



Operational Intelligence:

Improving the Customer Experience by
Preventing Problems Before They Occur

Table of Contents

- 1 Introduction
- 2 The Struggle to Be Responsive
- 2 Introducing Operational Intelligence
- 3 Rapid Return on Investments
- 3 What to Look for in OI Systems: The 4 Requirements
- 6 Bringing it All Together: Realizing Quantifiable Benefits from OI
- 7 Conclusion

Introduction

Time is money. Most executives receive sales updates and review other Key Performance Indicators (KPIs) on a weekly, or sometimes monthly, basis. Leading executives review KPIs each day. But for some companies, moving at Internet speed requires up to the second visibility into the business.

Online stores promise to ship the same day or shipping is free. Retail call centers have two-minute windows to answer customer questions before satisfaction levels decline. Utility providers need end-to-end, real-time views of customer enrollment processes to ensure a seamless on-boarding experience for new customers. In all of these cases, there is a severe financial penalty for the company that fails to meet customer expectations.

In an increasingly competitive industry, retail energy providers must focus on providing an exceptional customer experience to both new and existing customers. With complex processes to manage, energy utility providers require an end-to-end, real-time view of their new customer enrollment processes to ensure a seamless customer experience. To achieve this goal, utility providers must have end-to-end visibility into their processes, insight into the status of each process and the ability to quickly take corrective action.

Failing to meet this and other kinds of Service Level Agreements (SLAs) will result in dissatisfied customers, customer defection, lost revenue, and a damaged reputation. To compensate, utility providers may have to offer discounts, give refunds or even pay fines. Whereas, if customers have a pleasant experience from the start, they will develop the loyalty and goodwill that quickly becomes new revenue – through add-on purchases and recommendations to others.

With sufficient visibility into critical business processes, managers can prevent SLA violations from happening altogether. To achieve this standard, companies need to manage business events in real-time. Decision-makers need real-time alerts and insight, in order to take proactive and meaningful actions.

Operational Intelligence (OI), a real-time data analytics solution, gives executives visibility into their business processes enabling insightful decisions that will prevent customer experience problems before they occur.

The Struggle to Be Responsive

Many businesses trying to keep pace with changing business conditions and satisfy high customer expectations stand to benefit from Operational Intelligence.

- **Energy & Utility Providers** need full transparency across critical business operations, such as the customer on-boarding process, to ensure an exceptional customer experience.
- **Telecommunications Companies** need real-time visibility into the activation system service orders, showing activation times and lists of potential exceptions.
- **Internet Service Providers (ISPs)** need real-time visibility across field operations to improve the management and prioritization of work orders, installer schedules, and maintenance requests.
- **Just-in-Time Manufacturers** keep four hours of inventory on hand. If parts are missing or delayed in the supply chain, production lines will shutdown.
- **Call Centers that “Experience Unusual Call Volume”** could recognize trends and proactively assign more staff on short notice.
- **Shipping Companies** must receive all vehicles, unload the shipment, sort the packages by destination, reload the packages back into the vehicles, and redirect the vehicles towards their new destinations, all in less than an hour. Any slight deviation in the schedule due to weather, equipment failures or traffic can wreak havoc on SLAs.
- **IT Management** must continuously monitor network traffic and server loads to ensure response times are within acceptable ranges.
- **Real-Time Click-Stream Analysis** lets companies monitor, detect and prevent suspicious behavioral patterns, such as identify theft or credit card fraud.

“OI can help remediate issues by providing real-time notification and escalation as well as root-cause analysis of problems.”

Ventana Research

Introducing Operational Intelligence

The speed of business is accelerating. As velocity increases, so does the cost of delay. Most companies are unable to track business operating conditions in real-time. Instead, they make decisions based on historical information residing in the data warehouse. In effect, senior managers and executives are driving their businesses by looking in the rearview mirror.

The early detection of trends in customer behavior, equipment malfunctions and order rates, can help a business avoid problems and capitalize on new opportunities. Modern enterprises need the ability to see, analyze, and act on real-time operational data from a wide variety of sources. Operational Intelligence enables decision-makers to respond to changing business conditions. Business benefits include increased customer satisfaction and retention, reduced operating costs, and higher growth rates.

