Timing Is Everything

New technologies emerge every day, but not all of them pay off, and adopting them too early or too late can be financially and/or competitively fatal. Gartner Hype Cycles help our clients balance risk/reward trade-offs and choose the right technologies—at the right times—to support their most critical enterprise initiatives.

Hype Cycle Highlights

This document summarizes the key findings of our 2010 Hype Cycle for emerging technologies. Gartner Hype Cycles are published annually and help our clients track and monitor the commercial viability of 1,600 technologies, applications and trends in 80 IT, business and consumer markets. Gartner Hype Cycles are broadly used by both clients and leading business and technology media outlets to explain how—and when—technologies will evolve from market hype to business benefits.

What You Need to Know

This Hype Cycle provides a cross-industry perspective on potentially transformative technologies. Senior executives, CIOs, strategists, business developers and technology planners will want to consider these technologies when developing emerging business and technology portfolios. This report is intended as a starting point and should be selectively augmented or revised based on input from other technology and industry Hype Cycles, as well as from detailed technology planning that targets organizational requirements.

Technologies on the rise to the peak of Inflated Expectations during 2010 include Internet TV (for example, Hulu), private cloud computing, augmented reality, media tablets (for example, the iPad), wireless power, 3D flat-panel TVs and displays, activity streams, and fourth-generation (4G) standard. Just over the peak are cloud computing and cloud/Web platforms, while microblogging and e-books have fallen toward the Trough of Disillusionment since 2009.

Transformational technologies that will hit the mainstream in less than five years include media tablets, cloud computing and cloud/Web platforms. Longer term, beyond the five-year horizon, 3D printing, context delivery architectures, mobile robots, autonomous vehicles, terahertz waves and human augmentation will be transformational across a range of industries.
The Hype Cycle

The Hype Cycle for Emerging Technologies targets strategic planning, innovation and emerging-technology professionals by highlighting a set of technologies that will have broad-ranging impact across the business. It is the broadest aggregate Gartner Hype Cycle, selecting from the more than 1,600 technologies featured in Gartner’s Hype Cycle Special Report for 2010. It features technologies that are the focus of attention because of particularly high levels of hype, or those that may not be broadly acknowledged but that Gartner believes have the potential for significant impact. Because this Hype Cycle pulls from such a broad spectrum of topics, many technologies that are featured in a specific year because of their relative visibility will not necessarily be tracked throughout their life cycle. Interested readers can refer to Gartner’s broader collection of Hype Cycles for items of ongoing interest.

Themes emerging from this year’s Hype Cycle include:

**User experience and interaction.** New styles of user interaction will drive new usage patterns, giving organizations opportunities to innovate how information and transactions are delivered to customers and employees. This includes devices such as media tablets and 3D flat-panel TVs and displays, and interaction styles such as gesture recognition and tangible user interfaces (see also “Hype Cycle for Human-Computer Interaction, 2010”).
Augmented reality, context and the real-world Web. The migration of the Web phenomenon — and technology in general — beyond the desktop and into the context of people's everyday lives is creating new opportunities for personalized and contextually aware information access. Augmented reality is a hot topic in the mobile space, with platforms and services on iPhone and Android platforms, and it represents the next generation as location-aware applications move toward the plateau. Other elements such as 4G standard, sensor networks (mesh networks: sensor) and context delivery architecture are evolving more slowly, but they will play a key role in expanding the impact of IT in the physical world (see also the “Hype Cycle for Context-Aware Computing, 2010” and “Hype Cycle for Mobile Device Technologies, 2010”).

Data-driven decisions. The quantity and variety of digital data continue to explode, along with the opportunities to analyze and gain insight from new sources such as location information and social media. The techniques themselves, such as predictive analytics, are relatively well established in many cases; the value resides in applying them in new applications such as social analytics and sentiment analysis.

Cloud-computing implications. The adoption and impact of cloud computing continue to expand. The separate “Hype Cycle for Cloud Computing, 2010” shows a dense mass of activity rising up to the Peak of Inflated Expectations. On this Hype Cycle for Emerging Technologies, we feature cloud computing overall just topping the peak, and private cloud computing still rising. Both are of intense interest among organizations that would like to take advantage of the scalability of cloud computing, while potentially addressing some of the security and other issues associated with public cloud computing. Cloud/Web platforms are featured, along with mobile application stores, to acknowledge the growing interest in platforms for application development and delivery.

Value from the periphery. A number of technologies, such as mobile robots and 3D printing, are not yet widely used, but they can already provide significant value when used appropriately (see “Most Valuable Technologies: Survey Results for Emerging-Technology Adoption and Management”).

New on the 2010 Hype Cycle for Emerging Technologies

The following technologies have been added to the 2010 Hype Cycle for emerging technologies that were not part of the 2009 Hype Cycle:

• Computer-brain interface, tangible user interfaces, gesture recognition and virtual assistants highlight the shifts in user interaction.

