

The Agile Enterprise Maximizing the Value of Capital Expenditures



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Maximizing ROI from Capital Expenditures requires an approach that considers the marginal impact each investment has on key variables such as input prices, processing costs, diminishing returns, end-product prices; even tax liabilities. Additionally, decision-makers must assess all investment projects simultaneously, within their portfolio of projects.



Maximizing the Value of Capital Expenditures

Problem/Situation

Capital Expenditures (CapEx) consistently fail to deliver the anticipated return on investment. There are three primary culprits that prevent companies' from achieving the maximum return from their capital allocations:

1. Isolation

The first and perhaps the most costly root cause of underperforming capital is isolation. Capital investments are routinely initiated at the departmental level without regard of impact on ancillary departments or functions. For example, operations invests in a new packaging and labeling machine that doubles throughput, only to realize that shipping cannot 'code and load' trucks at the improved rate.

2. Relationships and Interdependencies

Once investment decision-making has moved from isolation, executives must consider the relationships each investment has on correlating investments or activities. In other words, investments impact investments. Therefore optimal decision-making requires the ability to mix, match and sequence investments. When evaluating capital spending and opportunity investing, the top brass must see the big picture. For example, approving the new packing and labeling machine as mentioned above, and converting two receiving bays to shipping bays, may deliver the anticipated financial return.

3. History

Another critical disconnect is the use of heuristics and history for projecting the financial impact of an investment. Average costs and margins derived from the "plan of record" are consistently off target. This occurs because historical costs can not consider the marginal impact the investment may have on key variables such as processing costs, input prices and tax liabilities. Borrowing from the example above, while the new and improved packaging and labeling machine did double throughput, it also increased the company's amount of "waste ink." This, according to regulations as defined by the Environmental Protection Agency (EPA), changed the company's waste status to "large generator," requiring the company to add new containment equipment and to provide compliance training for select personnel.

Additionally, when it comes to robbing a company of ROIC, Excel® is often the number one accomplice. Historically Excel has been the

"tool of choice" for estimating ROI – And perhaps rightly so since a superior alternative was not readily available. However Excel, with its high-level of acceptance and pervasiveness, continues to distort CapEx allocations because of its modeling limitations. For example, Excel can not account for the marginal impact of the investment on key variables such as input prices, processing costs, diminishing returns, end-product prices, or even tax liabilities. Furthermore, Excel cannot assess all investment projects simultaneously and over time, in a dynamic, holistic model of the business. Nor can it calculate the true marginal economic impact of each project, or define the optimum collection of expenditures within a portfolio of projects.

River Logic's Enterprise Optimzier

Enterprise Optimzier®, (EO) enables managers to determine which decisions best support the company's strategic objectives and deliver the highest financial gains.

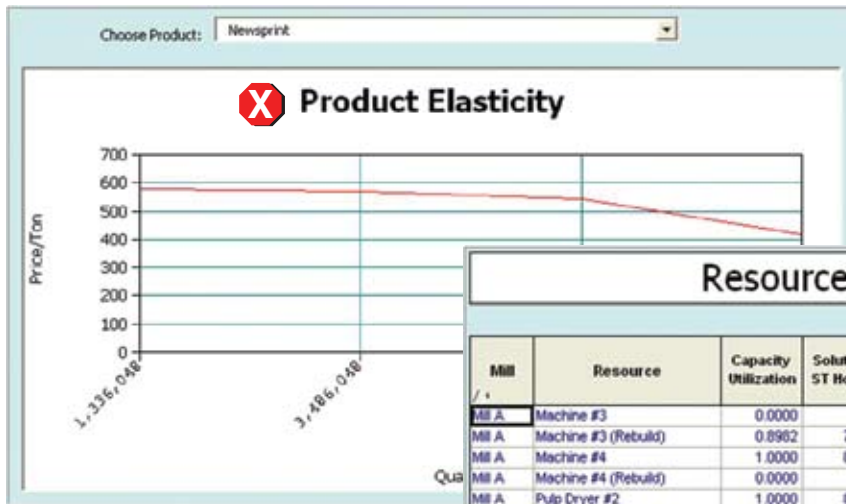
Through Integrated Business Planning (IBP), EO incorporates activity-based costing, constraint-oriented process modeling and comprehensive financial modeling. Specific elements of EO's CapEx solution include:

- Providing a single model using operational, financial and KPI metrics as well as business constraints
- Identifying true performance drivers using a system-wide view of the business, with all variables, interdependencies, suppliers, channel partners and customers
- Utilizing activity-based costing methodologies for calculating full costs and profits
- Quantifying marginal opportunities, including all variables (e.g., input costs, resource productivity, etc.) to yield an accurate measure of "what would happen with the next unit of work"
- Determining the impact decisions have on Cash Flow and Balance Sheet items
- Identifying and quantifying new opportunities while considering existing commitments, constraints, and opportunity costs
- Optimizing performance by defining the best solution in a given scenario, using financial, operational or key performance indicator (KPI) metrics as the objective function

Result/Impact

Companies augmenting their S&OP efforts Companies using EO for Integrated Business Planning have increased ROIC by as much as 300%. An international paper company defined its annual capital budget at \$50 million for all four of its processing mills. An estimated return for each line item was projected – ranging from a low of 30% to a high of 60%.

