

Gartner's Hype Cycle Special Report for 2011

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Analyst(s): Jackie Fenn

The 2011 Gartner Hype Cycle Special Report evaluates the maturity of more than 1,900 technologies and trends in 89 areas. New this year are application services and outsourcing, cloud application infrastructure services, cloud security, privacy and smart cities.

Analysis

Gartner's 2011 Hype Cycle Special Report provides strategists and planners with an assessment of the maturity, business benefit and future direction of over 1,900 technologies, grouped into 89 distinct Hype Cycles. The Hype Cycle graphic has been used by Gartner since 1995 to highlight the common pattern of overenthusiasm, disillusionment and eventual realism that accompanies each new technology and innovation. The Hype Cycle Special Report 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. Each Hype Cycle document also contains a second graphic, the Priority Matrix, that compares the relative benefit and maturity of technology candidates.

In addition to the two graphics, each Hype Cycle report contains an introduction that highlights key trends, such as advances in technological capabilities and changes in the provider marketplace. Each technology or trend featured in the Hype Cycle and Priority Matrix is also profiled in more detail, including a definition, assessment of business impact, advice on adoption and sample vendors, where applicable. For more information on how to interpret and apply the Hype Cycle reports, see "Understanding Gartner's Hype Cycles, 2011," which has been updated and restructured this year, including the addition of a new frequently-asked-questions section.

The Hype Cycles in this report include a broad range of technology and application topics, as well as industry and geographic views. The entries featured in each Hype Cycle are mostly technologies, but also include services, frameworks, architectures, regulations, management disciplines and higher-level trends (such as consumerization), as we have observed that these categories also commonly follow the Hype Cycle.

New Hype Cycles for the 2011 Special Report are:

- **Application Services and Outsourcing.** The "Hype Cycle for Application Services and Outsourcing, 2011" showcases professional services in areas such as IT and operational technology convergence, social media and mobility. It helps organizations discern the

significance of specific application services when making vendor selection or sourcing decisions.

