



BI SCALABILITY, PERFORMANCE AND TOTAL COST OF OWNERSHIP

CRITICAL CONSIDERATIONS FOR THE INFORMATION-DRIVEN ENTERPRISE

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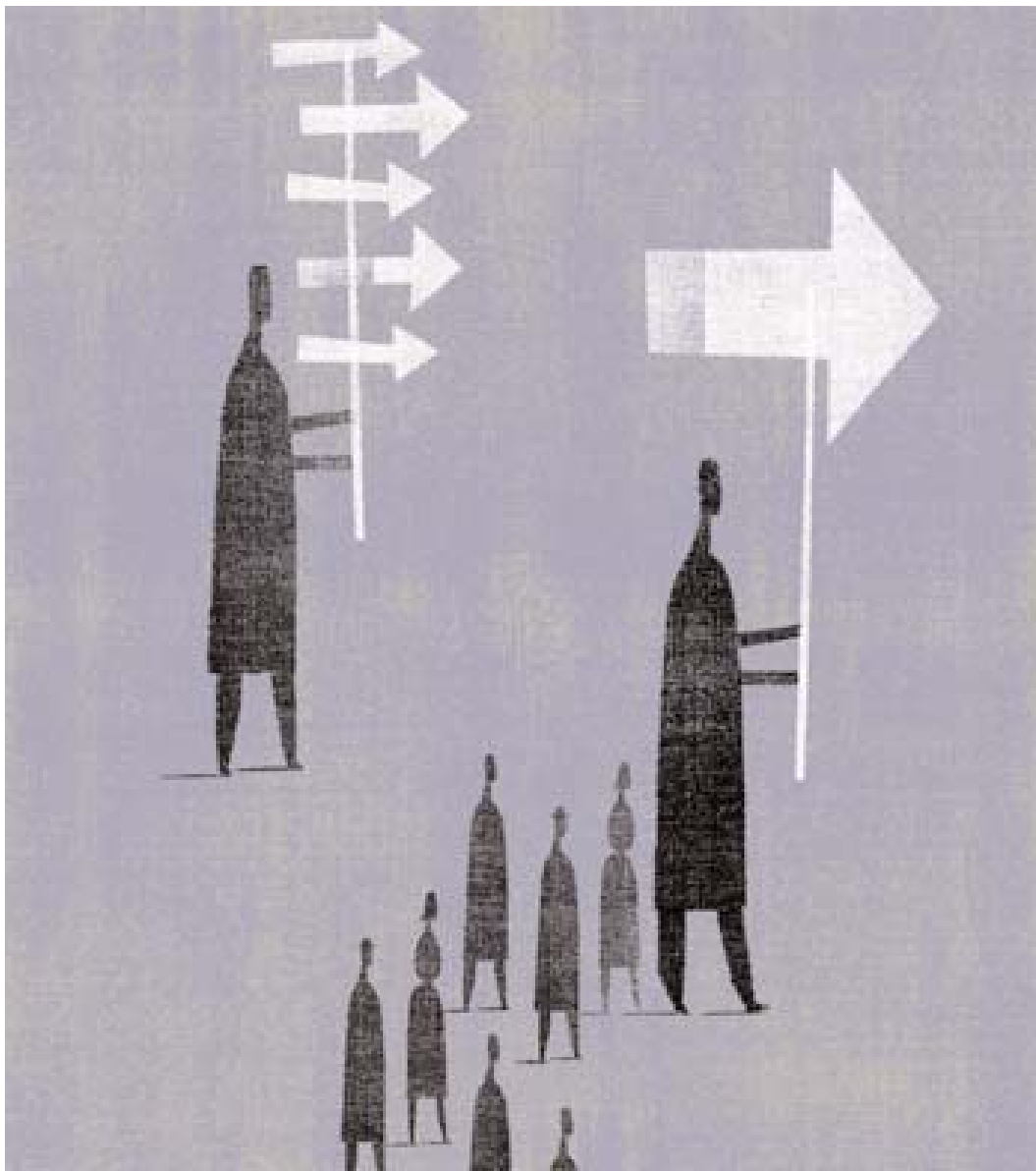


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Business Intelligence (BI) is critical in today's high-pressure, information-intensive business environment. BI technology is essential for making smart business decisions, discovering emerging business opportunities, streamlining business operations and spotting anomalous business events. That's why it's so important for companies to be able to broadly deploy high-performance BI solutions that meet their evolving needs.

