SIDEBAR

The Internet of Things

The Internet of Things (IoT) has received growing attention by researchers, government, and businesses over the last several years. There are numerous and varying definitions of the IoT. For example, the United Nations defines it "as a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies" (UN Broadband Commission for Sustainable Development 2016:12). The McKinsey Global Institute defines the IoT as "sensors or actuators embedded in physical objects that are linked through wired and wireless networks" (Manyika et al. 2015:17).

Numerous researchers and organizations believe that the IoT is rapidly growing and is already used in a wide variety of products and applications. For example, the Apple Watch monitors a user's activity, sleep time, and heart rate. The data generated from the Apple Watch is transmitted through the user's iPhone and fed to computers that analyze the data to provide feedback on health and fitness. In agriculture, precision farming equipment with wireless links to data collected from remote satellites and ground sensors measure crop conditions and adjust the way each individual part of a field is farmed.

The IoT is projected to have wide-ranging global economic and social impacts, including raising productivity, saving energy, improving health, automating chores and factory production, and optimizing mass-transportation and driverless cars. Manyika et al. (2015) projects that the economic impact of the IoT in 2025 will be equivalent to 4%–11% of global gross domestic product (GDP) Manyika et al. (2015:2). Furthermore, Manyika et al. (2015) projects that the industrial sector will be one of the largest sources of value from adoption of the IoT (1%–4% of GDP) due to improvements including automation of complex production processes, optimizing inventory, energy savings, and improving worker health and safety (Manyika et al. 2015:7).

IHS Global Insight, a private economic research and consulting service, forecasts that global shipments of IoT devices will more than triple between 2017 and 2025 to reach 19.4 billion devices. The use of the number of shipments of IoT devices as an indicator has several limitations including the lack of an estimated market value for IoT devices, which vary widely in size and technological sophistication. For example, the value of an Apple Watch would be different from an IoT device used in a factory. In addition, IHS does not forecast objects that are currently unconnected, such as desk chairs and pet collars, which could be a very large part of the market.

According to IHS, the fastest growing sector will be industrial, jumping from 1.3 billion devices to 10.8 billion devices, pushing its share of all IoT devices from 21% to 56%. The rapid deployment of the IoT in this sector is broadly consistent with McKinsey Global's projection of a large economic impact on this sector. Although the number of devices will more than double from 2.1 billion to 4.9 billion, the consumer sector share will drop from 35% to 24%. Despite modest growth in communications devices, its share will drop sharply from 36% to 14%.