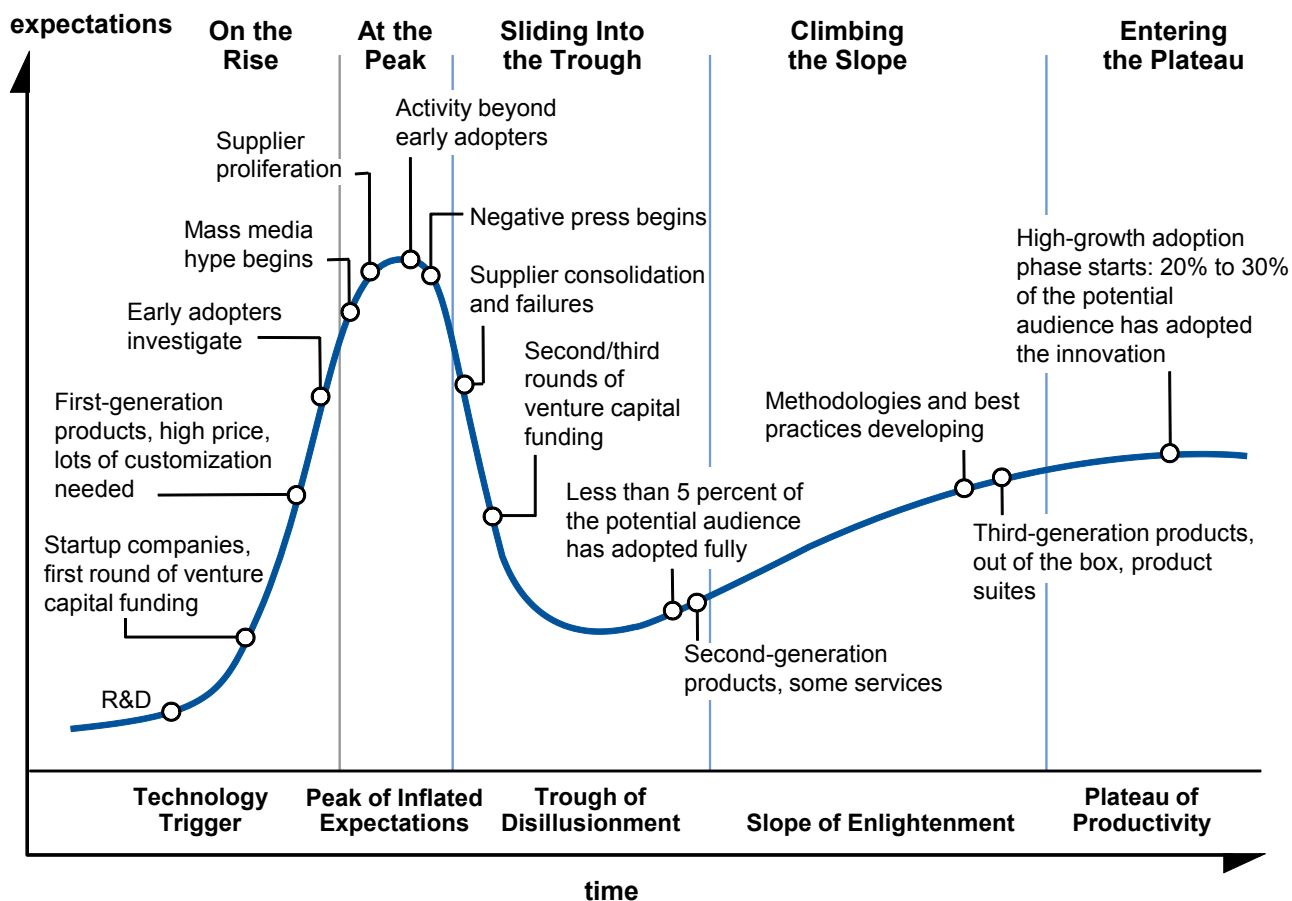
- **Cloud Security.** The "Hype Cycle for Cloud Security, 2011" encompasses technologies and standards that improve the security and reliability of the cloud computing model, and trusted application and security services that are delivered by cloud service providers.
- **Cloud Application Infrastructure Services.** Cloud application infrastructure services (also known as platform as a service, or PaaS) form the foundation of a cloud computing platform by enabling development, execution, management and life cycle control for cloud-based application solutions (see "Hype Cycle for Cloud Application Infrastructure Services (PaaS), 2011"). It is a less developed and less understood layer in the cloud computing architecture when compared with system infrastructure services (IaaS) and application services (SaaS), but is the fastest growing with innovation and new vendor investments.
- **Privacy.** The first "Hype Cycle for Privacy, 2011" is a tool for privacy officers and other IT professionals who have a responsibility for privacy in the organization. As attention to privacy as a whole reaches a peak, it justifies a closer look at which regulations are emerging and which have matured, and which technologies are deployed to deal with legal requirements and cultural expectations.
- **Smart City Technologies and Solutions.** Many technologies are relevant to a discussion of smart cities, ranging from transportation and healthcare to energy management and cloud computing. This new report (see "Hype Cycle for Smart City Technologies and Solutions, 2011") profiles 34 of the most significant emerging technologies that can be used to implement a smart city.
- **Sustainability and Green IT in India.** "Hype Cycle for Green IT and Sustainability in India, 2011" features a new geographic variation on the sustainability and green IT Hype Cycle, as India's breakneck economic growth makes it a likely early adopter of green IT and sustainability solutions in IT hardware and communications.
- **Application Security.** As attacks become more financially motivated and organizations get better at securing their infrastructures, they have shifted to the application level. To address new risks, technology markets for application and data security have emerged, offering protection for these critical assets. To address this shift, last year's data and application security Hype Cycle has been split into two: "Hype Cycle for Application Security, 2011" and "Hype Cycle for Data and Collaboration Security, 2011."
- **Consumer Devices.** The ongoing convergence of previously distinct devices like personal computers, phones and televisions is moving the market for consumer devices away from hardware-centric to usage-centric. In view of this, the 2010 Hype Cycles for mobile devices and personal computers have merged into the "Hype Cycle for Consumer Devices, 2011."

