

TECH-CHANGE ROADMAP: Are we there yet? Almost

Big data, three-dimensional (3-D) printing, activity streams, internet television, near-field communication payment, cloud computing, and media tablets are among the fastest-moving technologies identified in Gartner Inc.'s 2012 Hype Cycle for Emerging Technologies report.

Targeted at strategic-planning, innovation, and emerging-technology professionals, the report highlights technologies that "will have broad-ranging impact across the business," according to Jackie Fenn, vice-president and Gartner fellow.

Since 1995, Gartner has used a "hype cycle" graphic (see below) to highlight the common pattern of "over-enthusiasm, disillusionment, and eventual realism that accompanies each new technology and innovation." Hype Cycle for Emerging Technologies is updated annually to track technologies along this cycle and provide guidance on when and where organizations should adopt them for maximum impact and value.

"The theme of this year's Hype Cycle is the concept of 'tipping points.' We are at an interesting moment—a time when many of the scenarios we've been talking about for a long time are almost becoming reality," explains Hung LeHong, research vice-president at Gartner. "The smarter smartphone is a case in point. It's now possible to look at a smartphone and unlock it via facial recognition, and then talk to it to ask it to find the nearest bank ATM. However, at the same time, we see that the technology is not quite there yet. We might have to remove our glasses for the facial recognition to work, our smartphones don't always understand us when we speak, and the location-sensing technology sometimes has trouble finding us."

The new report provides an assessment of the maturity, business benefit, and future direction of more than 1,900 technologies, grouped into 92 areas. The new "hype cycles" include big data, the internet of "things," in-memory computing, and strategic business capabilities.

According to Gartner analysts, these technologies have moved noticeably along the "hype cycle" since 2011. Consumerization is now expected to reach the "plateau of productivity" in two to five years, down from five to ten years in 2011. Bring your own device (BYOD), 3-D printing, and social analytics are among the technologies identified at the "peak of inflated expectations" in this year's emerging technologies "hype cycle."

Figure 1. Hype Cycle for Emerging Technologies, 2012

To view a blow-up of this chart in another window, please click on the image. Source: Gartner (August 2012)

Although the "hype cycle" presents technologies individually, Gartner "encourages enterprises to consider the technologies in sets or groupings, because so many new capabilities and trends involve multiple technologies working together. Often, one or two technologies that are not quite ready can limit the true potential of what is possible." Gartner refers to these technologies as "tipping-point technologies" because, once they mature, the scenario can come together from a technology perspective."

According to Gartner, "some of the more significant scenarios, and the tipping-point technologies, need to mature so that enterprises and governments can deliver new value and experiences to customers and citizens." They include:

- • What payment could really become. This scenario envisions a cashless world in which every transaction is electronic. This will provide enterprises with efficiency and traceability, and consumers with convenience and security. The technologies on the 2012 "hype cycle" that will enable parts of this scenario include NFC payment, mobile over-the-air payment, and biometric authentication methods. Related technologies also will impact the payment landscape, albeit more indirectly. These include the internet of "things," mobile-application stores, and automatic content recognition. "The tipping point will be surpassed when NFC payment and mobile OTA payment technologies mature," reports Gartner.
- • Any channel, any device, anywhere-bring your own everything. The technology industry has long discussed scenarios in which any service or function is available on any device, anytime and anywhere. This scenario is being fueled by the consumerization trend that is making it acceptable for enterprise employees to bring their personal devices into the work environment, according to Gartner. The technologies and trends featured on this "hype cycle" that are part of this scenario include BYOD, hosted virtual desktops, HTML5, various forms of cloud computing, silicon anode batteries, and media tablets. "Although these technologies and trends need to mature for the scenario to become the norm, HTML 5, hosted virtual networks and silicon anode batteries are particularly strong tipping-point candidates," says Gartner.
- • Smarter "things." A world in which things are smart and connected to the internet has been in the works for more than a decade. "Once connected and made smart, things will help people in every facet of their consumer, citizen, and employee lives," notes Gartner. "There are many enabling technologies and trends required to make this scenario a reality." On the 2012 "hype cycle," Gartner has included autonomous vehicles, mobile robots, internet of things, big data, wireless power, complex-event processing, internet television, activity streams, machine-to-machine communication services, and mesh networks (sensor, home health monitoring, and consumer telematics). The technologies and trends that are the "tipping points to success" include machine-to-machine communication services and mesh networks (sensor, big data, complex-event processing and activity streams).
- • Big data and global scale computing at "small" prices. This broad scenario portrays a world in which analytic insight and computing power are nearly infinite and cost-effectively scalable. "Once enterprises gain access to these resources, many improved capabilities are possible, such as better understanding customers or better fraud reduction," reports Gartner. The enabling technologies and trends on the 2012 "hype cycle" include quantum computing, various forms of cloud computing, big data, complex-event processing, social analytics, in-memory database management systems, in-memory analytics, text analytics, and predictive analytics. The tipping-point technologies that will make this

scenario accessible to enterprises, governments, and consumers include cloud computing, big data, and in-memory database management systems.

- • The "human way" to interact with technology. This scenario describes "a world in which people interact a lot more naturally with technology." The technologies on the "hype cycle" that make this possible include human augmentation; volumetric and holographic displays; automatic content recognition; natural-language question answering; speech-to-speech translation; big data; gamification; augmented reality; cloud computing; NFC; gesture control; virtual worlds; biometric authentication methods; and speech recognition. Many of these technologies have been "emerging" for multiple years and are starting to become commonplace; however, a few stand out as tipping-point technologies, including natural-language question answering and NFC.

- • The customer's voice is on file. Humans are social by nature, which drives a need to share-often publicly. "This creates a future in which the 'voice of customers' is stored somewhere in the cloud, and can be accessed and analyzed to provide better insight into them," explains Gartner. The 2012 "hype cycle" features the following enabling technologies and trends: automatic content recognition, crowdsourcing, big data, social analytics, activity streams, cloud computing, audio mining/speech analytics, and text analytics. Gartner believes that the tipping-point technologies are privacy backlash and big data.

- • Three-D print-it at home. In this scenario, 3-D printing allows consumers to print physical objects, such as toys or housewares, at home, just as they print digital photos today. Combined with 3-D scanning, it may be possible to scan certain objects with a smartphone and print a near-duplicate, according to Gartner. Analysts predict that 3-D printing will take more than five years to mature beyond the niche market.

<http://www.gartner.com/it/page.jsp?id=2124315>

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