



Business Event Management

Event and process-enabled
business intelligence

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Abstract

This white paper discusses business event management (BEM) in the context of business intelligence and performance management. It answers the question: What is BEM? It discusses how BEM enables decision-making and business processes, and why it should be used to drive higher performance throughout your organization.

Overview

The decisions that people make every day are critical to the effective performance of the organization. These decisions are based on the information people receive – the more accurate and timely the information, the more informed the decision.

IBM Cognos® 8 Business Intelligence (BI) provides a foundation for better decision-making. BEM is a key component of this foundation, providing a framework for monitoring and managing critical business events. By doing so, it connects people with performance issues and information, and enables timely decision-making.

Business Problems

Performance decisions involve people and information. If a decision is required, you need to discover the business issue as quickly as possible. You then need to link the issue to the people responsible, and provide them with the right information at the right time. You also need to track the issue until it is resolved.

Business Drivers

Businesses need to respond quickly to events with appropriate decisions. Decision-makers need the right information to make those decisions. Monitoring and managing critical business events provide this information in the timely manner they need.

The Solution

BEM provides a framework that links all these events and decision-makers together, ensuring you have the capability to detect, act on, and track your critical performance issues.

BEM automatically manages the significant, time-sensitive events that need attention – such as cancellation of a large order or a late shipment. Where human interaction is required, decision-process automation delivers information to the right people within minutes of the event and provides all the contextual content needed to make a decision. Tasks can also be initiated to automate a business-process based on the event. This ensures that all relevant players and systems involved in the entire process receive timely and appropriate information to take action at the right time.

How BEM works

The BEM process consists of four phases:

- **Detection.** BEM detects events by automatically monitoring data. This ensures that issues hidden in day-to-day data are not overlooked or missed. At this stage, the key is identifying the important issues, while filtering out those that have less impact on the business. This decreases the human resources required to deal with unimportant issues.
- **Correlation.** Following detection, BEM correlates events into categories: New, Ongoing, or Stopped. Ongoing events are further classified as Changed or Unchanged. Event status is used both to both track events and drive action.

- **Driving action.** To drive action, BEM initiates a workflow of tasks. Each task is initiated both in the context of the event (e.g., just for that customer) and by state (i.e., new, ongoing, or stopped). For decision-based tasks, action is driven by linking people to events via emails, reports, and dynamically updated portal headlines. Tasks most applicable to automated responses include the use of agents, Web services, and stored procedures.

Lifecycle tracking. Many events, particularly complex ones, are rarely resolved immediately; so event lifecycle tracking is important. BEM lifecycle tracking maintains a list of all current events and their state.

BEM for Performance Management

BEM can manage events across the IBM Cognos corporate performance management platform—BI, scorecarding, and planning. Beyond performance management, BEM can aggregate business process management (BPM) data and operational system data for a complete view of any business process—how it is managed and the transactions involved.

BEM with IBM Cognos 8 BI

BEM can monitor and manage events across any combination of online analytical processing (OLAP) and relational data sources. This allows your organization to move to an event- and process-driven environment in which BI content is automatically provided when needed. With event-driven BI, users can make more informed decisions.

For example, when values in an OLAP data source cross a threshold, this initiates the production and distribution of a series of reports. For an “Employee Turnover Rate” measure that is above target, the results might include:

- A list of all individuals who have left the department this month.
- A manager’s yearly performance ratings.

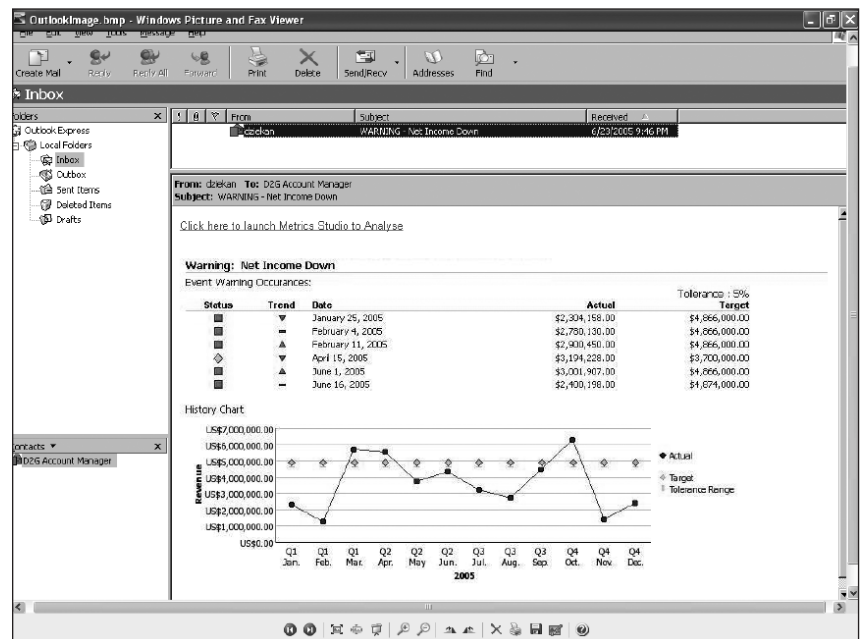
Or different reports might be distributed to different users:

- A list of available training courses within the division goes to all managers. (This would encourage managers to consider staff for courses, since investment in training helps ensure employees stay with the company.)
- A report outlining all resumes on file goes to HR. (This way, HR is prepared with numerous potential candidates to fill positions.)

BEM with scorecarding

Metrics data can be monitored using business event management. BEM can send an email that directly links the metric owner back to the scorecard so they can initiate action (e.g., when a metric is yellow and growing worse).

Users can do even more by invoking any of the available tasks. For example, they can run reports showing a more complete picture of the issue, including a metric history chart depicting actual, target, and tolerance values.



Running reports

BEM can also track scorecarding initiatives, such as monitoring start and completion dates. As well, BEM can be used to automatically perform metrics maintenance tasks, including metric data loads.

BEM with IBM Cognos 8 Planning

Business event management can help you manage the planning process. By monitoring the status of the planning with IBM Cognos workflow, BEM can notify users when plans are ready for data entry or review. Additionally, you can identify events against planning data. For example, if a planning value crosses a threshold—such as a headcount limit—the appropriate owner will be notified and can respond.

BEM with operational system data

Benefits can be gained by applying BI and BEM to transactional data, an objective many BI Competency Centers or BI Centers of Excellence are working to achieve. For information to be of value in the operational arena, it requires the following:

- Be focused on the task at hand and provided as issues occur, and should be in context and delivered in a highly relevant and consumable way.
- Have magnetism – that is, it automatically finds the user at the right moment.
- Drive decision and action.
- Be pre-categorized to include the status of the issue: Is it new? Is it already known? Has it changed? Or has it stopped?

BEM with business process management

With BEM, business process data can be monitored on its own or in combination with any data source, as long as it can be accessed via the IBM Cognos 8 BI metadata layer.

By monitoring business process, enterprise, and external data, users can fine tune and modify the underlying processes managed by BPM. This interaction is valuable, for example, in an RFQ process where guidance is given on the discounts to be offered. If a financial threshold is crossed, the process can be revised either by modifying the suggested discount levels or initiating another process step.

Scenario: BEM in Action

The following scenario shows how IBM Cognos BEM might be used to identify a business issue, link the issue and information to those accountable, and support the appropriate steps to improve performance.

The situation

An email has alerted you to a Daily Sales Outstanding (DSO) issue. By clicking on the embedded link, you are taken from the email directly to the metric at issue.

Using the cause and effect diagrams, you identify that the root cause is a related metric associated with customer returns. When you drill down to the details, you see a link between customers returning items and those not paying invoices on time. Some are even holding back on other outstanding payments not associated with this particular order.

Further analysis shows that this problem usually happens when partial returns have been made on an order, where the company is at fault. In particular, it occurs when the returns reason was classified as: Damaged, Wrong Product, Unsatisfactory, or Defective.

What appeared to be a finance issue is actually an issue around the handling of returns. To improve this aspect of the business and keep on track with corporate DSO objectives, these problems in returns handling must be addressed. The sooner these events are detected and the appropriate people notified, the quicker they can be resolved. This will not only improve days outstanding but customer service as well.

The operational business improvement decision

By using information delivered through BI, you have identified that the following improvements need to be made to handle this time-critical issue:

- For all new returns, the customer sales representative will be advised and requested to make contact with the customer to acknowledge the issue. The rep should explain that the fulfillment team will investigate and will contact them. This keeps the sales rep in the loop and maintains the customer/sales rep relationship.
- The customer fulfillment team will deal with each event. Information delivered to the team will drive a discussion with the customer to help understand the nature of the issue and decide how best to proceed.
- The fulfillment manager needs to see an ongoing, up-to-date snapshot of the current status – the value and count of all orders outstanding due to these returns – and view the details to understand the performance of the team.

