



Improving Operations with reports, plans, and metrics

How IT can help Operations win
at the margins

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Abstract

Operations is the delivery mechanism of the business: providing both what the business sells and how that product gets to market. It is an engine driving the work in purchasing, production, distribution, logistics, and inventory management. IT has a critical role to play by providing Operations with timely information in areas such as quality management, supply chain, and cost control. With IT, Operations can monitor, plan, and understand what needs to be done to ensure production is in step with customer demand.

Overview

To gain the right insight and win at the margins, Operations must overcome three important barriers. Each barrier underscores the need for information sweetspots, greater accountability, and more integrated decision-making.

- **The operational back-end can't see where it's going without the frontline's vision.** Operations depends on accurate and constantly updated information on what is required by customers. If you don't have accurate information about the demand (both volume and variety) for products in your pipeline, you stand to lose operational efficiency and profit margin.
- **Process bottlenecks and downtime delay progress.** Operations competes against time. You must identify and eliminate process timewasters. Information helps generate intelligence loops on the real cost of bottlenecks and downtime, so you understand the benefits of increased automation or specialization.
- **In a fastpaced, justintime economy, cost averages disguise cost reality.** It is no longer sufficient to use the standard costing analysis designed for long production runs. Instead, by breaking down work processes into discrete activity indicators, you can achieve realtime costing.

Business problems

IT professionals, especially those functions focused on reporting and business intelligence, can help companies address these barriers. Performance management success is more likely when IT and business are partners on identifying, delivering, and using information. With clearly identified barriers, both IT and business can work towards the solution, or particular information sweetspots.

These six information sweetspots can help Operations balance the need to reduce costs while staying agile enough to respond to customer requirements:

- **Purchasing and procurement.** Ensuring timely and cost-effective input of resources.
- **Production and capacity.** Generating timely output in the face of uncertain demand, complicated processes, and variances in input.
- **Inventory management.** Understanding the balance between holding cash and delivering on customer service requirements.
- **Distribution and logistics.** Achieving efficient distribution and delivery.
- **Cost and quality management.** Balancing the need to reduce costs with the equal requirement to deliver quality output.
- **Process efficiency.** Designing a process to monitor and analyze performance benchmarks to find opportunities for greater efficiency.

By understanding these sweetspots, IT can help deliver critical business information for Operations. The result is greater efficiency, less production downtime, and higher profit margins for the company.

Business drivers

Information sweetspots for better performance

Performance management makes a simple promise: rather than sifting through all the data an IT organization may produce, if you pay attention to certain sweetspots, you will make better decisions, create better goals, and set better plans about issues that truly drive your company. Effective performance management is a partnership between decisionmakers and the people who provide the information that drives better decisions.

For operations, the six basic sweetspots noted in the summary and explained below can make a big difference in terms of success.

Purchasing and Procurement: Timely and costeffective input of resources

Managers must balance input costs with the production outputs required to satisfy customers. In the short term, decisions must include how to respond to shortage problems, price increases, and delivery delays. Longterm decisions include determining your supplier strategy.

Production and Capacity: Generating timely output

Production and capacity management depends on order fulfillment and expected sales. You need to know product demand well in advance to be able to plan capacity and schedule production runs for products. This minimizes downtime and maximizes machine loadings.

Inventory Management: Balance holding cash and delivering customer service

Inventory management focuses on shipping appropriately bundled products to fill customer orders. Managing customer requirements, speed of order fulfillment, and holding buffer stock are key.

Distribution and Logistics: Efficient delivery

This includes managing quality, cost, and timelines of distribution and delivery. In the short term, Operations must use the most efficient routing, scheduling, and equipment. Over the long term, it should determine how to reduce mileage costs, improve delivery execution, and exceed customer service demands.

Cost and Quality Management: Reduce costs and deliver quality output

With cost and quality management, you must balance cost savings against potential rework, rejects, downtime, or customer complaints.

Process Efficiency: Analyze performance benchmarks

Managers must look at ways to improve operations and supply chain. This means looking at comparative performance metrics in three areas: internal operational processes, external developments, and competitive benchmarking.

Internal processes means issues such as whether purchasing efficiency has gone down or sales have slumped. Understanding external developments requires looking outside the company. And competitor benchmarks include metrics such as sales per employee, volume output per employee, inventory levels, and number of warehouses.

