

w h i t e p a p e r

The New Balanced Scorecard



MANAGING BUSINESS
PERFORMANCE™

The Performance Management Cycle

A FRAMEWORK FOR IMPROVEMENT

Effectively managing business performance may seem at times to be a daunting task. Nevertheless, it is a process that is critical to the success of any organization. In fact, a recent market study conducted by PriceWaterhouseCoopers and The Economist indicated that 92% of respondents stated they have a critical or important need to improve the way they manage performance. Interestingly, over 90% of the respondents held titles of Vice President or higher.

This strong market demand is largely behind the emergence of the Balanced Scorecard as the premier performance management methodology. CorVu has established a procedural framework around which our performance management solutions are developed and implemented. When this framework is established, performance management becomes an iterative cycle of continuous improvement.



The Performance Management Cycle is illustrated at right and will be used as the backdrop for the remainder of this discussion of CorVu's Balanced Scorecard solution.

Revolving around organizational strategy, each of these processes is discussed briefly below.

MEASURE - This is the process whereby users learn WHAT has happened. By establishing metrics that are linked to strategic goals, users are able to measure actual historical performance as it relates to the overall strategy. The measurement model contains performance targets, including industry benchmarks, for each metric. Actual

performance may then be compared against these targets and 'scored' using a normalized scale - such as 0 to 10.

ANALYZE - This is the critical exercise that enables users to answer the question "WHY?" Using business intelligence technology and techniques, users are able to drill into performance data to better understand why performance is either good or bad. Arriving at an accurate understanding, users may then effectively manage change to correct poor performance or perpetuate good performance.

PLAN - This is the process by which users are able to ask "WHAT IF?" The ability to link performance to specific business activities; detect statistical relationships that exists between various business activities; and enable users to play 'what-if' games with strategic initiatives is the most powerful deliverable of a true performance management solution. Users clearly see which activities have the most impact on organizational vision. This knowledge enables them to identify which activities are worthy of time and money and which activities are expendable.

MANAGE - This area entails the process of implementing change, which requires extensive communication. Users must be able to communicate strategic intents and share insights into performance results.

MANAGE

- (MAN' IJ) - 1. TO BRING ABOUT OR SUCCEED IN ACCOMPLISHING; 2. TO DIRECT, GOVERN, OR CONTROL IN ACTION OR USE.

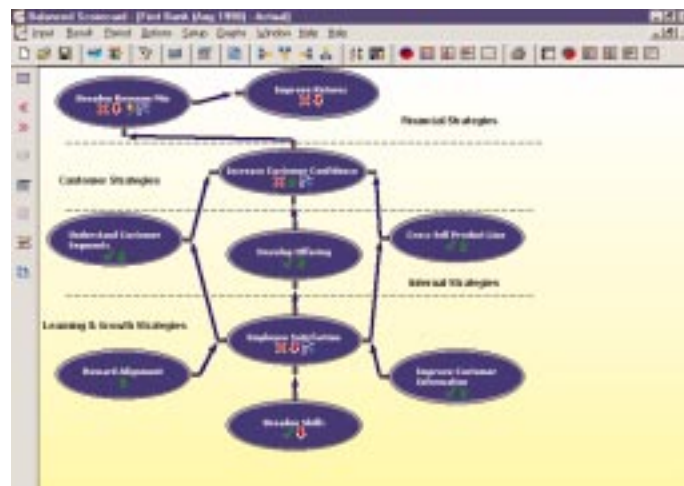
STRATEGICALLY MANAGING THE ORGANIZATION

Various research studies published in recent years have highlighted the fact the while virtually all organizations have a strategy, very few are able to execute that strategy effectively. To do so requires the ability to link strategic performance initiatives directly to tactical action plans and projects. CorVu provides numerous features to facilitate this benefit, as follows:

CAUSE-AND-EFFECT DIAGRAMS

Drs. Norton and Kaplan refer to a cause-and-effect diagram as a set of hypotheses about your business. For example, a strategic planner at XYZ Bank might logically expect that if they could broaden the employee's skills, employee satisfaction would improve. Subsequently, improved employee satisfaction will lead to better efficiency and effectiveness at cross selling the product lines. This will lead to improved customer confidence, which will lead to a broadened revenue mix and increased financial returns.

