PERFORMANCE MEASUREMENT FOR IMPROVED WORKING-CAPITAL MANAGEMENT

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Traditional performance measurement for working-capital management has come from investor-oriented financial statement information, but the key to improvement lies in the recognition of the operating roots of the financial results. An appreciation of the four key business processes underlying working capital, and the stakeholder deliverables they can affect, enables both root-cause analysis of problems and the ability to test the consequences of proposed corrective actions.

Support for this type of management activity is provided by the structure and performance measures offered by the Measure Network. Value paths offer a description of the relationship between activities in the working-capital processes and the deliverables to key stakeholders. Measure sets provide integrated operating and financial-performance measures that enable monitoring and management of the causal factors underlying working-capital results. Using these measurement tools gives managers a clearer understanding of the benefit and cost trade-offs for working capital and, thereby, supports better decision making and improved corporate performance.

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EXECUTIVE SUMMARY

- *Improvement of performance measurement for working-capital management lies in the recognition of the operating roots of the financial results.*
- *Understanding of four key working-capital business processes, and the value propositions they can affect, enables both root-cause analysis of problems and the ability to test the consequences of proposed corrective actions.*
- *Value paths and measure sets from the Measure Network enable an understanding of key working-capital relationships.*
- *Using these measurement tools gives managers a clearer understanding of the benefit and cost trade-offs for working capital and, thereby, supports better decision making and improved corporate performance.*

INTRODUCTION

Ask any business manager to describe the performance measures used for working-capital management and the response will likely include the familiar collection of financial ratios,

such as inventory turnover, days sales in receivables, days purchases in payables, current ratio, and working-capital turnover. Managers find these measures useful, because they enable a quick check on the direction and amount of change in working capital investment and financing, allow comparison between actual and planned working capital outcomes, and encourage comparison of working capital results to those of competitors and best-in-class performers. This type of financial information and ratio analysis directs management attention to potential problems and may aid in the discovery of improvement opportunities that lead to better corporate performance.

But performance measurement and analysis based solely on financial ratios fails to provide adequate and appropriate management information about working capital for at least two reasons. First, working-capital ratios focus on the outcomes of financial statements on certain business activities, not on the underlying business processes that produce the results. As a consequence, the ratios may fail to signal important negative developments in the processes. The ratio days sales in receivables (DSR), for example, focuses attention on the length of time from when the company bills the customer until the customer pays. If customer billing is delayed by inefficient order entry, burdensome credit evaluation, or other aspects of the underlying process that occur before billing, the ultimate collection of the customer payment can be significantly delayed, but the DSR ratio gives no indication of what is causing the problem.

Control should alert managers of the potential problems as soon as possible.

Second, financial reporting ultimately tends to focus managerial attention on shareholder-oriented ratios, such as return on net assets (RONA), or return on equity (ROE). When there are decisions to be made regarding working capital, the ratio-based analysis often leads to pressure to reduce the investment in inventory and credit while encouraging financing through delayed payments to suppliers. Net working capital will be lower, and RONA and ROE will increase, but the negative effects of such actions on other stakeholders can ultimately hurt shareholders. Customers may react to lower inventories and credit availability by buying less. Suppliers may react to late payments by raising prices, or by giving lower priority to the concerns of the difficult customer. These negative consequences will eventually show up in financial statements in future periods, but the manager is better served by a system that warns of the potential problems as soon as possible. Measures that focus on deliverables to stakeholders other than the shareholders would help meet this requirement.

WORKING-CAPITAL MANAGEMENT

The problems evident with financial ratios start with the common definition of working-capital management as management of the firm's short-term assets and liabilities. This balance-sheet focus unnecessarily limits the scope of investigation and the identification of opportunities for working-capital understanding and improvement. Additionally, this focus gives operating managers the erroneous perception that working-capital issues are the sole domain of financial managers. Instead, working capital should be defined as the net investment required to carry out business activities in an environment where the purchasing, production, sales, and distribution processes of the firm are noninstantaneous, unsynchronized, and uncertain.

Simply put, it takes time to order, receive, pay, manufacture, distribute, sell, and ultimately get paid for business efforts.

In this world where things operate imperfectly, we cannot foresee all the changes and upsets that may lie ahead. If funds transfer took place at the time of the sale, accounts receivable or accounts payable would not exist. If production processes were completely synchronized, there would be less work-in-process inventory. If the pattern of product demand were more certain, there would be less finished-goods-inventory safety stock. The fact that these working-capital investments and financing are necessary to carry out business activities will be referred to here as the structural need for working capital.

