

THE INTERNET OF THINGS: REALIZING THE BUSINESS VALUE

Trending Topics represents an executive summary compilation of news, information and perspective on matters affecting businesses and business leaders today. This insight is being provided to keep you up to date on the latest developments and trends influencing these topics. These views do not necessarily represent the views and opinions of PNC. For additional research on these topics, please consult the sources cited in this article.

The world is becoming a more connected place, thanks to the internet of things (IoT), a network that links devices and people through internet protocol (IP) connectivity, often without human intervention.

The IoT generates data to improve operations and anticipate actions. Through the IoT, sensors, software, the cloud, computers and other devices can seamlessly merge physical and digital technology for greater efficiency, improved service and better process management.

McKinsey Global Institute foresees great value for IoT technology will be found in nine settings for “a total potential economic impact of \$3.9 trillion to \$11.1 trillion a year by 2025.”¹ These settings and specific areas where the IoT will create value include:²

- **Factories** — operations and equipment optimization, inventory management
- **Cities** — public safety and health, transportation and traffic control, resource management, government services
- **Human** — wellness, illness monitoring and care management, wearable and ingestible devices
- **Retail stores** — automated checkout and inventory optimization

Soon, the IoT will be ubiquitous: Research firm IHS predicts the number of installed IoT devices will leap to 30.7 billion in 2020 and 75.4 billion in 2025.

- **Logistics** — navigation, autonomous vehicles, transportation management, shipment tracking, flight navigation
- **Worksites** — operations management and equipment maintenance, health and safety
- **Vehicles** — systems internal to vehicles, insurance and maintenance functions
- **Homes** — security systems and task automation
- **Offices** — security and energy management applications, productivity improvement

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BIG DATA GENERATION DRIVES TRANSFORMATION

As the IoT links businesses with other businesses and customers in real time, sensors and devices monitor user behavior and collect vast amounts of data. At this early point, not much of the data is being used. McKinsey Global Institute cited an example of an oil rig having 30,000 sensors, yet only 1% of the data is being analyzed for anomalies.⁴ With advancements in machine learning and predictive analytics, very soon more data will be used for detection, control, optimization and prediction.

IoT advocates realize the advantages of having access to big data generated by IoT connected devices and related technology. Data can be used for a wide range of business initiatives, with sales, strategic planning and business intelligence applications in the forefront. The IoT and the data it generates can provide customer insight and contextual business intelligence that will shape and advance product development and improve customer satisfaction.⁵



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Companies also are seeing the potential to harvest data generated from IoT technology to develop new “data as a service business” models that generate new revenue streams. This opportunity may well change corporate business models and marketing strategies as companies move from selling products to selling information and IoT-related data services.

ARE WE THERE YET?

For the IoT to reach the high level of economic impact that analysts predict, certain factors and issues will need to be resolved. Companies participating in the growth of the IoT must overcome behavioral, technical, organizational and regulatory challenges related to its widespread adoption. Critical factors include:⁶

- Lowering the cost of IoT technology, including sensors, radio frequency identification (RFID) tags, batteries, data communication links and data storage.

- Adoption of open standards for interoperability between IoT devices and systems.
- Protection of personal privacy and confidentiality in the use of data collected.
- Addressing cybersecurity risks to linked IT systems, sensors and other devices.
- Protection of intellectual property rights when data is openly available and shared across the IoT.
- Navigation of public policy and regulatory issues.
- Integration of corporate organizational functions to merge IT staff and functions into operations to guide data-driven decision making.

Once these challenges are addressed, the IoT will truly form an integrated matrix that will redefine how the world operates.

To discuss these topics in more detail, please contact your PNC Relationship Manager.

- 1 “The Internet of Things: Mapping the Value Beyond the Hype,” McKinsey Global Institute, June 2015. Executive summary available at: <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-internet-of-things-the-value-of-digitizing-the-physical-world>
- 2 “The Internet of Things: Mapping the Value Beyond the Hype,” McKinsey Global Institute, June 2015. Executive summary available at: <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-internet-of-things-the-value-of-digitizing-the-physical-world>
- 3 Cited in “Roundup Of Internet Of Things Forecasts And Market Estimates, 2016,” by Louis Columbus, *Forbes*, Nov. 27, 2016. Available at: <https://www.forbes.com/sites/louiscolumnbus/2016/11/27/roundup-of-internet-of-things-forecasts-and-market-estimates-2016/#5faf60fe292d>
- 4 “Unlocking the potential of the Internet of Things,” by James Manyika, Peter Bisson, Jonathan Woetzel, Richard Dobbs, Jacques Bughin and Dan Aharon, McKinsey Global Institute, June 2015. Article available at: <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-internet-of-things-the-value-of-digitizing-the-physical-world>
- 5 “2016 Internet of Things (IoT), Big Data & Business Intelligence Update,” by Louis Columbus, *Forbes*, Oct. 2, 2016. Available at: <https://www.forbes.com/sites/louiscolumnbus/2016/10/02/2016-internet-of-things-iot-big-data-business-intelligence-update/#37ad4fc84923>
- 6 “The Internet of Things: Mapping the Value Beyond the Hype,” McKinsey Global Institute, June 2015. Executive summary available at: <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-internet-of-things-the-value-of-digitizing-the-physical-world>

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