Based on the number of clients reading each Hype Cycle, the most popular Hype Cycles from the 89 published during 2010 were Cloud Computing; Emerging Technologies; IT Operations Management; IT Outsourcing; Networking and Communications; Application Development; Mobile Device Technologies; and Wireless Devices, Software and Services.

The Hype Cycle Graphic

Gartner's Hype Cycle characterizes the typical progression of an emerging technology, from overenthusiasm through a period of disillusionment to an eventual understanding of the technology's relevance and role in a market or domain. Each phase is characterized by distinct indicators of market, investment and adoption activities (see Figure 1).

Figure 1. Gartner's Hype Cycle



Source: Gartner (August 2011)

Gartner analysts position technologies along the Hype Cycle based on a consensus assessment of hype and maturity. To represent the varying speeds, all technologies on the Hype Cycle are assigned to a "years to mainstream adoption" category (for example, two to five years), representing how long they will take to reach the Plateau of Productivity from their current position on the Hype Cycle — that is, how far they are from the start of mainstream adoption.

Hype Cycles help technology planners to decide when to invest in that technology. A Hype Cycle is a useful educational tool that:

- Establishes the expectation that most technologies will inevitably progress through the pattern of overenthusiasm and disillusionment before proving their real value.
- Provides a snapshot of the relative level and pace of maturity of technologies within a certain segment of the IT world, such as a technology area, horizontal or vertical business market, or a certain demographic audience. A Hype Cycle has a simple and clear message. Companies should not invest in a technology just because it is being hyped, nor should they ignore a technology just because it is not living up to early overexpectations.

For more detailed information on the causes, traps and opportunities of the Hype Cycle, see "Understanding Gartner's Hype Cycles, 2011," and the book "Mastering the Hype Cycle: How to Choose the Right Innovation at the Right Time" by Jackie Fenn and Mark Raskino, from Harvard Business Press, 2008.

The Priority Matrix Graphic

The Priority Matrix is a tool for prioritizing emerging technologies by forcing technology planners to look beyond the hype and assess technology opportunities in terms of their relative impact on the enterprise and the timing of that impact (see Figure 2). In the Priority Matrix, the vertical axis focuses on the potential *benefit* of the technology (rather than on the expectation levels presented in the Hype Cycle). The horizontal axis groups the technologies according to the same years-to-mainstream-adoption rating used on the Hype Cycle. The years-to-mainstream-adoption rating is a simple measure of risk based on the projected rate of maturation for a technology. High-priority investments appear in the top-left portion of the Priority Matrix, where technologies potentially have a high impact and have reached a reasonable level of maturity.

Figure 2. Gartner's Priority Matrix

benefit	years to mainstream adoption			
	less than 2 years	2 to 5 years	5 to 10 years	more than 10 years
transformational	Invest aggressively if not already adopted	Conservative (Type C) investment profile	Moderate (Type B) investment profile	Aggressive (Type A) investment profile
high	Conservative (Type C) investment profile	Moderate (Type B) investment profile	Aggressive (Type A) investment profile	Invest with caution
moderate	Moderate (Type B) investment profile	Aggressive (Type A) investment profile	Invest with caution	Invest with extreme caution
low	Aggressive (Type A) investment profile	Invest with caution	Invest with extreme caution	Invest with extreme caution

Source: Gartner (August 2011)

The Priority Matrix answers the questions:

- What level of benefit can an enterprise gain from a technology?
- When will the technology be mature enough for an enterprise to derive this benefit at an acceptable level of risk?

