# 1.0 Introduction and Report Overview

A revolution is taking place in application infrastructure and integration. New technologies and concepts — such as Web services, service-oriented architecture (SOA) and the enterprise nervous system (ENS) — are helping to foster a new, more agile and efficient generation of application systems.

Enterprises that can harness the power of these advancements will be armed with the flexibility to better compete in today's fast-paced business environment. But first, they will need to understand and respond to the transformations taking place in the enterprise software industry — including changes in application platform products and their underlying programming models, the evolution of key software infrastructure and middleware technologies, and the strategies and prospects of the vendors delivering them.

Web services technologies and concepts are permeating the IT industry, and Gartner expects that they will be the catalyst for most innovation in the software industry during the next five years. Web services are software components that employ one or more of three technologies — Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL) and Universal Description, Discovery and Integration (UDDI) — to perform distributed computing. They promise to bring substantial improvements in the dynamic interaction among networked applications through the use of standards.

Web services' usefulness lies in their simplicity and utility. They make it possible to render business elements of increasing complexity — initially calculations, but ultimately, relationships and materials — as software. By 2007, they will have totally flooded the canals of interenterprise communication. Enterprises that want to use IT to compete effectively should begin developing with Web services today.

Beyond Web services, advancements in a range of other software integration and middleware technologies are becoming critical to business competitiveness. Almost any management initiative that leverages IT to support a new or improved business process will require some attention to the issue of application integration.

Business strategists are paying increasing attention to the importance of time-based competition. Enterprises with fast reaction times have a competitive advantage. Emerging business activity monitoring (BAM) and real-time enterprise (RTE) strategies take the goal of timeliness to its logical conclusion. Their aim is instantaneous awareness and appropriate response to events across an entire virtual enterprise.

BAM and the RTE are business goals that are facilitated by advanced software infrastructures, including SOA, event-driven architecture (EDA) and Web services. Enterprises will be unable to exploit these advancements, however, if their application infrastructures are hampered by a costly and unmanageable mess of inconsistent, uncoordinated interfaces and integration technologies — a situation Gartner terms “integration spaghetti.”

Instead, success relies on orchestrating the disparate interfaces and middleware technologies — including adapters, communication middleware (such as remote procedure calls, message-oriented middleware and object request brokers), enterprise service buses, programmatic integration servers and integration broker suites — into the advanced integration architecture of the ENS.

An ENS implements a new layer of application-level data and logic, extending the enterprise network and making it as “smart” as the application systems. This constitutes a revolutionary change in the architecture of business applications, and helps foster a new, more agile and efficient generation of application systems.

This Executive Report provides comprehensive guidance on the implementation plans and supporting technologies and services that enterprises need to develop successful Web services and application integration strategies. It provides recommendations, planning guidance, trend forecasts, and in-depth analysis of software infrastructure issues that are critical to both IS organizations and business management.

Topics addressed in the chapters of this Executive Report include:

- An overview of Web services technologies and trends
- Case studies of today’s successful Web services implementations
- The major components and functions of the Web services “provider” and “consumer” technology platforms
- A review of critical Web services standards initiatives and security issues
- The impact of Web services on collaborative commerce
- The strategic use of external service providers for Web services implementations
- Adopting service-oriented development techniques to improve systems and applications
- An overview of middleware strategies and technologies, and advice on creating a business case for application integration
- Key strategic-planning issues associated with the ENS and BAM concepts
- Important trends and vendors in the market for enterprise software platform products, such as application servers and application platform suites
- Web-enabling legacy applications, as well as integrating enterprise systems with mobile and wireless platforms
- A comparison of the features and prospects of Java and .NET
- Advice on how to select and implement integration broker suites

This remainder of this introductory chapter provides a general guide and overview to the research elements and high-level concepts presented in this Executive Report. Section 1.1 reviews the standard Gartner research elements used, while the remaining subsections provide an executive overview of each of the 20 remaining chapters of this report. This overview has been tailored for executives who require a high-level summary of the issues, forecasts, guidelines and recommendations offered in each chapter. Each section number corresponds to the chapter summarized — for example, Section 1.2 summarizes Chapter 2, Section 1.3 summarizes Chapter 3, and so on.

## 1.1 Research Elements Used in This Report

This Executive Report is based on Gartner's extensive research facilities and archives, which include conference presentations, Research Notes and Strategic Analysis Reports. The report is structured around Gartner Key Issues and corresponding Strategic Planning Assumptions and Tactical Guidelines.

- *Key Issues* pose questions that embody an important concepts or problems facing decision makers in a given topic area. Gartner develops Key Issues about markets, technologies and business strategies.
- *Strategic Planning Assumptions* are forecasts — usually framed within a defined, multiyear time horizon — that are assigned probabilities denoting Gartner's level of confidence in the outcome (see Section 1.1.1).
- *Tactical Guidelines* are analytical statements addressing important tactical factors enterprises will face in addressing a Key Issue.