Working-capital investment and financing may also derive from a deliberate corporate strategy that uses working capital to gain competitive advantage. A firm might decide to extend extraordinary credit to a customer, however, to aid the customer's growth and ensure a healthy outlet for his/her products

and services. Or, a firm might choose to pay a supplier early, or even in advance, to ensure the survival and success of a key input into its production capability. The resulting net working capital can be thought of as serving a strategic purpose, and will be referred to as the strategic need for working capital.

Working-capital investment and financing is, therefore, the consequence of both structural characteristics and strategic initiatives, and proper working-capital management requires an understanding of root causes and an appreciation of the systemic effects of actions taken to achieve desired working-capital results. Analysis using financial ratios alone is unlikely to meet these requirements.

The management of working capital is further complicated by the organizational complexity of its effects. Working capital derives from processes that touch many different parts of the firm and impact many different stakeholders. Inventory management is the best example. Inventory is present as raw materials in the supply chain, work-in-process in the production system, and finished goods in the distribution system. Inventory-related policies and decisions directly impact suppliers, customers, and investors. The idea that inventory management could be adequately supported by highly aggregated performance measures that focus solely on the firm's financial outcomes is troublesome. Yet how often does one hear a high-level manager give directions to "increase inventory turnover," or "reduce the number of days receivable," as if such simple statements might somehow result in the right actions for improvement of value for all the firm's stakeholders?

WORKING CAPITAL AS VALUE PROPOSITION

The deficiencies of a financial-statements-based measurement system are easily overcome by a more complete, operations-oriented measurement system. Exhibit 1 shows the four business processes that affect working capital. Purchasing management has effects related to inventory and accounts payable. Supply chain management impacts all forms of inventory, from raw materials through work-in-process and finished goods; revenue management touches accounts receivable and advance billings; and cash management incorporates cash, marketable securities, and short-term borrowing. To understand, in detail, how these processes affect balance sheet indicators of working capital, a business manager must understand the components of each process in detail and how they interact to produce working capital outcomes.

The Measure Network system of performance measurement,[1] described earlier, facilitates such understanding through the use of two substructures, "process paths" and "value paths." Process paths identify cause-and-effect relationships in different parts of business processes. Process paths are useful in understanding these relationships and for conducting root-cause analysis of process outcomes. Value paths connect activities in business processes to the value delivered to all affected stakeholders, not just to investors. Performance measures are created for the key attributes of both process elements and stakeholder deliverables along the process and value paths. The measures are then collected in a "measure set" that focuses attention on the most important dimensions of performance for an organizational unit, a particular business process, or a business initiative, such as working capital management.

Illustration: Revenue Management

The revenue management process encompasses a variety of activities that impact the amount and timing of payments by customers. The process includes sales and pricing administration, order receipt and entry, credit evaluation and acceptance, billing, transaction-related services, and the collection and application of customer payments. Revenue management impacts both the customer and investor value propositions, but traditional financial performance measures focus managerial attention primarily upon the interests of investors.

The common financial performance measures related to this process are days sales outstanding (DSO), bad debt (amount and percent of sales), and overdue receivables (cash). The focus of these measures is on the part of revenue management that starts with billing and ends with payment by the customer. Activities in the early part of revenue management are ignored.

DSO captures the average length of time between the recognition of the sale and the

EXHIBIT 1
Business Processes Affect Working Capital

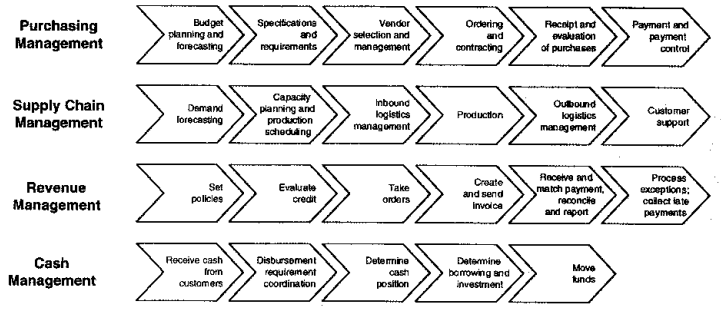
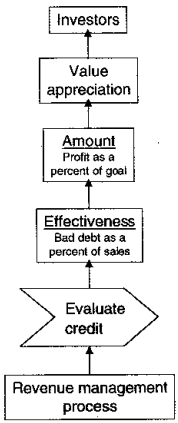


EXHIBIT 2
Value Path #1–Effectiveness



receipt of payment from customers. In general, firms prefer shorter DSO, because it indicates faster collection of cash from customers. Firms, however, sometimes extend extraordinary credit to customers as part of a sales strategy, and DSO would rise accordingly. The DSO measure provides no information about revenue-management processes that occur before the sale is recognized, even though these activities may significantly impact the amount and timing of customer receipts. As a consequence, the DSO measure by itself offers little guidance in helping to understand and correct the root causes of problems in revenue management.