Sweetspot 1: Purchasing and Procurement

In **Purchasing and Procurement**, shortterm decisions must include how to respond to issues such as price increases and delivery delays. Longterm decisions focus on supplier strategy.

These decisions require information on specifications, procurement tenders, price quotations, and vendor performance assessments. You cannot make the necessary purchasing tradeoffs without access to these information sweetspots.

With the **Purchasing and Procurement** decision area, you can set planning goals and scorecarding metrics for these elements:

- Purchase price/unit (measured in dollars/currency)
- Reject rate (measured by percentage)
- Supplier timeliness, discount, and performance rating (measured by percentage and money)
- Actual and quoted lead days (measured by number)
- Contract quality, quantity, and remaining (measured by number)
- Purchase order units and costs (measured by percentage and money)
- Credit rating (measured by number).

Most importantly, you can analyze these goals and metrics by a number of dimensions to find the hidden gems in the data:

- Fiscal month / year
- Raw material
- Shipment type
- Vendor status

Using the Purchasing and Procurement decision area

You set targets based on your goals and metrics in **Purchasing and Procurement**. You monitor your success by looking at how you measure up against your targets. Further, you dive into the results to see what drives performance.

- Purchase price/unit (\$): Should we tie up cash in inventory to buffer against recent problems in delivery?
- Contract quality (#): How do we balance the savings and/or better quality from exclusive supplier agreements against the risk of creating unacceptable dependencies?
- Performance rating: Who are our top suppliers in terms of reliability, price, quality, and timeliness of delivery? Who are our underperformers?



Operations information sweetspots depend on data coming in from multiple sources, and enabling flexibility to work with the software.

- Users don't have to rely on IT. They have a number of "drag and drop" elements that they can pull into a report.
- Users can also change the look and feel of reports, such as resizing report elements.
- Behind the scenes, IT can present or combine data from heterogeneous sources to deliver the information Operations requires.

Sweetspot 2: Production and Capacity

Production and Capacity management focuses on order fulfillment and expected sales. Changes in demand affect input requirements. The domino effect of changes across Operations can create costly capacity management responses.

You must therefore communicate new information immediately so Operations can adjust its schedule. You must also communicate potential delays to Customer Service for resolution.

With the **Production and Capacity** decision area, you can set planning goals and scorecarding metrics for these elements:

- Backlog (measured by percentage)
- Capacity utilization (measured by percentage)
- Systems up time (measured by percentage)
- Fixed, marginal, and variable production cost (measured by percentage and money)
- Production hours and batch runs (measured by number)
- Scrap unit (measured by number)
- Setup time (measured by number)
- Units produced and reworked (measured by number).

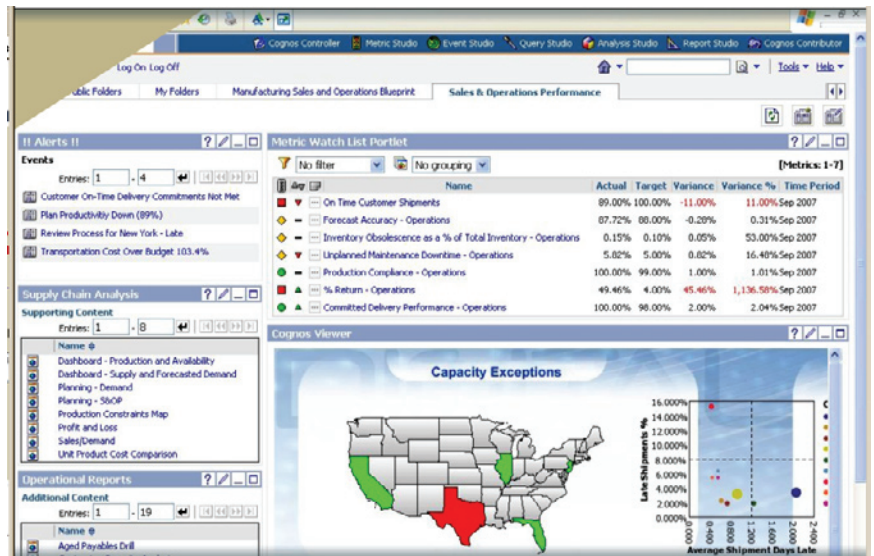
You can also analyze these goals and metrics by a number of dimensions such as:

- Fiscal month and year
- Machine type or equipment type
- Manufacturing product component
- Organization or department
- Production process.

