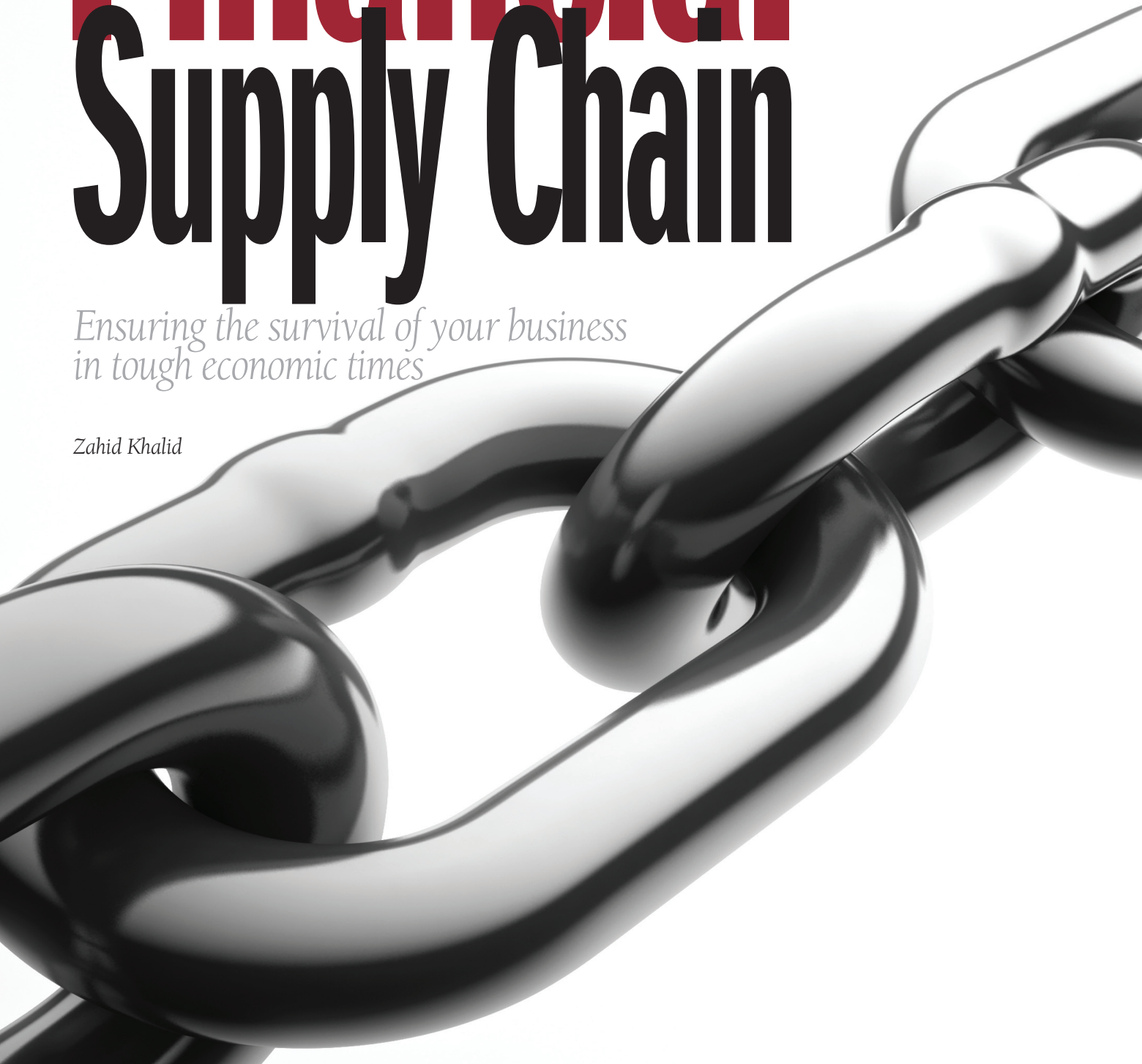


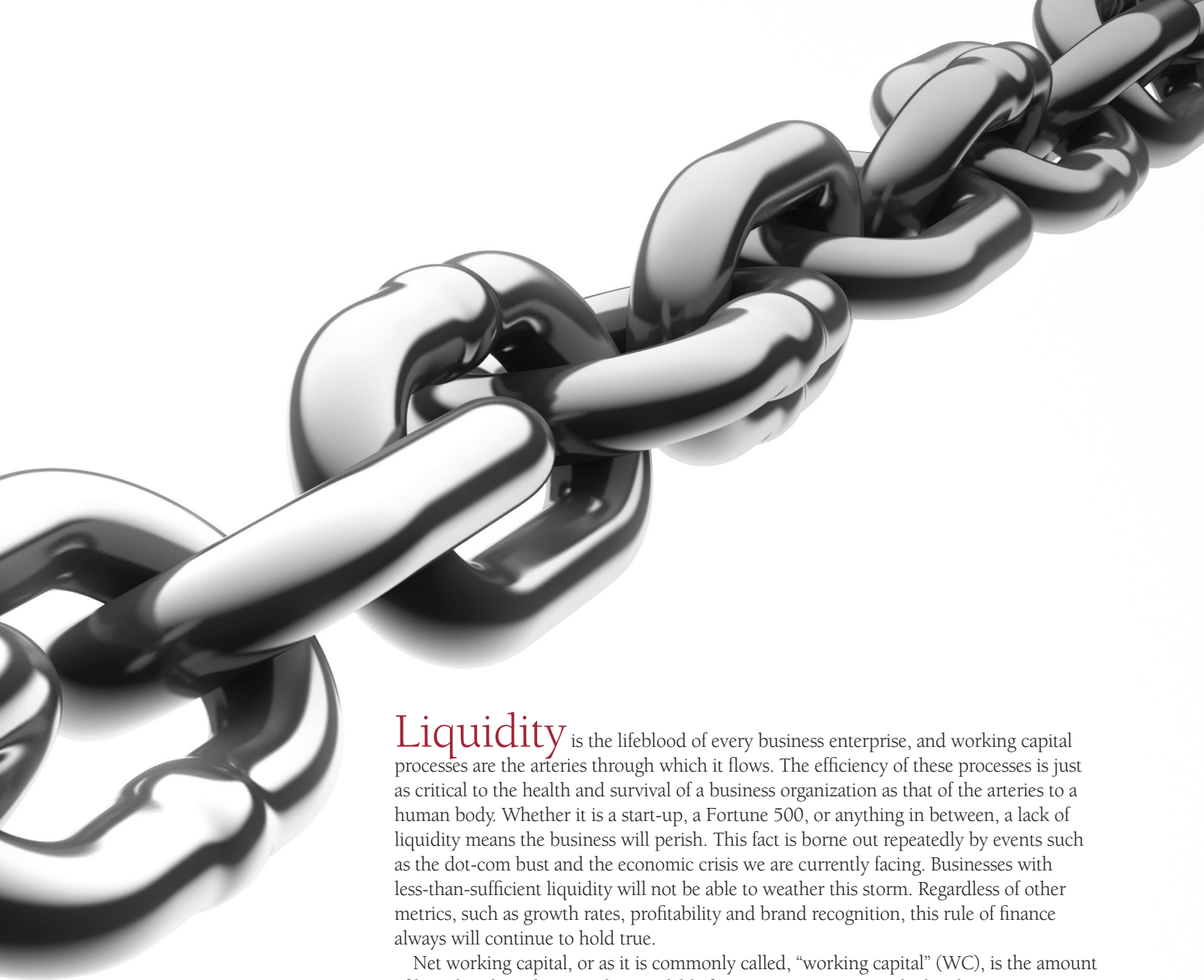
Cash Management

# Optimizing the **Financial** Supply Chain

*Ensuring the survival of your business  
in tough economic times*

Zahid Khalid





**Liquidity** is the lifeblood of every business enterprise, and working capital processes are the arteries through which it flows. The efficiency of these processes is just as critical to the health and survival of a business organization as that of the arteries to a human body. Whether it is a start-up, a Fortune 500, or anything in between, a lack of liquidity means the business will perish. This fact is borne out repeatedly by events such as the dot-com bust and the economic crisis we are currently facing. Businesses with less-than-sufficient liquidity will not be able to weather this storm. Regardless of other metrics, such as growth rates, profitability and brand recognition, this rule of finance always will continue to hold true.

Net working capital, or as it is commonly called, “working capital” (WC), is the amount of liquidity that a business has available for its operations. It is calculated as current assets minus current liabilities, as shown in the equation below:

$$\text{Cash} + \text{Cash Equivalents} + \text{Accounts Receivable} + \text{Inventory} + \text{Prepaid Expenses} - (\text{Accounts Payable} + \text{Accrued Expenses} + \text{Short-Term Notes Payable} + \text{Current Portion of Longterm Debt})$$

The ideal level of WC would be zero, if liquidity could be maintained, since this would maximize cash flow. However, this is not possible unless the business model allows for collecting payment from customers before having to pay the short-term obligations. (An example is Dell Computers.) In reality, the WC number will be positive or negative. Generally speaking, a positive number is a sign of good financial health of the business, and a negative number indicates financial distress or even approaching bankruptcy.

