

Clarifying Cash Flow

Why accounting is wrong for cash flow management



Making decisions in a fog

Cash flow is the lifeblood of your company. It is what

allows you to secure investors, pay employees, pay bills, invest in your future, and even support important philanthropic causes. In other words, it allows your company to exist.

Many companies don't do a good job managing cash. They may be profitable, for instance, but they don't generate enough cash to satisfy investors, or don't have enough cash to make payroll. Why does this happen? Too many times, it is because cash is being managed in unclear situations - decisions are being made in a fog.

Why does this happen? First, cash flow isn't visible to them because other things blind its importance. The value of your company is arguably based on its ability to generate cash,^{*} yet for many leaders, how and when cash is generated and managed becomes an afterthought. The blind assumption is that if you are profitable, you are generating cash, but that may not be the case. Second, even when looking to make cash flow decisions, the tools they use block them from seeing the realities of how cash flow is measured, generated, and lost.

This paper will help simplify and improve cash flow management. It begins by explaining why accounting is an ineffective cash flow tool. It then offers a simple, three step approach to understanding and managing cash flow.

Why does this matter to you? This approach will immediately improve your ability to see what value improvement opportunities will or will not create. You will see how some programs promise huge savings only to disappoint. You will also be able to find the diamond in the rough projects that will have a significant effect on cash flow.

There is no need to make decisions in the fog when there are tools available to help.

^{*}J. Martin & J. Petty, *Value Based Management* (Cambridge, MA: Harvard Business School Press, 2000), 9.

Cost Definition

The Issue

When calculating profit, you begin with the profit equation:

$$\text{Profit} = \text{Revenues} - \text{Costs}$$

We assume that the definition of costs is clear. What would happen if it weren't?

The term, cost, can take on three very different meanings. **Cost as an expense** represents the cost to buy something. For instance, how much does a new printer cost? **Cost as effort or use** is the cost of work, of an activity, or to consume a resource such as materials or space. You may ask, for example, how much it costs to handle a customer service call or to use 25% of your warehouse space. Finally, **opportunity costs** represent gains that are forgone when choosing one investment over another.

When you think about these connotations of the term cost, there is an unexpected finding.

Although all three "costs" are considered regularly in business, only one, **cost as an expense**, represents cost as meant in the profit equation. Here's why.

Cost as effort represents how you have used what you've already purchased. For instance, we attempt to assign a cost on the use of space, labor, materials, equipment, and information technology. These are things you buy in anticipation of demand. That is the definition of capacity.* There isn't a financial transaction involved in the use of capacity, only in the purchase. This suggests that *consuming capacity has*

no affect on profitability.

Opportunity costs represent foregone gains from an investment. If one investment yields \$2 and another possible investment would yield \$3, the opportunity cost is \$1. This would suggest that the opportunity cost is foregone revenue, and is not a cost at all.

What does this mean?

There are two key implications.

1. Because the term **cost** is ambiguous, it becomes difficult for people to know how and when to use it appropriately.
2. Companies can misstate costs and benefits. Since cost as effort has no financial transaction associated with it, money isn't saved when it is reduced, and profit isn't always sacrificed when it is increased.

