UPSTREAM OIL AND GAS BLUEPRINT

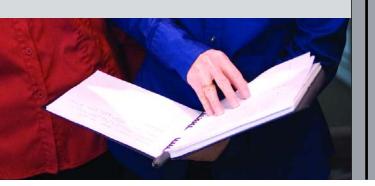


COGNOS PERFORMANCE
BLUEPRINT
IMPLEMENTATION
GUIDE

A WEB-BASED PERFORMANCE MANAGEMENT APPLICATION

EXECUTIVE SUMMARY

This Application Brief demonstrates a best practices performance management framework for managing upstream oil and gas projections using Cognos 8 Planning and Cognos 8 BI. Implementing this *Blueprint* will enable forward-looking visibility into production, revenue, expenses, and capital expenditures at the well, field, or area level. The *Cognos Upstream Oil and Gas Blueprint* is designed to reconcile with company-wide strategic plans, so that all parts of the organization are planning from a single set of financial goals and business objectives.



OVERVIEW

The oil and gas industry is often divided into three major sectors: upstream, midstream, and downstream. This particular *Blueprint* addresses performance management in the upstream sector, which includes searching for potential oil and gas fields, drilling exploratory wells, and operating the wells that recover and bring the crude oil or raw natural gas to the surface.

The upstream oil and gas sector is characterized by rapidly increasing demand, increased reliance on unconventional sources, rig shortages, and resource nationalization. The emergence of the "digital oilfield" has driven a need for integration. Systems of record that collect large amounts of data are often geographically dispersed and may classify the same items differently, adding additional complexity to reporting and analyzing results.

Operations across various regions and countries with different reporting standards have also made consolidation difficult. A volatile pricing environment and difficulty in predicting future political and legislative environments require that companies be able to forecast the impact of any unforeseen changes quickly. Business analysts need to be able to analyze the impact of various scenarios on their financial results to ensure that the appropriate reaction to this new information is taken quickly and effectively, and makes the best use of the resources available.

The Cognos Upstream Oil and Gas Planning Blueprint addresses the many challenges that affect the planning process, and assists in the planning, managing, and evaluation of operating plans by:

- · Retrieving key data from various source systems into a single view of the entire organization
- Incorporating commodity-pricing driver assumptions that feed into the plan for consistency across
 the business
- Enabling scenario planning that produces scenarios based on different operating assumptions
- Standardizing data across all regions and operations for ease of consolidation and reporting.

BLUEPRINT BENEFITS

The Cognos Upstream Oil and Gas Blueprint provides a performance management framework—including planning, metrics, and reporting—that allows the upstream oil and gas sector to plan production, revenue, expenses, and capital expenditures at the well, field, or area level. The Blueprint is designed to reconcile company-wide strategic plans, so that all parts of the organization are planning with a single set of financial goals and business objectives.

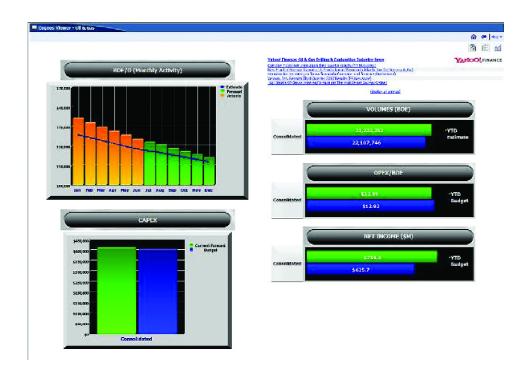
The *Blueprint* provides the flexibility for meeting the various challenges in the upstream oil and gas sector. Customers benefit from proven practices in model design that greatly reduce investment in implementation time and resources. Using the predefined data model, customers can focus on applying the technology to solve business problems, rather than dealing with fundamental process analysis and technical design.