A cause-and-effect diagram is a graphical representation of the strategic initiatives that must be successful in order to achieve the desired financial outcomes. It highlights the interdepend-encies that exist between the various initiatives and functional areas of the enterprise.



CorVu represents cause-and-effect diagrams by representing each strategic initiative as an object on the diagram. Each object contains an underlying analytical scorecard that contains the specific metrics used to measure that initiative. Performance for each initiative is then represented using a combination of numerical values and symbols that provide a comprehensive overview of performance results and trends.

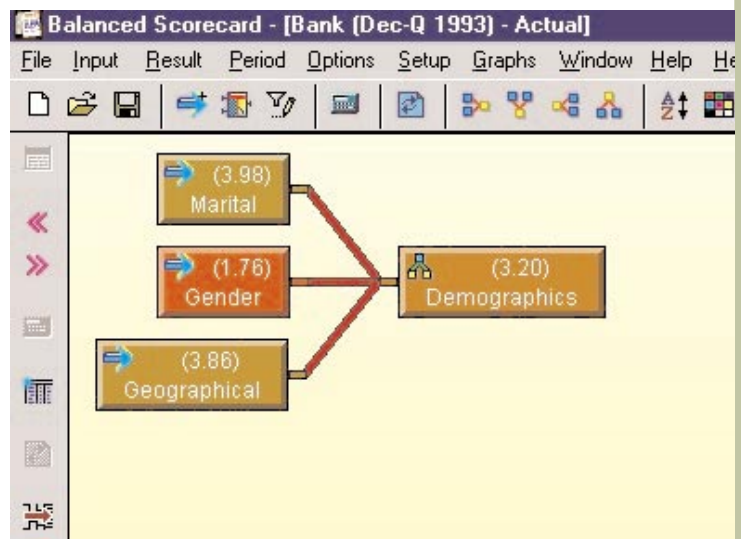
STRATEGY VALIDATION

As stated above, Drs. Norton and Kaplan refer to the cause-and-effect diagram as a set of hypotheses. CorVu is unique in its ability to statistically validate these hypotheses. Using performance results from the underlying scorecards, CorVu applies regression analysis routines to determine actual statistical relationships that exist between the various initiatives. The resulting correlation coefficients are then determined to be either statistically valid, or coincidental. The graphical lines connecting the initiatives are then color-coded to reflect the strength of the statistical relationship. The effect is that users are able to statistically validate their strategic model of the enterprise. This eliminates extensive time and testing of potentially false strategies.

LINKING PERFORMANCE RESULTS TO STRATEGY

As indicated above, each strategic initiative is represented on the cause-and-effect diagram using an icon. Such icons receive their performance results from an underlying analytical scorecard containing the specific metrics used to measure that initiative. Such a scorecard might appear as at right.

This allows users to physically and statistically link strategy analysis and planning directly to individual performance metrics.



LINKING ACTION PLANS TO STRATEGIC PERFORMANCE

In order to succeed, action plans are devised and followed closely at every step along the way. CorVu allows users to create "action plans" that may be linked to any icon on the scorecard. Such action plans are user-defined and typically include such information as Initiative Name, Assignment Date, Assignee Name, Expected Completion Date, Percentage Complete, Actual Completion Date, etc. Additionally, CorVu provides direct links into any 3rd party project management application for more robust project tracking capabilities. Such features are critical to linking detailed action plans to strategic initiatives.

UNIFYING THE ORGANIZATION

A fundamental feature of the Balanced Scorecard is its ability to translate vision and strategy into actionable and measurable objectives. Each such objective is typically then assigned to an organizational entity - business unit, department or individual. The end result is that each employee receives a blue-print for how he/she contributes to the overall vision of the organization.