Once the problem associated with the returns has been resolved:

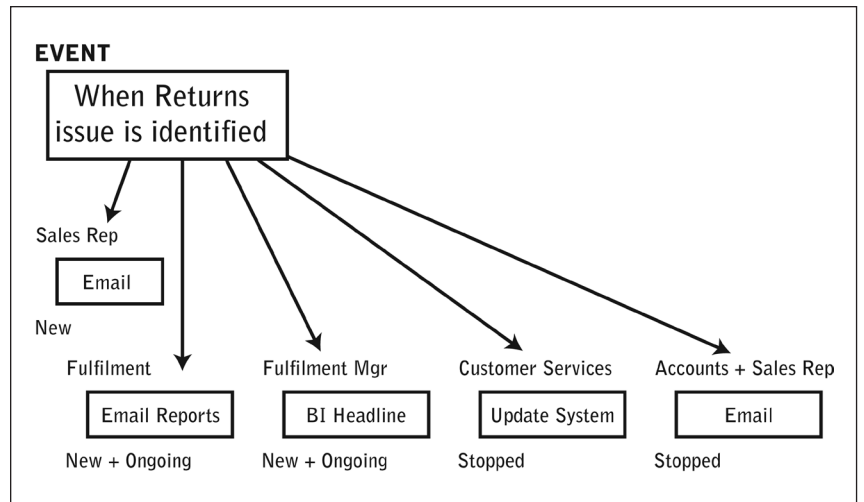
- Customer service will initiate a call back to the customer.
- Accounts receivable will be advised and can follow up by seeking payment.

To optimize the effectiveness of staff dealing with these issues, transactions are restricted where the order value is greater than \$5K or where the customer's outstanding debt exceeds \$50K.

Implementing a BEM Solution

Phase 1

BEM is required to implement and support the performance improvement decision and focus the respective groups on the important issues in a timely way. Specifically, BEM can be used to provide the information flow that links the returns issues with those tasked to deal with them.



BEM information flow

To track the events, you could identify all returns transactions where the reason is: Damaged, Wrong Product, Unsatisfactory, or Defective. However, this would include a number of transactions of low importance in terms of the DSO. You want to deal only with significant events. In this case, you are interested if the original order value exceeds \$5K or the outstanding customer debt exceeds \$50K. The event conditions can be defined so that only these values are returned.

Once you set up the detection parameters, you need to define the actions that are required to resolve the issue. Various people need to be tasked to handle different aspects of the process, and they need to deal with events at various stages in the event lifecycle.

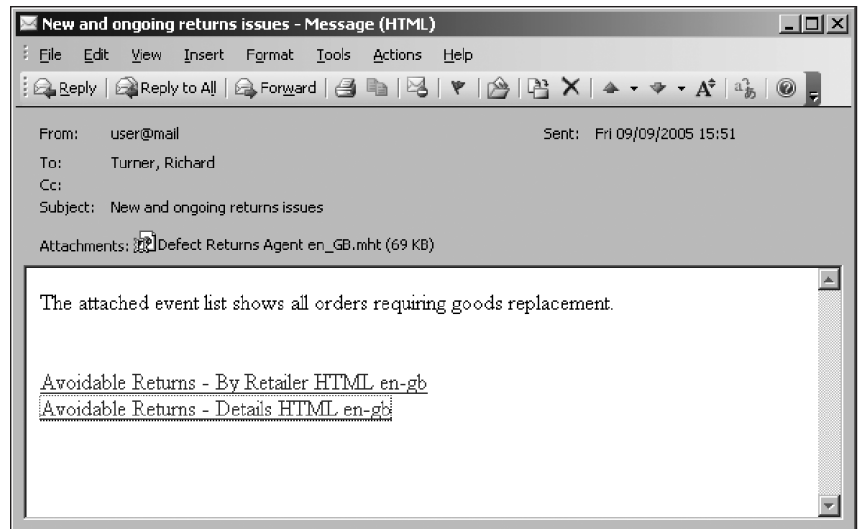
Sales reps

When a significant return occurs, emails, along with contextual information, are sent to the sales reps. The rep can contact the customer and advise them that the issue is being dealt with. Sales reps only want to be told about this once, so only new events will be communicated to them. The email is sent in the context of the event and includes the status in the lifecycle.