Key insight

Why cost as effort isn't a cost

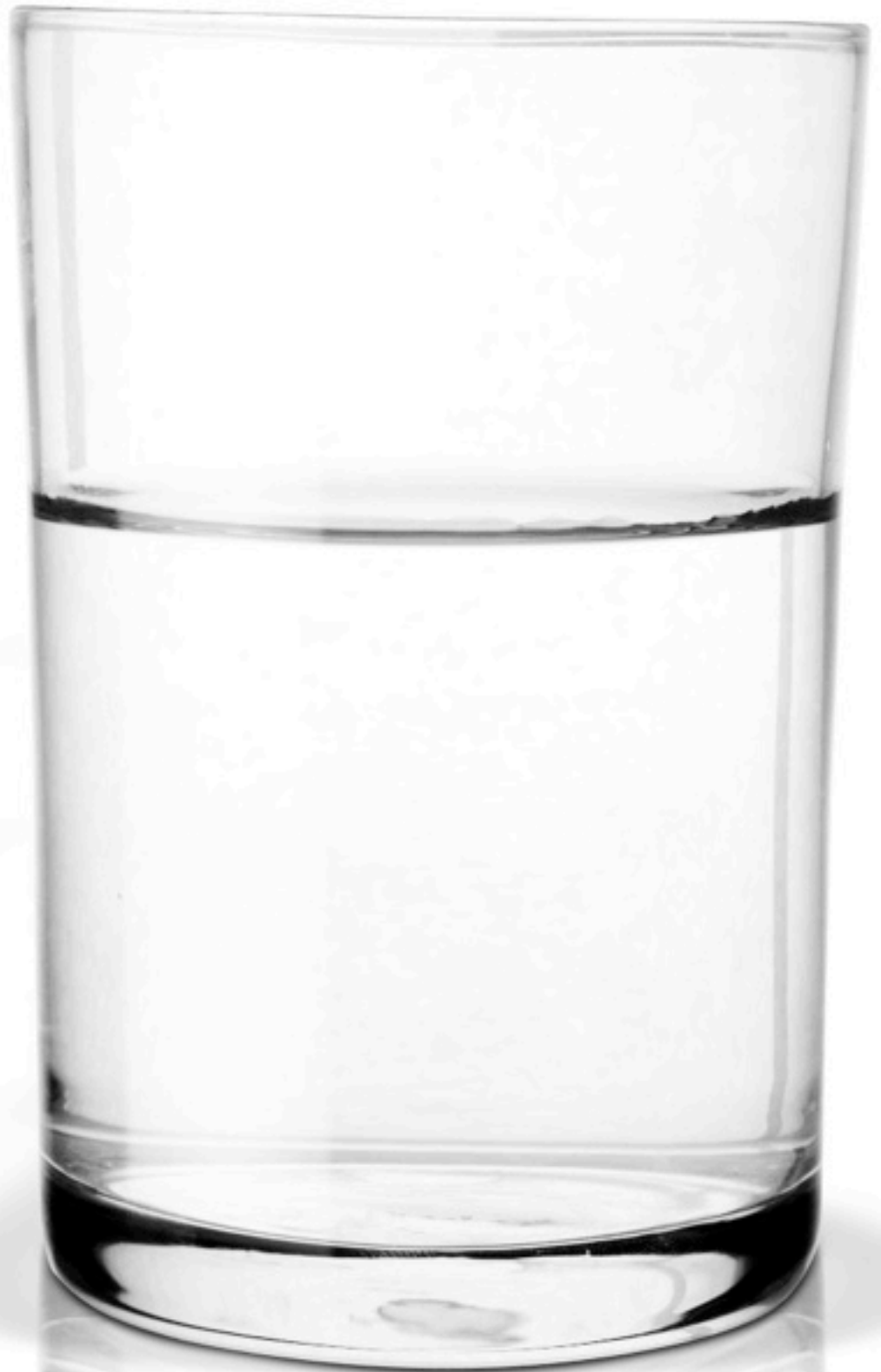
Capacity is what a company buys in anticipation of demand; space, labor, materials, equipment, technology. Together, these form some of the largest cost categories for many companies. Cost as effort involves calculating a cost to use capacity. For instance, someone making \$50,000, the assumed hourly rate is \$25/hour (based on 2000 hours per year), so something that takes them four hours is assumed to cost the company \$100.

There is only one financial transaction, however. When you purchase the labor, the financial transaction involved is paying the salary. A person making \$50,000 makes that amount regardless of how much or little work they do.

Many business cases use cost as effort as a basis for financial improvements. **Using this value will cause you to overstate business cases and will create false savings opportunities.** Improvements in the use of capacity leads to increased efficiency and results having excess capacity that must be managed down to reduce costs.