EXECUTIVE SUMMARY

Business pressures are driving demand for BI across the enterprise. Profitability pressures require every department to make more insightful decisions ever more quickly. Productivity pressures require full empowerment of every employee. Accountability pressures require close tracking of every business process. Regulatory pressures require that businesses document what they are doing and why. These are all core BI functions.

Because of these growing business requirements, scalability and performance have become critical factors in BI implementation. Only a highly scalable, high-performance BI platform can support:

- the growing number of users of BI solutions across the enterprise
- the growing diversity and analytical processing-intensity of BI solutions needed to address the various challenges the business faces every day
- the growing volume of data used by BI solutions
- the growing number and range of information sources that BI solutions must leverage

Of course, this scalability and performance must be obtained as cost-efficiently as possible. A BI platform won't deliver very high ROI if it achieves its scalability and performance at too high an overall cost of ownership. So it's important to consider all the costs that go into BI ownership – including the costs of software, hardware, development, maintenance and training.

Running on Intel Itanium 2-based HP Integrity servers, Hyperion's BI platform recently set a new world record APB-1 benchmark record – outperforming the competition in terms of load, speed of execution, and analytic queries per minute (AQM). This scalability was achieved with a software/hardware configuration less than one-sixth the cost and eight times the price-for-performance of its nearest competitor. Just as important, Hyperion's BI platform offers the lowest total cost of ownership (TCO) in the industry based on acquisition, development/deployment and overall lifecycle costs.

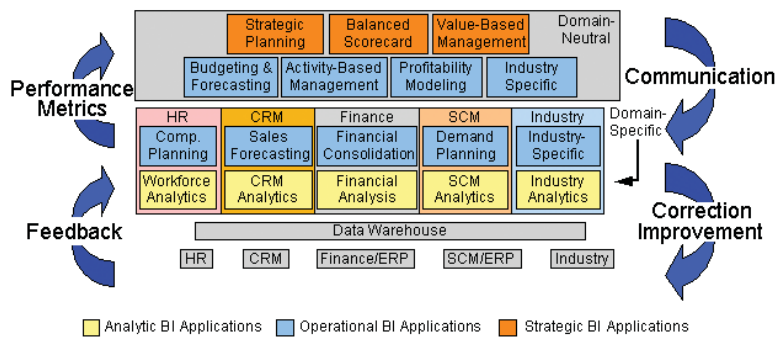
In other words, with Hyperion, IT can deliver critical BI capabilities to more users more flexibly at less cost. As a result, the business can capitalize on more revenue opportunities,

operate more profitably and better protect shareholder value. All these benefits derive from choosing a BI platform that cost-effectively scales to meet the growing analytical demands of the information-driven enterprise. Decision-makers looking for ways to optimize bottom-line business performance should therefore strongly consider the unmatched scalability and price-for-performance that Hyperion and HP deliver.

WHAT'S DRIVING BI?

Companies are rolling out more BI solutions to more end-users to address a wider range of business challenges than ever before. While BI can take diverse forms as it proliferates throughout an organization, it is useful to classify BI solutions into three basic categories: tactical, operational and strategic.

- At the tactical level, BI solutions address specific business functions such as monitoring inventory levels or factory-floor metrics. These tactical solutions empower front-line staff to immediately respond to specific types of conditions and situations.
- At the operational level, BI solutions help managers to track actual performance against projections, ensure proper allocation of limited resources, and take actions that optimize the performance of a team or department.
- At the strategic level, BI provides executives with key performance indicators and insights into their companies, their customers and the market at large. The result: executives can get a better view of the big picture, discover problems before they become disasters and make wiser/more profitable decisions.



Gartner

Source: Gartner Inc. *Managing Corporate Performance Management: What You Need to Know.* Symposium ITxpo 2003 Presentation, Frank Buytendijk, Brian Wood

A variety of business pressures are driving rapidly expanding deployment of BI across all three of these categories throughout the enterprise. These pressure include:

PROFITABILITY

Companies are under unrelenting pressure from shareholders to increase revenues and profits. This pressure is felt throughout the organization. Operations managers have to milk every drop of efficiency out of their supply chains. Sales teams have to manage their pipelines more aggressively than ever before. Marketing departments have to quickly detect emerging market trends and develop effective strategies for capitalizing on them. Even customer service is under pressure to contribute to the bottom line by spotting opportunities for up-selling and cross-selling.

