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Gartner Identifies Top Technology Trends Impacting Information Infrastructure in 2013

STAMFORD, Conn., March 6, 2013 — Gartner, Inc. has identified the top technology trends that will play key roles in modernising information management (IM) in 2013 and beyond, making the role of information governance increasingly important.

"Information is one of the four powerful forces changing the way business is done," said Regina Casonato, managing vice president at Gartner. "Significant innovation continues in the field of information management (IM) technologies and practices driven by the volume, velocity and variety of information, and the huge amount of value — and potential liability — locked inside all this ungoverned and underused information."

However, the growth in information volume, velocity, variety and complexity, and new information use cases, makes IM infinitely more difficult going forward than it has been in the past. In addition to the new internal and external sources of information, practically all information assets must be available for delivery through varied, multiple, concurrent and, in a growing number of instances, real-time channels and mobile devices. All this demands the ability to share and reuse information for multiple context delivery and use cases. More importantly, it demands new skills and roles.

The top technology trends impacting information infrastructure in 2013 include:

Big Data

Gartner defines big data as high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making. Big data warrants innovative processing solutions for a variety of new and existing data, to provide real business benefits, but processing large volumes or wide varieties of data, remains merely a technological solution, unless it is tied to business goals and objectives. New forms of processing are not necessarily required, nor are new forms of processing always the least expensive solution (least expensive and cost-effective are two different things). The technical ability to process more varieties of data in larger volumes is not the payoff. The most important aspects of big data are the benefits that can be realised by an organisation.

Modern Information Infrastructure

IM is a discipline that requires action in many different areas, most of which are not technology specific. Central to success is an enabling technology infrastructure that helps information producers and information consumers organise, share and exchange any type of data and content, anytime, anywhere. This enabling technology infrastructure is what Gartner calls a modern information infrastructure. Because it must support a wide range of information use cases and information types, it is essential that information infrastructure be viewed as strategic, so that a vision to develop it in a cohesive and aligned way over time is possible. Organisations that establish a road map for this type of cohesive, application-independent and information-source-independent set of IM technology capabilities are best placed to achieve long-term enterprise IM (EIM) goals.

Semantic Technologies

Semantic technologies extract meaning from data, ranging from quantitative data and text, to video, voice and images. Many of these techniques have existed for years and are based on advanced statistics, data mining, machine learning and knowledge management. One reason they are garnering more interest is the renewed business requirement for monetising information as a strategic asset. Even more pressing is the technical need. Increasing volumes, variety and velocity — big data — in IM and business operations, requires semantic technology that makes sense out of data for humans, or automates decisions.

The Logical Data Warehouse

Data warehouse (DW) architecture is undergoing an important evolution, compared with the relative stasis of the previous 25 years. The DW is evolving from competing repository concepts, to include fully enabled data management and information processing platforms. These new warehouses force a complete rethink of how data is manipulated, and where in the architecture each type of processing occurs that supports transformation and integration. It also introduces a governance model that is only loosely coupled with data models and file structures, as opposed to the very tight, physical orientation used before.

NoSQL DBMSs

NoSQL DBMSs — key-value stores, document-style stores, and table-style and graph databases — are designed to support new transaction, interaction and observation use cases involving web scale, mobile, cloud and clustered environments. Increasing adoption and growing customer demands have opened up a significant gap between commercially supported NoSQL DBMSs and open-source projects that have only community support. The latter remain immature and are used by web developers for applications that are not mainstream. Commercial products are using their added funding not only to build sales, support and marketing, but also to add enterprise-class features intended to widen adoption and win new business. The growth of the ecosystem will have an impact on broadening adoption. However, awareness is still limited and the leading players remain off the direct sales playing field, slowing their penetration of corporate IT strategic plans. As a result, business impact in 2012 was moderate, but in 2013 is increasing as more organisations investigate and experiment.

In-Memory Computing

In-memory computing is an emerging paradigm, enabling user organisations to develop applications that run advanced queries on very large datasets, or perform complex transactions at least one order of magnitude faster (and in a more scalable way) than when using conventional architectures. In-memory computing opens unprecedented and partially unexplored opportunities for business innovation (for example, via real-time analysis of big data in motion) and cost reduction (for example, through database or mainframe off-loading).

Chief Data Officer and Other Information-Centric Roles

EIM requires dedicated roles and specific organisational structures. Specific roles, such as chief data officer, information manager, information architect and data steward, will be critical for meeting the goals of an EIM programme. The fundamental objectives of the roles remain constant: to structure and manage information throughout its life cycle, and to better exploit it for risk reduction, efficiency and competitive advantage. The organisations that are moving first to create these roles, and to train for them, will be the first to benefit from information exploitation.

Information Stewardship Applications

Governance of data is a people- and process-oriented discipline that forms a key part of any EIM programme. The decision rights and authority model that forms governance has to be enforced and operationalised. This means that this technology is needed to help formalise and combine the day-to-day stewardship processes of (business) data stewards into part of their normal work routines. The formation of this specific toolset needs to be closely targeted at the stewardship of primarily structured data. The

continued high growth and interest in master data management (MDM) programmes is driving much of the interest in this technology, because MDM gives these solutions recent and specific context, which makes them applicable and meaningful to users. However, other initiatives, such as data quality improvement and broadening information governance goals, are also driving demand.

Information Valuation/Infonomics

Information valuation is the process by which relative value or risk is assigned to a given information asset or set of information assets. The question of the value of information has been around for a long time; however, a more formal approach to information valuation is beginning to take hold in leading-edge organisations. When considering how to put information to work for the organisation, it is important to not only think about information being like an asset, but also to actually value and treat it as if it were an asset. Any number of established methods for valuing intangibles (for example, market approach, cost approach or income approach) can be used, or organisations can select valuation methods that map to nonfinancial key performance indicators.

Additional information is available in the report "Top 10 Technology Trends Impacting Information Infrastructure, 2013." The report is available on Gartner's web site at

<http://www.gartner.com/resId=2340315>.

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