However the estimates, being based on historical and assumptive data, did not reflect reality. EO, using the \$50 million budget as a constraint, and solving for the highest estimated ROI, revealed a total return of 15%. (See Allocation Summary) Decisionmakers, using EO's Utilization



Resource Activity – Utilization

Mill	Resource	Capacity Utilization	Solution ST Hours	Budget ST Hours	Solution - Budget	% O/U Budget	Previous ST Hours	Solution - Previous	% O/U Previous
Mill A	Machine #3	0.0000	0	8,640	(8,640)	(100.00)	8,640	(8,640)	(100.00)
Mill A	Machine #3 (Rebuild)	0.8962	7,761	0	7,761	Undefined	0	7,761	Undefined
Mill A	Machine #4	1.0000	8,640	8,640	0	0.00	8,640	0	0.00
Mill A	Machine #4 (Rebuild)	0.0000	0	0	0	0.00	0	0	0.00
Mill A	Pulp Dryer #2	1.0000	8,640	8,640	0	0.00	8,640	0	0.00
Mill B	Off Machine Coater #1	0.7254	6,267	8,351	(2,084)	(24.95)	8,351	(2,084)	(24.95)
Mill B	Off Machine Coater #2	0.7251	6,265	8,347	(2,083)	(24.95)	8,347	(2,083)	(24.95)
Mill B	Supercalender #1	0.0000	0	8,640	(8,640)	(100.00)	8,640	(8,640)	(100.00)
Mill B	Supercalender #1 (Rebuild)	0.7679	6,635	0	6,635	Undefined	0	6,635	Undefined
Mill B	Supercalender #2	0.0000	0	8,640	(8,640)	(100.00)	8,640	(8,640)	(100.00)
Mill B	Supercalender #2 (Rebuild)	0.7685	6,640	0	6,640	Undefined	0	6,640	Undefined
Mill B	Supercalender #3	0.0000	0	8,640	(8,640)	(100.00)	8,640	(8,640)	(100.00)
Mill B	Supercalender #3 (Rebuild)	0.7685	6,640	0	6,640	Undefined	0	6,640	Undefined
Mill B	Supercalender #4	0.7679	6,635	8,640	(2,005)	(23.21)	8,640	(2,005)	(23.21)
Mill B	Supercalender #4 (Rebuild)	0.0000	0	0	0	0.00	0	0	0.00
Mill B	Machine #1	0.3075	2,857	8,142	(5,485)	(67.37)	8,142	(5,485)	(67.37)
Mill B	Machine #1 (Rebuild)	0.0000	0	0	0	0.00	0	0	0.00
Mill B	Machine #2	1.0000	8,640	8,640	0	0.00	8,640	0	0.00
Mill B	Machine #3	0.0000	0	8,640	(8,640)	(100.00)	8,640	(8,640)	(100.00)
Mill B	Machine #3 (Rebuild)	1.0000	8,640	0	8,640	Undefined	0	8,640	Undefined
Mill B	Pulp Dryer	1.0000	8,640	8,640	0	0.00	8,640	0	0.00
Mill B	Pulp Dryer (Rebuild)	0.0000	0	0	0	0.00	0	0	0.00

Dashboards and Elasticity Curves Dashboard, discovered underperforming capital allocations resulting from a marginal decrease in sales prices and a sequencing issue for rebuilding Machine #3 at Mill B. (The value of rebuilding Machine #3 was constrained by upstream equipment).

Next, Project Constraints were turned off and EO solved the model to identify the group of investments with the highest cumulative impact. While several projects were omitted, many with projected high returns, the total return on invested capital exceeded 60% - A 300% increase over the original strategy.

As illustrated in the Financial Summary Dashboard

below, EO enabled a strategy focused on increasing high-margin products while reducing total volumes (1). As a result, EO revealed a potential increase in market value of \$269 million (2) and a potential increase in Operating Income of \$38 million (3).

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	3,409,190	3,454,700	(45,570)	(1.32)	3,503,436	(94,246)	(2.69)
Pulp Consumed	3,235,269	3,300,098	(64,829)	(1.96)	3,337,528	(102,259)	(3.06)

Network Valuation Summary:

Total Present Value	Budget Present Value	Solution - Budget	% O / U Budget	Previous Present Value	Solution - Previous	% O/U Previous
\$2,781,688,797	\$2,512,268,500	\$269,420,263	10.72	\$2,542,170,406	\$239,518,391	9.42

Network Profitability Summary:

Account	Solution Total	Budget Total	Solution - Budget	% O / U Budget	Previous Solution Total	Solution - Previous	% O/U Previous
Net Sales	\$2,101,868,340	\$2,106,317,367	(\$4,449,027)	(0.21)	\$2,138,441,689	(\$36,573,349)	(1.71)
Net Purchases	\$1,250,718,875	\$1,280,922,702	(\$30,203,827)	(2.36)	\$1,301,184,631	(\$50,465,756)	(3.88)
Labor	\$163,872,826	\$171,510,508	(\$7,637,682)	(4.45)	\$171,510,508	(\$7,637,682)	(4.45)
Fixed Processing	\$38,433,641	\$41,720,439	(\$3,286,798)	(7.88)	\$41,720,439	(\$3,286,798)	(7.88)
Distribution	\$192,164,475	\$194,249,692	(\$2,085,217)	(1.07)	\$197,024,506	(\$4,860,031)	(2.47)
Cost of Goods Sold	\$1,645,189,816	\$1,688,403,340	(\$43,213,524)	(2.56)	\$1,711,440,084	(\$66,250,268)	(3.87)
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	\$193,678,524	\$154,914,000	\$38,764,497	25.02	\$164,001,606	\$29,676,919	18.10
Net Interest	\$63,850,357	\$63,421,480	\$428,877	0.68	\$64,347,238	(\$496,881)	(0.77)
Taxes	\$19,341,105	\$12,447,511	\$6,893,594	55.38	\$13,422,200	\$5,918,905	44.10
Net Income	\$110,487,062	\$79,045,035	\$31,442,026	39.78	\$86,232,167	\$24,254,894	28.13



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