While this helps to achieve unification and alignment of resources, more is needed. It is critical that within each organizational entity, and certainly between entities, that a collaborative communication environment exists. In addition to facilitating performance feedback, this also enables users to share their performance insights with others - creating a framework for knowledge growth throughout the enterprise.

CorVu provides numerous features to facilitate these benefits, as follows:

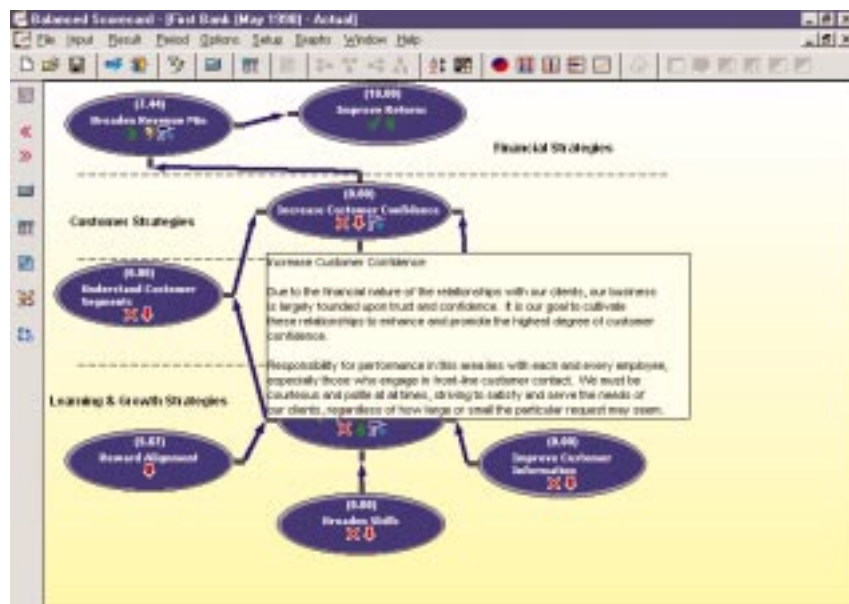
COMMUNICATION AND FEEDBACK

CorVu's Balance Scorecard solution creates a collaborative environment for free and clear communication so that employees at all levels understand how they contribute to the overall vision. This is accomplished by translating the organizational vision into actionable and measurable objectives and also by a comprehensive communication framework. CorVu's Balance Scorecard solution does this by providing multiple modes of communication. As outlined earlier, the cause-and-effect diagram provide a control-tower overview of strategy and its unique interdependencies.

Additional modes of communication include:

"POP-UP" TEXT

The first type of communication is provided in the form of text that may be attached to any icon on the scorecard. This text is viewable via 'bubble-help' by simply placing the cursor over the desired icon. This type of communication is designed to communicate strategic themes, goals or initiatives as it relates to the business objective that



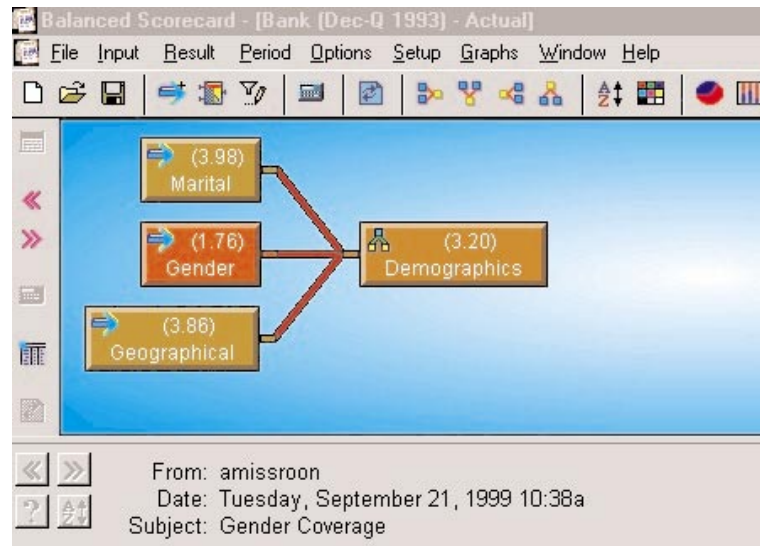
is being addressed

For example, the text may explain why the organization is engaged in a particular activity, expected targets of performance, identification of the responsible party, etc. In the event that this text is, in some way, inadequate to communicate all necessary information, CorVu also allows direct links into workgroup bulletin boards, web sites, and virtually any multimedia objects.