*R Yu-Lee, *Essentials of Capacity Management* (New York: John Wiley & Sons, 2002).

Costs should be clear and simple. You buy something and you pay for it. Ambiguity creates confusion and limits management effectiveness.



Timing of cash flow

The Issue

For accounting to represent cash flow effectively, it must reflect the timing and value of cash flow transactions simply.* This does not happen.

Revenues. The laws governing accounting allow revenues to be acknowledged, or “recognized” in ways that are independent of cash flow. For instance, a company can record a sale, invoice a company, and not receive payment for 30 days, 60 days, or beyond. This suggests that the revenue component of profit does not have to be in alignment with when you receive the cash.

Costs. There are two aspects of costs that create questions about how well they align with the timing of cash flow; manufactured products and buying certain assets.

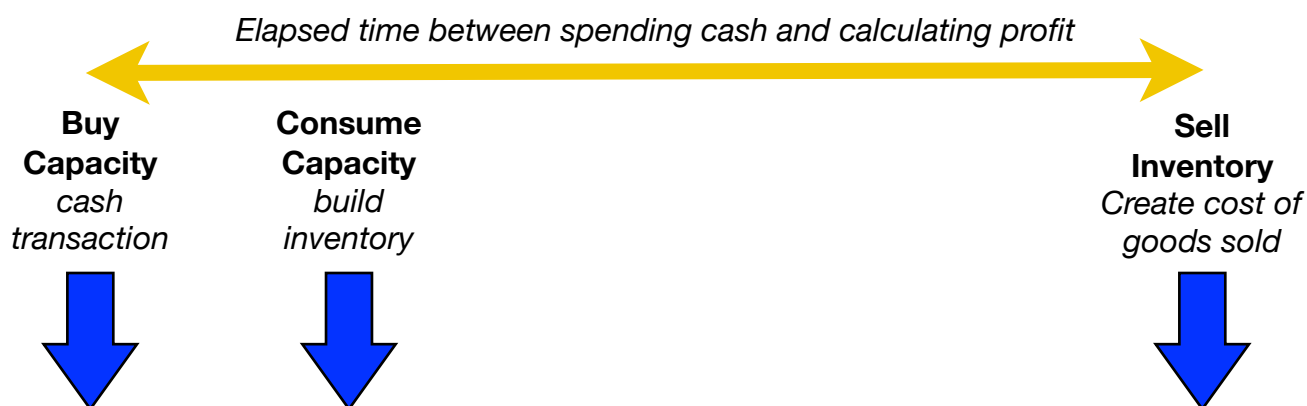
Manufactured products. Cash is spent on the capacity - the space, labor, materials, equipment, and technology, used to manufacture products and create inventory. When an item is considered inventory, its value, composed mostly of applying or allocating capacity costs, is calculated and placed on the balance sheet as an asset. When sold, this item is transferred from the balance sheet to the income statement as the cost of the good that was sold. There can be weeks, months, even years between when the cash was spent on capacity to produce the items and when the cost is used to calculate profit (see figure below).

Buying assets. When a company buys assets such as large equipment, they often have multiple choices regarding how they pay for it. It can be a one time payment, or multiple payments. These payments, cash transactions, don’t show up as a cost that is figured into calculating profit. What does show up in profit calculations is the asset’s depreciation.

For instance, assume a company purchases a \$9,000 piece of equipment, it might depreciate the value of the asset by \$3,000 per year. The \$3000 acts almost as a cost in that it reduces the taxable income, but the number itself, \$3000, can be independent of the cash flow. The company may spend \$9000 cash today with the depreciation, affecting profit over the next three years. For the first year, the company would take a cash hit of \$9000 even though only \$3000 would show up as depreciation. In subsequent years, the company still gets benefit even though there is no cash transaction involved. You may ask, “what about financing?” Even then, there is no guarantee that the payments will align with the depreciation schedule.

What does this mean?

