manage devices at scale and run a measured pilot. Participants produce an IoT Pilot Plan and Business Case.

Course Objectives:

- Prioritise IoT use cases across buildings, hospitality, retail, logistics and utilities by value, feasibility and time to benefit
- Specify an end-to-end IoT architecture covering sensors, gateways, edge processing and cloud platform for a defined use case
- Select the connectivity option and messaging protocol that fit each deployment's range, power, data volume and cost profile
- Design a data pipeline, device data model and operational dashboard with alert rules that trigger field or service action
- Apply device identity, transport encryption and lifecycle management controls to reduce IoT security and operational risk
- Build an IoT Pilot Plan and Business Case with success criteria, vendor evaluation and scale-up gates

Target Audience:

- Operations and facilities managers responsible for building systems, energy use and asset availability
 - IT and infrastructure managers who integrate connected devices with networks, platforms and enterprise applications
 - Digital transformation and innovation leads who sponsor smart building, smart store or connected fleet initiatives
 - Business development and product managers who shape connected services and new revenue models
 - Procurement and vendor managers who evaluate IoT platforms, device suppliers and connectivity contracts
-

Course Outline:

Day 1: IoT Value, Use Cases and Readiness

- IoT Value Chain: Things, Connectivity, Platform, Application and Service
- Use Case Map Across Buildings, Hospitality, Retail, Logistics and Utilities
- Business Drivers: Asset Visibility, Energy Savings, Service Quality and New Revenue
- Current-State IoT Readiness Assessment of Assets, Data, Skills and Networks
- Use Case Prioritisation Matrix: Value, Feasibility and Time to Benefit

Day 2: IoT Reference Architecture, Connectivity and Protocols

- Three-Tier Architecture: Devices and Sensors, Edge Gateway and Cloud Platform
- Sensor and Actuator Selection for Temperature, Occupancy, Location and Power Readings
- Connectivity Comparison: Wi-Fi, BLE, LoRaWAN, NB-IoT and LTE-M on Range, Power and Cost
- MQTT Publish-Subscribe Model: Broker, Topic Hierarchy, QoS Levels and Retained Messages
- CoAP Request-Response over UDP and HTTP Mapping for Constrained Devices

Day 3: Data Pipelines, Platforms and Dashboards

- IoT Data Pipeline: Ingestion, Stream Processing, Time-Series Storage and APIs
- Edge Versus Cloud Processing Decision: Latency, Bandwidth and Offline Operation
- Device Twin and Asset Data Model Design for Sites and Fleets
- Operational Dashboard and Alert Rule Design with Thresholds and Escalation Paths
- IoT Platform and Vendor Evaluation Scorecard: Integration, Scale, Lock-In and Support

Day 4: IoT Security, Device Lifecycle and Deployment Risk

- IoT Threat Model: Weak Authentication, Unencrypted Traffic and Man-in-the-Middle Attacks
- Device Identity, Credential Provisioning and TLS and DTLS Transport Protection
- Device Lifecycle Management: Onboarding, Remote Configuration, Firmware Updates and Decommissioning
- Field Failure Modes: Battery Drain, Coverage Gaps and Sensor Data Quality
- Data Ownership, Privacy and Retention Clauses in IoT Supplier Contracts

Day 5: IoT Pilot Case Work and Business Case

- Smart Building Case: Occupancy and Energy Monitoring Pilot Design
 - Hospitality and Retail Case: Guest Room Comfort and Cold Chain Sensor Rollout Review
 - Logistics Case: Asset Tracking Connectivity and Total Cost of Ownership Comparison
 - IoT Business Case Model: Device Cost, Connectivity Fees, Savings and Payback Period
 - IoT Pilot Plan with Success Criteria, Scale-Up Gates and Sponsor Presentation
-

Skills You Will Gain:

- IoT Use Case Prioritisation
- IoT Solution Architecture
- Wireless Connectivity Selection
- IoT Messaging Protocols
- IoT Data Pipeline Design
- Connected Device Security
- Device Fleet Management
- IoT Investment Appraisal

Why Attend This Course:

- Return with an IoT Pilot Plan and Business Case built around a use case from your own organisation
- Question vendor proposals on coverage, battery life, platform fees and lock-in with a structured scorecard
- Avoid pilots that stall by setting success criteria and scale-up gates before the first device is installed
- Compare connected-device practice with peers from real estate, hospitality, retail, logistics and utilities

Conclusion:

Connected devices create value only when the use case, the network, the data flow and the security controls are designed as one system and tested in a measured pilot. This course moves from use case prioritisation and readiness, through IoT architecture, connectivity and MQTT and CoAP messaging, to data pipelines, dashboards and platform selection. It then addresses security, device lifecycle and field failure modes, before the final day applies these methods to building, hospitality, retail and logistics cases and produces an IoT Pilot Plan and Business Case.