COLLABORATIVE FEEDBACK

Users who have gained insight into performance results provide online performance assessments. Such online assessments contain information explaining the causes for certain performance results. These may incorporate simple text or virtually any multimedia object and act similar in operation to that of a bulletin board. In this manner, users are able to better understand the impact of performance results and benefit from the insights of other users.

Such feedback is period-based. That is, narrative feedback is associated with a specific performance period. Thus, it is viewable simultaneous with the performance of the period



for which it applies.

STICKY NOTES

Finally, CorVu offers what we call "sticky notes". These are text-based notes that are visible at all times, regardless of the performance period being viewed. Sticky notes are valuable for drawing immediate attention to an issue.

MEASURE - (mez'h'ur) - 1. A unit or standard of measurement; 2. The

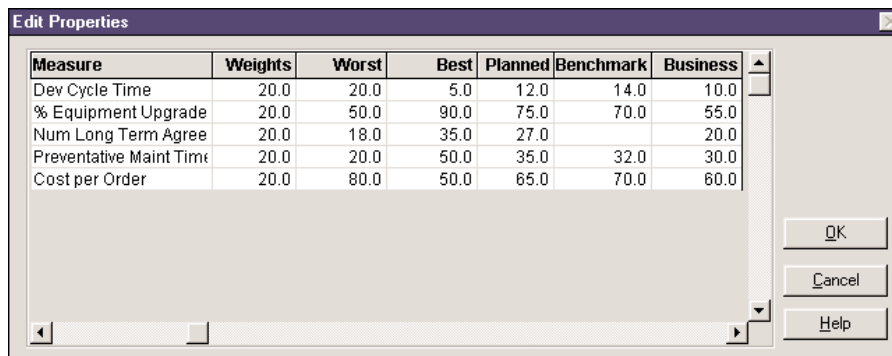
extent, dimensions, quantity, etc. of something, ascertained especially by comparison with a standard.

MEASURE BETTER TO MANAGE BETTER

CorVu's Balanced Scorecard solution facilitates a robust 'measurement model' which allows users to outline their key success factors, track performance against stated goals, and perform comparative analysis with industry benchmarks. Such comprehensive measurement enables organizations to accurately identify how they have performed - in effect, they clearly understand 'what' happened. Numerous features facilitate these benefits, as follows:

INTEGRATED QUANTITATIVE AND QUALITATIVE MEASURES

There are two types of measures that may be included on a scorecard - quantitative and qualitative. Quantitative measures are those which may be represented in numerical terms - such as Gross Margin, Inventory Turns, etc. Qualitative measures are those measures for which no numerical value exists. For example, a manager's opinion of how a particular group/department is performing. CorVu includes both types of measures on scorecards to communicate a comprehensive view of performance results.



Measure	Weights	Worst	Best	Planned	Benchmark	Business
Dev Cycle Time	20.0	20.0	5.0	12.0	14.0	10.0
% Equipment Upgrade	20.0	50.0	90.0	75.0	70.0	55.0
Num Long Term Agree	20.0	18.0	35.0	27.0		20.0
Preventative Maint Time	20.0	20.0	50.0	35.0	32.0	30.0
Cost per Order	20.0	80.0	50.0	65.0	70.0	60.0

Since most quantitative data is available from existing transaction and data warehousing applications, CorVu leverages these, and other, data sources as input to the scorecard.

TARGET SETTING & BENCHMARKING

To fully understand performance results, they must be analyzed within the context of expectations. CorVu's 'measurement model' reflects the organization's unique strategy and performance objectives for each measure. Using a simple spreadsheet-like table, users define high and low performance targets for each scorecard measure.