Using the Production and Capacity decision area

You set targets based on your goals and metrics in **Production and Capacity**. You monitor your success by looking at how you measure up against targets. Further, you analyze your results to find out more detail.

- Variable production cost (\$ and %): What is the impact if we change our production schedule for this urgent customer need?
- Capacity utilization (%): Is plant product capacity sufficient to meet demand?
- Backlog (%): How can we improve product delivery without increasing costs?



Dashboards provide an ataglance view of operations across the business. In this case, managers can see any problems or downward trends that have to be addressed, such as downtime and shipping delays. They can see production alerts and related reports. They can also drill through the elements for a more detailed perspective.

Sweetspot 3: Inventory Management

Inventory Management focuses on managing customer requirements, speed of order fulfillment, and holding buffer stock.

It is a complex balancing act. Buffer inventory ties up cash compounds. But removing buffer stock can have consequences. For example, culling rarely ordered products can reduce inventory costs, but key customers may complain if they are out of stock. In this case, the decision must be aligned with other functions such as Sales and Customer Service.

With the **Inventory Management** decision area, you can set planning goals and scorecarding metrics for these elements:

- Inventory days and turns (measured by percentage, number, and money)
- Product SKU and order frequency (measured by number)
- Average FG (measured by number and money)
- FG end, in, inventory carrying cost, and out (measured by number and money)
- Time since last order (measured by number).

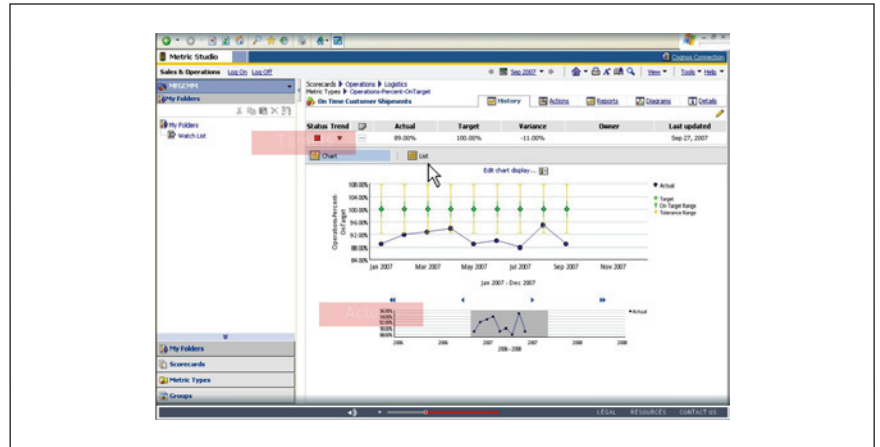
Analyze these goals and metrics by dimensions that include:

- Fiscal month / year
- Brand and product line
- Warehouse region / district.

Using the Inventory Management decision area

You set targets based on your goals and metrics in **Inventory Management**. You monitor your success by looking at how you measure up against targets. Further, you dive into your results to find these performance factors.

- Inventory (\$): Which of our products earn less than one percent of total margin? Of these, how many go to our most important customers?
- Product SKUs (#): What are contingency measures if we remove this rarely ordered product and our key customers complain?



IT can deliver metrics that tell operations managers how key indicators are performing and trending against targets. Users gain timely insight into issues that are impacting key areas such as customer service. With IBM Cognos 8 BI, they can set thresholds and monitor performance on their own. This frees up IT resources and puts information in the hands of decisionmakers.

Sweetspot 4: Distribution and Logistics

Distribution and Logistics focuses on quality, cost, and timely distribution and delivery. Many companies work with third-party carriers, distributors, or wholesalers for their expertise. While outsourcing makes sense, it does mean managing the risks that come with loss of control. This requires negotiating and monitoring distributor agreements with clear terms and commercial guidelines.

