



Enterprise Optimizer

The New Model for Decision-Making™



Increasing Your Profitability through Integrated Business Planning

- Data Warehousing
- Business Intelligence
- Analytics (What-if, Optimization, Simulation)
- Dashboards and Scorecards



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Purpose

Understand how Integrated Business Planning (IBP) can help ZSL, Inc. in:

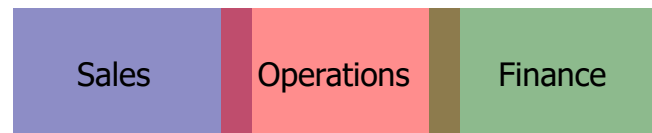
- Selling new solutions and services to existing clients
- Attracting new clients
- Improving client retention
- Leverage existing solutions
 - Data Warehousing
 - Business Intelligence
 - Modeling and Analytics
 - Dashboards and Scorecards
 - SharePoint





IBP INTEGRATED BUSINESS PLANNING

The technologies, applications and processes that connect planning functions across the enterprise to improve organizational alignment and financial performance.





The market for Business Intelligence is evolving towards Integrated Business Planning (IBP), a category that will drive all enterprise productivity applications

- IBP adds significant value through cross-functional planning that links strategy with execution
- IBP has recently gained significant mind-share with Industry Analysts, BI providers and customers



Today, River Logic has the only modeling technology that can deliver IBP

- Conventional modeling technology addresses only isolated problems, while OLAP is better suited for data modeling tasks
- IBP requires holistic, highly-flexible, driver-based, constraint-oriented modeling to address enterprise planning requirements
- River Logic's EO technology is a programming language-based solution that meets all the requirements of IBP



Industry Analysts Value IBP

Gartner

Hype Cycle for Business Intelligence and
Performance Management

Integrated Business Planning (IBP) will enable companies to model and align business strategies to operational strategies, **ensuring significantly improved supply chain and business performance.**

Tim Payne, Research Director

Aberdeen Group
A Harle-Hanks Company

Technology Strategies for
Integrated Business Planning

Integrated Business Planning is a truly cross-functional, multi-dimensional process that **includes all elements of demand, supply and financial analysis** in relation to the business goals and strategy... leading to significantly higher financial and operational performance

Nari Viswanathan, Research Director

AMR Research

S&OP Technology Landscape: Evolution to
IBP is a Work in Process

Integrated Business Planning... is the process of **constantly realigning short and long-term decisions** between the sales, marketing, operations functions as well as synchronizing with the strategic financial plans to create consensus plans

Noha Tohamy, Research Director

ARC
Advisory Group

During a recent briefing by River Logic, I saw the coolest product demo I've seen in years. This company has developed a product designed for Integrated Business Planning. Very cool. Very eye opening. Very thought provoking. **I think this is a game changer.**

Steve Banker, Research Director



Microsoft

"The key to the future of BI is a new concept of a decision support model.

In the future, a **model** will be a **dynamic set of mathematical equations linking all enterprise constraints in a single representation."**



IBP is a Competitive Advantage

- Provides an integrated planning platform across business departments
- Generates a holistic understanding of performance drivers
- Quantifies the financial impact of planning alternatives
- Identifies the best strategies
- Optimizes resource allocation and budgeting
- Links planning with execution
- Increases business flexibility