Additional comparative performance targets include planned (or goal) targets, industry benchmarks (for comparison with other organizations in the same industry), and 'business as usual' (for comparison with prior period averages of performance). These robust options are designed to provide a comprehensive understanding of current performance results.

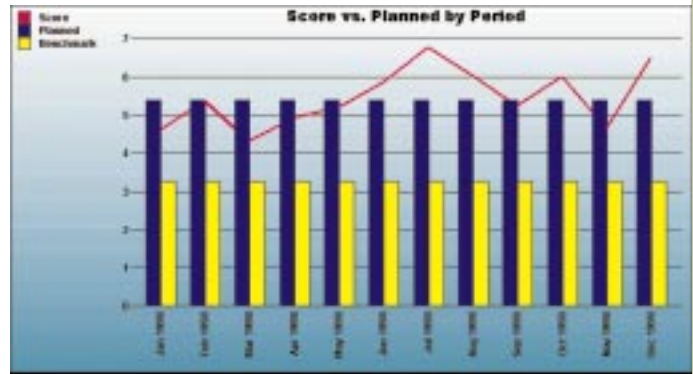
A simple method of weighting is used to reflect the relative importance of each measure. Once again, this ensures that users are able to reflect their unique strategy in the measurement model.

FLEXIBLE PERFORMANCE PERIODS

In keeping with the objective of reflecting the user's unique strategy and business objectives, CorVu's measurement model allows all performance targets to vary by performance period. This allows the measurement model to account for seasonal and/or growth performance trends.

GRAPHICAL PERFORMANCE REPRESENTATION

As expected, performance results may be graphed for visual comparison with performance targets and benchmarks.



ANALYZE

- (an' l iz) - 1. To examine critically, so as to bring out the essential elements or give the essence of; to examine carefully and in detail so as to identify causes, key factors, possible results.

KNOW WHAT HAPPENED - AND WHY

Using the measurement process to understand 'what' happened is surely beneficial. However, this information alone does not equip an organization with the knowledge to either perpetuate good performance or correct bad performance. To do this requires an understanding of 'why' performance is either good or bad. CorVu empowers users to gain this knowledge using a variety of features, as follows:

DIRECT ACCESS TO PERFORMANCE DATA

Acquiring knowledge about 'why' performance is as it is can only be accomplished through an in-depth analysis of the performance data. CorVu's Balanced Scorecard solution provides direct access to all popular SQL - and most multidimensional - databases. CorVu even imports data from ascii files and spreadsheets. Thus, CorVu provides the latest innovations in Performance Management while leveraging the value of existing legacy systems.

INTERACTIVE DATA ANALYSIS

With this easy access to the performance data, users are able to use a variety of analysis styles. CorVu provides an integrated application suite, including ad-hoc reporting, multidimensional analysis, executive dashboards and forecasting. These enable users to quickly identify the root cause of performance results - in effect, CorVu users are able to gain knowledge and insight into 'why' performance results are as they are.

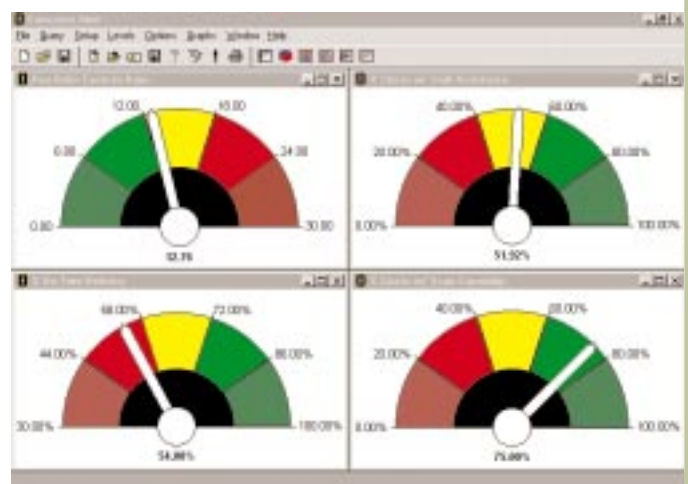
Understanding that most data has been highly summarized for presentation in the scorecard, CorVu's analysis engine provides further insight into the performance results by making available