All of these objectives require the effective use of BI technologies. BI solutions provide the real-time information, historical reporting, data analysis and/or threshold alerting necessary for sales, marketing, customer service, finance, manufacturing and operations to see what's going on and decide what to do next. So the greater the pressure on every department to contribute to profits, the greater the appetite for BI throughout the company.

PRODUCTIVITY AND EMPOWERMENT

Business moves fast. Opportunities are fleeting. And time can indeed very often be money. That's why businesses don't want to make their employees wait for the information they need – and why they're so intent on giving them information and empowering them to act on it. Companies that are trying to keep their headcounts lean are under particular pressure to

empower employees in this manner, since every individual has to make good, fast decisions without being overly dependent on managers and/or peers.

BI must provide people with the at-their-fingertips information they need to achieve maximum productivity and enjoy full empowerment. It should allow that information to be quickly analyzed and fully customized for each person's specific roles and objectives, regardless of the complexity and/or location of the underlying data sources. In fact, an effective BI platform will even enable end-users to keep customizing and enhancing their BI solutions in order to gain even greater productivity and decision-making benefits over time. That's why BI solutions are growing in number, diversity and complexity.

ACCOUNTABILITY AND VISIBILITY

Businesses processes are getting more complex. They often extend far across and even beyond the enterprise. And, in many cases, even the slightest glitch can have serious impact on the business. This can present a major challenge to the managers who are accountable for the performance of these processes – and who need continuous visibility into their health.

BI gives managers at all levels the information they need to fulfill these challenging responsibilities. BI can be especially effective at distilling complex processes and operations into a set of metrics and/or visually intuitive “dashboard” that enables managers to quickly assess business conditions and zero in on issues requiring further investigation or action. BI's power to enable visibility causes it to proliferate extensively throughout all levels of management.

REGULATORY COMPLIANCE

Managers and executives aren't just accountable for business performance. Increasingly, they're being held responsible for compliance with a growing range of regulatory requirements. No one is being allowed to plead ignorance anymore. If a financial irregularity or a material change in business occurs on your watch, you may wind up being the one to pay the price. It is therefore critical to have mechanisms in place that will alert you right away if something is amiss – or if there is even a chance that something is amiss.

BI provides those mechanisms. By applying appropriate analytical models to all relevant data, BI solutions ensure that anomalous events and trends are quickly brought to the attention of those who are responsible for regulatory compliance. As new regulations are legislated and existing ones are modified or broadened, BI solutions can be added and modified accordingly. This further drives BI deployment across the enterprise.

To put it simply, today's enterprise needs BI more than ever before. It is using BI in a growing number of ways. The business environment it is using BI to monitor is becoming more complex, as are the data resources that must be accessed and assimilated in order to monitor conditions in that environment. Because of all these factors, the scalability and performance of the enterprise BI platform is no longer just an issue for the IT department. It is a critical consideration for the business as a whole.

BI SCALABILITY AND PERFORMANCE

It's clear that business pressures are driving increased use of BI across the enterprise, and that this increased use of BI makes scalability and performance important considerations in the deployment of BI solutions. However, it is also important to clearly define what "scalability" means in the context of enterprise BI deployment.

Actually, to support the tactical, operational, and strategic needs of today's enterprise, BI has to scale in four distinct ways:

**SUPPORT FOR THE GROWING
NUMBER OF BI USERS**

As BI solutions are delivered to more users across all departments and at every organizational level of the company, additional requirements are put on the underlying BI platform. Limitations on the types of interfaces, delivery mechanisms and the ease with which information can be tailored to specific needs will limit the number of users and business functions that will be able to benefit from BI.

**SUPPORT FOR THE GROWING
DIVERSITY AND ANALYTICAL
PROCESSING-INTENSITY OF BI SOLUTIONS**

It's not just the raw number of BI end-users that must grow. BI implementations often start with relatively simple analytics – and rightly so. It's always a good idea to go after the biggest, easiest wins first in order to ensure immediate payback for IT investments. But, over time, BI solutions typically evolve as users seek additional benefits, as their understanding of what BI can do for them expands, and as they gain

the ability to define new analytical models. The increasingly complex and sophisticated BI analytics that result place greater processing loads and performance requirements on BI servers.