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 two 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, 2010"). The 2011 version 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 discussions and decision making about adoption priorities. In addition, considering higher-level trends such as the technology, societal and business trends featured in "Trends That Matter: Top Trends and Their Business Impact" broadens the discussion to the intersection of multiple trends. The output from this type of trend and technology scan typically feeds into a set of evaluation projects that further inform adoption decisions (see "Driving the STREET Process for Emerging Technology and Innovation Adoption" for more information).

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.

2011 Technology and Application Hype Cycles

Technology and Application Hype Cycles provide a snapshot of core technologies, communications, application development and business applications. The "Hype Cycle for Emerging Technologies, 2011" provides a view of highly hyped and high-impact trends and technologies from across IT. 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 Analytical Applications, 2011"

"Hype Cycle for Application Architecture, 2011"

"Hype Cycle for Application Development, 2011"

"Hype Cycle for Application Infrastructure, 2011"

"Hype Cycle for Application Security, 2011"

"Hype Cycle for Business Intelligence, 2011"

"Hype Cycle for Business Process Management, 2011"

"Hype Cycle for Business Use of Social Technologies, 2011"

"Hype Cycle for Consumer Devices, 2011"

"Hype Cycle for Consumer Services and Mobile Applications, 2011"

"Hype Cycle for Consumer Technologies, 2011"

"Hype Cycle for Context-Aware Computing, 2011"

"Hype Cycle for CRM Customer Service and Support, 2011"

"Hype Cycle for CRM Marketing Applications, 2011"

"Hype Cycle for CRM Sales, 2011"

"Hype Cycle for E-Commerce, 2011"

"Hype Cycle for Emerging Technologies, 2011"

"Hype Cycle for ERP, 2011"

"Hype Cycle for Green IT and Sustainability in India, 2011"

"Hype Cycle for Human-Computer Interaction, 2011"

"Hype Cycle for ICT in China, 2011"

"Hype Cycle for ICT in India, 2011"

"Hype Cycle for Mobile Device Technologies, 2011"

"Hype Cycle for Networking and Communications, 2011"

"Hype Cycle for Open-Source Software, 2011"

"Hype Cycle for Performance Management, 2011"

"Hype Cycle for Semiconductors and Electronics Technologies, 2011"

"Hype Cycle for Server Technologies, 2011"

"Hype Cycle for Smart City Technologies and Solutions, 2011"

"Hype Cycle for Smart Grid Technologies, 2011"

"Hype Cycle for Social Software, 2011"

"Hype Cycle for Solar Energy, 2011"

"Hype Cycle for Storage Technologies, 2011"

"Hype Cycle for Supply Chain Management, 2011"

"Hype Cycle for Sustainability and Green IT, 2011"

"Hype Cycle for Web and User Interaction Technologies, 2011"

"Hype Cycle for Wireless Devices, Software and Services, 2011"

"Hype Cycle for Wireless Networking Infrastructure, 2011"

2011 Information and IT Services Hype Cycles

Information and IT services Hype Cycles examine topics relating to the management and security of information and content, and to the management and sourcing of IT operations and services.

"Hype Cycle for Application Services and Outsourcing, 2011"

"Hype Cycle for Business Continuity Management and IT Disaster Recovery Management, 2011"

"Hype Cycle for Business Process Services and Outsourcing, 2011"

"Hype Cycle for Cloud Application Infrastructure Services (PaaS), 2011"

"Hype Cycle for Cloud Computing, 2011"

"Hype Cycle for Cloud Security, 2011"

"Hype Cycle for Content Management, 2011"

"Hype Cycle for Data and Collaboration Security, 2011"

"Hype Cycle for Data Center Power and Cooling Technologies, 2011"

"Hype Cycle for Data Management, 2011"

"Hype Cycle for Enterprise Architecture, 2011"

"Hype Cycle for Enterprise Information Management, 2011"

"Hype Cycle for Governance, Risk and Compliance Technologies, 2011"

"Hype Cycle for Identity and Access Management Technologies, 2011"