'CONTROL-TOWER' VIEWS AND OPERATIONAL CONTROL

Just as users will utilize information in different ways and for different purposes, they require different styles of analyses. Some users need to see highly summarized snapshots of performance results. Others need to analyze increasing levels of detail. CorVu's integrated suite satisfies the needs of any type of user, as follows:

EXECUTIVE DASHBOARDS

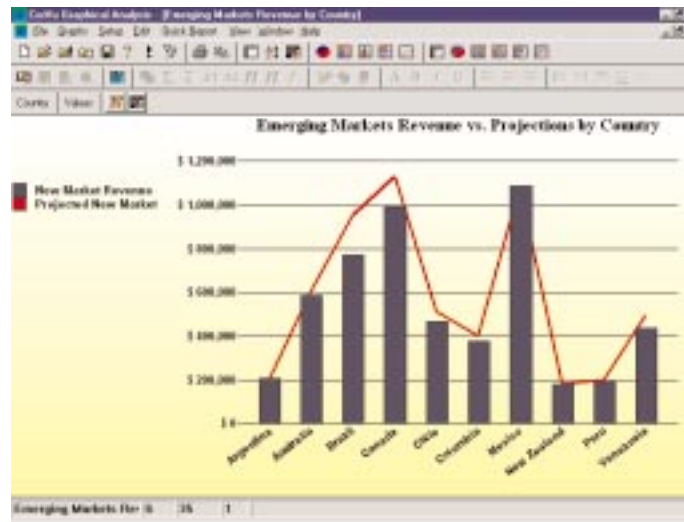
These provide high level views - as if from a 'control tower' - of performance results. However, they are still interactive and allow executives to drill into the information for more detailed analysis.



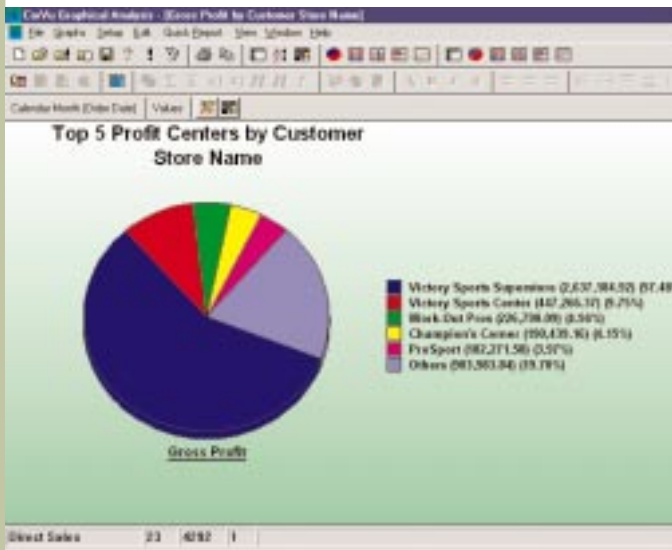
CHARTS AND GRAPHS

These provide users with multidimensional views of the performance data. The wide variety of graph types provide detailed understanding of a multiple issues, including rankings, percentages, period comparisons, volumes and counts, etc.

Compare actuals to projections using multiple styles in the same graph.