Fulfillment team

The fulfillment team needs to be involved as soon as an issue is identified, so they can contact the customer and understand why the returned items are seen as defective or unsatisfactory.

The team also requires more detailed information to initiate action. Therefore, a report showing new and ongoing issues is produced. The report is placed in a portal, and the email links to the report. The report includes a refresh command to show any updates and the current status at all times. Links to other data and the returns system form part of the report. This allows team members to drive their work from the report, either to gain additional information or to link directly to an application.



Delivery of a report

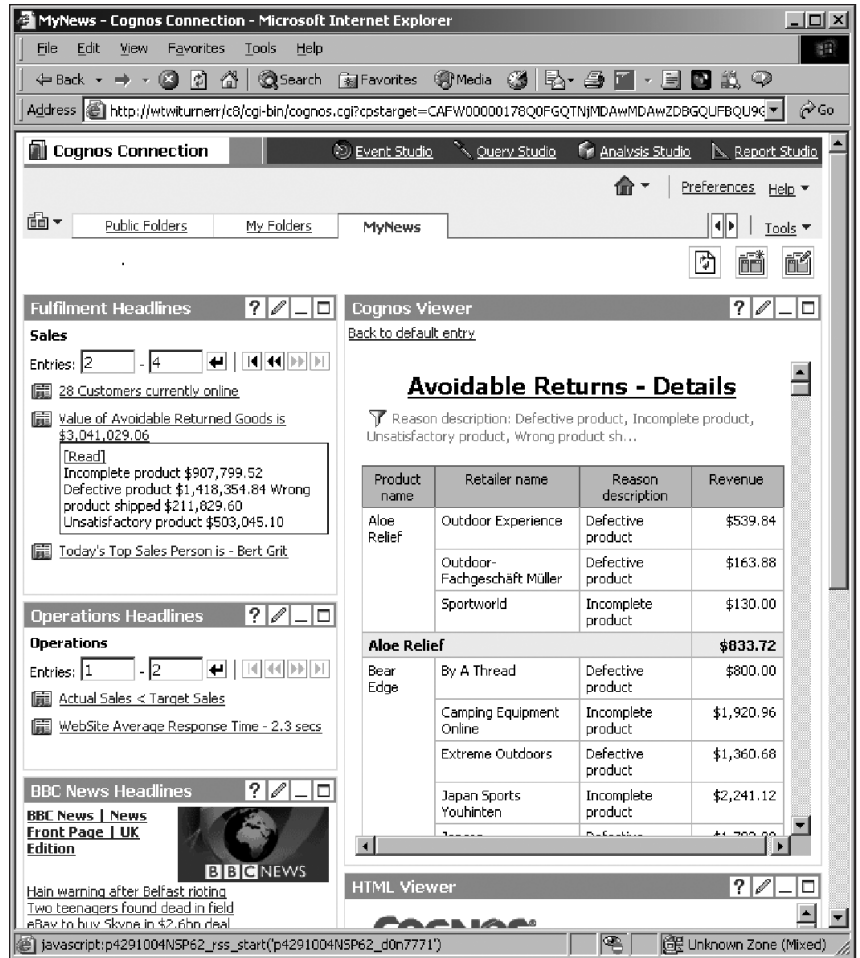
Fulfillment team manager

The fulfillment team manager doesn't want to be involved with the exceptional transactions but will need to know – on a real-time basis – how well the team is dealing with the issues. Using a portal BI headline, managers can see the total number of outstanding issues and the total value of the orders associated with them.

The message is dynamically maintained – the content is refreshed each time the agent runs. This makes it easy for the manager, since there is only one message in the portal that provides this particular headline on the current situation. By clicking on the link, the manager can see more information and optionally run a report that provides further detail.

Customer service

Once the issue has been resolved, customer service initiates a callback to the customer to smooth over any issues created by the returns process. This is initiated by sending the relevant information to CRM implementation, where it will be handled.



Portal message headline

In this case, the action is completed automatically (on the BEM side). This process is performed in context and by status, acting only on stopped items. It uses either database updates or web service tasks to achieve the results.