The capabilities of the *Blueprint* allow you to:

- Access various systems of record to obtain both projected and historical volumes, as well as financial data needed as a starting point for the budget or forecast process
- Identify operating expense and production variances, trends, anomalies, and opportunities, and model the effect of drivers against various scenarios
- Structure data and reporting to comply with Sarbanes-Oxley and other regulatory compliance initiatives
- Integrate operational and financial planning in real time for immediate insight into resource requirements and future consolidated business results for various scenarios
- Understand the impact of increased or decreased production volumes on cash flow, distributions, and financial statements
- Incorporate exchange rate assumptions to roll up to a consolidated forecast in the company's local currency
- Conduct what-if modeling that allows managers to analyze the impact of changes in operating costs, exchange rates, commodity prices, and the effects of other scenarios
- Engage in break-back distribution of production, revenue, and expense targets across fields and areas
- Compare incremental increases in production volumes related to capital expenditures
- Forecast field expenses at gross and net levels
- Manage royalties and provide insight into the impact of royalty rates on profitability
- Integrate workflow to manage and consolidate plans with a visual scorecard, so that the status of the planning process can be easily determined and actions can be taken to complete the planning process
- Streamline reconciliation with company-wide strategic financial plans, managing consistency between top-down and bottom-up plans
- Summarize calculated metrics and link them to scorecards and reports to measure financial performance at any level of the organizational hierarchy of plans compared to actual or budget values.

THE BLUEPRINT IN ACTION

The Cognos Upstream Oil and Gas Blueprint provides information in a customized set of reports. The screenshot shows a dashboard with the charts relevant to a decision-maker. From this dashboard, the manager can access the full range of relevant reports, analyses, and plans. All the charts provide the capability of drilling through to more detailed analyses, and include up-to-date information from source systems. Dashboards are customized to the different roles and responsibilities found within an oil and gas company, and show the relevant information for each stakeholder.



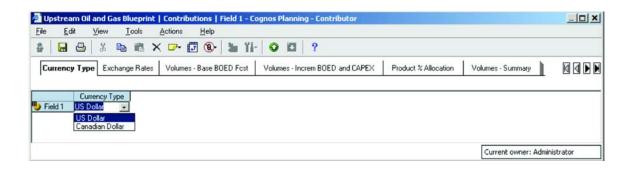
With a dashboard like the one above an executive can see that operating expenses are trending higher than planned. The executive would then have the capability to drill-down to the level of detail desired in order to identify the source of the problem and create a subsequent action plan. A reservoir engineer could update their assumptions and the executive would immediately be able to see the impact on the overall forecast. Additionally, the executive could identify the impact of different scenarios on the entire company. What happens if net operating expenses increase by 10 percent, for example? What if net prices increase an additional 10 percent? Will we be able to accelerate our drilling schedule? Should we alter our hedging strategy? Using a financial summary dashboard, the executive can immediately see the impact of these and other changes on performance.

Planning Model

The Cognos Upstream Oil and Gas Blueprint is made up of volume, expense, and revenue forecasting components which feed into a Cash Flow tab, which compiles profit and loss and cash flow data.

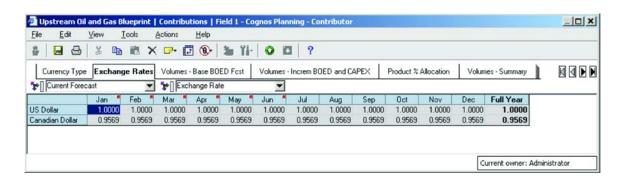
Currency Type

Currency Type is the first tab in the model. This tab allows the user to choose a local currency from a drop down list for their field.



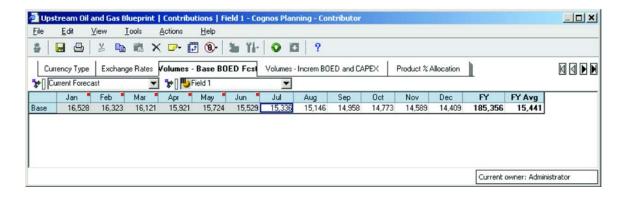
Exchange Rates

Exchange rates are shown for informational purposes. These would be pre-populated by the administrator and would be locked from editing by the users.



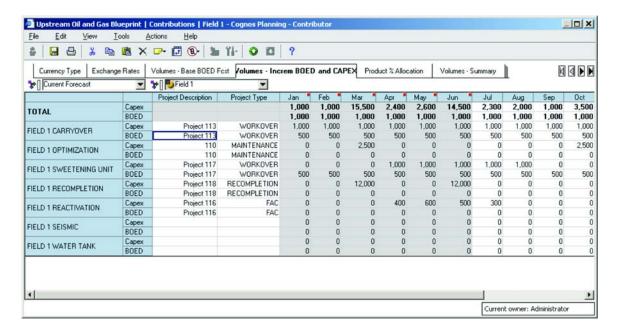
Volumes - Base BOED Fcst

The Volumes – Base BOED Fcst tab holds Actual base volume data for Actual months and would be populated by the user for forecast months. Base BOED is volume-related to the current infrastructure.