River Logic Pioneered the IBP Category

Rapid Solutions Development Platform

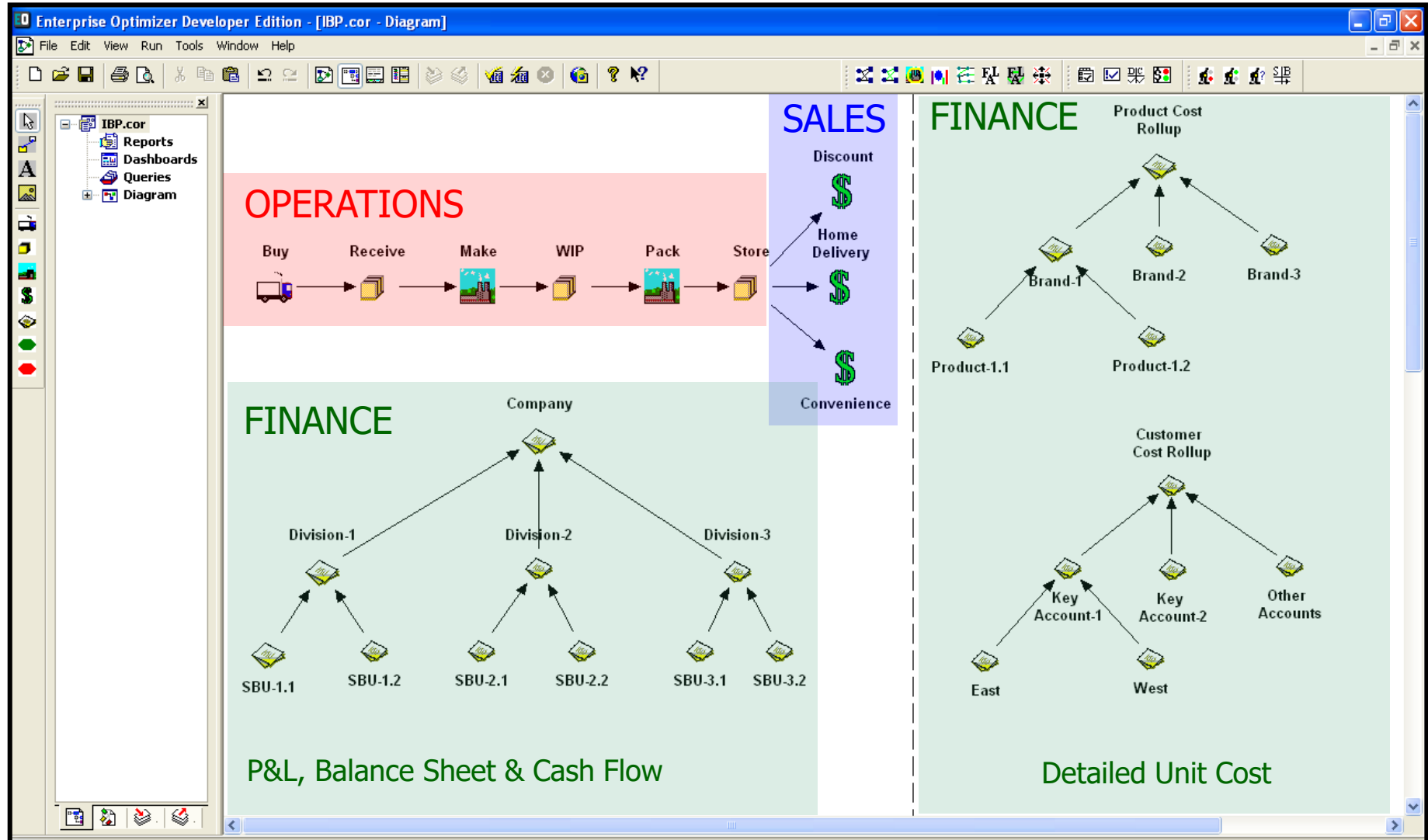


Holistic, enterprise-level planning and advance business modeling providing **constraint-oriented process modeling, activity-based modeling,** and **comprehensive financial modeling** in a single platform.