*SUPPORT FOR THE GROWING VOLUME
OF DATA USED BY BI SOLUTIONS*

BI scalability and performance isn't just driven by a growing number of users on the front end and increasingly sophisticated analytics on the servers. To support the diverse needs of BI users throughout the enterprise, BI solutions have to retrieve and quickly analyze greater and greater volumes of data from back-end transactional systems, including data warehouses. Some of this growth may be driven by the fact that users are looking at longer historical periods or are expanding from an exclusively domestic focus to a global one. Much of it may result from the fact that businesses simply tend to sell more products to more customers over time. Either way, the amount of data that BI solutions have to "crunch" over time will certainly grow.

*SUPPORT FOR A GROWING NUMBER
AND RANGE OF INFORMATION SOURCES*

As BI solutions proliferate and evolve, it's not just the volume of back-end data that grows. The diversity of back-end data sources that must be assimilated by those BI solutions tends to expand as well. That's because users start looking for additional information to help improve decision-making, visibility and collaboration across the enterprise. They also may be given new responsibilities that require them to monitor business metrics contained in other databases and/or enterprise applications. In some cases, they may need to incorporate information resources from outside the enter-

prise. To fulfill these needs, a BI platform must be able efficiently tap into any resource the business requires regardless of vendor or data format – from legacy data center systems to state-of-the-art Web Services.

The fundamental value of any BI platform to the business is largely tied to its ability to scale and perform across all four of these dimensions. A BI platform that can't scale and perform in one or more of these ways will constrain enterprise BI implementation and limit the return on investments in BI technology. Users don't want systems that get bogged down in poor performance or lack the ability to extend across the organization as needed. So scalability and performance are essential.

BI TOTAL COST OF OWNERSHIP

Of course, IT departments don't have infinite resources to devote to BI. Budgets and manpower are limited, and many other technologies have to be deployed and supported. So the question is not just one of BI scalability and performance. It's meeting the needs of the business within realistic total cost of ownership (TCO) constraints.

Thus, in addition to assessing the scalability and performance of a BI platform across the six dimensions outline in the previous section, BI decision-makers must also consider the various factors that affect BI TCO – especially as utilization and complexity grow.

The primary factors influencing the total cost of BI ownership are:

SOFTWARE LICENSING

The most obvious cost to look at is that of the BI software itself. This cost can vary greatly and are significantly affected by licensing models – which can treat the addition of users, servers, sources and solutions in very different ways.

SERVER INFRASTRUCTURE

Processing power is another important component of BI TCO. Cost-effective BI scalability and performance therefore requires a BI platform that uses available processing power as efficiently as possible. Ideally, this efficient processing utilization will be available on a server platform that itself offers relatively low TCO and has already been embraced as a standard within the enterprise environment.

EASE OF DEVELOPMENT

A BI platform that makes it easy to develop solutions as required to address changing business needs will put considerably less strain on IT's human resources than a more unwieldy one. Easier, faster development also accelerates time-to-benefit. Leveraging available programming resources and skill sets is an especially critical factor for IT organizations looking to control costs.

EASE OF MAINTENANCE

A BI platform that makes it easy to administer and automate IT tasks such as data updates, backup and recovery, fail over, security, and batch reporting decrease maintenance workloads and cost. Easier, faster administration also increases application availability. This is an especially critical factor for IT organizations that are already spread thin and are unlikely to increase headcount significantly in the near future.

EASE OF USE

Business user training and support costs obviously grow as BI is implemented in more ways across the enterprise. If a BI platform has difficulty addressing the varying skill levels and access needs across internal and external user communities the impact on TCO will be substantial over time. That's why streamlined information delivery, relatively short learning curves and other self-service attributes are important to achieving cost-efficient BI scalability.

Business success depends on the ability to deliver BI everywhere it's needed across the enterprise. But that can only happen with a BI platform that can scale to meet all those needs within the resource constraints of the business. Cost-efficient scalability and performance are therefore a primary consideration in assessing the value of any BI platform.