The impact is that it is very hard to use accounting profit as a proxy for cash flow. When revenues can be recognized independently of when the company is paid, and when costs used are tied to cash flow that occurred sometimes years before, there is clearly a difference between calculated profit and actual cash flow.



*All cash transactions should ultimately be captured in accounting data. The question is one of how simple it is to find them. In many cases, one must be very good, if not an expert, to find transactions. This is how and why companies have been able to lie about the amounts of cash they do or don't have.



Cash flow management is all about the timing of cash transactions. The accounting profit equation isn't. This difference leads to the inability of the profit equation to be used to understand cash flow.

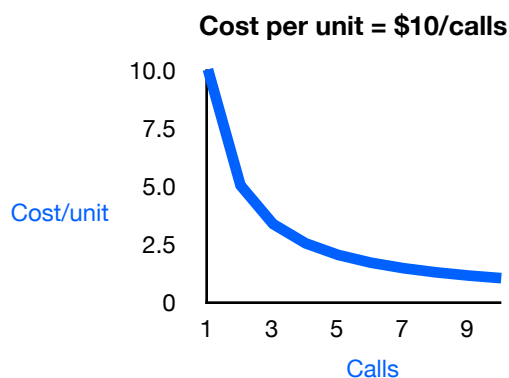
Cost per unit isn't financial

The Issue

One assumption often made in business is that the more efficient you become, the lower your costs. This assumption is widely used, and assumed, but is it correct? The answer is no.

Ask yourself “Why it would be cheaper to do more or buy more?” Don’t answer “economies of scale!” Really think about it. When doing more work, it is possible that you would either use the same capacity, or you would need to buy more. This means you would have the same costs at a minimum, and possibly higher, but certainly not lower. When buying more, you spend more to buy nine of something than you do to buy three. *Logic suggests that costs go up with more, not down.*

When someone suggests costs go down, they are usually referring to the **cost per unit**. If you pay someone \$10 and they make five phone calls for you, the belief is that each call costs \$2. If they are able to increase their output to ten calls, it drops to \$1 per call.



Have you ever asked yourself, “What does the \$2 per call represent?” What is the financial implication of answering one more call? Most telling, where would the savings show up on an income statement?

The answer is, **they will not**. These costs are calculated metrics determined by taking a fixed capacity cost and dividing it by the output it creates.

As capacity is consumed, its cost doesn't go down, it is just used more efficiently. \$10 is \$10 dollars, whether you make five calls or ten. However, if you can get ten calls for \$10, you

are using your capacity more efficiently than if you can only get five calls.

What does this mean?

Cost per unit is a measure of operational efficiency. Efficiency has a definition used throughout math and engineering:

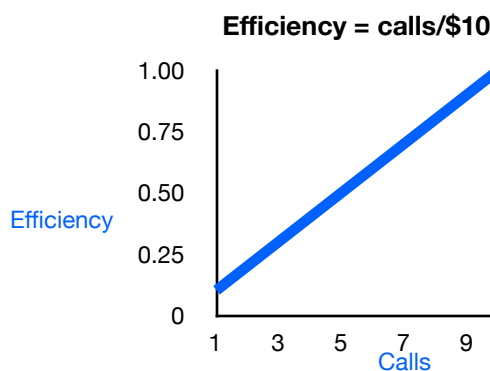
$$\text{Efficiency} = \text{output/input}$$

Consider fuel efficiency and miles per gallon. The question is, when you have a gallon of gas, how far can you go? The gallon of gas is the input, and distance is the output. More efficient cars get more distance from that gallon, or more miles per gallon (output/input).

In business, the inputs are the capacity you buy; space, labor, materials, equipment, and technology. The output is what you do or create with them. This leads to:

$$\text{Cost per unit} = \text{input/output} \text{ hence,}$$

$$(\text{Cost per unit})^{-1} = \text{Efficiency}$$



This suggests that cost per unit is just the math inverse or opposite of efficiency!