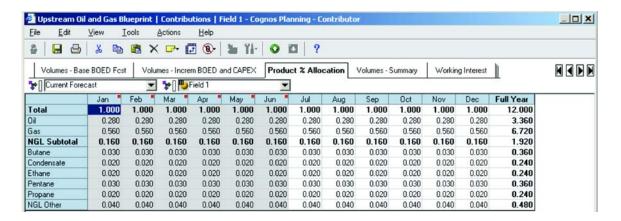
Volumes - Increm BOED and CAPEX

The Increm BOED and CAPEX tab is used to capture capital expenditures and expected incremental volume related to capital projects. Actuals would be pre-populated and forecast months need to be populated by the field users. A project description can be entered and a project type can be selected from a drop down list of project types.



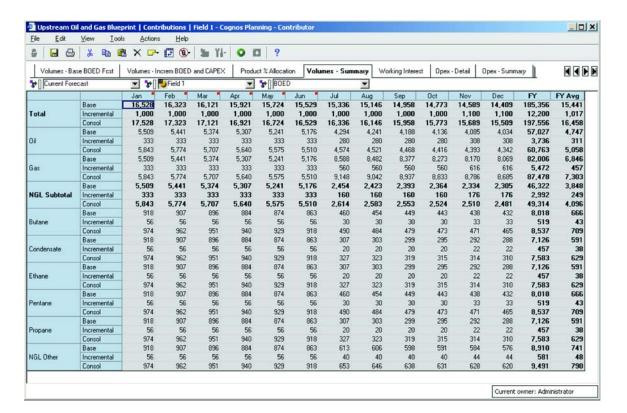
Product % Allocation

Since the Base and Incremental Volumes are forecast in total, the Product % Allocation tab is used to allocate those volumes across the various product types. For forecast months, the volume breakout proportions are entered here and the volumes are then allocated according to breakout in the Volumes – Summary tab.



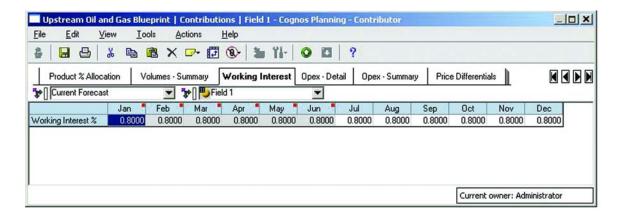
Volumes – Summary

This tab shows the breakout of Base and Incremental volumes across product types. The data can be viewed by BOED, Imperial Volumes or BOE.



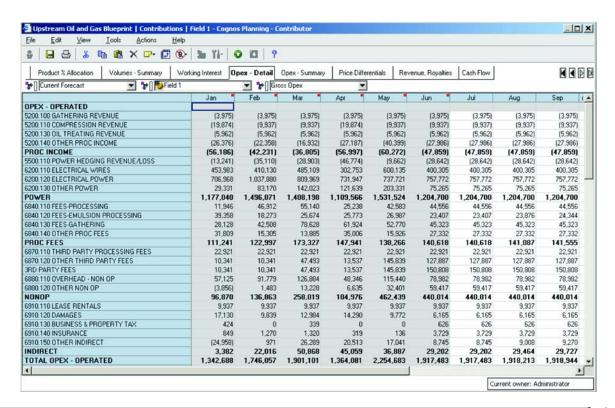
Working Interest

The Working Interest % is entered on the Working Interest tab. In this *Blueprint* Model, we assumed that net volumes are entered in the volume tabs, but that gross OPEX is entered in the OPEX tabs. In order to calculate the OPEX associated with our example company, we need to multiply the gross OPEX by the working interest % that the company has in each field.

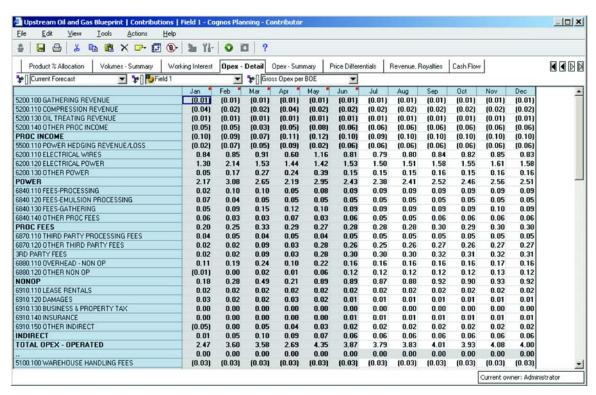


OPEX - Detail

The OPEX – Detail tab is used to collect forecast OPEX data at the account level by month. The data can either be entered at the Gross OPEX level or as Gross OPEX per BOE.