In addition to measuring liquidity, working capital can also be used to measure the operational efficiency of a business. For this purpose, one needs to look at the ratio of assets in which cash is tied up: inventory and accounts receivable, to the total working capital. These assets cannot be readily converted into cash to satisfy immediate operational need and are therefore considered less liquid. AR and inventory account balances that are upward-trending relative to sales indicate issues within the related processes and are a sign of operations inefficiency.

# Cash Management

## The processes that affect working capital accounts

Financial supply chain consists of those processes that affect the cash accounts of working capital. These core processes are:

- Purchasing
- Accounts receivable
- Accounts payable

The significance of these processes is evident in that an estimated US \$500 billion to over US \$1 trillion is tied up in unnecessary working capital globally in the global financial supply chain. According to *Killen Associates*, the typical U.S. corporation with \$1 billion in annual revenues spends \$27 million annually in unnecessary working capital due to a lack of visibility into the financial supply chain processes. This makes financial supply chain process optimization (reduction of costs and cycle times while increasing the transaction velocity and throughput) a necessary and significant contributor to the profitability of a business.

The purchasing process transactions create AP liabilities for the organization. This liability must be controlled and managed by a process that makes effective spend management possible through information transparency, accelerated transaction velocity, and rules-based controls application.

The accounts payable process affects the start of the Cash Conversion Cycle (CCC) and has a direct impact on the daily cash position. In addition, it impacts the cost of short-term borrowing and the opportunity cost of short-term investments through the timing of transactions that the Treasury function must make on a daily basis. The velocity and throughput of this process affect the cash efficiency and credit rating of the business, which in turn affect the cost of capital and, therefore, profitability.

The accounts receivable process affects the end of the CCC, which has a direct impact on the daily cash position, and therefore on liquidity. In addition, the throughput and accuracy of this process affect sales volume by controlling the extension of credit sales to individual customer accounts.

## The relationship between the key financial metrics—working capital, sustainable growth rate, and net profit margin

**Working Capital (WC)** =  $C + AR + I - (AP + D + AE)$

where:

**C** cash

**I** inventory

**D** short-term debt (including current portion of long-term debt)

**AE** accrued expenses (including taxes and wages)

**Net Profit Margin (NPM)** = Net Income/Revenue = NI/R

**Sustainable Growth Rate (SGR)** =

$(NPM \times (1 - d) \times [1 + (D/E)]) / (A/S - (NPM \times (1 - d) \times [1 + (D/E)]))$

where:

**d** dividend payout ratio

**D/E** debt-to-equity ratio

**A/S** asset-turnover ratio = total assets/revenue

SGR is the highest revenue-growth rate a business can achieve while still maintaining its targets for the following financial controls:

- Debt-to-equity ratio
- Dividend-payout ratio
- Asset-turnover ratio

If the SGR is exceeded, one or more of the above financial controls targets will have to be changed through a policy decision. Such changes may or may not be desirable.

To achieve a higher SGR while maintaining the target financial policy controls, a firm must increase its net profit margin (NPM). The increase in NPM generates cash as part of retained earnings, which offsets the increase in liabilities created to support growth. This is reflected in the WC equation components: AR, AP, inventory (I), and accrued expenses (AE). The extra cash “asset”-generated will support the additional AP and AE “liabilities.”

Optimizing the WC processes to reduce end-to-end process costs and cycle times results in an increased NPM. This higher NPM can then support a higher SGR.

A related measure and mechanism for controlling liquidity is the cash-conversion cycle (CCC), the time lapsed between paying the suppliers for inventory and collecting from the customer for a sale. The shorter the CCC, the better the cash flow and the ability to manage liquidity and cash positioning. It is composed of the following metrics:

**CCC = DII + DSO – DPO**

where:

**DII** Days in Inventory

**DSO** Days Sales Outstanding

**DPO** Days Payables Outstanding

With regard to CCC, the objectives are as follows:

1. Extend DPO as far out as possible while taking all desired cash discounts and not adversely affecting the firm's credit rating.
2. Shorten DSO without negatively affecting sales volume or alienating customers.
3. Shorten DII while not causing stock outs.

The cost of the CCC can be measured accurately using net present value (NPV) techniques. This cost is equal to the NPV of cash inflows minus the NPV of cash outflows. For example, at a 12% cost of capital, the cost of financing a 45-day CCC for \$100 million in annual sales =  $45 \times (100,000,000 \times 0.12 / 365)$  = \$1,479,452. In this case, shortening the CCC by one day is worth \$32,876.

