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IDC EXECUTIVE BRIEF

Operational BI: Taming the Data Explosion

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Adapted from *The Intelligence Gap — Disconnect Between Investments in Business Analytics and Transaction Processing Software* by Dan Vesset, IDC #32470

Introduction

Organizations operating in today's global economy are faced with unprecedented competitive and regulatory pressures and a heightened level of uncertainty. Driven by geopolitical trends and financial scandals, national and international regulatory agencies have enacted rules with far-reaching impact on the daily operations of firms in many industries, including financial services, telecommunications, travel, and transportation. IDC believes that although traditional data warehousing and business intelligence (BI) software provide important query and reporting functionality, they fall short of the necessary speed, insight, and flexibility required by many operational decision-making processes. This Executive Brief examines the increasing evidence that intelligent process automation, deployed through operational BI software, delivers key capabilities for dealing with an organization's most pressing operational decision-making and compliance issues.

The Need for More Informed Decision Making

An organization is only as good as the decisions its people make. Today, enterprises must survive in a complex economic environment that includes unprecedented competitive and regulatory pressures. Thus, rapid and informed decision making has become a huge competitive advantage.

One only needs to look at the range of corporate and geopolitical events to see how daily decisions increasingly affect the bottom line. War, terrorism, corporate governance, and the cost of resources have a major impact on corporate success. The press is filled with intelligence and risk management failures, poor visibility into demand and supply chains, slow reactions to customer or competitive demands, and failure to respond to rapidly occurring events.

On top of that, the uncertainty surrounding economic conditions appears to be more profound than in past decades. Economic pressures are compounded by the trend toward continuously shrinking decision cycles where faster as well as more accurate, insightful, and flexible decision making is critically important.

Ironically, these pressures appear to be heightened by the increasing amounts of data available to today's decision makers. Data gathering has always been critical in enterprise decision making, but there exists today a "data explosion," in which too much information actually hinders the decision-making process.

So how can organizations improve decision making?

Intelligent Process Automation

Increasing evidence shows that what IDC calls "intelligent process automation," deployed through operational BI software, can help enterprises make better decisions to deal with today's complex operational and compliance issues.

For years, organizations have used "best-practice" design to make business processes more intelligent, but IDC sees a trend in which enterprises are combining high-impact business processes with critical data gathering and analysis to improve overall decision making.

Intelligent process automation solutions support:

- Repeatable operational decisions such as anti–money laundering, fraud detection, and pricing optimization (These decision processes are characterized by extremely short decision cycles.)
- Event-driven automation based on transaction monitoring or continuous data integration to support faster decision making, including customer, account, employee, or supplier profiling
- Advanced analytics for decision optimization and analytics-driven workflow (For example, predictive models evaluate alternatives and optimization considers risk and probabilities, complex rules definition, review, adjustment, and execution.)
- Workflow and collaborative tools to automate the movement, analysis, approval, and action steps to support daily, repeatable operational decisions and provide the right information to the right people at the right time.

Beyond Traditional Business Intelligence

Traditional BI tools, commonly based on simple arithmetic calculations (e.g., aggregation, sorting, and ranking) and focused on the analysis of historical data (weekly, monthly, yearly), have come a long way in optimizing the information delivery process.

However, standalone reports focused on basic information delivery remain disconnected from core operational processes and do not provide the required level of support for what-if analysis, scenario planning, and forecasting.

For example, data warehouses are fine for aggregating data in batches from different operational systems based on predetermined data models at certain intervals. In fact, the growing data volumes and subsequent need for more scalable analytic processing power are becoming more important. However, predetermined intervals at which extraction, transformation, and loading (ETL) routines load data introduce latency, and prebuilt data models are optimized for specific queries.

To overcome these shortcomings of traditional BI, organizations should focus on automating decision-making processes through operational BI that supplements data warehousing tools with real-time data integration, workflow management, and collaborative tools.

Where Operational BI Benefits Most

All business processes that are supported by operational applications are targets for operational BI; in other words, organizations should consider embedding analytics into these mission-critical processes. Whenever a decision needs to be made, an opportunity exists to inject intelligence into the process.

