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Gartner Says the Internet of Things Installed Base Will Grow to 26 Billion Units By 2020

The Internet of Things (<http://www.gartner.com/technology/research/internet-of-things/>) (IoT), which excludes PCs, tablets and smartphones, will grow to 26 billion units installed in 2020 representing an almost 30-fold increase from 0.9 billion in 2009, according to Gartner, Inc. Gartner said that IoT product and service suppliers will generate incremental revenue exceeding \$300 billion, mostly in services, in 2020. It will result in \$1.9 trillion in global economic value-add through sales into diverse end markets.

The Internet of Things is the network of physical objects that contain embedded technology to communicate and sense or interact with their internal states or the external environment.

"The growth in IoT will far exceed that of other connected devices. By 2020, the number of smartphones tablets and PCs in use will reach about 7.3 billion units," said Peter Middleton, research director at Gartner. "In contrast, the IoT will have expanded at a much faster rate, resulting in a population of about 26 billion units at that time."

Due to the low cost of adding IoT capability to consumer products, Gartner expects that "ghost" devices with unused connectivity will be common. This will be a combination of products that have the capability built in but require software to "activate" it and products with IoT functionality that customers do not actively leverage. In addition, enterprises will make extensive use of IoT technology, and there will be a wide range of products sold into various markets, such as advanced medical devices; factory automation sensors and applications in industrial robotics; sensor motes for increased agricultural yield; and automotive sensors and infrastructure integrity monitoring systems for diverse areas, such as road and railway transportation, water distribution and electrical transmission.

"By 2020, component costs will have come down to the point that connectivity will become a standard feature, even for processors costing less than \$1. This opens up the possibility of connecting just about anything, from the very simple to the very complex, to offer remote control, monitoring and sensing," said Mr. Middleton. "The fact is, that today, many categories of connected things in 2020 don't yet exist. As product

designers dream up ways to exploit the inherent connectivity that will be offered in intelligent products, we expect the variety of devices offered to explode."

The IoT encompasses hardware (the things themselves), embedded software, communications services and information services associated with the things. Gartner refers to the companies that provide the hardware, software and services as IoT suppliers. The incremental IoT supplier revenue contribution from IoT in 2020 is estimated at \$309 billion.

Economic value-add (which represents the aggregate benefits that businesses derive through the sale and usage of IoT technology) is forecast to be \$1.9 trillion across sectors in 2020. The verticals that are leading its adoption are manufacturing (15 percent), healthcare (15 percent) and insurance (11 percent).

IoT value-add is composed of the combination of mature IoT, which is already yielding benefits, and a high-growth emerging IoT opportunity. It is derived from a combination of sector-specific technology (such as connected, automated manufacturing systems), and more generic, widely used technology, such as the suite of "smart building" technologies, including light-emitting diode (LED) lighting and smart HVAC systems.

Emerging areas will witness rapid growth of connected things. This will lead to improved safety, security and loss prevention in the insurance industry. IoT will also facilitate new business models, such as usage-based insurance calculated based on real-time driving data. The banking and securities industry will continue to innovate around mobile and micropayment technology using convenient point-of-sale (POS) terminals and will invest in improved physical security systems. IoT will also support a large range of health and fitness devices and services, combined with medical advances, leading to significant benefit to the healthcare sector. Emerging connected sensor technology will lead to value creation in utilities, transportation and agriculture. Most industries will also benefit from the generic technologies, in that their facilities will operate more efficiently through the use of smart building technology.

More detailed analysis is available in the report "Forecast: The Internet of Things, Worldwide, 2013." The report is available on Gartner's website at <http://www.gartner.com/document/2625419?ref=QuickSearch&sthkw=G00259115> (<http://www.gartner.com/document/2625419?ref=QuickSearch&sthkw=G00259115>).

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