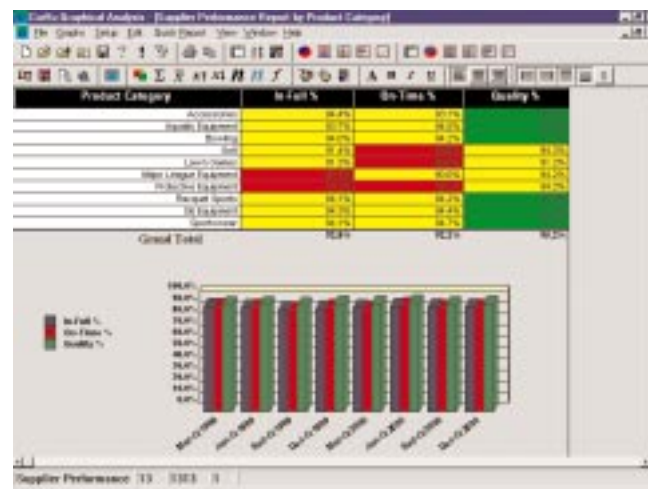


Identify percentages and rankings, such as the top 5 profit makers within a given region.



REPORTS

CorVu reports may include both data and graphics. They may be printed or distributed via the internet in html format. Users are free to apply unlimited filters, headers and footers to create customized reports that provide necessary insight into performance results.



PLAN - (plan) - 1. A scheme or method of acting, doing, proceeding, making, etc., developed in advance; 2. A format program for specified benefits, needs, etc.

PLAN AHEAD TO STAY AHEAD

Once performance results - and the causes thereof - are clearly understood, users must be able to engage in a process of testing changes to current strategies. Such changes - really fine-tuning of activities - will inevitably be necessary to maximize desired outcomes. In the past, new strategies and initiatives could only be 'tested' under live production situations. Often times, the desired outcomes were not achieved, wasting valuable time and resources.

Using statistically validated cause-and-effect diagrams discussed above, CorVu solutions allow users to test new and modified initiatives, prior to implementation. Through use over time, CorVu's strategic models actually learn about the interdependencies that exist between various functional initiatives in the model. Users are able to forecast and predict actual outcomes, saving valuable time and resources - and increasing the likelihood of making the correct modifications to achieve the desired outcomes. CorVu's innovative technology in this area facilitates the following benefits:

STRATEGY VALIDATION

As stated above, Drs. Norton and Kaplan refer to the cause-and-effect diagram as a set of hypotheses. CorVu is unique in its ability to statistically validate these hypotheses. Using performance results from the underlying scorecards, CorVu applies regression analysis routines to determine actual statistical relationships that exist between the various initiatives. The resulting correlation coefficients are then determined to be either statistically valid, or coincidental. The graphical lines connecting the initiatives are then color-coded to reflect the strength of the statistical relationship. The effect is that users are able to statistically validate their strategic model of the enterprise. This eliminates extensive time and testing of potentially false strategies.

PREDICT PERFORMANCE -> ALLOCATE RESOURCES

Once correlation coefficients have been established between each strategic initiative, CorVu allows users to engage in 'what-if' analysis to predict possible outcomes. For example, how would a 10% improvement in inventory management impact customer satisfaction? How would it impact financial results? Knowing the answers to these types of questions empowers managers to allocate valuable time and resources to those activities that are the most strategic - those that have the most impact on the desired outcome.

EARLY WARNING AND DETECTION

The Balanced Scorecard suggests that an organization's success is actually predicated upon a series of inter-related activities referred to by most as strategic initiatives. CorVu graphically represents these as cause-and-effect diagrams. These diagrams highlight that strategic initiatives in the area of Learning & Growth effect strategic initiatives in the area of Internal Processes. In turn, Internal Processes effect Customer issues, which ultimately effect the Financial outcomes of the overall strategy. By representing enterprise performance in this fashion, it becomes easy to see how poor performance in the Learning & Growth area today will translate into poor Financial performance later. Thus, by monitoring performance using CorVu's graphical cause-and-effect diagrams, organizations are able to identify performance problems well in advance of their adverse 'effect'.