Operational Intelligence solutions are enabled by the emergence of Rich Internet Applications (RIA) combined with Complex-Event Processing (CEP), and Business Process Management (BPM). Rich Internet Applications provide

ROI from OI At-a-Glance:

- Increased transparency into business processes
- Improved customer experience across the customer lifecycle
- Reduced customer churn rates
- Improved governance and compliance
- Faster responsiveness to current events
- Improved utilization of resources
- Reduced fraud
- Better SLA management
- Revenue boosts from responding to high-priority events
- Improved governance toward regulatory compliance
- Enhanced workflow productivity
- Decreased delays with orders and services
- Increased customer satisfaction
- Increased process efficiency and effectiveness
- Improved marketing effectiveness in programs and promotions
- Reduced costs incurred due to fraudulent behavior

advanced visualization and interaction via a simple web browser. A CEP engine continuously analyzes complex events in real-time. With a CEP engine running in the background, companies can see what is happening and also understand why it is happening, what it will impact, and how it has been previously handled. A BPM Suite combines the rich features of collaborative development, BPM Notation and Event-Driven Architecture to provide a unified modeling environment that supports automated response actions, augmented with rich human-oriented workflows.

According to Ventana Research, “Operational Intelligence can make risk more visible and increase compliance with company policy across business units and fragmented financial systems. Furthermore, OI can help remediate issues by providing real-time notification and escalation as well as root-cause analysis of problems.”¹

Rapid Returns on Investment

Companies that have invested in an Operational Intelligence solution can expect quantitative and qualitative benefits that contribute to improved customer experience, reduced churn rates and higher revenue per customer. One common benefit is the ability to manage multiple SLAs across large data centers to assure complete compliance with those SLAs.

The balancing of demand and demand fulfillment, such as re-targeting a web promotion when its success overloads a company's ability to fulfill the demand, is improved with OI. Companies have also reported increased customer satisfaction and retention by resolving issues in real-time and by preventing additional delays with orders and services. With OI, companies improve process efficiencies, keep costs down, while increasing the quality of interactions and deliverables.

Operational Intelligence solutions have the ability to respond to events, in real-time, by invoking automated or manual workflow systems. For example, an organization's IT department may receive an alert that a web service is delayed. However, the alert does not contain the intelligence to determine if the glitch affects a high-value customer or opportunity. Operational Intelligence provides the business context to low-level events, such as these, so that companies can understand the impact that they have on customer experience and know that they are responding to the highest value customers and opportunities in the most effective way.

What to Look for in OI Systems: The 4 Requirements

An integrated Operational Intelligence solution should deliver an intuitive interface for business users to define and view analytics against any of their information systems. An analyst should be able to ask questions at any level, from a basic inquiry to retrieve the current on-time delivery metrics for all

¹ “Operational Intelligence and Event Processing Research Agenda for 2008,” Ventana Research.

OI At-a-Glance

A highly integrated Operational Intelligence solution should deliver:

- Real-time access to a wide variety of data sources, including business transactional systems, operational systems, databases, and external sources such as web feeds.
- Continuous monitoring and analysis of information, in real-time.
- Ability to access and correlate related information, such as new incoming orders against customer ranking and recent buying trends.
- Rich visualization of the raw and analytical data organized easily from the business user's perspective.
- Ability to respond using a variety of automated and workflow systems.

regions, to a more complex inquiry, such as the expected revenue impact of delayed shipments. Once a query has been processed, the system should continuously evaluate the status of that query so that a business user does not have to continuously ask the same question.

Business users should not need technical training to visualize analysis results. Instead, they should simply click an indicator on an intuitive dashboard to drill down to deeper information.

There are four areas of enablement that are essential elements of a complete OI solution:

1. User empowerment through rich visualization

To gain real value from business visualization applications, users need solutions that look, act, and feel like today's more popular productivity devices, such as PDAs and smart phones. Users should be able to ask their own questions and receive immediate information to analyze and act upon. Look for these features in an OI solution:

- **Interactive dashboards:** Users can organize the information in any way that makes sense to them and that supports their specific question, define and visualize KPIs or drill down to the average revenue in a particular territory.