With the **Distribution and Logistics** decision area, you can set planning goals and scorecarding metrics for a number of elements:

- Damaged units (measured by percentage and money)
- Distribution cost (measured by dollars/currency)
- On-time unit delivery (measured by percentage)
- On-time unit delivery (measured by percentage)
- Price / lb / 100 miles (measured by number and money)
- Average actual and quoted lead days (measured by percentage and number)
- Delivery frequency (measured by number)
- Order size (measured by number)
- Shipments on time / total shipments (measured by number).

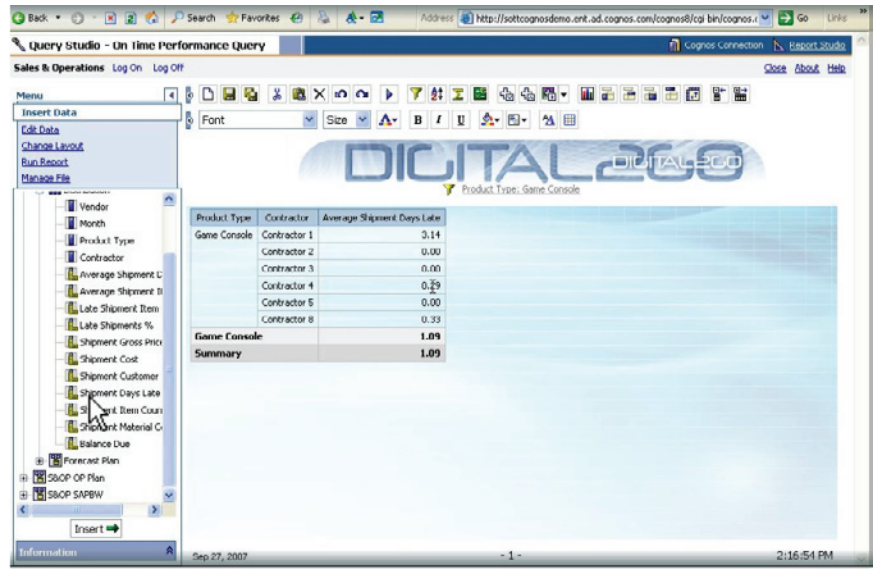
Most importantly, you can analyze these goals and metrics by a number of dimensions including:

- Fiscal month / year
- Brand and product line
- Customer
- Carrier / distributor
- Carrier activity / region
- Shipment type
- Location

Using the Distribution and Logistics decision area

You set targets based on your goals and metrics in **Distribution and Logistics**. You monitor your success by looking at how you measure up against targets. Further, you analyze results to understand performance.

- On-time unit delivery (%): What percentage of our products are delivered on time? Are we trending up or down?
- Distribution cost (\$): A nearby plant is shipping to the same destination. Can we save money by consolidating?
- Delivery frequency (#): Can we increase our delivery frequency if we leverage third-party distribution warehouses?



A key advantage is the ability to analyze data from a variety of dimensions. Using analysis, business users can look at operational information from several perspectives, without relying on IT. In this example, managers gain insight into related information that will help them make decisions to improve trends. Managers can also drill into any dimensional elements to further understand the “why” behind results.

Sweetspot 5: Cost and Quality Management

In this decision area, you need to understand cost variances and their impacts. By contrasting cost differences, you can benchmark performance, identify patterns, and understand the root causes of cost differences.

You also need to understand and analyze the value and cost of preventative measures that ensure quality such as training, appraising incoming materials, manufacturing processes, and inspections.

With the **Cost and Quality Management** decision area, you can set planning goals and scorecarding metrics for elements such as:

- Failure cost (measured by dollars/currency)
- QC reject rate (measured by percentage)
- Defects (measured by number)
- QC cost, defects fixed, and units sampled (measured by number and money)
- Scrap cost (measured by number and money).

You can analyze these goals and metrics by a number of dimensions to find critical information in the data:

- Fiscal month / year
- Brand and product line
- Manufacturing product component
- QC defect issues / tolerance.

Using the Cost and Quality Management decision area

You set targets based on your goals and metrics in **Cost and Quality Management**. You monitor your success by looking at how you measure up against targets. Further, you dive into your results to find out more about performance.

