**Internet of Things**

Smaller computing and radio devices, often unseen or built into objects, will sense and transmit data offering greater control of and connectivity between objects.

**How It’s Developing**

As technology becomes smaller and cheaper, it is possible to embed computing, wireless communication, and radio devices into objects and connect them so that they can collect and transmit data and be controlled by other objects and connect to the larger internet infrastructure. [[1](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)] The interconnection of devices and the data that they produce, when leveraged by applications to create useful intelligence that can be transmitted back, will help automate and improve services and experiences provided by these devices. [[2](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)]

The range of devices that might be connected includes wearable technologies (smart watches, activity trackers), implanted medical technologies, home appliances, and infrastructure (sewer pipes, street lights). Estimates of the size of the Internet of Things range from 25 billion to 50 billion objects connected by 2025. [[3](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)] The Pew Research Center, canvassing technology experts, reported that of the 1,606 experts who responded, 83% believed that the evolution of the Internet of Things would have beneficial effects on the public by 2025. [[4](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)]

Body worn computers, like smart watches or activity trackers, will become particularly important as they will allow individuals to not only monitor and track activities, but also provide that data to other objects that can use the information to improve user experiences (temperature and lighting adjustments, for example) or to control other devices (unlock doors). [[5](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)]

One of the potential challenges for a growing Internet of Things is the variety of data collection and reporting methods that might be used. Without standards for this data’s collection and transmission, the benefits of the Internet of Things may not be as fully or easily realized. [[6](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)]

New and emerging concerns for the Internet of Things include security and environmental impact. Devices that collect data and store data (including personal account information) and that potentially control parts of our lives would be susceptible to hackers. [[7](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)] As many of these products are just being developed, security may not be among the primary concerns of producers. [[8](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)] Many early advocates for the Internet of Things mentioned potential environmental benefits from connected devices – more efficient use of resources, reduced pollution. However, the manufacturing of new enabled devices means that older devices will be displaced and disposed of and, potentially worse, a whole host of devices will enter a technology upgrade cycle (planned obsolescence) to which they might never previously have belonged, further contributing to cycles of disposal. [[9](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)]

**Why It Matters**

As connected objects proliferate, consumers may have technical questions about their use or will require new skills to implement and manage the devices.

As with other technological trends, there is a potential divide between the haves and the have-nots. As stated by K.G. Schneider, “There will be an expectation that successful living as a human will require being equipped with pricey accouterments...Reflecting on this makes me concerned that as the digital divide widens, people left behind will be increasingly invisible and increasingly seen as less than full humans.” [[10](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)]

Implications for privacy abound and while many may evaluate the trade-off for improved quality of life worth the relinquishing of privacy, other may not. This may become more complicated as objects enter the public arena – light posts that monitor noise and foot traffic – where individuals have fewer opportunities to avoid these invasions. [[11](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)]

The data generated by these objects has tremendous value. Much of the data may be used by companies to improve and/or create new services or to market additional services or products. The data could also help increase understanding of events and trends, as demonstrated by Jawbone, a producer of wearable activity trackers,that graphed data collected by devices during a 2014 California Earthquake. [[12](http://www.ala.org/transforminglibraries/future/trends/IoT#Notes and Resources)] Data collected by objects could be used by researchers to identify useful trends or patterns in society that might otherwise have gone unexamined.

**Notes and Resources**

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[4] “The Internet of Things Will Thrive by 2025.” Janna Anderson and Lee Rainie. Pew Research Internet Project. May 14, 2014. Available from <http://www.pewinternet.org/2014/05/14/internet-of-things/>

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[10] “The Internet of Things Will Thrive by 2025.” Janna Anderson and Lee Rainie. Pew Research Internet Project. May 14, 2014. Available from <http://www.pewinternet.org/2014/05/14/internet-of-things/>

[11] “Chicago’s New Lamp Posts Will Track Pollution and Count People.” Jamie Condliffe. *Gizmodo*. June 23, 2014. Available from [http://gizmodo.com/chicagos-new-lamp-posts-will-track-pollution-and-coun...](http://gizmodo.com/chicagos-new-lamp-posts-will-track-pollution-and-count-1594674086).

[12] “Jawbone Opens a Window to Our Humanity Tracking Future.” Casey Johnston. *Ars Technica*. August 26, 2014. Available from [http://arstechnica.com/business/2014/08/your-data-is-now-a-de-facto-part...](http://arstechnica.com/business/2014/08/your-data-is-now-a-de-facto-part-of-a-massive-sleep-study/)