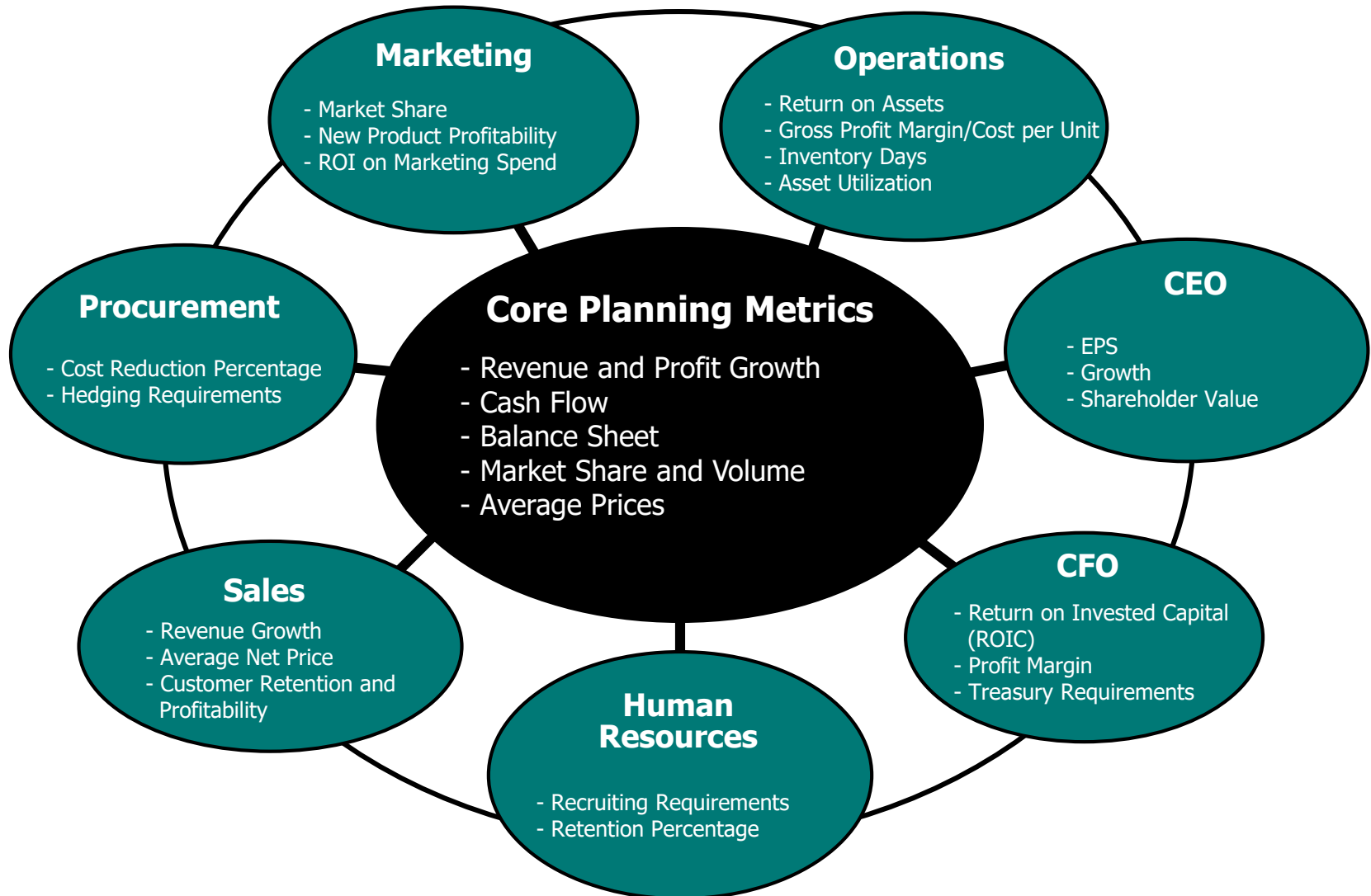


EO Workstation Drives Modeling Differentiation





EO Supports Multi-Variable Planning





Key IBP Pillar #1: Rapid Model Development Platform



Enterprise Optimizer

Holistic Representation of the Business

- Detailed Process Flow Mapping
- Financial Modeling & Consolidation
- Business Constraint Modeling



Key IBP Pillar #2: Holistic Scenario Impact Analysis



EO Enterprise Optimizer

Improved Alignment & Financial Performance

- Optimization-based Scenario Analysis
- Forward-looking Unit Cost Analysis
- Marginal Economic Opportunity Analysis



Current Practice

Capex

Static analysis

Focus on each individual project

Primary focus on IRR/ROI

Input or output into Network Design

Network Optimization

Focus on cost minimization

P&L viewed in isolation

Capex requirement totaled after the solve

Asset Strategy

Static analysis on individual projects

Primary focus on minimizing tax liability and balance sheet (e.g., lease and sale back)

IBP Best Practice enabled by EO

Capex

Dynamic analysis based on demand profile

Analyze portfolio of projects

Multiple objective functions (Net Income, NPV, ROI)

Embedded simultaneously into Network Design

Network Optimization

Choice: cost minimization, net income maximization, cash flow, tax, etc.