- Failure cost (\$): Which processes contribute the most to overbudget variances?
- QC reject rate (%): Our biggest customer consistently returns 10 percent of total deliveries. Is this costeffective?
- QC cost (\$): What quality tests are required for this customer product order?

		Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	2007 Total	Q1-08
Software	Master Planner Adjustment	0	0	0	0	0	0	0	0	0	0	13
	Total Adjusted Demand	4,657	4,756	5,449	36,961	4,954	5,549	3,369	6,540	6,143	94,115	3
	Actual Qty Ordered	0	0	0	0	0	0	0	0	0	11,112	
Game Console	Forecast Demand	5,141	6,193	7,011	7,947	8,999	6,076	5,142	7,013	8,998	78,783	
	Master Planner Adjustment	1	2	5	0	6	5	2	0	0	0	0
	Total Adjusted Demand	5,141	6,193	7,011	7,947	8,999	6,076	5,142	7,013	8,998	78,783	2
DVD Video	Actual Qty Ordered	0	0	0	0	0	0	0	0	0	10,612	
	Forecast Demand	5,161	6,213	7,031	7,967	7,141	4,822	4,081	5,565	7,140	71,406	
	Master Planner Adjustment	0	0	0	0	0	0	0	0	0	0	13
CD Audio	Total Adjusted Demand	5,161	6,213	7,031	7,967	7,141	4,822	4,081	5,565	7,140	71,418	2
	Actual Qty Ordered	0	0	0	0	0	0	0	0	0	18,381	
	Forecast Demand	6,583	6,684	8,648	6,664	7,656	8,506	8,791	9,501	7,939	94,102	
Entertainment Accessories	Master Planner Adjustment	0	0	0	0	0	0	0	0	0	0	13
	Total Adjusted Demand	15,575	12,896	11,891	9,715	11,892	12,561	8,710	6,533	6,532	137,870	
	Actual Qty Ordered	0	0	0	0	0	0	0	0	0	54,994	
CONSUMER ELECTRONICS	Forecast Demand	27,231	25,933	28,050	52,095	28,476	27,788	22,110	25,233	25,169	344,129	10
	Master Planner Adjustment	0	0	0	0	0	0	0	0	0	0	63
	Total Adjusted Demand	27,231	25,933	28,050	52,095	28,476	27,788	22,110	25,233	25,169	344,191	10
PDA	Actual Qty Ordered	0	0	0	0	0	0	0	0	0	9,408	
	Forecast Demand	4,370	5,264	5,959	6,755	7,649	5,165	4,371	5,961	7,648	66,966	
	Master Planner Adjustment	0	0	0	0	0	0	0	0	0	0	16
Computer Accessories	Total Adjusted Demand	4,370	5,264	5,959	6,755	7,649	5,165	4,371	5,961	7,648	66,981	2
	Actual Qty Ordered	0	0	0	0	0	0	0	0	0	22,920	
	Forecast Demand	13,239	10,962	10,107	8,258	10,108	10,677	7,403	5,552	5,552	117,190	
MPS	Master Planner Adjustment	0	0	0	0	0	0	0	0	0	0	16
	Total Adjusted Demand	13,239	10,962	10,107	8,258	10,108	10,677	7,403	5,552	5,552	117,205	3
	Actual Qty Ordered	0	0	0	0	0	0	0	0	0	9,583	
MPS	Forecast Demand	3,958	4,043	4,632	31,417	4,211	4,716	2,864	5,644	5,221	79,987	

Operations also has to manage budgets and costs. IBM Cognos 8 Planning allows managers to communicate information such as budget adjustments across departments. And with forecasting capability, managers can adjust plans and targets and change production based on demand trends that have been identified.

Sweetspot 6: Process Efficiency

Process Efficiency management looks at ways to improve operations and supply chain. With this decision area, you can set planning goals and scorecarding metrics for these elements:

- Operational failures (measured by number)
- Process, downtime, and maintenance cost (measured by dollars/currency)
- Process valueadd (measured by dollars/currency)
- Process steps (measured by number)
- Average units / production run (measured by number)
- Production / batch runs (measured by number)
- Scheduled production hours (measured by number)
- Setup cost (measured by dollars/currency).

You can also analyze these goals and metrics by a number of dimensions:

- Fiscal month / year
- Brand and product line
- Manufacturing product component
- Production process.