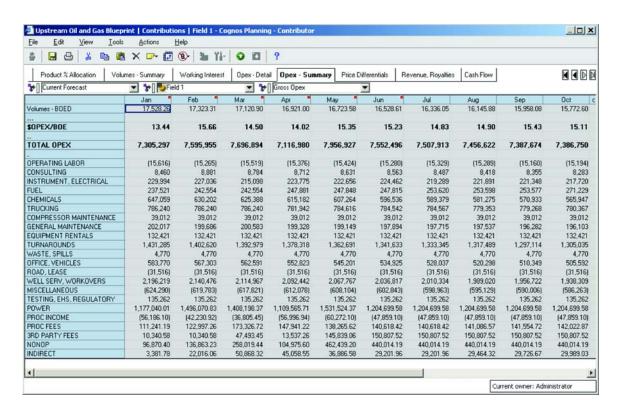


Gross Opex BOE Gross Opex per BOE Avg WI% Net Opex



OPEX - Summary

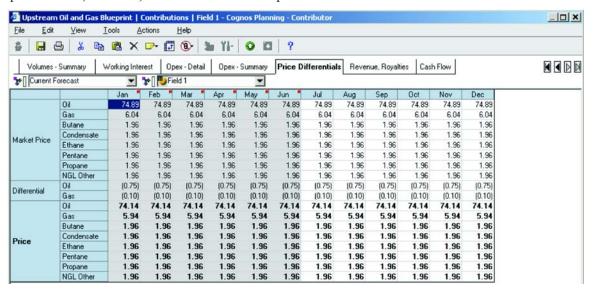
The OPEX – Summary tab takes the information entered in the Opex Detail tab and rolls it up to summary account subtotals. Data can still be viewed by Gross OPEX, Gross OPEX per BOE, and Net OPEX.





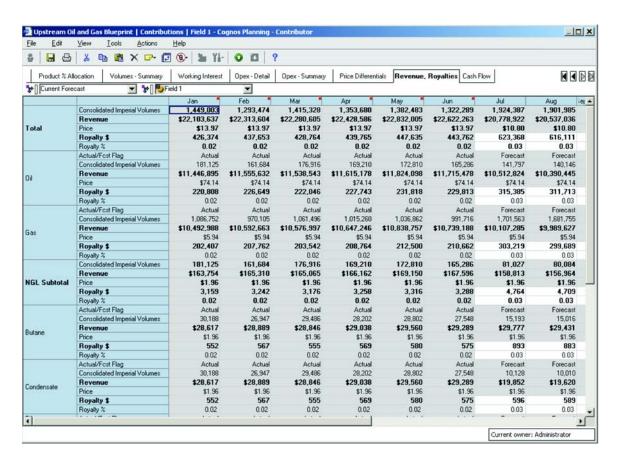
Price Differentials

The Price Differentials tab allows the user to enter any variations from market prices that are expected for their field for oil and gas products. We assume that no differentials are needed for the other natural gas liquid products and, therefore, hide these rows from input.



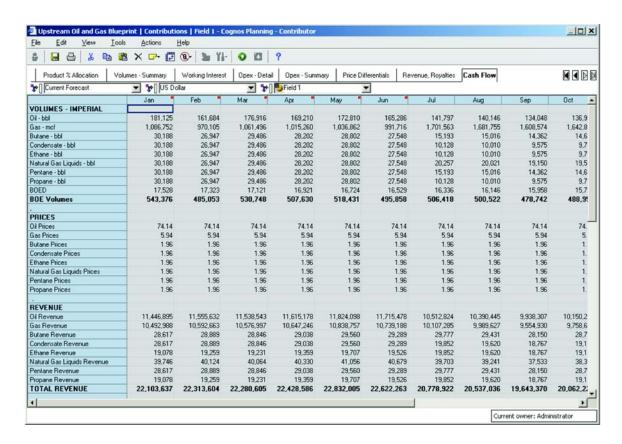
Revenue, Royalties

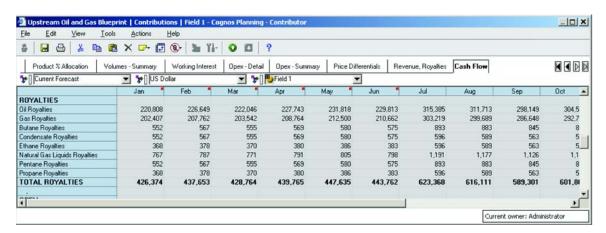
In the Revenue, Royalties tab, revenue is calculated based on the volumes and prices that were previously entered in other tabs. Royalty revenue can be calculated by entering either total revenue dollars or a Royalty % which is then multiplied by Revenue to calculate Royalty amounts.

