The Business Rule Engine 2003 Magic Quadrant

Business rule engines are moving toward maturity. In 2003, they will support business agility when called on to do so.

After a 10-year absence from the center stage of technology, business rule technologies, specifically business rule engines (BREs), are making a strong climb out of the Trough of Disillusionment and up the maturity curve on the Hype Cycle. The size of the BRE market is evidence of this trend. We estimate that it now comprises revenue of more than $200 million, and will continue to grow at a steady rate during the next several years.

BRE technology is being included in the area of flow control represented by business process management (BPM) technology, which is pervading many sectors as a compound market. Today, about one-third of the 70 or more vendors in the BPM pure-play market have some form of a BRE, even if it is simplistic rule externalization. There is an emerging concept that service-oriented architecture (SOA) and its associated Web services also should include rules sensitivity. This may occur through 2004; the momentum has yet to be determined.

The business activity monitoring (BAM) market has emerged and is indicating the need for enterprises to change rapidly. Although enterprises initially will make reactive changes, this is better than recognizing problems weeks later and requiring lengthy software change projects to adapt. BAM will allow instant recognition for change and adjustment. BRE technology will allow instant changes where desired, within the bounds of production promotion policies and management audit needs. Thus, constant reactive change will become an area of concern for senior-level management. BRE will be used in conjunction with business modeling, represented in business process analysis (BPA), for planned agility. Although already somewhat present in enterprises with planning cultures, more enterprises will develop scenario plans with the associated rules necessary to adapt to a given scenario. Also, "corporate war game" scenarios will emerge in more-dynamic flows, such as supply or value chains.
Market and Technical Requirement Changes

We have used the technical requirements, slightly modified, from the BRE 2002 Magic Quadrant (see Figure 1 and "The 2002 Business Rule Engine Market Magic Quadrant") to place vendors on the 2003 Magic Quadrant (see Figure 2). Several significant changes occurred in the past year. In 2002, there were few known rule methods. However, there recently has been strong activity from several consulting organizations in the BRE market, including Business Rule Solutions, Knowledge Partners and Knowledge Gravity. These vendors have rule methodologies that can be adapted and used in business applications for rules creation, management and change. In addition, Business Rule Solutions now offers capabilities for terminology management, which is necessary for strong and consistent rule definition.

### Figure 1

**BRE Technical Requirements**

<table>
<thead>
<tr>
<th>Advanced Inference</th>
<th>Versatility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Truth maintenance to support parallel rule execution</td>
<td>• Easy to embed with and in other technologies</td>
</tr>
<tr>
<td>• Inductive and deductive problem sets supported</td>
<td>• Multiple database management system support for rule repository</td>
</tr>
<tr>
<td>• Recursive rules supported</td>
<td>• Links with legacy rule extraction vendors</td>
</tr>
<tr>
<td>• Rule taxonomies supported</td>
<td>• Multiple rule methodologies support</td>
</tr>
<tr>
<td>• Links to rule simulation capabilities</td>
<td>• Linked with world-class enterprise application integration vendors</td>
</tr>
<tr>
<td>• Agent or daemon links</td>
<td>• Linked with world-class BPM vendors</td>
</tr>
<tr>
<td>• Object inheritance supported</td>
<td>• Import/export/application programming interfaces (e.g., support for XML Metadata Interchange)</td>
</tr>
<tr>
<td>• Multiple engine support</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rule Management</th>
<th>Ease of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Rule extensibility</td>
<td>• Easy to change rules</td>
</tr>
<tr>
<td>• Rule mapping to owners and stewards</td>
<td>• Easy to test rules</td>
</tr>
<tr>
<td>• Rule change impact analysis purposes</td>
<td>• Easy to visualize rule-firing sequences</td>
</tr>
<tr>
<td>• Integration/coordination of distributed rules engines with a corporate &quot;master&quot;</td>
<td>• Expert system/help</td>
</tr>
<tr>
<td>• Ability to rerun the engine for a point that has passed (e.g., after 1 January, able to rerun year-end jobs with 31 December rules)</td>
<td>• Rule-firing audit report capabilities</td>
</tr>
<tr>
<td>• Ability to enter new rules or changes to become effective on a future date (e.g., able to put in the rule changes for 1 January in December)</td>
<td>• Rule views by project or role</td>
</tr>
<tr>
<td>• Rule consistency checks</td>
<td>• Can be used as a wizard in development environments</td>
</tr>
<tr>
<td>• Rule versioning</td>
<td>• Dynamic rule change supported</td>
</tr>
<tr>
<td>• Release versioning and rollback</td>
<td>• Rules separated from the engine</td>
</tr>
<tr>
<td>• Rule security</td>
<td>• Constraints naturally supported</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High performance for large rule bases</td>
</tr>
<tr>
<td>• Ability to share rule sets across multiple engines</td>
</tr>
<tr>
<td>• Dynamic and static execution versions for performance</td>
</tr>
<tr>
<td>• Multiple, cross-platform support</td>
</tr>
</tbody>
</table>