Balanced focus on P&L, B/S and C/F

Capex included simultaneously in the solve (as objective function and/or constraint)

Asset Strategy

Dynamic portfolio analysis in the context of Network Optimization and Capex possibilities

Balanced focus on P&L, B/S and C/F



IBP Profitability Module (Products, Customers)

Current Practice

1. Static, historical cost basis - “what was?”
2. Focus only on finance
3. Cost calculation isolated from optimization (supply planning, network design, trade promotion)
4. Requires re-calculation post S&OP plan, and integration with S&OP tools
5. Linear modeling only
6. Marginal profitability based on spreading out fixed costs further

IBP Best Practice enabled by EO

1. Dynamic, forward-looking costs for various scenarios to answer “what will be?” and “what is best?”
2. Focus on sales, operations and finance
3. Cost calculation used in optimization (supply planning, network design, trade promotion)
4. Automatic, forward-looking product profitability as an output of S&OP plan
5. Linear and non-linear modeling (e.g., elasticity curves, efficiency curves)
6. Marginal profitability considers non-linear modeling, constraints and opportunity costs



IBP delivers unprecedented value—Sample River Logic clients

\$4.5bn Paper Company

IBP Planning Processes

- Capital Expenditure planning
- Network design, open/close
- Product profitability & marketing campaign

Key Benefits

- Hundreds of \$ millions in profit and cash flow improvements
- Higher product profitability
- Tremendous new insights across the organization

\$1+bn Consumer Goods Company

- Product portfolio planning
- Distribution model
- Supply policy (production, inventory, logistics)
- Production scheduling & sequencing

- New insights on key profit drivers at the enterprise level and
- Significantly higher profitability
- ROI in excess of 1,000%

\$1bn Non- profit Hospital

- Orthopedic physician recruiting
- Physician compensation and management
- Revenue, cost and contribution margin planning and target-setting

- Quantified impact of different types of doctors on hospital financials
- Optimized physician recruiting and compensation strategy
- Alignment of targets and managerial practices with financials



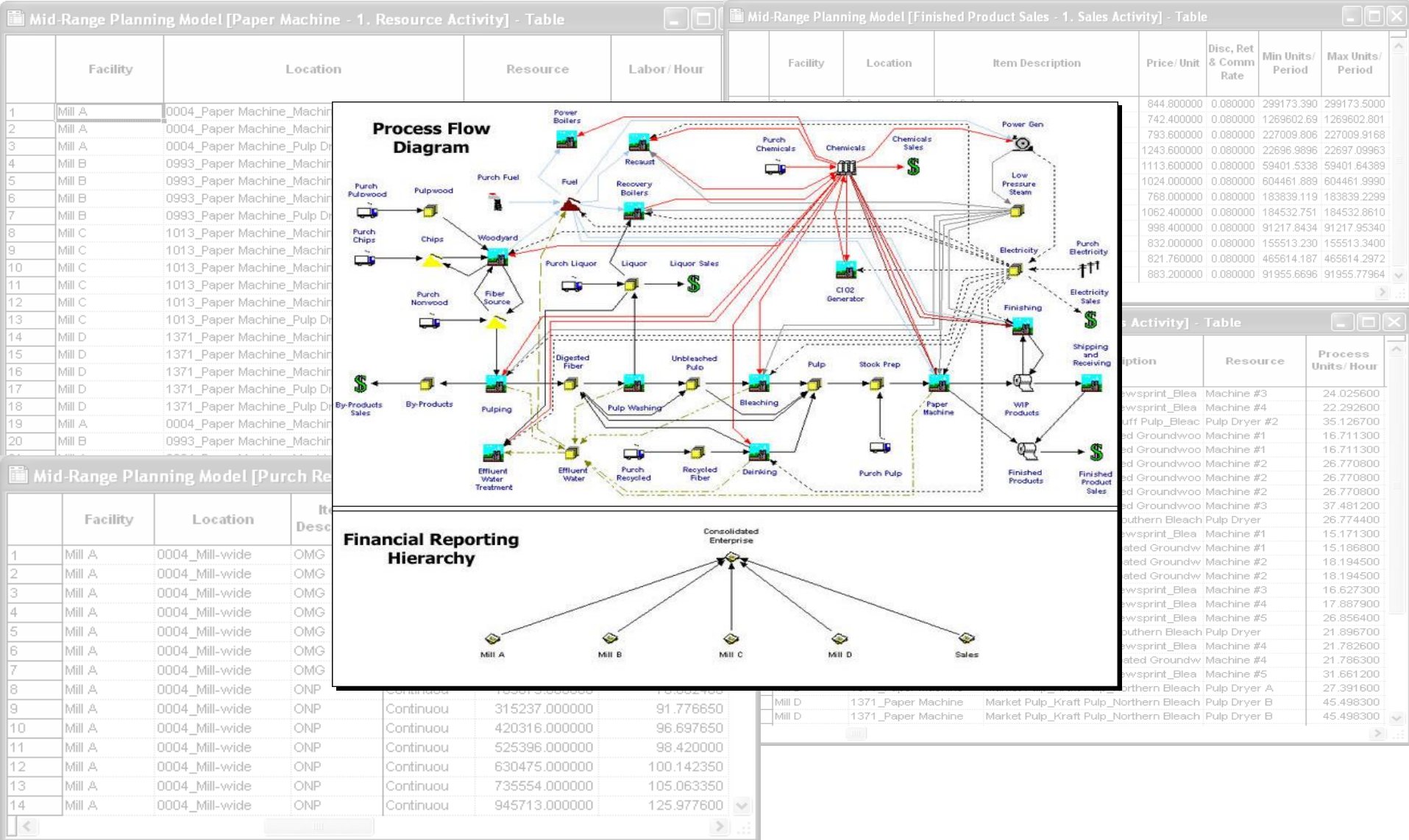
Enterprise Optimizer[®]
The New Model for Decision-Making™