When someone says that costs go down with more, what they're saying, mathematically, is that efficiency is going up. What is changing is how the capacity is being used, not its cost. This is why the improvement will not show up on the income statement and, therefore, should not be considered in financial calculations.

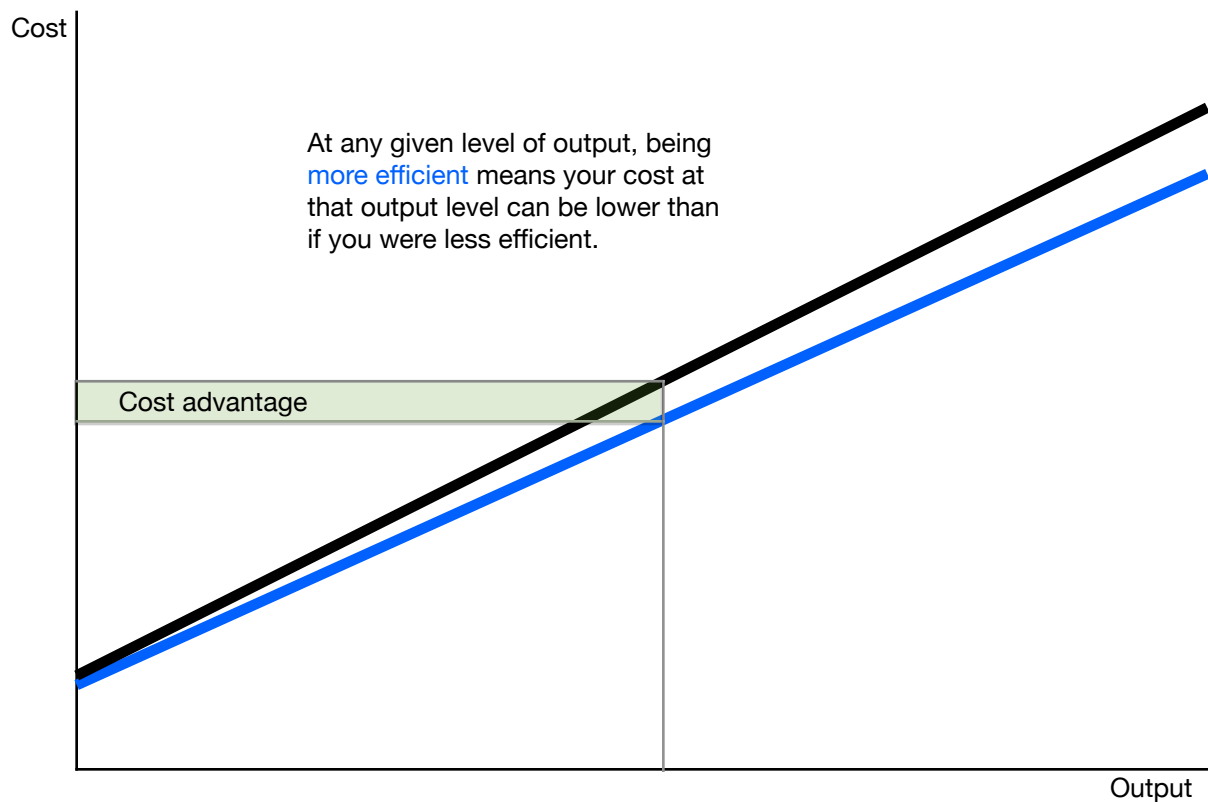
Key insight

The true benefit of efficiency

Costs do not go down with increased output. Costs functions are what are called *monotonically increasing* functions, meaning they will always stay the same or increase as output increases. So, what is the benefit of being efficient?

The benefit of being efficient is that it slows the rate at which you need to buy capacity. In other words, it slows the increase of your cost curve (see figure below). By being more efficient with labor, you can hire people at a slower rate. Being less wasteful with materials means you can buy less of it for the same output.

As you look to programs such as lean and six-sigma, understand that they will often increase your efficiency, so look at the cash flow savings with scrutiny. Often times, you will find that you will need to make additional managerial moves to get the financial benefit you were seeking.