HYPERION: RECORD-SETTING
SCALABILITY AND PERFORMANCE,
LOW TOTAL COST OF OWNERSHIP

Hyperion's BI platform has been uniquely architected to meet the stringent scalability, performance and TCO requirements of enterprise-wide BI implementation. Hyperion cost-effectively supports the delivery of diverse BI solutions to hundreds of thousands of users – thereby ensuring the full benefits of BI technology across the entire organization. By providing a single platform that can be deployed across the enterprise to meet the BI needs of all users, Hyperion delivers the economies of scale essential for minimizing total BI ownership costs.

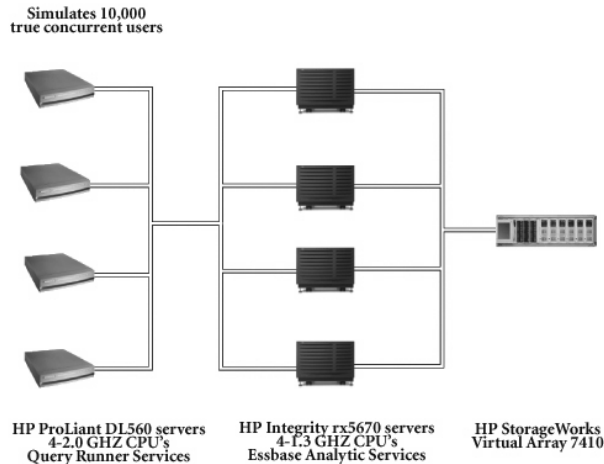
Hyperion further reduces TCO by offering exceptional scalability and performance on HP's Integrity server platform. This enables IT to deploy BI across the enterprise with fewer, less expensive servers

*ENABLING MORE USERS TO ACCESS
MORE DATA FOR MORE
PROCESSING-INTENSIVE APPLICATIONS*

The power of Hyperion's BI platform has been proven by the extraordinary APB-1 OLAP Benchmark performance of Hyperion Essbase Analytic Services (the analytic engine for Hyperion's BI platform) running on HP Integrity servers with Intel Itanium 2 CPUs. The results of this benchmark show that the Hyperion/HP/Intel combination delivers record-setting performance and unmatched value.

The OLAP Council designed the APB-1 OLAP Benchmark to provide a means of objectively comparing the overall performance of On-Line Analytical Processing (OLAP) software. The benchmark uses carefully chosen metrics that evaluate common solution requirements – including the loading of data from operational systems, the execution of complex calculations, response times for complex analytical queries, the execution of ad-hoc queries, and other tests of analytic capabilities and performance.

The result of the test shows that Hyperion running on Intel Itanium 2-based HP Integrity servers is the most scalable BI platform in the market, which enables end-users to obtain



instantaneous responses to even the most demanding analytic queries.

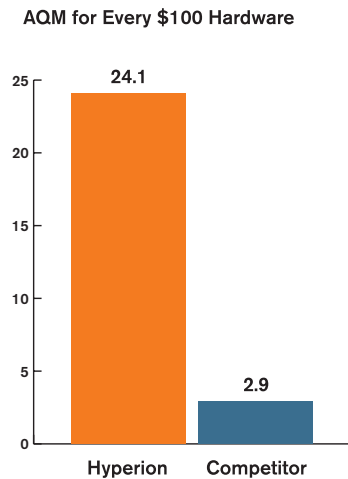
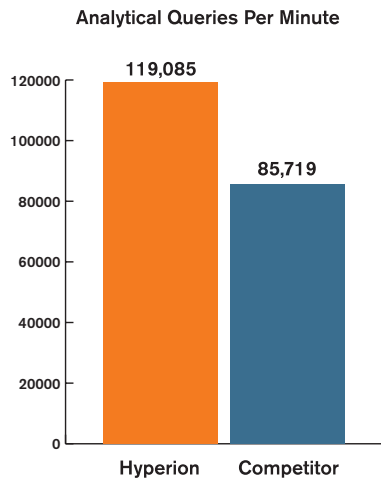
Hyperion significantly outperformed its closest competitor’s previous APB-1 OLAP benchmark in every metric – including AQM, query execution, incremental load and histori-

cal load – even though the HP Integrity platform Hyperion used was one-sixth the cost of that used by that competitor for the test.

