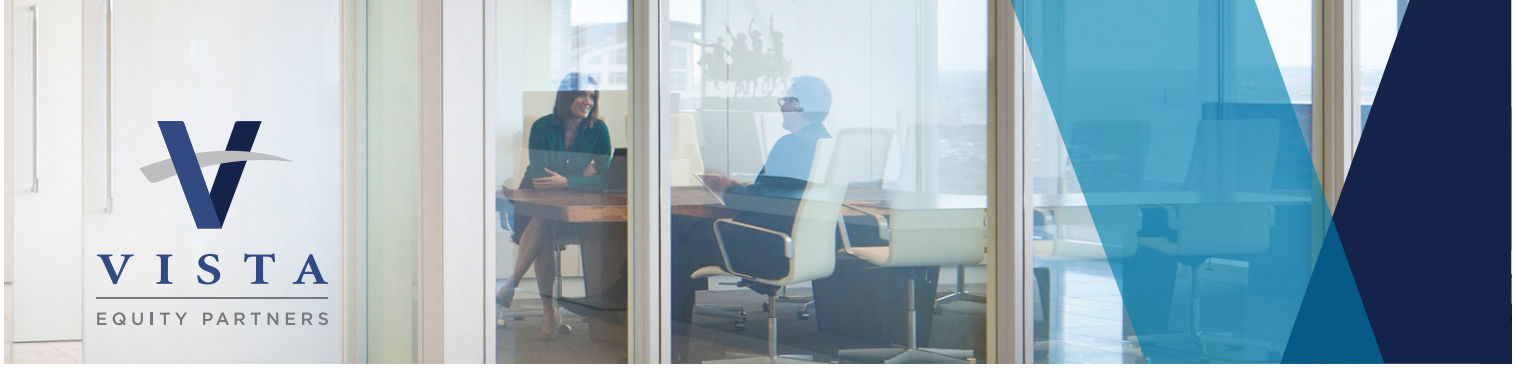
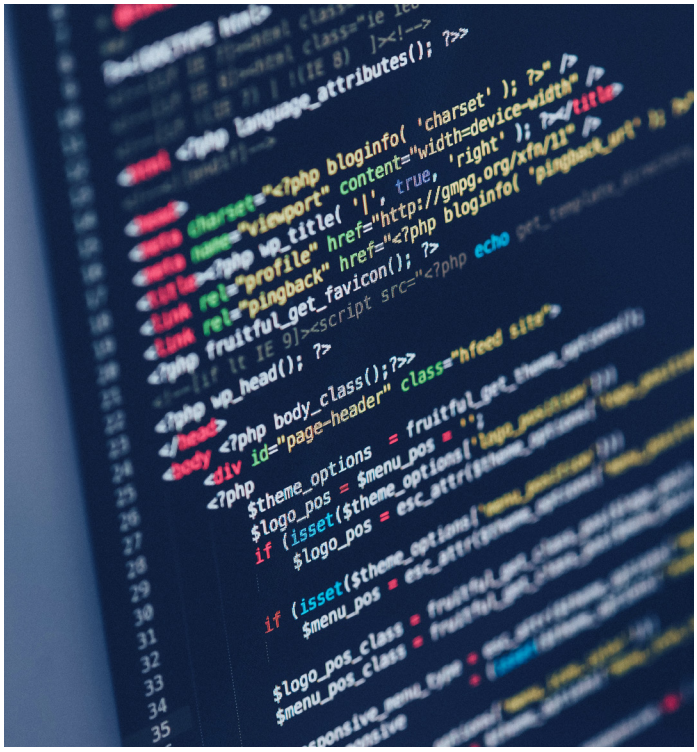



# SOFTWARE TRENDS IGNITING THE TECHNOLOGY INDUSTRY

When most consumers think about the greatest technological innovations over the past several years – or the most exciting breakthroughs ahead – they tend to envision hardware, such as the iPhone, Tesla battery, or self-driving car. Yet for many businesses, many of the most exciting breakthroughs are in software. Below, we explore five of Gartner's top strategic technology trends for 2016, with a focus on how and why software is helping to propel trend forward. Understanding this terminology – and exploring the ways in which these trends will impact your business – will equip you with the lexicon to engage in conversation and employ these trends to benefit your strategy.