Automation is accomplished through better and faster data capture, more advanced analytics, and workflow-based information delivery to decision makers or other applications. Repeatable operational decisions are automated in response to events where analytics drive the business process workflow. (It's worth noting that operational BI can include advances such as enterprise information integration, or EII, that can be used for on-the-fly data federation.)

Business processes that benefit most from intelligent process automation can be categorized into three groups:

1. **Operations/production analytic applications** that measure and optimize the production and delivery of a company's products and/or services — such as demand planning, manufacturing quality analysis, and fraud detection

2. **Customer-related analytic applications** that measure and optimize customer relationships — including marketing analysis, Web clickstream analysis, and customer profitability analysis

3. **Business performance management/financial analytic applications** that measure and optimize financial performance and/or establish and evaluate an enterprise business strategy — such as scorecarding, budgeting/planning, and financial consolidation

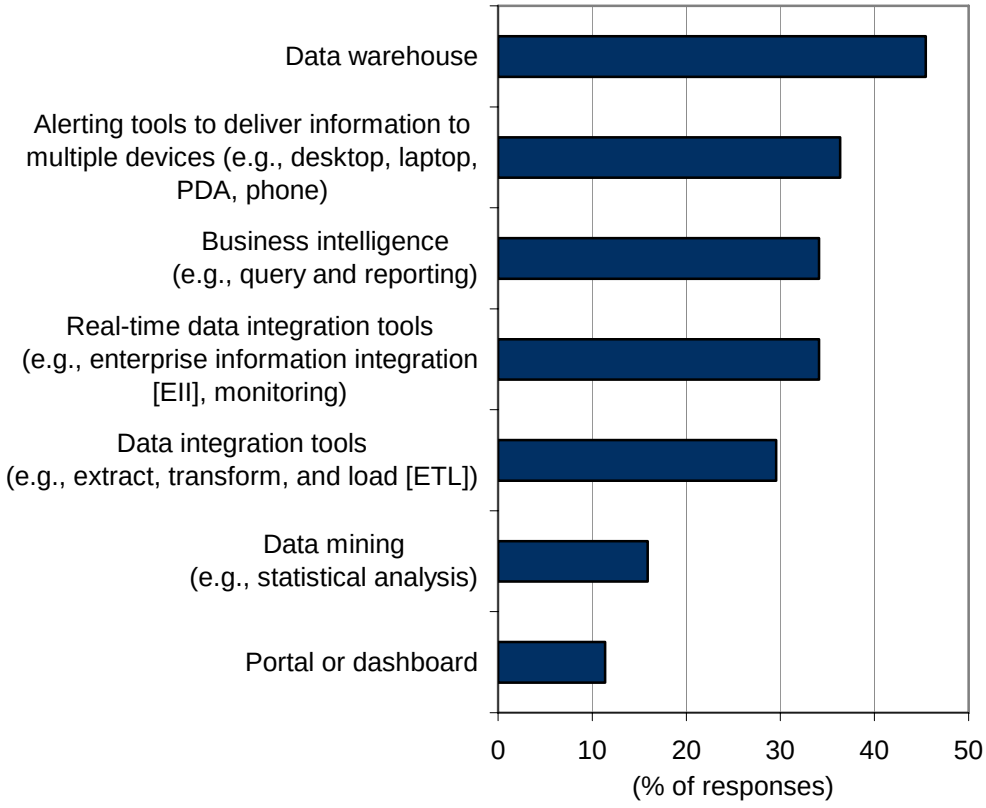
Operations/production processes are the primary areas where managers must be able to monitor and respond to events. Organizations must be able to quickly modify production and delivery of products and services as rapidly as economic conditions change. Because operational decisions are by nature recurring or repeatable, decision-making processes exist that are amenable to automation, such as those that set prices, recommend products or services, extend credit, monitor product quality, and detect suspicious transactions (e.g., fraud or money laundering). Another specific example of operational BI can be found in the context of RFID.

