

The Value Triple Constraint

Measuring the Effectiveness of the Project Management Paradigm

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Abstract

George E. P. Box stated “**All models are wrong. Some are useful.**” (1979, p. 202)

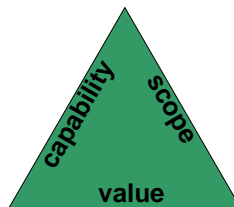
We have been too focused for too long on the wrong metric model. We measure adherence to cost (budget). We measure adherence to schedule. But we do not measure on-going business Value delivered through Project Management.

In his book, *Don't Park Your Brain Outside*, Francis T. Hartman states that “The only truly effective benchmark for project success is the long-term return gained on the investment in the project.” (2000, p. 13).

In another book, *Mind Set!*, John Naisbitt states “You don't get results by solving problems but by exploiting opportunities”. (Naisbitt, 2006, p. 77)

This paper explores the Value Triple Constraint as a framework for ensuring that we are exploiting the right opportunities and that we are doing so in an effective manner. We do this by:

- measuring the long-term gain on all the investments in projects; and
- measuring the effectiveness of the management and decision making processes that surround each and every project.



$$\text{Value} = f(\text{scope, capability})$$

Exhibit 1 – Value Triple Constraint

The Value Triple Constraint measures the effectiveness of the Project Management paradigm.

Introduction - The Classical Triple Constraint

From a business perspective, a project is a limited time endeavour aimed at taking an organization from one level of measured performance to a higher level of measured performance. In order to determine if we have achieved the project objective we need good methods of measurement. If we measure the wrong things, then our focus and attention will be diverted away from the important. The classical Triple Constraint as a tool for measuring project success is inadequate, as it does not allow us to measure how well we have succeeded with respect to the business opportunity. It measures how well we have estimated, rather than how well we have chosen and delivered value to the organization.

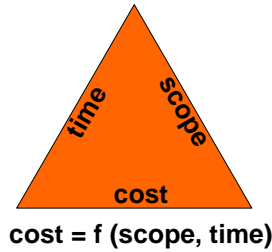


Exhibit 2 – Classical Triple Constraint

Triple Constraint: A framework for evaluating competing demands. Project managers often talk of a “triple constraint” – project scope, time and cost – in managing competing project requirements. – *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)* (PMI, 2004)

The *PMBOK® Guide* contains three separate knowledge areas directly related to the three factors of the Triple Constraint - Project Scope Management, Project Time Management, and Project Cost management..

The Value Triple Constraint (VTC)

The VTC is a framework for evaluating both the project and the project management paradigm. Its genesis is described in a white paper by this author titled *The Triple Constraint, A Triple Illusion* originally published in the 2006 PMI Global Congress Proceedings – Seattle, Washington. (Baratta, 2006).

We need to be able to measure the expected and actual business success of a project, not just the ability to meet a cost and budget target. We also need to measure how well and how quickly we are identifying and acting on business opportunities. We need a tool that allows us to measure the net value delivered by a project and by the project management process.

In his book, *Don't Park Your Brain Outside*, Francis T. Hartman states that “The only truly effective benchmark for project success is the long-term return gained on the investment in the project.” (Hartman, 2000, p. 13 Assuming that this is a reasonable statement the Value Triple Constraint will be able to measure that and more.

There is a relationship that guides all projects. It is relentless and honest. We can work against this relationship to our disadvantage or we can work to improve this relationship to our advantage. That relationship is the Value Triple Constraint.

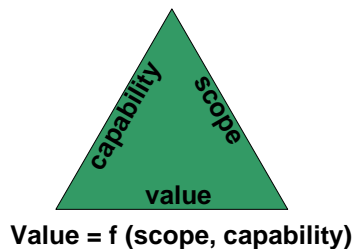


Exhibit 3 – Value Triple Constraint

It is written as:

$$\text{Value} = f(\text{scope, capability})$$

It is read as: the value delivered is a function of the scope of the project opportunity and the capability of the process used to deliver it.

The purpose of the VTC is to be able to quantitatively measure the following three aspects of the project management paradigm:

1. Ability of the project delivery process to deliver actual business value.
2. Ability to identify business opportunities that can be delivered through projects.
3. Capability of the decision process to select the most beneficial projects for the organization to undertake and to select them in the right order.

In order to understand how this is accomplished we need to understand the three components of the Value Triple Constraint and how they are related. For this paper will focus on the “value” component.

Project Value – measuring the outcome at the Project level

At the least we need to know whether or not a project is worth pursuing and whether the project actually produced business benefits. At the project level we have three major metrics as follows:

- Project Value
 - a. Benefit Stream
 - b. Project Delivery Cost (traditional cost)
- Project Schedule Cost

Let us explore each of these components.