Overdue receivables is a useful indicator of potential payment problems. Usually, the receivables are organized in an aging schedule that classifies the amount current and the amounts overdue, within specified day ranges. Although the reasons for payment delay are not revealed by such statistics, an unfavorable pattern of overdue amounts can prompt managerial action to attempt collection.

Bad debt indicates the amount and percentage of accounts that are not expected to pay. Although the amount and percentage of

nonpayment by customers offers a indication of problems in collections, the warning comes late, and there is no indication of the reasons why nonpayment occurs.

VALUE PATHS FOR REVENUE MANAGEMENT

The development of value paths for the revenue management process reveals the underlying rationale for existing measures and a variety of additional useful measures that can help overcome the shortcomings of current measurement practice in this area. Four value paths follow.

Value Path #1—The effectiveness of the credit evaluation process impacts the amount of value appreciation provided to investors.

This value path highlights the idea that the existing measure of bad debt as percent of sales has a direct impact on company profitability and, therefore, investor value creation. Existing working-capital measurement has traditionally focused on value creation for investors.(See Exhibit 2.)

Value Path #2—The speed of taking orders and evaluating credit affects the timeliness of the filling-orders service provided to customers.

This value path shifts the emphasis on value creation to customers. Speed is measured using a calculation of process cycle time, and timeliness of filling orders is best captured with a measurement of orders that are completed on time, in full. (See Exhibit 3.)

Value Path #3—The flexibility of the receiving-payments process affects the ease of use of the collecting payments service provided to customers.

EXHIBIT 3
Value Path #2–Speed

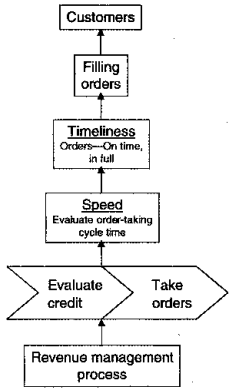


EXHIBIT 4
Value Path #3–Flexibility

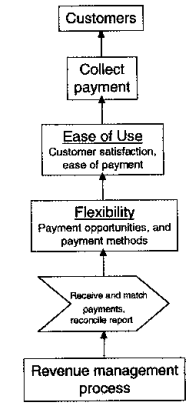


EXHIBIT 5
Value Path #4–Value Orientation

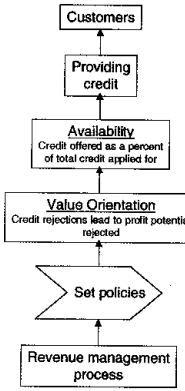
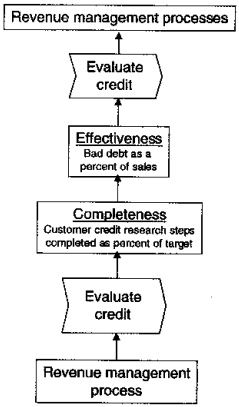


EXHIBIT 6
Process Path #1–Completeness



Value path #3 identifies the idea that customers can even gain value from being provided an easier or more convenient way to pay for their purchases. A customer-satisfaction measure related to ease of payment is a good choice for capturing firm performance on this intangible aspect of value creation. The flexibility of this process is often measured by the number of payment opportunities and payment methods that are provided to customers. (See Exhibit 4.)

Value Path #4—The value orientation of the set-policies process affects the availability of credit provided to customers.

The final value path communicates the importance of policy-setting that has the goal of investor-value creation as measured by profit potential rejected, and its relationship to a key aspect of customer value creation—the availability of credit for purchases as measured by credit offered as a percent of total credit applied for. This value path highlights the tension that exists for an organization between creating value for one stakeholder versus another. (See Exhibit 5.)

PROCESS PATHS FOR REVENUE MANAGEMENT

Process paths provide insight into process relationships that are useful for conducting root-cause analyses. Following are three of the most commonly used process-path measures of working capital.

Process Path #1—The completeness of the credit evaluation process affects the effectiveness of the credit-evaluation process (typically measured by bad debt).