• Terahertz waves, autonomous vehicles, speech-to-speech translation, biometric authentication and interactive TV show the progress of some long-emerging technologies. For example, interactive TV is now climbing the slope, 14 years after we showed it sliding into the trough on our 1996 Hype Cycle for emerging technologies.

• Social analytics and predictive analytics showcase activity in data-driven decisions.

• Private cloud computing, cloud/Web platforms and activity streams highlight key topics in Web development and access.

• Media tablets, consumer-generated media, 4G standard, mobile application stores and Internet micropayment systems track the progress of key consumer technologies.

• Extreme transaction processing shows the evolution of technology from exclusively high-end, sophisticated organizations to mainstream users.

• Broadband over power lines is included this year as an example of how technologies can fail to emerge from the Trough of Disillusionment. Broadband over power lines will become obsolete before the Plateau of Productivity as other broadband technologies — particularly WiMAX — evolve faster and move into position to take large portions of the addressable market for Internet access.
Fast Movers
A number of technologies have moved along the Hype Cycle significantly since 2009:

- 3D flat-panel TVs and displays have moved rapidly since 2009 (when they appeared as “3D flat-panel displays”), from shortly after the Technology Trigger to a position near the peak, due to intense vendor activity and product announcements.
- E-book readers have dropped from their peak last year, as media tablets, particularly the iPad, threaten the value of a stand-alone reader.
- Microblogging falls toward the trough as enterprises struggle to find the value, even as consumer popularity continues.
- Video telepresence is falling toward the trough due to still-high pricing, which limits adoption. However, those who have adopted are inevitably impressed with the sense of “being there” that the technology delivers.
- Pen-centric tablet PCs (last year, these were called “tablet PCs”) approach the plateau, while potential competition gathers from touch-based media tablets.

Another Notable Technology
A one technology, public virtual worlds, has changed since 2009 from an expected two to five years to mainstream adoption to an expected five to 10 years to mainstream adoption, due to a slowing down in adoption and development activity.

Using Hype Cycles in Strategic Planning
Many Gartner clients use Hype Cycles and Priority Matrices as part of their technology-planning process. In particular, the Hype Cycle Special Report is a valuable resource for strategic planning activities as a “trend and technology scan.” A typical use would be to select several Hype Cycles reflecting relevant overviews and drill-down initiatives. For example, a bank with an active call center might focus on the Hype Cycles for Emerging Technologies, Financial Services Payment Systems, the two Banking and Investment Services Hype Cycles, and the three CRM Hype Cycles as well as consumer and mobile topics. Once the bank had created a shortlist of relevant technologies from these Hype Cycles, it could document and discuss the relevant benefits and risks of each, using the ratings and information provided in the Hype Cycle technology descriptions, adjusted for its specific organizational goals and priorities.

Many organizations have found the “My Hype Cycle” toolkit — which contains all the technology entries from all the Hype Cycles in a single spreadsheet that can be sorted and filtered, plus a Hype Cycle graphic auto-generation tool — an effective way to create custom Hype Cycles for internal meetings and presentations (see “Toolkit: My Hype Cycle, 2009”). The 2010 version, with more than 1,800 entries, will be available in late September. Creating custom Hype Cycles and Priority Matrices forces planners to be explicit about the assumptions regarding risks and benefits, which helps discussion and decision making about adoption priorities. The output from this type of trend and technology scan typically feeds into a set of evaluation projects that further inform adoption decisions.

Technology providers use Hype Cycles as a way to understand the likely market reaction to their products and services based on the adopter community’s expectations and attitudes. They also find value in examining the Hype Cycles for candidate technologies and capabilities that will impact future product and service offerings and ecosystems. Investors watch for technologies that are on the rise in a Hype Cycle to try to catch them before the Peak of Inflated Expectations or at the beginning of the Slope of Enlightenment before they move into mainstream adoption.
2010 Technology Hype Cycles

Technology Hype Cycles provide a snapshot of core technologies, software and infrastructure. Examples include topics in wireless, security, productivity tools, hardware infrastructure and networking. The Emerging Trends and Technologies Hype Cycle provides a view of highly hyped and high-impact trends and technologies from across IT.

"Hype Cycle for Consumer Technologies, 2010"
"Hype Cycle for Content Management, 2010"
"Hype Cycle for Context-Aware Computing, 2010"
"Hype Cycle for Data Center Power and Cooling Technologies, 2010"
"Hype Cycle for Data and Application Security, 2010"
"Hype Cycle for Data Management, 2010"
"Hype Cycle for Data Management, 2010"
"Hype Cycle for Emerging Energy Technologies, 2010"
"Hype Cycle for Emerging Technologies, 2010"
"Hype Cycle for Enterprise Communication Applications, 2010"
"Hype Cycle for Enterprise Information Management, 2010"
"Hype Cycle for the High-Performance Workplace, 2010"
"Hype Cycle for Human-Computer Interaction, 2010"
"Hype Cycle for Identity and Access Management Technologies, 2010"
"Hype Cycle for Imaging and Print Services, 2010"
"Hype Cycle for Mobile Device Technologies, 2010"
"Hype Cycle for Networking and Communications, 2010"
"Hype Cycle for PC Technologies, 2010"
"Hype Cycle for Semiconductors, 2010"
"Hype Cycle for Server Technologies, 2010"
"Hype Cycle for Smart Grid Technologies, 2010"
"Hype Cycle for Social Software, 2010"
"Hype Cycle for Storage Technologies, 2010"
"Hype Cycle for Telemedicine, 2010"
"Hype Cycle for Web and User Interaction Technologies, 2010"
"Hype Cycle for Wireless Devices, Software and Services, 2010"
"Hype Cycle for Wireless Networking Infrastructure, 2010"
2010 Topic Hype Cycles