"Hype Cycle for Imaging and Print Services, 2011"

"Hype Cycle for Infrastructure Protection, 2011"

"Hype Cycle for Infrastructure Services and Outsourcing, 2011"

"Hype Cycle for IT Operations Management, 2011"

"Hype Cycle for Legal and Regulatory Information Governance, 2011"

"Hype Cycle for Master Data Management, 2011"

"Hype Cycle for Privacy, 2011"

"Hype Cycle for Real-Time Infrastructure, 2011"

"Hype Cycle for Software as a Service, 2011"

"Hype Cycle for Virtualization, 2011"

2011 Industry Hype Cycles

In addition to the cross-industry positioning featured in the technology and application, and information and IT services 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 Advertising, 2011"

"Hype Cycle for Automotive Demand Chain and Supply Chain Technologies, 2011"

"Hype Cycle for Banking and Investment Services Core Applications and Architecture Technologies, 2011"

"Hype Cycle for Banking and Investment Services Customer Acquisition and Retention, 2011"

"Hype Cycle for Broadcasting and Entertainment, 2011"

"Hype Cycle for Communications Service Provider Infrastructure, 2011"

"Hype Cycle for Communications Service Provider Operations, 2011"

"Hype Cycle for Consumer Goods, 2011"

"Hype Cycle for Education, 2011"

"Hype Cycle for Emerging Energy Technologies, 2011"

"Hype Cycle for Financial Services Payment Systems, 2011"

"Hype Cycle for Government Transformation, 2011"

"Hype Cycle for Healthcare Payers, 2011"

"Hype Cycle for Healthcare Provider Applications and Systems, 2011"

"Hype Cycle for Healthcare Provider Technologies and Standards, 2011"

"Hype Cycle for Life Insurance, 2011"

"Hype Cycle for Life Sciences, 2011"

"Hype Cycle for Manufacturing Product Life Cycle and Operations Management, 2011"

"Hype Cycle for Media Industry Publishing, 2011"

"Hype Cycle for P&C Insurance, 2011"

"Hype Cycle for Retail Technologies, 2011"

"Hype Cycle for Telemedicine, 2011"

"Hype Cycle for the Telecommunications Industry, 2011"

"Hype Cycle for Transportation, 2011"

"Hype Cycle for Utility Industry IT and Business Processes, 2011"

"Hype Cycle for Utility Industry Operational Technologies, 2011"

"Hype Cycle for Vehicle-Centric Information and Communication Technologies (Vehicle ICT), 2011"

Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Understanding Gartner's Hype Cycles, 2011"

"Toolkit: My Hype Cycle, 2010"

"Trends that Matter: Top Trends and Their Business Impact"

"Driving the STREET Process for Emerging Technology and Innovation Adoption"

"Executive Perspectives: Strategic Business Capabilities and the Gartner Hype Cycle"

J. Fenn and M. Raskino, "Mastering the Hype Cycle: How to Choose the Right Innovation at the Right Time," Harvard Business School Press, 2008

Regional Headquarters

Corporate Headquarters

56 Top Gallant Road
Stamford, CT 06902-7700
USA
+1 203 964 0096

Japan Headquarters

Gartner Japan Ltd.
Aobadai Hills, 6F
7-7, Aobadai, 4-chome
Meguro-ku, Tokyo 153-0042
JAPAN
+81 3 3481 3670

European Headquarters

Tamesis
The Glanty
Egham
Surrey, TW20 9AW
UNITED KINGDOM
+44 1784 431611

Latin America Headquarters

Gartner do Brazil
Av. das Nações Unidas, 12551
9° andar—World Trade Center
04578-903—São Paulo SP
BRAZIL
+55 11 3443 1509

Asia/Pacific Headquarters

Gartner Australasia Pty. Ltd.
Level 9, 141 Walker Street
North Sydney
New South Wales 2060
AUSTRALIA
+61 2 9459 4600

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