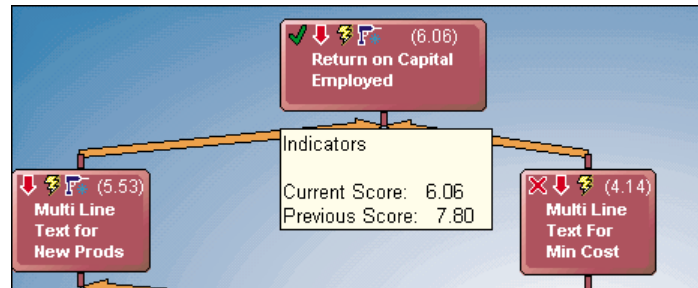
LAG COEFFICIENTS

In addition to detecting the statistical relationships that exist between strategic initiatives, CorVu will also identify the time lags. For example, CorVu might identify that the 'effect' of a performance improvement in Inventory Management will not show up on the Financial results for 3 months. This is powerful when conducting strategic planning. It is not only critical to predict the outcome, but also to predict when you can expect that outcome to materialize.

EASY TO READ, EASY TO INTERPRET, EASY TO USE

TREND INDICATORS

Green or red arrows are displayed on each scorecard icon to indicate the performance trend from the prior period. Red arrows point down to indicate declining performance. Green arrows point up to indicate increasing performance.



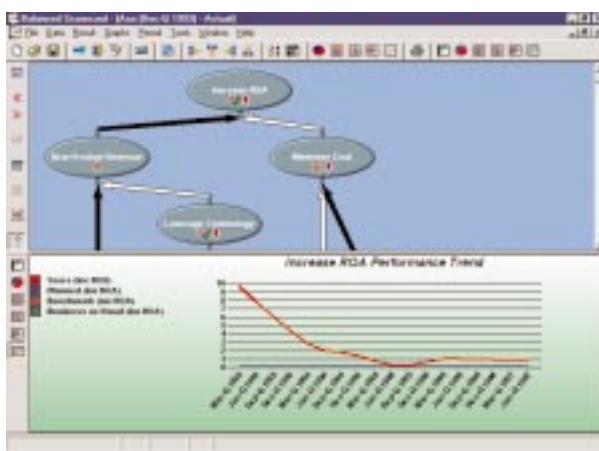
THRESHOLD TRIGGERS

As scorecards may be cascaded, it is important to know if constituent measures from sub-level scorecards have fallen outside of acceptable ranges. CorVu uses a green "4" check to indicate that at least one KPI from the sub-level scorecard is performing above its targeted objective. A red "X" indicates that at least one KPI from the sub-level scorecard has fallen below its targeted objective.

DRILL OBJECTS

A Drill Object may be any component which adds value to the scorecard. These may include, among other things, another scorecard, a graph, a report, an executive dashboard, a web site, a project management application, a multimedia object or a desktop office application. Each scorecard icon may be linked to multiple Drill Objects. Users will double-click on a Drill Object to gain further insight into performance results. Drill Objects also provide direct integration between the scorecard and external applications.

INTUITIVE PERFORMANCE GRAPHS



CorVu automatically generates graphs showing performance trends. These are conveniently displayed right on the same screen with the scorecard. In fact, these performance trend graphs are context sensitive - users simply click on a scorecard icon and the graph instantly updates to reflect the performance trend of that icon. CorVu's performance graphs allow users to quickly and easily compare actual performance against planned, benchmarked and forecasted objectives.

ABOUT CORVU



CorVu is the leading global provider of Enterprise Business Performance Management and Balanced Scorecard Solutions. Combining OLAP query and reporting, executive dashboard alerts, forecasting, and Balanced Scorecard applications, CorVu provides the most complete Enterprise Business Performance Management solution available today. CorVu has U.S. offices in Minneapolis, Atlanta, Boston, Chicago, Cincinnati, Dallas, Los Angeles, New York, San Francisco, and Washington D.C.; Asia Pacific offices in Sydney, Auckland, Melbourne, Brisbane and Perth; and European offices in London, Munich, Sheffield and Rotterdam. With more than 2100 customers, including companies such as BHP, Datacard, Mincom, Prudential, Johnson & Johnson, Unisys, Ford Motor Company and BF Goodrich, CorVu's Enterprise Business Performance Management and Balanced Scorecard solutions are gaining broad market acceptance. Additional information about CorVu products and services can be found on CorVu's web site at <http://www.corvu.com>.

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