Accounts receivable and sales reps

At this point, an email is also sent to accounts receivable so they know the debt can be chased. The loop is also closed with the sales rep.

Results

After using BEM to implement and support the performance improvement decision, your organization benefits in the following ways:

- The improvement process is being acted upon and you can expect to see an improvement when the DSO metric is next updated.
- A BEM agent is monitoring and tracking exceptional returns events, and nothing significant is being missed.
- Users tasked to respond are linked to issues by emails and reports.
- Users have a complete view of the event, enabling them to perform their actions.
- At any time, the fulfillment manager knows how well the team is performing via the BI portal headline.
- Accounts receivable knows when they can start to chase a debt.
- Sales reps are informed and can communicate with the customer both at the beginning and resolution of the issue.

Phase 2

You soon determine whether the performance improvement decision has been effective in accelerating the handling of these exceptional returns issues. Other

areas that require fine-tuning quickly become apparent. You decide that the decision and business processes handled via BEM can be enhanced to cover these situations:

- Some issues are too difficult to be resolved by the fulfillment team and need to be escalated.
- If there is insufficient stock to handle Wrong Product or Damaged Goods, there is a delay until inventory becomes available.

To address these improvement requirements the BEM solution is extended – the information flow becomes somewhat more complex and results in two other events being defined.

Escalation to the fulfillment team manager

If a returns issue is unresolved for more than two days, it is escalated and an email is sent to the team manager to drive the issue forward. The email will be sent in context and by status for all New and Ongoing issues.

Procurement

Procurement is advised about these customer returns, where the reason is Wrong Product or Damaged Goods, to ensure inventory is available. If there is insufficient inventory or other issues, they are sent in an email or a product procurement report.

Phase 3

As work proceeds, the fulfillment manager discovers that the organization is handling the workload more efficiently. The manager would like the capability to modify the Invoice Value or Balance Outstanding thresholds to a different setting – to pick up a greater number of events with the enhancement to DSO.

In addition, if there is a shortage of staff, managers could raise the threshold value to further concentrate valuable resources. At this point, it is now possible for business managers to fine-tune the process (the significance of the event) to reflect day-to-day circumstances.

Leading-edge Technology for Today's Performance Needs

BEM with IBM Cognos 8 BI provides an event management solution that is unique in the marketplace. It represents an evolution in the development of event monitoring and alerting technologies, and provides much greater value to the business.

Alerting

Alerting – the first generation of solutions – provided a means for report distribution, linking users to information in a timely way. However, they broadcast information to a disparate audience, and the information was not particularly focused. As well, it has been difficult to suppress the duplication of information, resulting in a spam-like effect. These solutions also tended to work only within a single system, usually tied to the data warehouse.

Intelligent agents

Intelligent agents provided alerting with additional capability. With this solution, information could be presented in more consumable ways. It also addressed spamming issues by suppressing duplicates. The major drawback was the tendency to ignore an event once the user had been notified – there was no ongoing tracking. Also, it offered limited support for a workflow of tasks. These solutions had some applicability in the operational area.

Event management

BEM offers all the benefits of intelligent agents, and considerably more. It extends the idea of non-duplication to achieve a much more powerful concept of event status. It also provides the capability to deliver a workflow of tasks that is performed not only in context but also by the state of the event. With event tracking, as well as cross-system applicability, BEM can be applied to the data warehouse, metrics, planning, business process data, and operational data.

Conclusion

BEM encompasses the whole process of monitoring and managing events through to resolution. With business and decision-process automation, this leading-edge technology can drive action to support informed decision-making and to improve performance across the enterprise.

Key Definitions

Business Intelligence – A class of applications that gather, analyze, and store information about your business, including performance, procedures, and project status/problems.

Infrastructure – Underlying systems that serve as the foundation for other applications.

Metadata – An item of metadata may describe an individual item of data or a collection of data (multiple content items and/or hierarchical levels).

Business metric – A type of measurement for gauging a quantifiable component of a company's performance. Part of business intelligence, comprising a wide variety of applications and technologies for gathering, storing, analyzing, and providing access to data for making better business decisions.

Online analytical processing (OLAP) – An approach to database queries that quickly provides answers. These queries are usually analytical and multi-dimensional, employing a multidimensional data model that allows complex analytical and ad-hoc queries with a rapid execution time.

Scorecard – A display of results against strategic goals to track performance and achievement and expedite business decisions.



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April 2009
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