Hyperion also enables support for all user communities – and lowers training costs – by offering a wide range of interfaces that can

BENCHMARK HIGHLIGHTS

Concurrent users	10,000
Analytical queries per minute (AQM)	119,085
Average response time	5.04 Seconds
Hardware cost	6x lower than previous APB-1 record
Price for Performance	8x greater than previous APB-1 record



address the varying skill levels of individuals within and beyond the enterprise. IT training and implementation costs are also reduced by the ability to use Java to create customized analytical functions that address highly company-and/or industry-specific needs.

ONE PLATFORM FOR THE DIVERSE RANGE OF BI SOLUTIONS ACROSS THE ENTERPRISE

The Hyperion BI platform offers more than industry-leading user scalability and benchmark performance. It also supports the full range of BI needs – allowing IT organizations to leverage a single platform across the enterprise. Its “out-of-the-box” capabilities are designed to address the complete spectrum of BI solutions, including:

Demand performance analytics

Hyperion enables flexible definition of market segments and comprehensive analysis of associated demographics. It provides sophisticated clustering algorithms that automate analysis of multiple factors that influence customer behavior (such as income, age and gender) and provides full visibility into customer affinity to specific products, services and/or messaging variables. Hyperion can also be applied to critical sales/marketing objectives such as the discovery of cross-sell/up-sell opportunities based on historical market “basket” data.

Supply performance analytics

Hyperion provides advanced Bayesian and regression algorithms for calculating production/inventory requirements for individual product lines based on historical trends and weighted inputs (such as seasonality) that impact demand. It also features time-series calculations, decision trees, database triggers

and other mechanisms that can be applied to support a full range of operational strategies – including just-in-time (JIT), make-to-stock (MTS), make-to-order (MTO) and assemble-to-order (ATO). Statistical analyses can also be applied to predict/prevent equipment failure and minimize risks associated with consolidation of current suppliers or engagements with new ones.

Financial performance analytics

Hyperion enables comprehensive modeling of business scenarios based on a variety of inputs and resource constraints. It supports Net Present Value (NPV) and other valuation methodologies to factor in the cost of capital for the comparison of operational alternatives. Database triggers and stored procedures continuously monitor transactions and automatically evaluate them against pre-defined thresholds to identify abnormal variances and alert appropriate process stakeholders. The result: improved internal controls, smarter prioritization of limited resources and maximized business performance.

SUPPORT FOR A GROWING NUMBER AND RANGE OF INFORMATION SOURCES

Hyperion supports the growing number and range of information sources that must be integrated into BI solutions by loading data from a full range of relational databases, data warehouses, spreadsheets and flat files. Certified adapters are available for bi-directional integration with enterprise applications from leading vendors such as SAP, Oracle, PeopleSoft, J.D. Edwards and Siebel. In addition to extending BI functionality, these adapters lower development and deployment costs and ensure adaptability to changes in business processes.

In short, Hyperion optimizes BI scalability and performance across all dimensions while keeping lifecycle ownership costs low. This combination of maximized benefits and minimized investment is the key to high-ROI BI deployment.

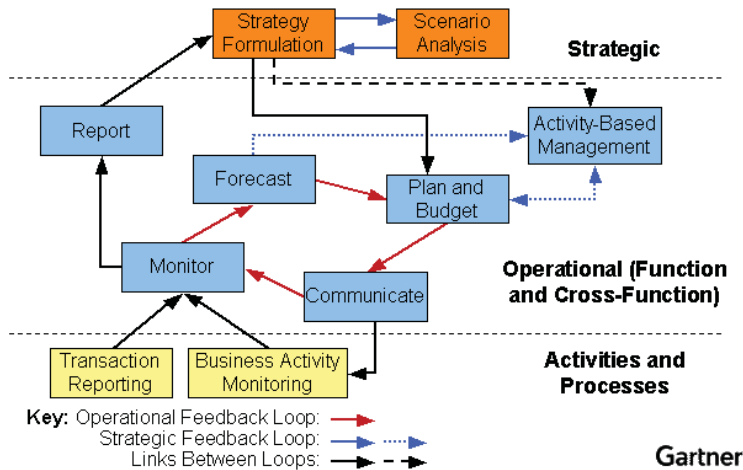
THE BENEFITS OF THE RIGHT BI PLATFORM

Businesses don't exist to cost-efficiently scale IT deployments or to provide interesting information to end-users. They exist to deliver value to the customer and return value to investors. So the cost-efficiency and scalability of a BI platform is only important if it impacts business performance.