In addition, selected sections conclude with Action Items — statements that convert a section's analysis into concise, actionable advice. High-level recommendations, spanning the overall content of the chapter, are typically offered in the concluding section of the chapter.

### 1.1.1 Probabilities Defined

Probability statements are most commonly used within Gartner Strategic Planning Assumptions, although they are occasionally used in other research contexts (for example, to qualify the likelihood of a vendor's product availability estimate, or within a graphic illustrating a timeline of future events). In any context, probabilities never exceed 0.9, which represents Gartner's highest confidence level in a forecast. (Because no future outcome is 100 percent certain, a probability of "1.0" is never used.)

Because a forecast is logically phrased in form of the likely outcome, probabilities lower than 0.6 are rarely used. Occasionally, however, probabilities ranging from 0.1 to 0.5 may be used in special contexts — for example, in a "scenario" mutually exclusive possible outcomes, in which all probabilities total 1.0.

Within the context of a formal Strategic Planning Assumption, the probabilities assigned will normally range from 0.6 to 0.9. These probabilities are defined as follows:

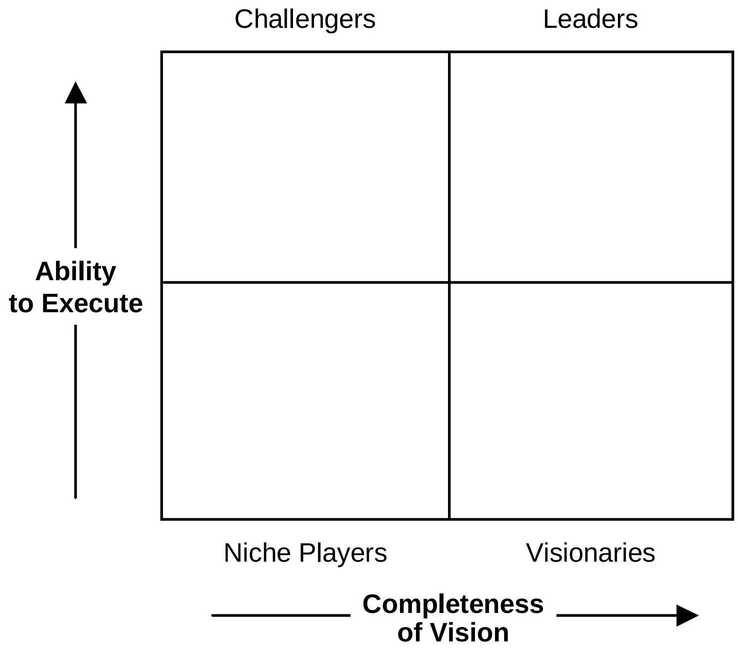
- 0.9: This will almost certainly happen, barring a major industry reversal. Gartner would be shocked otherwise. Moreover, the timing is almost certain.
- 0.8: This is likely to happen, barring exceptional circumstances. Gartner would be quite surprised if it failed to happen, but a degree of uncertainty exists. The timing estimate is fairly certain.
- 0.7: There is good reason to believe that this will be true, but there is a fair chance that it won't. Gartner would be surprised, but not shocked, if it did not happen. Moreover, the timing is unclear and may vary from estimates.
- 0.6: For planning purposes, this should be treated only as a general direction, rather than a solid forecast. It is better than a rumor or a guess, but not necessarily by a wide margin. Most likely, Gartner does not have a firm idea of the timing.

### 1.1.2 Type A, B and C Enterprises Defined

Gartner often identifies enterprises as "Type A," "Type B" or "Type C" based on the aggressiveness with which they adopt and use technology. These terms are often used to offer different recommendations to different types of enterprises, based on their approach to technology adoption. Briefly defined:

- Type A enterprises are technology-driven, and are often willing to risk using immature, cutting-edge technologies to gain a competitive edge.
- Type B enterprises are moderate technology adopters, using new technologies once they have been proven and have entered the mainstream.
- Type C enterprises are technologically risk-averse and cost-conscious, and are usually among the last to adopt new technologies.

**Figure 1-1: The Gartner Magic Quadrant**




Source: Gartner

### 1.1.3 The Gartner Magic Quadrant

Gartner's Magic Quadrant diagrams (see Figure 1-1) are graphical portrayals of vendor performance in a market segment. Within the diagram, vendors are grouped within four categories — Leaders, Challengers, Visionaries or Niche Players — is based on their positioning along two axes.