The three core processes have the following relationships with the above-mentioned CCC metrics:

- Purchasing – DII
- Accounts Receivable – DSO
- Accounts Payable – DPO

In order for the treasury group to do an effective job of maintaining sufficient liquidity while minimizing the level of idle cash assets, it must have control over, and visibility into, these core processes and the transactions they execute.

## Role of information technology in optimizing the core processes

Information technology plays a crucial role in enabling the optimization of the three core processes in the following ways:

In addition to measuring liquidity, working capital can be used to measure the operational efficiency of a business. For this purpose, one needs to look at the ratio of assets in which cash is tied up: inventory and accounts receivable, to the total working capital.

1. Minimizing errors in the process by removing manual data-entry steps
2. Creating visibility into the process by integrating, automating and accelerating the flow of information within and between processes
3. Increasing the velocity of transactions to reduce value-destroying delays in the financial supply chain: collection float, disbursement float, cash application and payment reconciliation
4. Reducing the cost of individual transactions

Let's take an example of an AP process. Assume that Acme, Inc. has the following financial and performance metrics:

<b>CCC</b>	45 days
<b>DPO</b>	45 days
<b>Monthly invoices processed</b>	10,000
<b>Cost of capital</b>	12%
<b>Annual spend with suppliers</b>	\$25 million
<b>% spend offered discounts</b>	25%
<b>Discount terms</b>	2-10, net/30

**Annual value of discounts offered**  
 $0.02 \times .25 \times 25,000,000 = \$125,000$

**Average cost of processing an invoice**  
 \$30 (actual cross-industry range is \$5 to \$55)

The opportunity of missing the cash discounts available is as follows:

**Opportunity cost**  
 $(2/100-2) \times (365/ (30-10)) = (2/98) \times (365/20) = 37.24\%$

**The annual opportunity cost of missing the discounts**  
 $.3724 \times 125,000 = \$46,555$

Unless the firm can invest its cash in short-term investments with a rate of return better than 37.24%, it should take the discount and not stretch its DPO. Ideally, it would have the cash to make the payment, but if it does not, it should use its short-term borrowing facilities to pay the liability as long as the cost of borrowing is less than 37.24%.

However, in order to "have the ability" to take the discount, the firm first needs its AP process to be streamlined such that the velocity of a transaction (invoice processing) is sufficient to meet the terms of the payment; i.e., the process is able to support the receipt-to-approval of an invoice within 10 days, allowing sufficient time for the disbursement step. Of course, the process must also be error-free and enforce the internal controls established by the organization.

Let's say that Acme, Inc. undertakes an initiative to optimize its AP process and realistically reduces its DPO from 45 to 30 days. Let's also assume that it achieves the capability to process an invoice end-to-end in 10 days while reducing the cost to process to \$12 per invoice. The benefit of this process optimization would be as follows:

**Annual cash discounts taken** \$125,000

**Cost of capital for early payment (for 45 days of CCC)**  
 $(0.12 \times 0.25 \times 25,000,000) \times (45/365) = \$92,465$

**Transaction cost reduction**  
 $(30-12) \times 10,000 \times 12 = \$2,160,000$

**Net annual benefit of optimization**  
 $125,000 - 92,465 + 2,160,000 = \$ 2,192,535$

Even after deducting the cost to optimize the process, the ROI from this effort is substantial, and the payback period is very short.

This level of efficiency in any process is achieved by following these steps:

1. Measure the current performance of the process (cost, cycle time, error rates).
2. Conduct a gap analysis through benchmarking.
3. Capture the current process in detail (tasks, sequences, delays).
4. Analyze the process to identify value-destroying tasks.
5. Streamline the process by removing value-destroying tasks and arranging the remaining tasks for maximum transaction throughput and velocity.
6. Automate the redesigned process by buying or building an information technology solution.

The easiest step is the last one, and unfortunately, too many organizations jump to this step in their process-optimization efforts with disastrous results. Automation without process optimization first will only make more of the flaws of the existing process happen, and happen faster. But in order to optimize a process, it first has to be measured. In short, the above-mentioned steps, in the order they are listed, are crucial to maximizing the effectiveness and efficiency of a process. The cost of not doing so can be crippling to a business.

There are real and substantial bottom-line benefits available to virtually any organization that do not depend on the economic conditions, the customer or the competition. These benefits are the hidden value trapped within the processes that affect working capital accounts. By following the six steps outlined above for each of the core WC processes, an organization can tap into this hidden value with positive and material impact to the bottom line. Particularly in the current sluggish economy, world-class business organizations are doing exactly this, and it is something that a business would ignore at its own peril.

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