Overview of Mid-Range Planning Model





Mid-Range Planning Model





Mid-Range Planning Model: Operational Planning

EO Demonstration Series

- Mid-Range Planning Model
 - Scenario Manager
 - Financial Summary
 - Operational Planning
 - Purchase Activity
 - Resource Activity
 - Production Activity
 - Sales Activity
 - Logistics Planning
 - Capital Planning
 - Tax Planning
 - Reports

Scenario Manager

- Purchase Constraints:
- Production Constraints:
- Sales Constraints:
- Logistics Constraints:
- Project Constraints:
- Allocation Constraints:
- Xfer Price Constraints:
- Objective Function:

Solve

Set Budget



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Scenario Manager - Financial Summary

Network Production Summary :

	Solution Tons	Budget Solution Tons	Solution - Budget	% O/U Budget	Previous Solution Tons	Solution - Previous	% O/U Previous
Paper Produced	3,719,999	3,655,031	64,968	1.78	3,655,031	64,968	1.78
Pulp Consumed	3,576,582	3,510,745	65,837	1.88	3,510,745	65,837	1.88

Network Valuation Summary:

Total Present Value	Budget Present Value	Solution - Budget	% O/U Budget	Previous Present Value	Solution - Previous	% O/U Previous
\$1,926,154,619	\$1,862,252,206	\$63,902,413	3.43	\$1,862,252,206	\$63,902,413	3.43

Network Profitability Summary:

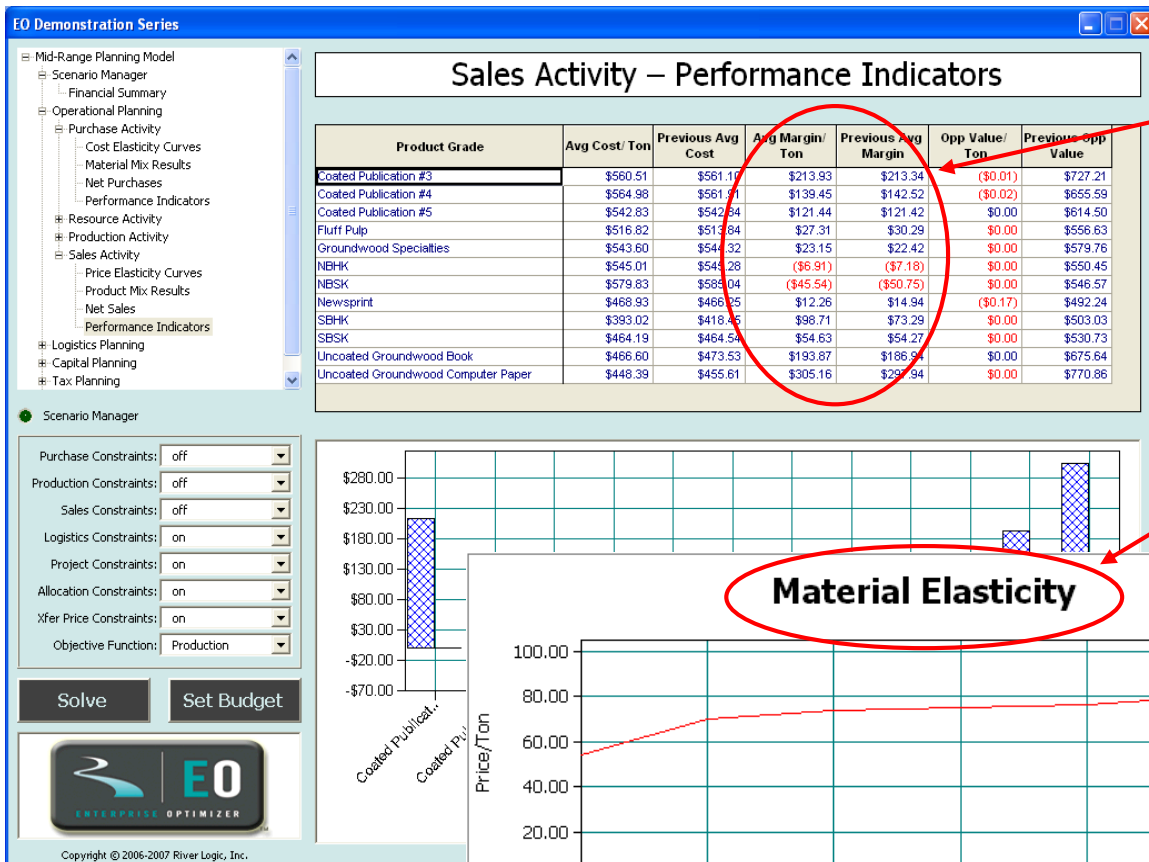
Account	Solution Total	Budget Total	Solution - Budget	% O/U Budget	Previous Solution Total	Solution - Previous	% O/U Previous
Net Sales	\$2,216,153,668	\$2,182,554,738	\$33,598,931	1.54	\$2,182,554,738	\$33,598,931	1.54
Net Purchases	\$1,432,717,514	\$1,409,134,384	\$23,583,131	1.67	\$1,409,134,384	\$23,583,131	1.67
Labor	\$169,350,508	\$169,350,508	\$0	0.00	\$169,350,508	\$0	0.00
Fixed Processing	\$40,720,439	\$40,720,439	\$0	0.00	\$40,720,439	\$0	0.00
Distribution	\$223,199,936	\$219,301,873	\$3,898,063	1.78	\$219,301,873	\$3,898,063	1.78
Cost of Goods Sold	\$1,865,991,202	\$1,838,507,203	\$27,483,999	1.49	\$1,838,507,203	\$27,483,999	1.49
SG&A	\$90,000,000	\$90,000,000	\$0	0.00	\$90,000,000	\$0	0.00
Depreciation	\$173,000,000	\$173,000,000	\$0	0.00	\$173,000,000	\$0	0.00
EBIT	\$87,162,466	\$81,047,534	\$6,114,932	7.54	\$81,047,534	\$6,114,932	7.54
Net Interest	\$64,619,183	\$64,770,951	(\$151,768)	(0.23)	\$64,770,951	(\$151,768)	(0.23)
Taxes	\$2,930,627	\$3,051,363	(\$120,736)	(3.96)	\$3,051,363	(\$120,736)	(3.96)
Net Income	\$19,612,656	\$13,225,221	\$6,387,436	48.30	\$13,225,221	\$6,387,436	48.30

When model was solved to maximize production volume:

- Identified a potential increase in production volume of 65k tons
- Revealed a potential increase in Market Value of \$63 million
- Revealed a potential increase in Operating Income of \$6 million



Mid-Range Planning Model: Operational Planning



• Increased production volumes resulted in increased Average Margins for most products

• Elasticity curves considered the marginal impact of purchasing and selling higher volumes

"Now we understood why increasing total production had less impact on profitability than we expected."