Source: Gartner Research (April 2003)
Several vendors have delivered strong rule management technologies, including Corticon, Formula/ESI, ILog, Pegasystems, RulesPower and Sapiens. These capabilities vary in solution set, but they all employ a rules repository that is often active at runtime. Corticon and RulesPower include a powerful rule consistency and collision detection capability that catch business inconsistencies in multiple rules and rule sets. More BRE vendors now include functionality that enables goal-directed flows that can be linked with scenarios. Even many of the simple rule externalization engines offer a form of "truth maintenance" to interrogate rule results at any time, which is required for goal-directed flows.

A sign of a thriving market is the number of viable and mutually beneficial partnerships. BRE vendors are beginning to partner with BPA vendors — for example, Popkin Software and Formula/ESI; we expect more partnership announcements soon. One of the more-mature partnering opportunities is with BPM vendors. For example, FileNet, Staffware and Tibco have BREs as original equipment manufacturer partners; we expect to see more BRE/BPM partnerships.
Another sign of a thriving market is the entrance of new players. In 2002, AMS, RulesPower, SEEC, SoftLaw and YASU Technologies entered the BRE market.

Emerging Trends

We expect continued growth driven by average return-on-investment experiences in the 10 percent to 15 percent range, which is the most-common range that we have seen on surveys and from clients, although there are many intangible benefits. We also expect to see more separation of the leaders from the rest of the vendors because they are accelerating their marketing programs after two years of plus growth in down times. Eventually, fewer vendors will be successful in a steady growth market because of consolidation.

The BRE market could disappear in the long term because technology streams are converging. Many BPM vendors have good-enough rules capabilities to support business agility or to link to multiple popular BREs. We believe that new agile applications will be composed of flow rules and services that leverage SOAs. Therefore, large vendors such as IBM and Microsoft must buy, build or integrate rule engines. We expect it will take 18 months or more for IBM and Microsoft to deliver the kind of functionality that can compete effectively in this market. Ultimately, there may be too few stand-alone rule vendors to justify a separate market.

Vendors with inference engines or multiple engine types likely will survive in this market because they scale to more-difficult problem domains and are also easy enough to use for simplistic applications (see "The 2002 Business Rule Engine Market Magic Quadrant" for a detailed explanation of inferencing).

BRE Magic Quadrant Criteria

Gartner rates vendors in two areas — Completeness of Vision and Ability to Execute — for inclusion in a Magic Quadrant.

Completeness of Vision

- Technology — strength of underlying technology infrastructure of product offerings
- Market leadership — market recognition by prospects and competitors based on a compelling and consistent marketing message
- Communication — consistency of communication to the marketplace through advertising, trade shows or Web sites
• Outside investment — robustness and number of external investment participants

**Ability to Execute**

• Product — packaging, pricing, ease of installation and ease of use of products

• Service and support — strength of service and support capabilities

• Management — experience and strength of management team

**Bottom Line:** The business rule engine market will continue to grow and mature because business requires the kind of agility that needs BREs. Although more original equipment manufacturer and partnership relationships will emerge, there will be a stand-alone rule market as enterprises become more comfortable with rules, and problem domains become more complex over time.