This process path highlights the idea that one of the causes of bad

debt is incomplete execution of beneficial credit evaluation steps. (See Exhibit 6.)

Process Path #2—The speed of processing exceptions and disputes affects the speed of the invoice-to-collections process (typically measured by days sales outstanding).

This process path identifies the fact that faster exception processing and dispute resolution (as measured by their average cycle time) can have an important impact on the overall speed of the invoice to collections process and, therefore, on DSO performance. (See Exhibit 7.)

Process Path #3—The conformance of the create-and-send invoices process impacts the timeliness of the invoice to collections process (typically measured by overdue receivables). (See Exhibit 8.)

The final process path describes the linkage between ensuring conformance of actual invoicing activities to prescribed invoicing steps (measured by invoicing nonconformances) and the minimization of overdue receivables.

These process and value paths can be combined, along with others, to create a measure set (see Exhibit 9) for the revenue management process. Note how the measure set shows structural linkages within and between processes, connections between processes and the deliverables to stakeholders, and a set of performance measures that enable performance measurement and management for the attributes of this important working-capital process.

A complete investigation of working-capital management requires similar analysis for the three other processes having important working capital effects.

EXHIBIT 7
Process Path #2–Speed

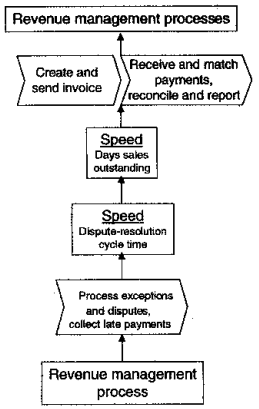


EXHIBIT 8
Process Path #3–Conformance

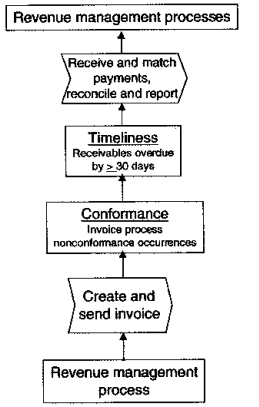
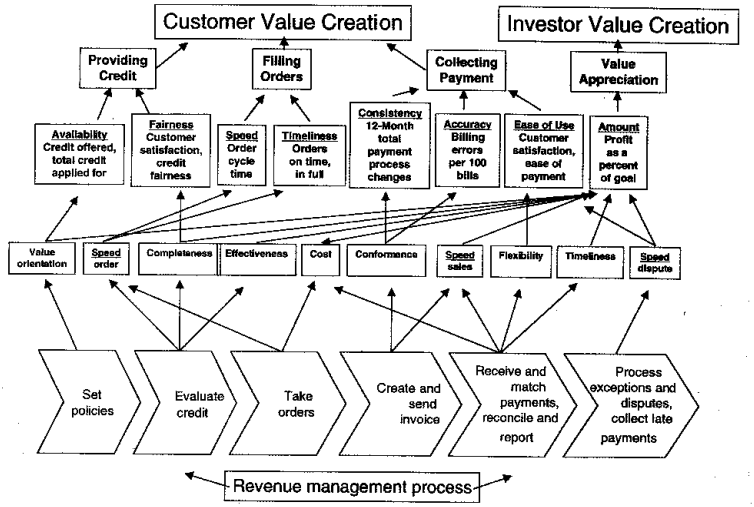


EXHIBIT 9
Measure Set for Revenue Management Processes



The resulting working capital measure set offers a unique tool for understanding, communicating, and managing the firm's working-capital position.

TOWARD PERFORMANCE IMPROVEMENT

Working-capital management isn't just a financial issue. Although traditional measurement for working capital has come from financial statement information, the key to improvement lies in the recognition of the operational roots of the financial results. A more complete measurement system that includes the impacts on other stakeholders, connections to the operating processes, and a strong logic for measure selection is required if all the improvement opportunities are to be realized.

With such a foundation in place, managers will come to realize that net working capital investment isn't necessarily bad. Investment in credit and inventory in support of sales may have significant strategic benefit for the firm, and it isn't always best to stretch supplier payments far beyond the stated terms. Managers need measurement tools that provide a clearer understanding of the working capital benefit and cost tradeoffs to enable sensible analysis and decision making for this important aspect of firm success. When the logic is sound, understanding is enhanced. With improved understanding, the chances of getting it right are greatly increased. ■

Notes

1. G. Reilly and R. Reilly, "Value Measurement: Using a Measure Network to Understand and Deliver Value," *Journal of Cost Management*, Volume 14, Number 6 (November/December 2000), pp. 5–14.