*Completeness of Vision*, the horizontal axis, assesses factors such as:

- The existence of clear vision
- Consistency with industry trends
- Product completeness for the target buyer
- Creativity in the plan of attack for the defined market

*Ability to Execute* (the vertical axis) assesses factors such as

- Senior management talent
- Sales, marketing and distribution capabilities
- The depth of research and development
- The quality of a vendor's professional services and support
- The strength of a vendor's finances and alliances

Based on these positionings, vendors fall within one of the following four quadrants:

- *Leaders* are companies that are doing well today and have great prospects for tomorrow.
- *Visionaries* are those that have great ideas for tomorrow, but may not be executing consistently or well in all areas.
- *Challengers* are those that execute well today and may dominate a large segment, but do not fully understand market trends and directions and thus may not have all the elements necessary for future success.
- *Niche Players* are either companies that focus on a small segment of the market (and may do so well), or those that have modest horizons and possibilities owing to their inability to innovate or outperform other vendors.

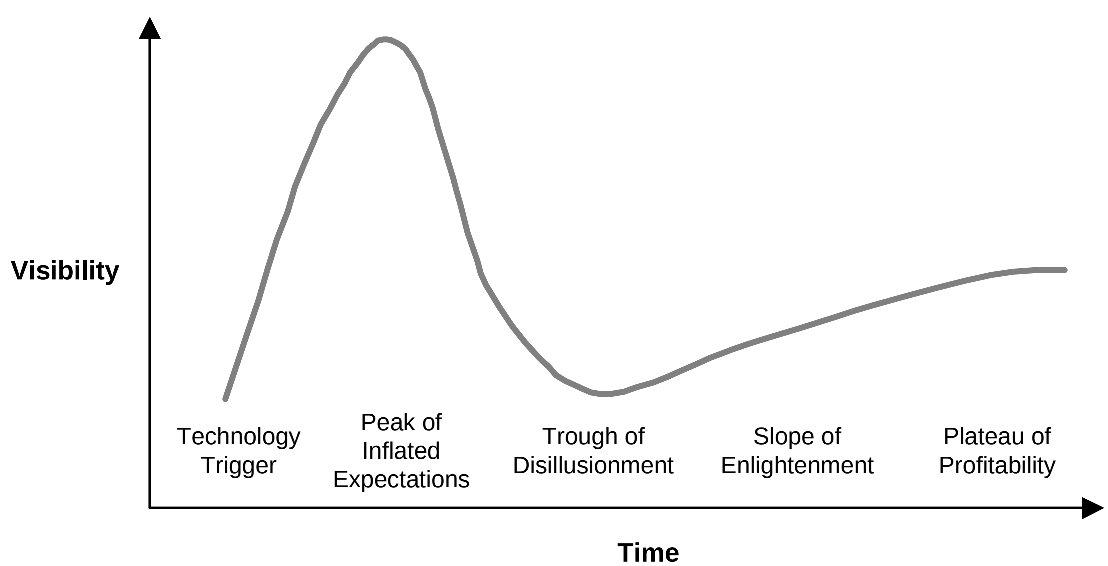
Magic Quadrants can be used to support technology selection decisions; however, Gartner cautions that they should not be used as the sole means of evaluation. Enterprises should not limit their considerations only to vendors that are in the Leaders category, nor should they necessarily reject those ranked as Niche Players. In certain situations, Niche Players' products may be appropriate tactical choices. User organizations should carefully evaluate vendors based on their own unique circumstances and specific requirements.

### 1.1.4 The Gartner Hype Cycle

Gartner uses its Hype Cycle diagram (see Figure 1-2) to illustrate the pattern of intense hype, followed by disillusionment, that emerging technologies typically pass through on the road to eventual productive use and mainstream adoption. Technologies or services are plotted on the diagram to illustrate Gartner's estimates of their current maturity, and how far away they are from providing mainstream value. The Hype Cycle contains five phases:

- *Technology Trigger:* This is an event that generates significant press and industry interest, such as a breakthrough, invention, discovery, public demonstration or product launch.
- *Peak of Inflated Expectations:* During this phase of over-enthusiasm and unrealistic projections, a flurry of well-publicized activity by technology leaders results in some successes, but more failures, as the technology is pushed to its limits. The enterprises that make money during this phase are generally conference organizers, magazine publishers and consultants.
- *Trough of Disillusionment:* The technology fails to live up to the inflated promise. As a result, it rapidly becomes unfashionable, and the press abandons the technology or touts its failure deliver on what were, in retrospect, unrealistic expectations.
- *Slope of Enlightenment:* Focused experimentation and hard work performed by an increasingly diverse range of organizations leads to a true understanding of the technology's applicability, risks and benefits. Commercial, off-the-shelf methodologies and tools become available to ease the development process and application integration.
- *Plateau of Productivity:* The real-world benefits of the technology are demonstrated and accepted. Tools and methodologies are increasingly stable as they enter their second and third generations. The final height of the plateau varies according to whether the technology is broadly applicable or benefits only niche markets.

**Figure 1-2: The Gartner Hype Cycle**




Source: Gartner