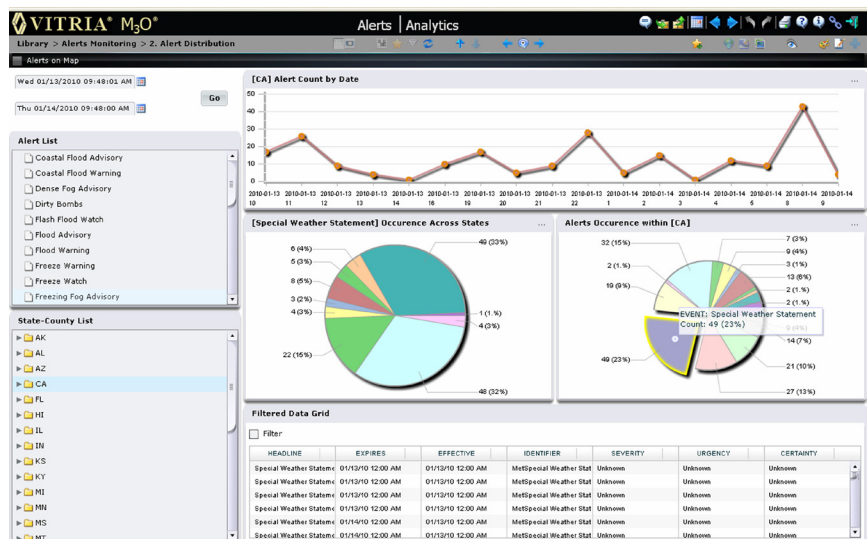


Fig. 1: Example of interactive dashboard with clickable icons

- **Simple business tools:** The rich user-interface of an OI solution enables business users to create new views and correlations with the simplicity of clickable icons to add overlaying charts to compare current versus historical trends, drag-and-drop charts, and merge lists and other data sets. As a result, users can easily organize and customize dashboards to monitor and analyze events, KPIs, SLAs, and other important metrics.
- **Mash up data from many sources:** Web 2.0 technologies enable users to create dashboards that combine data from multiple sources including

A CEP engine is powerful in analyzing multiple events over a specific period of time, detecting complex patterns, and making correlations.

traditional and non-traditional sources, such as Google Maps with Internet traffic information and current vehicle routings from an ERP system. This all-encompassing view of information provides complete situational analysis for better decision-making.

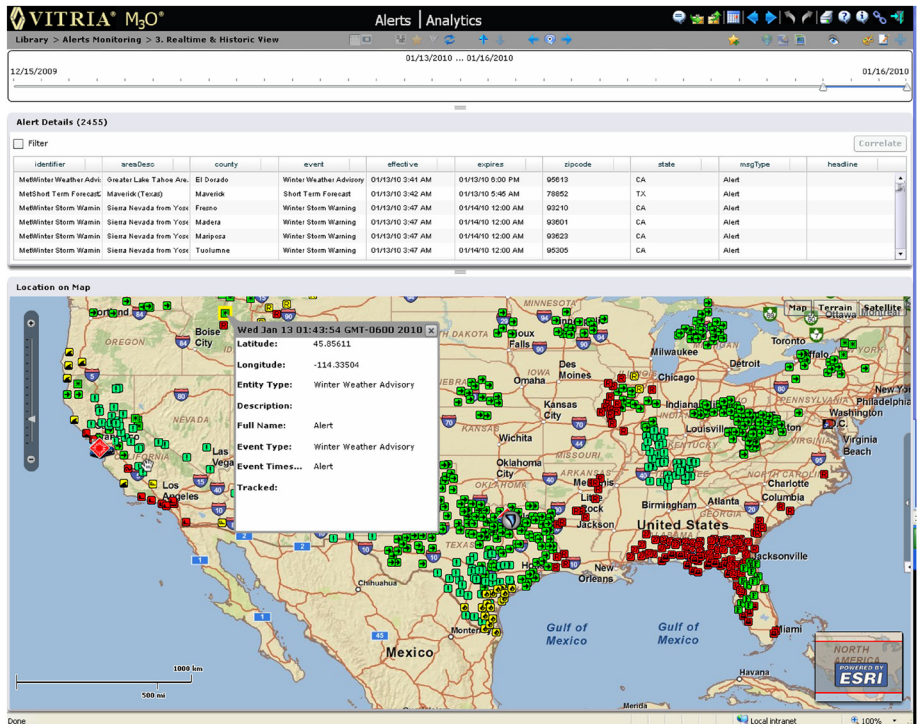


Fig. 2: Example of mash-up data from multiple sources

2. Access to real-time and historical data from a wide variety of sources

Operational Intelligence goes beyond traditional databases and data warehouses to provide access to a vast array of data, both structured and unstructured. Fully leverage the structured data generated in transactional systems and business processes and combine it with unstructured data from e-mail, workspaces and wikis. Social media interactions are emerging as a new type of feed that is placing unprecedented pressure on businesses to assimilate information and act appropriately and quickly. Activity streams and RSS feeds that update weather patterns, geopolitical events, and financial markets are becoming essential sources of information. Without these data sources, it is difficult to have a complete picture of operational performance. An OI system draws upon this non-traditional data, filters and correlates it with structured transactional data to populate intuitive, multilayered charts and dashboards, and deliver the results.

3. Real-time continuous analytics

Analytic engines analyze multiple events over a specific period of time, detecting complex patterns, and making correlations. For example, a CEP engine can detect suspicious credit usage by monitoring credit card activity, as it occurs. A CEP engine can perform time-series analysis and trending over streams of events and then correlate a stream of real-time information with stored and historical data such as new credit card activity with customer information from a CRM system and historical usage patterns.