The path to better cash flow management is defined by the Three-Ds:

- **Define** and create a clear understanding of costs and revenues
- **Design** your approach for modeling and measuring cash flow
- **Develop** the performance metrics you will use

Define costs

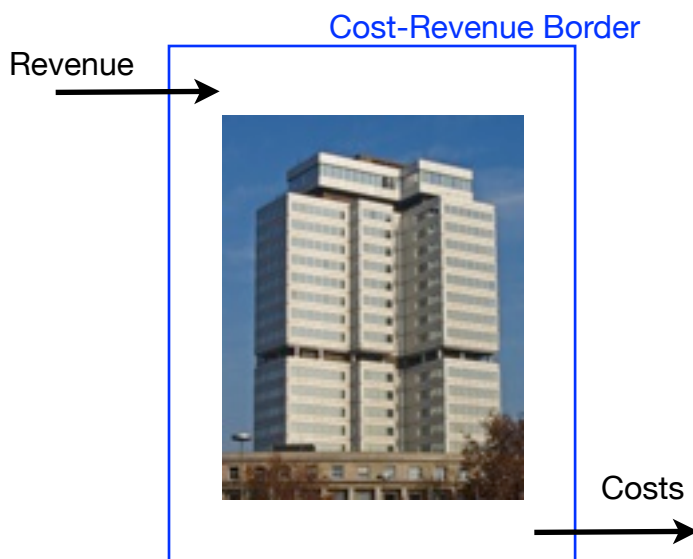
Cost and revenue clarity

The ambiguity of accounting revenues and costs makes it difficult to understand the impact they have on cash flow. For instance, when you reduce cost as effort, what effect will it have on cash flow?

We need unambiguous definitions of costs and revenues. Having this will enable more effective cash flow analyses, and will improve your ability to predict that which may affect cash flow in the future.

To create the definitions, imagine putting a box or a border around your company. This border will serve as a fundamental and necessary component to understanding cash flow.

If we decide that only money that enters or exits the border will matter when calculating cash flow, we now have a very clear way to define and



measure revenues and costs. If money crosses the border and enters your company, from the outside, it is revenue. If money crosses the border and leaves your company, it is a cost.

The Cost-Revenue Border eliminates ambiguity and provides never before seen clarity with cash flow analyses. It provides a platform to have discussions about the true effect that programs have on cash flow.

Key insight

Consider the entire company!

You may be tempted to apply the Cost-Revenue Border to departments or even divisions. This temptation should be resisted. The approach is effective because it represents the cash flow of the entire company. Intracompany budget transfers only affect the departments involved, but not the company.

Case

A university determined that it would charge departments five cents per copy based on its analysis of the in-house printing facility it owned. A department subsequently decided that it could buy copies from an outside for three cents per copy.

By going to the outside vendor, the university increased its costs and reduced its cash flow because the costs to operate the printing center still left the Cost-Revenue Border, as did the additional fees paid for outside printing. Had the department bought printing from the in-house group, the university (but not the department!), would have been better off.



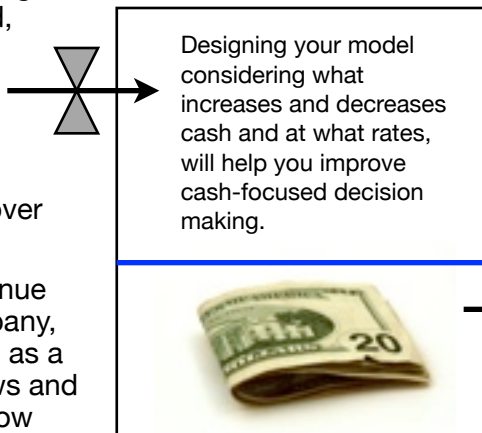
Maintaining precision when using the Cost-Revenue Border is important. The tendency is to use more traditional definitions of costs and cost per unit with this approach. They will not work. Your emphasis must be on the actual cash received and spent during your analysis period.