Topic Hype Cycles examine technologies and trends in services, applications, IT operations, and software development such as CRM, sourcing strategies and regulatory issues. Regional Hype Cycles highlight the particular areas of activity within the various geographies, including where the region is ahead of or lagging the global average.

*Hype Cycle for Application Architecture, 2010*
*Hype Cycle for Application Development, 2010*
*Hype Cycle for Application Infrastructure, 2010*
*Hype Cycle for Business Process Management, 2010*
*Hype Cycle for Business Process Outsourcing, 2010*
*Hype Cycle for Business Use of Social Technologies, 2010*
*Hype Cycle for Consulting and System Integration, 2010*
*Hype Cycle for Cloud Computing, 2010*
*Hype Cycle for Consulting and System Integration, 2010*
*Hype Cycle for Consumer Services and Mobile Applications, 2010*
*Hype Cycle for CRM Customer Service and Field Service, 2010*
*Hype Cycle for CRM Marketing Applications, 2010*
*Hype Cycle for CRM Sales, 2010*
*Hype Cycle for E-Commerce, 2010*
*Hype Cycle for Enterprise Architecture, 2010*
*Hype Cycle for Governance, Risk and Compliance Technologies, 2010*
*Hype Cycle for ICT in China, 2010*
*Hype Cycle for ICT in India, 2010*
*Hype Cycle for IT Operations Management, 2010*
*Hype Cycle for IT Outsourcing, 2010*
*Hype Cycle for Manufacturing Product Life Cycle Management and Production, 2010*
*Hype Cycle for Pattern-Based Strategy, 2010*
*Hype Cycle for Performance Management, 2010*
*Hype Cycle for Real-Time Infrastructure, 2010*
Hype Cycle for Software as a Service, 2010
*Hype Cycle for Solar Energy, 2010*
*Hype Cycle for Supply Chain Management, 2010*
*Hype Cycle for Sustainability and Green IT, 2010*
*Hype Cycle for Virtualization, 2010*
2010 Industry Hype Cycles

In addition to the cross-industry positioning featured in technology and topic Hype Cycles, industry Hype Cycles show how technologies may be at different levels of maturity and adoption in different industries. Industry Hype Cycles also feature technologies and trends unique to that specific industry.

“Hype Cycle for Automotive Demand and Supply Chain Technologies, 2010”
“Hype Cycle for Automotive Electronics, 2010”
“Hype Cycle for Banking and Investment Services Core Applications Technologies, 2010”
“Hype Cycle for Banking and Investment Services Customer Acquisition and Retention, 2010”
“Hype Cycle for Broadcasting and Entertainment, 2010”
“Hype Cycle for Communications Service Provider Infrastructure, 2010”
“Hype Cycle for Communications Service Provider Operations, 2010”
“Hype Cycle for Consumer Goods, 2010”
“Hype Cycle for Government Transformation, 2010”
“Hype Cycle for Education, 2010”
“Hype Cycle for Financial Services Payment Systems, 2010”
“Hype Cycle for Government Transformation, 2010”
“Hype Cycle for Healthcare Payers, 2010”
“Hype Cycle for Healthcare Provider Applications and Systems, 2010”
“Hype Cycle for Healthcare Provider Technologies and Standards, 2010”
“Hype Cycle for Life Insurance, 2010”
“Hype Cycle for Life Sciences, 2010”
“Hype Cycle for Media Industry Advertising, 2010”
“Hype Cycle for Media Industry Publishing, 2010”
“Hype Cycle for P&C Insurance, 2010”
“Hype Cycle for Retail Technologies, 2010”
“Hype Cycle for Transportation, 2010”
“Hype Cycle for Utility Industry IT and Business Processes, 2010”
“Hype Cycle for Utility Industry Operational Technologies, 2010”
“Hype Cycle for Vehicle-Centric Information and Communication Technologies (Vehicle ICT), 2010”
About the Author

Jackie Fenn is a vice president and Gartner Fellow specializing in emerging trends. She advises leading enterprises on how emerging technologies and societal trends will impact their business imperatives over a three- to 10-year time horizon. Ms. Fenn has created numerous models and frameworks for examining trends and technologies, and is the originator of the Gartner Hype Cycle model. Her book, “Mastering the Hype Cycle: How to Choose the Right Innovation at the Right Time,” co-authored with vice president and Gartner Fellow Mark Raskino, was published by Harvard Business Press in 2008.

About Gartner

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