The internet of things: Forging connections for a new world

73% executives currently have IoT initiatives underway*

At a glance

The internet of things (IoT) is a network of physical objects—devices, vehicles, appliances—embedded with sensors, software, and network connectivity, so they can collect, exchange, and act on data, often without human intervention.

The industrial IoT (IIoT) refers to its non-consumer use in manufacturing and other industrial sectors, such as oil and gas, mining, energy and utilities, and transportation. The IIoT adds sensors to people, places, processes, and products across a value chain to capture and analyze information that can advance an organization's goals.

*PwC's *2017 Global Digital IQ Survey*

Human-machine collaboration

Companies know that what promises to create the most value for industries taking advantage of the IoT is the **human and machine intelligence** built into the technology. Healthcare, manufacturing, retail, agriculture, and other businesses stand to benefit in a connected system in which human experts can use **data to drive more insightful decision-making**.

Healthcare
When kept informed by patients' wearable device data, doctors can offer personalized —and more immediate—care.
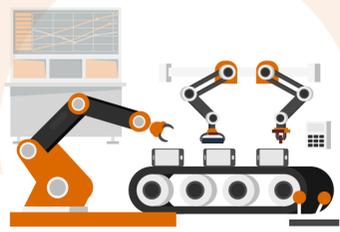
Security
Cameras combined with facial analysis could proactively determine whether someone will attempt a break-in.

Manufacturing
Sensor data apprises factory floor personnel of system health, resulting in fewer equipment failures that will slow production.

Logistics and shipping
Location tracking and condition monitoring of perishable or fragile goods can identify and prevent the damage or loss of valuable inventory.

Retail
Omnichannel customer experiences become a reality by combining data from online and brick-and-mortar shopping habits.

Building management
Lighting and temperature control can be adjusted based on occupancy patterns and weather and location data.

Oil and gas
Sensors help monitor oil pumps in pipelines, providing the ability to perform predictive maintenance and avoid failures.

Agriculture
Sensors measure soil moisture so farmers can optimize irrigation systems.

Benefits

The IoT can make possible a multitude of potential enhancements that can benefit employers and employees alike, such as:

- Real-time analytics to better inform decisions and lower costs
- Enhanced worker and equipment productivity
- Better customer service to more promptly and accurately respond to individual needs
- Effective communication between man (or woman) and machine, boosting workplace efficiency
- New revenue streams as traditional product-only manufacturers begin to offer a mix of products and services

Challenges

To realize the full potential advantages of the IoT, there are a number of hurdles that companies must first overcome, including:

- Secure devices and networks against data theft and service interruption
- Improve analytics modeling to accommodate exponential data increases
- Establish standards for data sharing and interconnectivity
- Integrate with legacy systems and platforms
- Implement organizational change

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