And it does. With the ability to quickly and cost-effectively roll out highly personalized BI solutions to all employees at the tactical, operational and strategic level, companies can realize substantial business benefits. These benefits include:

GREATER PROFITABILITY

With the right information at the right time, marketing and sales teams can capitalize on more revenue opportunities. Manufacturing, supply-chain and logistics managers can find ways to reduce costs and increase efficiency. Every process across the enterprise can be more effectively refined and enhanced in order to improve bottom-line business performance. The result: greater operating margins and increased profits.



Source: Gartner Inc. Managing Corporate Performance Management: What You Need to Know. Symposium ITxpo 2003 Presentation, Frank Buytendijk, Brian Wood

*INCREASED PRODUCTIVITY
AND EMPOWERMENT*

BI gives people the information they need to make good decisions. It removes the bottlenecks that exist when they have to ask for a special report and wait for it to be delivered. It also enables them to track their own performance against their specific goals and objectives. BI therefore triggers constructive, informed and timely action throughout the enterprise.

*IMPROVED ACCOUNTABILITY
AND VISIBILITY*

BI gives managers the metrics they need to assess and respond to the performance of individuals, teams, products, programs and processes. It allows them to respond to problems by quickly “drilling down” to discover root causes of those problems. This improved visibility enhances the quality and timeliness of management decisions across the organization, further enhancing overall business performance.

*REDUCED RISK OF REGULATORY-
AND GOVERNANCE-RELATED PROBLEMS*

Early detection is the key to avoiding regulatory non-compliance. The ability to immediately detect anomalous events is also a foundational requirement of good corporate governance. By

providing effective and appropriate alerting mechanisms, BI ensures this early detection – as well as appropriate notifications up and down the command chain.

BI can also accelerate time-to-market by streamlining fact-finding and decision-making cycles. It can deliver competitive advantage by enabling superior market analyses and providing insights into the subtleties of customer behavior. And it can help improve customer satisfaction by ensuring rapid response to emerging issues and trends.

But BI solutions can only deliver these benefits if they can cost-efficiently scale to address the diverse needs of users at all organizational levels throughout the business. That is why the technical and functional scalability that Hyperion provides – and the resource-efficiency with which that scalability is achieved – is so compelling.

Every company wants to improve bottom-line performance, out-perform the competition and eliminate risk. As provider of the world’s most scalable, best performing and most cost-efficient BI solutions, Hyperion is uniquely able to help fulfill those goals.

ABOUT HP

HP is a technology solutions provider to consumers, businesses and institutions globally. The company's offerings span IT infrastructure, personal computing and access devices, global services and imaging and printing. For the last four fiscal quarters, HP revenue totaled \$74.7 billion. More information about HP (NYSE, Nasdaq: HPQ) is available at <http://www.hp.com>.

ABOUT INTEL CORPORATION

Intel, the world's largest chip maker, is also a leading manufacturer of computer, networking and communications products. Additional information about Intel is available at www.intel.com/pressroom.

ABOUT HYPERION

FOR MORE INFORMATION, VISIT HYPERION AT WWW.HYPERION.COM

Hyperion is the global leader in Business Performance Management software. More than 9,000 customers – including 91 of the FORTUNE 100 – rely on Hyperion software to translate strategies into plans, monitor execution and provide insight to improve financial and operational performance. Hyperion combines the most complete set of interoperable applications with the leading business intelligence platform to support and create Business Performance Management solutions. A network of more than 600 partners provides the company's innovative and specialized solutions and services.

Named one of the FORTUNE 100 Best Companies to Work For 2004, Hyperion employs approximately 2,600 people in 20 countries. Distributors represent Hyperion in an additional 25 countries. Headquartered in Sunnyvale, California, Hyperion – together with recently acquired Brio Software Inc. – generated combined annual revenues of \$612 million for the 12 months ending June 30, 2003. Hyperion is traded under the Nasdaq symbol HYSL. For more information, please visit www.hyperion.com, www.hyperion.com/contactus or call 800 286 8000 (U.S. only).



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