Corporate CFO



Mid-Range Planning Model: Operational Planning

EO Demonstration Series

- Mid-Range Planning Model
 - Scenario Manager
 - Financial Summary
 - Operational Planning
 - Purchase Activity
 - Resource Activity
 - Production Activity
 - Sales Activity
 - Logistics Planning
 - Capital Planning
 - Tax Planning
 - Reports

Scenario Manager

- Purchase Constraints: off
- Production Constraints: off
- Sales Constraints: off
- Logistics Constraints: on
- Project Constraints: on
- Allocation Constraints: on
- Xfer Price Constraints: on
- Objective Function: Net Income

Solve

Set Budget



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Scenario Manager - Financial Summary

Network Production Summary :

	Solution Tons	Budget Solution Tons	Solution - Budget	% O/U Budget	Previous Solution Tons	Solution - Previous	% O/U Previous
Paper Produced	3,454,760	3,655,034	(200,271)	(5.48)	3,719,999	(265,239)	(7.13)
Pulp Consumed	3,300,098	3,510,745	(210,648)	(6.00)	3,576,582	(276,484)	(7.73)

Network Valuation Summary:

Total Present Value	Budget Present Value	Solution - Budget	% O/U Budget	Previous Present Value	Solution - Previous	% O/U Previous
\$2,434,615,810	\$1,862,252,206	\$572,363,605	30.74	\$1,926,154,619	\$508,461,191	26.40

Network Profitability Summary:

Account	Solution Total	Budget Total	Solution - Budget	% O/U Budget	Previous Solution Total	Solution - Previous	% O/U Previous
Net Sales	\$2,106,317,367	\$2,182,554,738	(\$76,237,371)	(3.49)	\$2,216,153,668	(\$109,836,302)	(4.96)
Net Purchases	\$1,280,922,702	\$1,409,134,384	(\$128,211,682)	(9.10)	\$1,432,717,514	(\$151,794,812)	(10.59)
Labor	\$169,350,508	\$169,350,508	\$0	0.00	\$169,350,508	\$0	0.00
Fixed Processing	\$40,720,439	\$40,720,439	\$0	0.00	\$40,720,439	\$0	0.00
Distribution	\$207,285,624	\$219,301,873	(\$12,016,249)	(5.48)	\$223,199,936	(\$15,914,312)	(7.13)
Cost of Goods Sold	\$1,698,279,272	\$1,838,507,203	(\$140,227,931)	(7.63)	\$1,865,991,202	(\$167,711,930)	(8.99)
SG&A	\$90,000,000	\$90,000,000	\$0	0.00	\$90,000,000	\$0	0.00
Depreciation	\$173,000,000	\$173,000,000	\$0	0.00	\$173,000,000	\$0	0.00
EBIT	\$145,038,094	\$81,047,534	\$63,990,560	78.95	\$87,162,466	\$57,875,628	66.40
Net Interest	\$63,411,587	\$64,770,951	(\$1,359,364)	(2.10)	\$64,619,183	(\$1,207,595)	(1.87)
Taxes	\$11,164,926	\$3,051,363	\$8,113,563	265.90	\$2,930,627	\$8,234,299	280.97
Net Income	\$70,461,581	\$13,225,221	\$57,236,360	432.78	\$19,612,656	\$50,848,925	259.27

When model was solved to maximize Net Income:

- Revealed that scaling back total production was more profitable
- Revealed a potential increase in Market Value of \$500 million
- Revealed a potential increase in Operating Income of \$63 million



Mid-Range Planning Model: Operational Planning

Purchase Activity - Material Mix Results

Mill	Material Grade	Solution Tons	Budget Tons	Solution - Budget	% O/U Budget	Previous Solution Tons	Solution - Previous	% O/U Previous
Mill A	OMG	60,558	59,251	1,308	2.21	60,558	0	0.00
Mill A	ONP	536,989	525,395	11,594	2.21	536,989	0	0.00
Mill A	Softwood_Southern_Chips	568,376	560,285	8,091	1.44	568,375	1	0.00
Mill B	Softwood_Southern_Chips	1,280,348	1,275,833	4,515	0.35	1,293,527	(13,179)	(1.02)
Mill C	Hardwood_Southern_Chips	460,099	460,099	0	0.00	460,448	(349)	(0.08)