Design the model

The flows of revenues and costs

Jay Forrester of MIT led the creation of System Dynamics, the study of systems and how they change over time. The concept uses **levels** or amounts of that being studied, to determine the state of a system. When studying populations of animals in the wild, for instance, the level of the animal being studied, the levels of food, and of predators, and what increases or decreases them, become important when trying to understand the system and its behavior over time.

By putting the Cost-Revenue Border around your company, you can now look at cash as a level. By looking at inflows and outflows of money, you now have a clear understanding of what changes the level of cash in your company. For example, increased sales may increase the rate of cash coming into a company, but issues such as a poor receivables strategy, long payment terms, or risky sales may have a negative effect on the *rate* of generating cash.



From a cost perspective, an interesting conclusion can be drawn. Cash usually leaves the company under three conditions:

1. Payments made because you bought something.
2. Fulfilling obligations such as taxes, loans, and dividends.
3. Loans to others.

Notice that using capacity is not on the list. That is because it doesn't have an impact on cash.

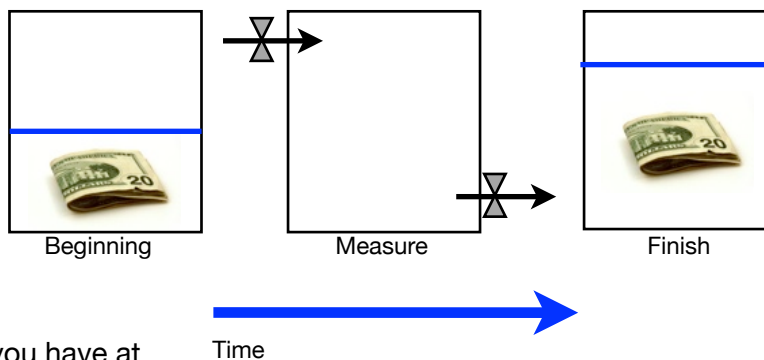
The implications are considerable. When thinking about performance improvement, you can ask one simple question to gain clarity, "How will this cause me to spend less cash?" This is why efficiency itself doesn't affect cash flow. Getting more out of someone making \$10 will not cause you to spend less money on them. The amount of money leaving your company remains \$10, because you bought their time, not their output.

Determining cash flow impact

With clear definitions of when dollars flow into and out of a company, measuring the cash flow impact of investments, programs, improvements such as six-sigma projects, and strategies over time becomes a simple task.

To measure or project changes in cash flow, consider the amount of cash that you have at the beginning of the measurement period. When measuring, consider the money that comes into the company, and money that leaves the company. At the end of the period, the change in cash flow will be determined by the difference between the money that came in and the money that left.

When thinking about new programs or investments, focus on how the changes will effect the flow of dollars into the company, out of the company, and the timing of when they will occur. This will help build more precise business cases and help eliminate ambiguity in cost-benefit analyses.



Develop metrics

Metrics add meaning to data

Any working thermometer can tell you that it is approximately 80°F outside. But other conditions such as humidity, may come into play that make 80° seem much warmer. This is where metrics come in. Whereas measures provide absolute information such as temperature, metrics are calculated values that can provide a different insight on absolute measures. Heat index and wind chill factor are weather metrics that provide more meaning to the temperature. The ambient temperature might be 80° but it sure feels like 95!

Cash flow metrics involve using the raw data, the measure of cash coming into, and leaving the company, along with other factors to provide deeper insights. Cash flow impact is an example.

Cash flow impact, CFI, is determined in foresight by estimating the impact of an action or an investment, and in hindsight, calculates these values. When thinking about a technology implementation, for instance, how, specifically will the change affect spending and cash flow reductions?

There are two key factors to CFI. The *revenue factor* focuses on how the action causes more or less cash to come into the company. It can be sales based, but doesn't have to be. A program can be implemented that increases the rate that sales are recognized, but this may not have the same effect on cash flow. The cash flow itself will be determined when cash is collected from the sale. An improved

accounts receivable program, on the other hand, should increase the rate of cash coming into the company even though there may not be more sales involved.