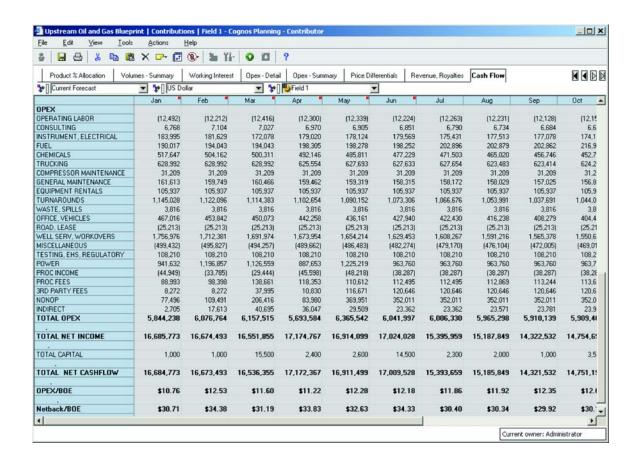


Cash Flow

The Cash Flow tab summarizes all information that was entered in the model into a profit and loss statement and cash flow calculation. This data can be viewed in local currency or US dollars.

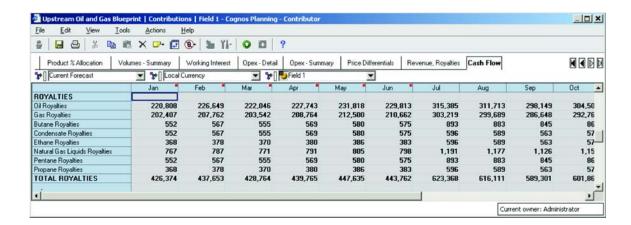


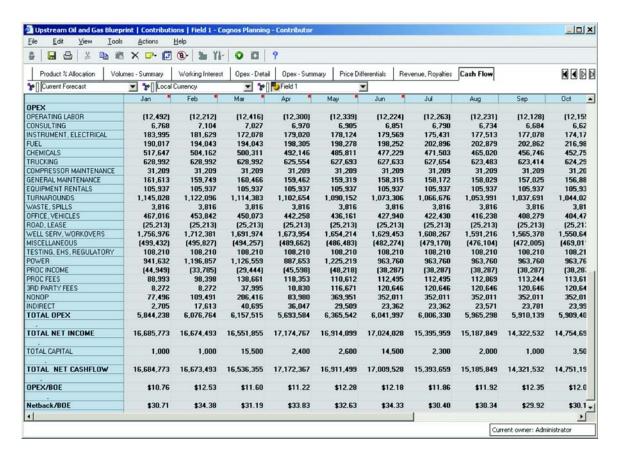




US Dollar Exchange Rate Local Currency

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Product % Allocation Vo	lumes - Summary	es - Summary Working Interest		Opex - Detail Opex - Summ		nary Price Differentials Re		Cash Flow		
Current Forecast	▼ 🎾 Local	Currency	▼ 🔭	Field 1	•					
	Jan	Feb	Mar *	Apr	May	Jun	" Jul	Aug	Sep	Oct _
VOLUMES - IMPERIAL	101.105	404 004	470.040	400.040	470.040	405.00		440440		400.00
0il - bbl	181,125	161,684	176,916	169,210	172,810	165,28		140,146	134,048	136,90
Gas - mcf	1,086,752	970,105	1,061,496	1,015,260	1,036,862	991,71		1,681,755	1,608,574	1,642,87
Butane - bbl	30,188	26,947	29,486	28,202	28,802	27,54		15,016	14,362	14,66
Condensate - bbl	30,188	26,947	29,486	28,202	28,802	27,54		10,010	9,575	9,77
Ethane - bbl	30,188	26,947	29,486	28,202	28,802	27,54		10,010	9,575	9,77
Natural Gas Liquids - bbl	30,188	26,947	29,486	28,202	28,802	27,54		20,021	19,150	19,55
Pentane - bbl	30,188	26,947	29,486	28,202	28,802	27,54		15,016	14,362	14,66
Propane - bbl	30,188	26,947	29,486	28,202	28,802	27,54		10,010	9,575	9,77
BOED	17,528	17,323	17,121	16,921	16,724	16,52		16,146	15,958	15,77
BOE Volumes	543,376	485,053	530,748	507,630	518,431	495,85	8 506,418	500,522	478,742	488,95
PRICES										
Oil Prices	74.14	74.14	74.14	74.14	74.14	74.1	4 74.14	74.14	74.14	74.1
Gas Prices	5.94	5.94	5.94	5.94	5.94	5.9	4 5.94	5.94	5.94	5.9
Butane Prices	1.96	1.96	1.96	1.96	1.96	1.9	6 1.96	1.96	1.96	1.9
Condensate Prices	1.96	1.96	1.96	1.96	1.96	1.9	6 1.96	1.96	1.96	1.9
Ethane Prices	1.96	1.96	1.96	1.96	1.96	1.9	6 1.96	1.96	1.96	1.9
Natural Gas Liquids Prices	1.96	1.96	1.96	1.96	1.96	1.9	6 1.96	1.96	1.96	1.9
Pentane Prices	1.96	1.96	1.96	1.96	1.96	1.9	6 1.96	1.96	1.96	1.9
Propane Prices	1.96	1.96	1.96	1.96	1.96	1.9	6 1.96	1.96	1.96	1.9
REVENUE										
Oil Revenue	11,446,895	11,555,632	11,538,543	11,615,178	11.824.098	11,715,47	8 10.512.824	10,390,445	9,938,307	10,150,22
Gas Revenue	10,492,988	10.592.663	10,576,997	10.647.246	10.838,757	10,739,18		9,989,627	9,554,930	9,758,66
Butane Revenue	28,617	28,889	28,846	29.038	29,560	29,28		29,431	28,150	28,75
Condensate Revenue	28,617	28,889	28,846	29,038	29,560	29,28		19,620	18,767	19,16
Ethane Revenue	19.078	19,259	19,231	19.359	19,707	19.52		19.620	18,767	19.16