For many companies, minutes or seconds can take on critical importance as customer expectations grow.

4. Root cause analysis to facilitate corrective action

When an event occurs, that event sets off a chain reaction that has consequences for processes throughout the operational systems. Users need to know which event triggered an exception or corrective action and what impact it will have in the future. To get to the root cause of an event, users must drill down, in context, to discover why a specific event occurred. Drilling down into the process shows the history of the event execution to determine what went wrong, and where it went wrong, in order to take the most appropriate corrective action. For example, a popular new mobile phone is released and selling in record numbers, but the activations are failing because automated credit checks cannot keep-up with the high traffic rates. A corrective action is required to change the activation process by temporarily reallocating resources to handle the spike in demand.

With the four Operational Intelligence capabilities outlined above, employees now have one set of integrated, easy to use tools to define business rules, align with policies and initiate corrective action as needed.

Bringing It All Together: Realizing Quantifiable Benefits from Operational Intelligence

Unlike BI tools, OI solutions take advantage of real-time feeds, also referred to as “event data.” Event data represents, in real-time, any significant changes in data, processes, business transactions or other business indicators.

In response to the need for real-time intelligence, OI solutions will leverage and enhance existing BI products. Operational Intelligence solutions bring together existing technologies and new analytical tools to enable business managers and executives to keep up-to-date with the speed of business. Operational Intelligence solutions complement existing BI tools in the following ways:

- **Access to real-time operational and event data:** Event-oriented sources, such as click information from a company’s website, and novel data sources, such as RFID systems and RSS feeds, provide valuable information about business processes and customer behavior. The addition of an OI solution to existing systems gives businesses the ability to avert potentially negative customer experiences.
- **Continuously updated analytics, charts, and trends:** BI systems run queries on data that has been loaded into a data warehouse or Operational Data Store, only refreshing analytical information or charts when a request is made. (Imagine if your car dashboard displayed the current water temperature only when requested: you would have no warning at the time your engine begins to overheat). With access to continuous analytics from an OI solution, problems can be seen as they occur, as well as trends that indicate upcoming problems, enabling you to proactively take preventative action.

An express shipping company has only a few hours to sort packages and launch them toward their destinations. Any slight deviation in the schedule can wreak havoc on SLAs.

- **Correlate historical data with new event sources:** Correlation is critical for analyzing and predicting the impact of events on outcomes and processes. For example, in SLA monitoring, an OI solution has the ability to join multiple product order feeds over sliding time or count-based windows. In exception management, an OI solution has the ability to correlate information from multiple systems involved in a transaction or business process.

Let us return to the electric utility service provider example. Companies have ongoing issues with their new customer enrollment processes and need to proactively identify and remediate potential customer facing problems.

With an OI solution in place, utility service providers now have:

- Gained real-time visibility into the customer enrollment process via role-based operational dashboards.
- Reduced the time to identify and resolve new customer enrollment errors from hours to minutes.
- Substantially reduced the number of customer complaints resulting from enrollment delays.

Conclusion

The emerging business landscape has made it critical that companies detect potential customer issues before they occur and respond quickly enough to avert a negative customer experience. Companies that manage business events, in real-time, using Operational Intelligence solutions have the strategic advantages of real-time visibility, insightful information and the ability to proactively take action on that information.

Keeping up with the speed of business is a never-ending challenge. Fluctuations in global supply and demand, customer needs, regulatory changes, and other variables are difficult to predict. Real-time visibility into operations, insight into the current situation, and the ability to take immediate action are the cornerstones of a complete Operational Intelligence solution.

About Vitria

Vitria Technology, Inc. provides the industry's leading Operational Intelligence suite, empowering partners and customers alike to develop innovative Operational Intelligence solutions to analyze business activities in the proper context and take real-time action. The result is faster, better decision making. With a rich heritage as a technology pioneer, Vitria's award-winning process integration solutions provide the backbone for many Global 2000 companies' mission-critical business processes. Vitria has customers in North America, South America, Europe, Asia, and Australia.



945 Stewart Drive, Sunnyvale, CA 94085

Tel: +1 (877) 365-5935

Email: info@vitria.com

www.vitria.com

© 2011 Vitria Technology, Inc. All rights reserved. Vitria, M,O and Exception Manager are registered trademarks of Vitria Technology, Inc. All other names may be trademarks of the companies with which they are associated. *Operational Intelligence: Improving the Customer Experience by Preventing Problems Before They Occur 03/11*