Thirty-five percent of respondents to an IDC survey regarding investments in connection with RFID technology adoption stated that they will be investing in new analytic technology (e.g., data warehousing and data integration). This was the highest software-related category indicated by end users. Figure 1 presents the specific business analytics–related software upgrade needs.

FIGURE 1

Expected Software Tool Upgrades

Q. Which software tools do you expect to have to upgrade to benefit from RFID?



Source: IDC and *Logistics Today*, 2004

On the one hand, it's unclear why data warehousing tools would emerge as the leading tools category to require upgrading. At first glance, if the primary benefit of RFID technology is to provide more real-time visibility into supply chain activities, then a data warehouse with its inherent latency doesn't seem to be a key component of the RFID support architecture.

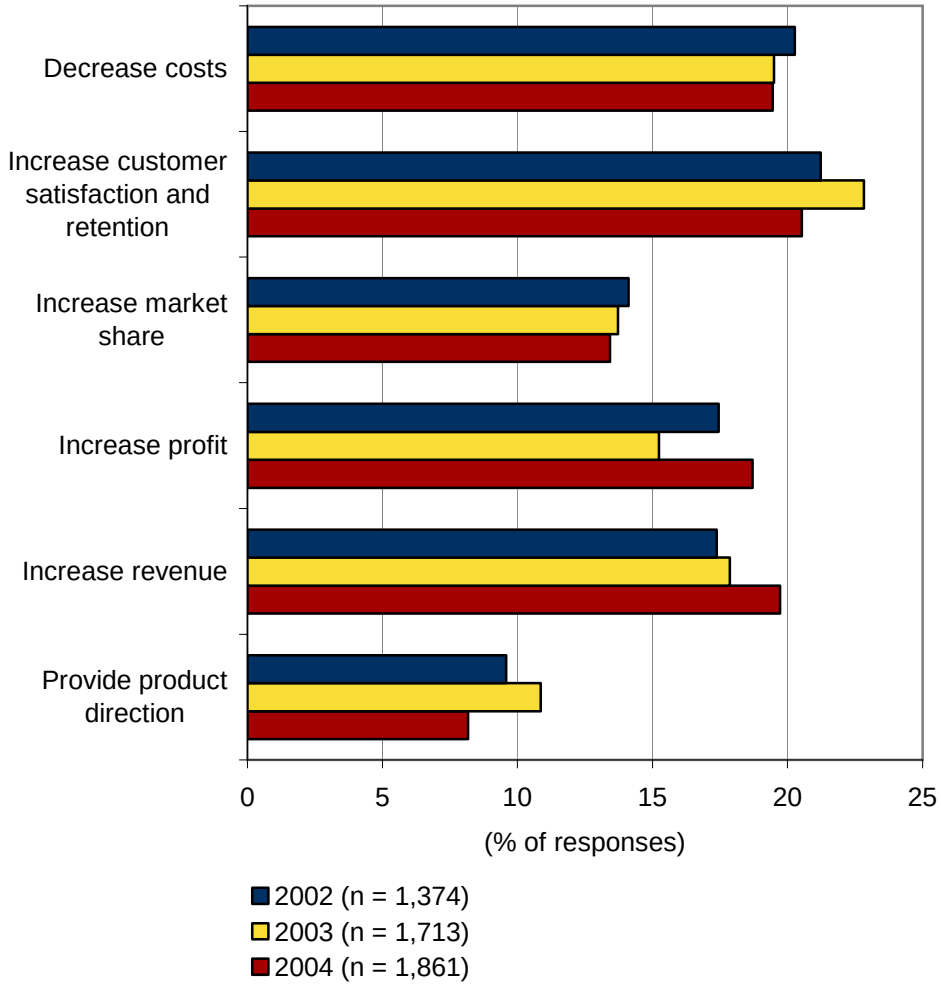
On the other hand, a by-product of RFID data used for real-time process monitoring and improvement is the requirement to store this data for historical analysis purposes. This would be necessary not only for internal performance management reasons but also for compliance reasons. For example, governmental regulations already exist for tracking certain goods. In the current political and security environment, it's not difficult to predict that with wider adoption of RFID, such regulations may expand.