Using the Process Efficiency decision area

You set targets based on your goals and metrics in **Process Efficiency**.

You monitor your success by looking at how you measure up against targets.

Further, you dive into your results to find the factors behind performance.

- Average units / production run (#): Are there new manufacturing techniques, equipment, or technologies that could introduce dramatic efficiencies?
- Process cost (\$): If “dollars of sales per order” is decreasing, does this indicate that the business is filling more orders for the same dollar total in sales?
- Setup cost (\$): Should we shift to low labor cost economies for cheaper manufacturing?

The solution

Performance management software and solutions

Good decisions are the building blocks of great business performance. The IBM Cognos® performance management system integrates software, services, best practices, and partners. The result – a common understanding and accountable actions based on answers to your performance management questions:

- **How are we doing?** Measuring and monitoring performance with scorecards and dashboards tracks your key metrics.
- **Why?** Reporting and analysis let you see data, gain context, understand trends, and spot anomalies.
- **What should we be doing?** Planning, budgets, and forecasts let you set and share a reliable view of the future.

IBM Cognos performance management software

IBM offers:

- **IBM Cognos 8 Business Intelligence:** the complete range of BI capabilities on a single, service-oriented architecture (SOA). Author, share, and use reports that draw on data across all enterprise sources for better business decisions.
- **IBM Cognos 8 Planning:** a finance-managed solution that provides realtime visibility into resource requirements and future business results.
- **IBM Cognos 8 Controller:** providing Finance organizations with unmatched capabilities for managing the close, consolidation, and reporting process.
- **IBM Cognos Now!:** a family of operational business intelligence and performance management solutions available as appliances or hosted software-as-a-service (SaaS) models.
- **IBM Cognos TMI:** providing a realtime approach to consolidating, viewing, and editing enormous volumes of multidimensional data.

IBM rounds out these major software offerings with:

- **IBM Cognos 8 Go!:** Software extending the value of IBM Cognos products by helping users view and consume content using familiar applications or on mobile devices, search engines, Microsoft® Office applications, or a Web browser.
- **IBM Cognos Professional Services, Education, & Support:** Get your users up and running more quickly and increase the return on your software investment by taking advantage of IBM Cognos Professional Services, Education and Support.
- **IBM Cognos Innovation Center for Performance Management:** IBM Cognos customers and partners join fellow technology experts, finance professionals and industry thought leaders on proven techniques, technologies and best practices in performance management.

Delivering performance management to Operations - An example

The following is an example of using integrated performance management software and understanding Operations information sweetspots and business needs.

IT creates a dashboard showing company operations and detailing the five sweetspots. Managers gain a snapshot of critical trends such as customer needs, capacity issues, inventory turns, and supplier performance.

With a performance scorecard or dashboard that connects to the underlying data, they can step through the chain of metrics to determine the why behind results. So they understand what is happening in more detail. If the answer is not readily accessible through drilldown, IT has given them the ability to structure an adhoc query to answer a deeper question.

Analysis provides the historical or dimensional detail to fill in the picture. By drilling into the numbers, users have the information they need to make operational decisions and take corrective action. For example, management may want to investigate contractor availability or outsourcing options to meet anticipated quotas or address shipping delays.

A BI professional user delivers selfservice reports to users. They can create prompted reports to relieve the backlog of multiple report requests for frontline IT. They can “author once/publish anywhere” to meet the needs of multiple users for a dashboard or for basic reports such as a production scheduling report.

IT further provides data in realtime through proactive event notification, so users across the organization or value chain can be kept informed of critical events – such as material part shortages, quantities rejected, or customer shipments at risk.

Operations can also draw vital information from Sales pipeline reports. Based on this information, management can forecast the impact of changes and adjust production plans based on anticipated sales volumes. This will ensure they have the capacity to deal with demand, while at the same time ensuring inventory levels are kept high enough, but not carry more than necessary.

Conclusion

This consistent view across the organization, with a common platform for performance management, can be easily administered by IT with system administration capabilities to ensure no downtime. Not only is data defined consistently, but more importantly, business use is defined before reports, metrics, or plans are created. This increases user uptake, and that, in the end, is often how companies measure IT success.



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