Natural Gas Liquids Revenue	39,746	40,124	40,064	40,330	41,056	40,67		39,241	37,533	38,33
Pentane Revenue	28,617	28,889	28,846	29,038	29,560	29,28		29,431	28,150	28,75
Propane Revenue	19,078	19,259	19,231	19,359	19,707	19,52		19,620	18,767	19.16
TOTAL REVENUE	22,103,637	22,313,604	22,280,605	22,428,586	22.832.005	22,622,26		20,537,036	19,643,370	20,062,22
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A final word

The Cognos Upstream Oil and Gas Blueprint maximizes insight into production, capital expenditures, and financial performance, and allows decision-makers to build and continually fine-tune plans that achieve business goals. The standardized planning format that incorporates local currency maximizes the ease of planning for the both those responsible for submitting their plans and the managers assigned to review these plans. The result is more accurate planning, reduced data collection times, and automated consolidation into a total company view that leads to better decision-making.

Summary

With Cognos, oil and gas enterprises get an integrated, best-practices solution for performance management. As a result, many of the leading players in oil and gas have chosen Cognos, including five of the top seven global oil and gas companies worldwide.

To learn more about the Cognos Upstream Oil and Gas Blueprint or other blueprints, please visit http://www.cognos.com/innovationcenter.

ABOUT THE COGNOS INNOVATION CENTER FOR PERFORMANCE MANAGEMENT

The Cognos Innovation Center was established in North America and Europe to advance the understanding of proven planning and performance management techniques, technologies, and practices. The Innovation Center is dedicated to transforming routine performance management practices into "next practices" that help cut costs, streamline processes, boost productivity, enable rapid response to opportunity, and increase management visibility.

Staffed globally by experts in planning, technology, and performance and strategy management, the Innovation Center partners with more than 600 Cognos customers, academics, industry leaders, and others seeking to accelerate adoption, reduce risk, and maximize the impact of technology-enabled performance management practices.

ABOUT COGNOS

Cognos is the world leader in reporting, enterprise planning, and performance management software. Founded in 1969, Cognos today serves more than 23,000 customers in over 135 countries. Cognos enterprise business intelligence solutions and services are also available from more than 3,000 worldwide partners and resellers.