This need is a key driver of new investments in operational BI to support these processes (see Figure 2).

Figure 2

Business Objectives Targeted by Business Analytics Systems

Q. What business objectives are you currently targeting with your business intelligence system? Please select all that apply.



Source: IDC and *DM Review's Readership Surveys*, 2002–2004

In addition, regulatory requirements of Section 409 of the Sarbanes-Oxley Act dictate "real-time issuer disclosures" on a "rapid and current basis" concerning material changes to a company's financial condition or operations. These disclosures "may include trend and qualitative information along with graphic presentations" as "is necessary or useful for the protection of investors and in the public interest." Thus, operational BI can become an important tool to achieve sustainable compliance by providing automation of financial- and control-based business processes supported by collaborative technologies. Key events can be monitored, analyzed, and acted on in a consistent manner.

Trends and Considerations

Organizations without a solid software architecture for intelligent process automation lack the ability to make information-based decisions that incorporate historical trends, monitor current transactions, and evaluate future scenarios using predictive analytics. Intelligent process automation typically must be achieved on a departmental or functional level first; attempting it on an enterprise level is a goal, but almost paralyzing in its challenge.

Research shows that organizations in all but a few market areas fall short in their investment and deployment of the necessary enabling technology:

- In 2004, for every dollar spent on transaction processing applications or capturing data into databases, only $0.27 was spent on getting the data out for business analytics to support decision making and statutory reporting processes. In other words, organizations are collecting information, but not using it as well as they could.

- Only 14% of managers in a recent IDC survey reported feeling very confident with the statement that the reports (and/or alerts) developed in their organizations deliver relevant information to the right people at the right time.

- Currently, business activity monitoring software is, at best, adopted by less than 10% of organizations.

IDC research also shows that progress is being made by capturing and automating decision-making processes for repeatable operational decisions. In fact, analytic applications with the highest returns on investment are those that are tightly integrated into operational business processes. Yet organizations adopting this technology face several nontechnical business challenges, including:

- **Reallocation of staff.** For example, prior to implementing operational BI software for anti–money laundering, personnel at banks spent 80% of their time and effort looking for unusual activity. After the implementation, they spent 80% of their time and effort investigating unusual activity. As a result of improved process automation, banks began receiving more alerts of suspicious activity that required investigators' to follow up.

- **Changing the culture of decision making.** Another significant adjustment, and perhaps the most difficult for many organizations, will be to change decision-making processes from reactive to proactive.

- **Complete commitment.** As always, software is only an enabler of intelligent process automation. Organizations that adopt such a strategy will fail unless they follow through with aligning their resources, processes, and values to become more adaptive and intelligent in how they make decisions.

At the same time, the specific technology trends developing in the market include:

- **Purpose-built data warehousing solutions.** Their attractive price/performance value proposition has caught the attention of organizations dealing with large data problems.
- **Business intelligence for the masses.** Focus on dashboards and interactive data visualization as well as delivery of information to any end-user device will become more permanently featured in end user–facing business analytics solutions.

Conclusion

Just as security software has become a "must have" application, operational BI that enables intelligent process automation is rapidly becoming a necessary technology for organizational success. Business analytics has moved beyond traditional BI — which concerns itself primarily with productivity gains by improving data capture and information delivery — to supporting business process improvements.

The market has gone through several stages, from standalone applications with operational reporting to application suites with standalone business intelligence. We are now entering the period of intelligent process automation featuring the synergy of embedded predictive business intelligence and event monitoring.

As regulations, marketing tactics, and production processes change with increasing frequency, the software must be able to adapt quickly and intelligently while keeping up with increasing data volumes. Just as the siloed approaches of early vertically integrated solutions could not provide the necessary insight for cross-enterprise decision making, today's sales, marketing, and customer service analysis solutions need to be based on integrated transaction monitoring systems that function in conjunction with traditional BI and data warehousing solutions.