## 1. THE DEVICE MESH

The device mesh refers to an expanding set of endpoints people use to access applications and information or to interact with people, social communities, governments, and businesses. The device mesh includes mobile devices, wearables, consumer and home electronic devices, automotive devices, and environmental devices — such as sensors in the Internet of Things (IoT).

**The evolving role of software:** Software is used to analyze and make sense of data drawn from physical objects. Software is essentially the brain of the device mesh – piecing disparate pieces of information together and finding patterns to make sense of the figures. Gartner notes that while devices are increasingly connected to back-end systems through various networks, they have often operated in isolation from one another. As the device mesh evolves, the organization expects connection models to expand and greater cooperative interaction between devices to emerge. With greater device cooperation, the need for more sophisticated software models to make connections possible is imperative.

## 2. AMBIENT USER EXPERIENCE

Ambient user experience is the idea that devices and sensors will become so smart and interconnected over the next few years that they will be able to seamlessly organize our lives without us even noticing. One example is the smart thermostat you may have already installed in your home, which adjusts the climate based on observed preferences. According to Gartner, "the ambient user experience seamlessly flows across a shifting set of devices and interaction channels, blending physical, virtual, and electronic environment as the user moves from one place to another." The key to this equation is that devices and sensors continue to gather more contextual data.

**The evolving role of software:** Designing advanced experiences with the ability to integrate across multiple devices will be a major differentiator for software companies. Designing devices that are smart enough to collect information from one another will be key to shaping the ambient user experience and software will connect each of these devices making this a possibility.

### 3. 3D PRINTING MATERIALS

According to Gartner, "Recent advances have already enabled 3D printing to use a wide range of materials, including advanced nickel alloys, carbon fiber, glass, conductive ink, electronics, pharmaceuticals, and biological materials. These innovations are driving user demand, as the practical applications for 3D printers expand to more sectors, including aerospace, medical, automotive, energy, and the military. The growing range of 3D-printable materials will drive a compound annual growth rate of 64.1 percent for enterprise 3D printer shipments through 2019."

**The evolving role of software:** Design software within any industry employing 3D printing will require significant funding and development in the next few decades. This will include enterprise-level and consumer-level applications requiring a variety of machine integrations.

### 4. ADVANCED MACHINE LEARNING

In advanced machine learning, deep neural nets (DNNs) move beyond classic computing and information management to create systems that can autonomously learn to perceive the world on their own. In other words, machines will be able to go beyond the act of simply collecting information and will be able to learn from and apply the information gathered. The explosion of data sources and the complexity of information makes manual classification and analysis unfeasible and uneconomical. DNNs automate these tasks and make it possible to address key challenges.

**The evolving role of software:** According to Gartner, DNNs enable hardware- or software-based machines to learn for themselves all the features in their environment, from the finest details to broad sweeping abstract classes of content. This area is evolving quickly, and organizations must assess how they can apply these technologies to gain competitive advantage.



### 5. AUTONOMOUS AGENTS AND THINGS

Machine learning gives rise to a spectrum of smart machine implementations — including robots, autonomous vehicles, virtual personal assistants (VPAs), and smart advisors — that act in an autonomous (or at least semiautonomous) manner. While advancements in physical smart machines like robots get a great deal of attention in the media, the software-based smart machines have a more near-term and broader impact.

**The evolving role of software:** There are multiple areas of software that are improving the capabilities of autonomous agents. For example, autonomous vehicles, which utilize embedded software within a vehicle that interacts with the driver and mobile devices; software that collects and analyzes data from other vehicles and objects along the route; and mobile software that integrates with the vehicle's infotainment system. Without software, the autonomous agents and things trend will fail to gain momentum, falling short of its potential.

Software, as it is today, will continue to be a fundamental driver of the economy, especially as it pertains to the technology industry.

**Sources:**
*Gartner.com*



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