The *cost factor* focuses on the rate at which you spend cash. The cost factor is primarily tied to what a company buys, but this isn't always the case. As you buy more things, this will require that you pay at some rate. CFI should consider the rate of payment rather than the total due. As with accounts receivable, your accounts payable strategy will influence the rate at which cash leaves the company.

An example of CFI comes from an executive who challenged the savings potential proposed by a software vendor. When told the software would save \$500 thousand annually, the executive challenged the source and calculation of the number. The vendor suggested efficiency and productivity improvements would lead to the cost reduction. The executive responded, "true, we will be more efficient, but how will we spend \$500 thousand fewer dollars if we buy your software?" The vendor had no answer.

More traditional metrics can be used as well, as long as the values adhere to the definitions of cost and revenues proposed previously. Return on investment, for instance, should take into account the timing of the cash flows. When you do, you will also be able to determine payback and period return on investment.

Key insight

Keep metrics simple

Most companies have lots of metrics. Sometimes too many. A key question should not be whether you have them, but if they are right - if they are effective. Effective metrics do two things. They provide information and they align the organization.*

Warning!

Do not use *cost per* metrics, because changing them has no affect on cash flow unless you are changing the numerator, "cost" which is what you are spending on the period. To understand the same information, consider the cost independently of the output, and if you'd like to tie costs to output, use efficiency, which is the math inverse of *cost per*.

*See, for example, R. Lee "Designing Effective Metrics" *Journal of Corporate Accounting & Finance* (July-August 2013) pp 69-73, and R. Lee, "Managing with Metrics" *Industrial Management* (May-June 2013) pp 16-21.



Data, like food, is more useful the closer it is to its natural state. As food is processed, more of its nutritional value is lost. Creating metrics involves processing raw data. The more you process the data, the less valuable it is. Keeping metrics simple makes them much easier to understand and manage.

Improving cash flow management

Accounting won't work!

Accounting was designed as a tool to look backwards at what happened in your organization, and to report it in a consistent manner. It is like a bicycle. It works very well in one direction.

The assumptions, definitions, and math used in accounting don't reflect the true dynamics of cash flow, so as a forward thinking, tool for managing cash flow, it will not do the job.

Develop cash flow competencies

The way to improve your management of cash flow is to develop and use the right tools.

1. Define costs and revenues from the perspective of cash flow, not accounting. Avoid the temptation to use more traditional definitions.
2. Design your cash flow model to represent inputs and outputs to cash flow, and their rates. Your model must also represent the impact of changes and programs on cash flow too.
3. Use metrics to provide additional detail or perspective to the cash flow numbers. Avoid complicated metrics, as processing the numbers will create complexity without necessarily improving understanding and manageability.

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About the Cash Flow Innovation Lab

Managerial accounting is a 19th century tool solving 19th century problems. The basic approach has not changed. The business world has. Using managerial accounting is like fighting battles with muskets. It's time to upgrade. Through decades of R&D, the Cash Flow Innovation Lab, research arm of Business Dynamics & Research, Ltd, has become a source of providing 21st century tools, models, education and training. The Lab offers tools and information that can either turbocharge or replace your managerial accounting approach with absolutely no loss, but significant gains in financial data and information. It's like replacing your musket with laser-guided, precision machinery to help you fight the wars of the 21st, not 19th century. To learn more, visit www.cashinnovationlab.com.



DR RTL

About Dr. Lee

Dr. Reginald Tomas Lee is a director for the Cash Flow Innovation Lab. In this role, he is involved with developing and sharing leading edge, cash flow modeling and management techniques. He is the creator of Explicit Cost Dynamics, a cash flow modeling tool that addresses the weaknesses of managerial accounting and provides companies with more accurate and informative operations and cash flow data. For more information on Dr. Lee, please visit his website at www.reginaldlee.org.