

# Gartner's Top Strategic Technology Trends for 2015

At the recent Gartner Symposium/ITxpo, which took place in Cape Town, Gartner, Inc. highlighted technology trends that will be strategic for most organisations in 2015.

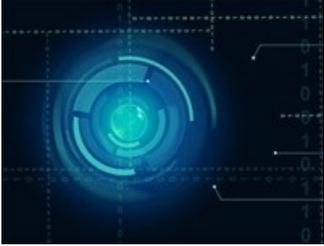


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Gartner defines a strategic technology trend as one with the potential for significant impact on the organisation in the next three years. Factors that denote significant impact include a high potential for disruption to the business, end users or IT, the need for a major investment, or the risk of being late to adopt.

These technologies impact the organisation's long-term plans, programmes and initiatives. Analysts presented their findings during Gartner Symposium/ITxpo 2014, being held in Cape Town until Friday, 12 September 2014.

"We have identified the top 10 technology trends that companies cannot afford to ignore in their strategic planning processes," said David Cearley, vice president and Gartner Fellow. "This does not necessarily mean they need to adopt or invest in all of trends at the same rate, but companies should look to make deliberate decisions about them during the next two years."

Cearley said the top trends for 2015 cover three themes: the merging of the real and virtual worlds, the advent of intelligence everywhere, and the IT impact of the rise of the digital business.

The top ten strategic technology trends for 2015 are:

- 1. The Merging of the Real and Virtual Worlds  
Computing Everywhere**

As mobile devices continue to proliferate, Gartner predicts an increased emphasis on serving the needs of the mobile user in diverse contexts and environments, as opposed to focusing on devices alone.

"Phones and wearable devices are now part of an expanded computing environment that includes things like

consumer electronics and connected screens in the workplace and public space," said Cearley. "Increasingly, it's the overall environment that needs to adapt to the requirements of the mobile user. This will continue to raise significant management challenges for IT organisations as they lose control of user endpoint devices. It will also require increased attention to user experience design."

## **The Internet of Things (IoT)**

The ubiquity of user-oriented computing will continue to be mirrored in industrial and operational contexts. "This is central to digital business products and processes. Deep embedding of technology will create touchpoints for users everywhere and create the foundation for digital business," said Cearley.

## **3D Printing**

3D printing will reach a tipping point over the next three years as the market for relatively low-cost 3D printing devices continues to grow rapidly and industrial use expands significantly. New industrial, biomedical and consumer applications will continue to demonstrate that 3D printing is a real, viable and cost-effective means to reduce costs through improved designs, streamlined prototyping and short-run manufacturing.

## **2. Intelligence Everywhere**

### **Advanced, Pervasive, Invisible Analytics**

Analytics will take centre stage as the volume of data generated by embedded systems increases and vast pools of structured and unstructured data inside and outside the organisation are analysed. "Every app now needs to be an analytic app," said Cearley. Organisations need to manage how best to filter the huge amounts of data coming from the IoT, social media and wearable devices, and then deliver exactly the right information to the right person, at the right time. Analytics will become deeply, but invisibly embedded everywhere. "Big data remains an important enabler for this trend but the focus needs to shift to thinking about big questions and big answers first and big data second - the value is in the answers, not the data," Cearley added.

## **Context-Rich Systems**

Ubiquitous embedded intelligence combined with pervasive analytics will drive the development of systems that are alert to their surroundings and able to respond appropriately. "Context-aware security is an early application of this new capability, but others will emerge," said Cearley. "By understanding the context of a user request, applications can not only adjust their security response but also how information is delivered to the user, greatly simplifying an increasingly complex computing world."

## **Smart Machines**

Deep analytics applied to an understanding of context provide the preconditions for a world of smart machines. This foundation combines with advanced algorithms that allow systems to understand their environment, learn for themselves, and act autonomously. "Prototype autonomous vehicles, advanced robots, virtual personal assistants and smart advisors already exist and will evolve rapidly, ushering in a new age of machine helpers. The smart machine era will be the most disruptive in the history of IT," said Cearley.

## **3. IT for the Digital Business**

### **Cloud/Client Architecture**

The convergence of cloud and mobile computing will continue to promote the growth of centrally coordinated applications that can be delivered to any device. "Cloud is the new style of elastically scalable, self-service computing and both internal applications and external applications will be built on this new style," said Cearley.

"While network and bandwidth costs may continue to favour apps that use the intelligence and storage of the client device effectively, co-ordination and management will be based in the cloud." In the near term the focus for cloud/client will be on synchronising content and application state across multiple devices and addressing application portability across devices. Over time applications will evolve to support simultaneous use of multiple devices. "The second screen phenomenon today focuses on coordinating television viewing with use of a mobile device. In the future, games and enterprise applications alike will use multiple screens and exploit wearables and other devices to deliver an enhanced experience," said Cearley.

## **Software-Defined Infrastructure and Applications**

Agile programming of everything from applications to basic infrastructure is essential to enable organisations to deliver the flexibility required to make the digital business work. Software defined networking, storage, data centres and security are maturing. Cloud services are software configurable through application programming interface (API) calls, and applications too increasingly have rich APIs to access their function and content programmatically. "To deal with the rapidly changing demands of digital business and scale up - or down - systems rapidly, computing has to move away from static to dynamic models," said Cearley. "Rules, models and code that can dynamically assemble and configure all of the elements needed, from the network through the application, are needed."

## **Web-Scale IT**

Web-scale IT is a pattern of global-class computing that delivers the capabilities of large cloud service providers within an enterprise IT setting. "More organisations will begin thinking, acting and building applications and infrastructure like web giants such as Amazon, Google and Facebook," said Cearley. Web-scale IT does not happen immediately but will evolve over time as commercial hardware platforms embrace the new models and cloud-optimised and software-defined approaches reach mainstream. "The first step towards the web-scale IT future for many organisations should be DevOps - bringing development and operations together in a coordinated way to drive rapid, continuous incremental development of applications and services," Cearley stated.

## **Risk-Based Security and Self-Protection**

All roads to the digital future lead through security. However, in a digital business world security cannot be a roadblock that stops all progress. Organisations will increasingly recognise that it is not possible to provide 100% secured environments.

"Once organisations acknowledge that, they can begin to apply more sophisticated risk assessment and mitigation tools," said Cearley. On the technical side, recognition that perimeter defense is inadequate and applications need to take a more active role in security will give rise to a new multi-faceted approach. Security aware application design, dynamic and static application security testing and runtime application self protection, combined with active context-aware and adaptive access controls, are all needed in today's dangerous digital world."This will lead to new models of building security directly into applications. "Perimeters and firewalls are no longer enough; every app needs to be self-aware with regard to security, and self-protecting," Cearley said.