Production Activity - Throughput

Mill	Resource	Product Grade	Solution Tons	Budget Tons	Solution - Budget	% O/U Budget	Previous Solution Tons	Solution - Previous	% O/U Previous
Mill A	Machine #3	Newsprint (Neutral)	207,581	203,261	4,320	2.13	207,581	0	0.00
Mill A	Machine #3 (Rebuild)	Newsprint (Neutral)	0	0	0	0.00	0	0	0.00
Mill A	Machine #4	Newsprint (Neutral)	192,608	188,288	4,320	2.29	192,608	0	0.00
Mill A	Machine #4 (Rebuild)	Newsprint (Neutral)	0	0	0	0.00	0	0	0.00

Sales Activity - Net Sales

Product Grade	Total Net Sales	Budget Total Net Sales	Solution - Budget	% O/U Budget	Previous Total Net Sales	Solution - Previous	% O/U Previous
Coated Publication #3	\$130,668,164	\$20,420,137	\$110,248,026	539.90	\$32,871,724	\$97,796,440	297.51
Coated Publication #4	\$67,171,592	\$45,858,968	\$21,312,624	46.47	\$380	\$67,171,212	17666174.5
Coated Publication #5	\$323,641,543	\$429,997,386	(\$106,355,843)	(24.73)	\$463,381,245	(\$139,739,702)	(30.16)
Fluff Pulp	\$179,481,924	\$176,991,524	\$2,490,400	1.41	\$179,481,924	\$0	0.00
Groundwood Specialties	\$115,956,767	\$56,913,801	\$59,042,966	103.74	\$34,182,049	\$81,774,718	239.23
NBHK	\$74,454,173	\$90,689,008	(\$16,234,835)	(17.90)	\$52,210,527	\$22,243,646	42.60
NBSK	\$154,372,522	\$268,137,719	(\$113,765,197)	(42.43)	\$310,972,504	(\$156,599,983)	(50.36)
Newsprint	\$612,020,941	\$661,505,614	(\$49,484,673)	(7.48)	\$695,558,099	(\$83,537,158)	(12.01)
SBHK	\$100,237,587	\$98,276,486	\$1,961,101	2.00	\$100,555,175	(\$317,588)	(0.32)
SBSK	\$130,452,614	\$128,058,755	\$2,393,858	1.87	\$130,452,614	\$0	0.00
Uncoated Groundwood Book	\$180,498,003	\$135,138,857	\$45,359,146	33.56	\$186,909,829	(\$6,411,826)	(3.43)
Uncoated Groundwood Computer	\$28,983,080	\$62,290,577	(\$33,307,497)	(53.47)	\$21,164,959	\$7,818,121	36.94
	\$2,097,938,909	\$2,174,278,832	(\$76,339,924)	-48.58	\$2,207,741,029	(\$109,802,120)	-1472224.55

- Purchasing managers knew how much of which materials would need to be acquired
- Production managers understood how their plant's activities effect the overall plan
- Sales managers saw the impact of the optimal product mix on Net Sales



Snapshot of ZSL, Inc./River Logic Alliance



Working Collaboratively



RIVERLOGIC

- **Explicit process mapping**

Explicitly define process that is being modeled, and easily change it using visualization and natural language.

- **Strong financial modeling**

Effectively model the financial impact of the different operational strategies being evaluated. This includes return on investment, as well as impacts on the enterprises profit and loss (P&L), balance sheet and cash flow. The ability to provide meaningful product/customer profitability analysis will be valuable.

- **Holistic view of the enterprise**

Model complete products, customers, resources and supply chain processes, including partners and suppliers as well as the key constraints.

- **Extensive optimization and business rule capability**

Significant optimization, simulation and business rule capability in support of the solving of complex interactions across processes.



- **Collaboration**

Enable the sharing and dissemination of evaluated strategies, and socialize the various assumptions underpinning these "what-ifs."

- **Integration**

Strong links into strategy, operational planning policy and execution systems.

- **Monitoring**

Real-time compliance and performance monitoring.