Benefit Stream: This is the anticipated stream of benefits that will be delivered by the successful completion of the project. We are all familiar with this business case metric.

Project Delivery Cost: This is the total of material, personnel and service costs required to deliver the project. This is the traditional Triple Constraint of cost.

The *Project Value* is what we would use to determine acceptance of a project and later, when completed, the actual Project Value is used to determine the actual business success of the project. A project with a highly positive *Project Value* can be a success even though the cost and schedule targets may have been missed. A project with a negative actual *Project Value* is a failure even though it may have achieved its cost and schedule targets. This is in contrast with the way that many organizations (Gartner, Standish Group, ...) may measure project success. We aren't saying that schedule and cost are not important, only that they may not represent the best opportunities for improvement.

Project Schedule Cost: This is based on the notion that time is money and is calculated as:

Project Schedule Cost = number of schedule months X anticipated monthly benefit.

This metric may seem a little odd. What it really says is that the cost of a month of schedule on a given project depends on the actual monthly benefit that we are anticipating. This metric is, therefore, a relative measure. A month on one project may be worth more or less than a month on a different project. The basic premise behind this metric is that as soon as we are aware that there is an opportunity to realize a defined business benefit by making some change in our business, then every moment that passes without that change being in effect, represents a lost benefit, a missed opportunity. Every month that passes by is one more month that we are prevented from realizing the anticipated project benefit. For example, if our anticipated benefit is \$100k per month, then the Project Schedule Cost for an 18 month project is \$1.8 million. If the project is delayed by 3 months, then that would add another \$300k to the Project Schedule Cost. On the other hand, if we could deliver the project six months earlier, then that would mean adding 6 months of benefits or \$600k to the value of the project.

This metric can be used to evaluate any change requests which cause a schedule delay or alternatives which would speed the project. In the current environment it would be tough to sell an increase in the Project Delivery Cost of say \$300k to gain six months. This metric recognizes that months or time is a relative measure. The value of time depends on what you can get or lose when time changes.

Projects exist to capitalize on opportunities. Therefore, we need to measure lost opportunity just as much as adherence to an estimate, which may actually be wrong.

Enterprise Value – measuring the outcome at the enterprise level

Are we selecting the right projects? Are our projects actually delivering business value? Are Project Management, Program Management, Portfolio Management and the Project Office making a positive difference? Are we capitalizing on project opportunities quickly enough? These are difficult questions to answer quantitatively. But measure them we must. The following are two additional component metrics of Value which together measure the project management paradigm at the enterprise level.

- Enterprise PM Effectiveness
 - a. Opportunity Identification Cost (OIC)
 - b. Opportunity Decision Cost (ODC)

Before we can take advantage of an opportunity we have to recognize that it exists. The Opportunity Identification Cost and the Opportunity Decision Cost together, measure our effectiveness at recognizing opportunities and our speed of decision making. The ideal, but not achievable, target for both these costs should be zero.

Let us explore each of these costs.

Opportunity Identification Cost (OIC): This is a metric that looks backward in time. Suppose we acknowledge an opportunity today that will yield a benefit of \$100k per month. Upon reflection we realize that this opportunity has actually existed for two years or 24 months. Then the Opportunity Identification Cost is calculated as follows:

$OIC = \text{monthly benefit} \times \text{number of months that the opportunity has existed before we recognized it.}$

In this case the OIC would be \$100k X 24 months or \$2.4 million.

Opportunity Decision Cost (ODC): This is the value of the delay between when we recognized the opportunity and when we actually begin the project (day one on the project schedule). Using the same example as before if we take 6 months to start the project, then the ODC is \$600k. It is calculated as:

$ODC = \$100k \times 6 \text{ months} = \$600k.$

The point of these Value metrics is that they may represent an area of opportunity that is magnitudes larger than our current focus on budget and schedule. Most of the effort goes into the project portion of the whole cycle and, therefore, the opportunity for reducing that part is limited. On the other hand quicker decision making can produce benefits with no other costs attached. The same thing is true for identifying good projects. In addition, these metrics together can, over time, measure whether our project management paradigm is improving or not. In addition, by measuring and tracking project value we can also quantify the value provided in measurable business terms.

In order to better understand each of the components let us explore the following example.

Example

Imagine that at some point in time, we discover a situation which if resolved will produce a benefit of \$1.2 million per year (\$100k per month). This is the *Benefit Stream*. Assume that our company standards are to view the benefit stream as a four year stream. Then this would amount to \$4.8 million over those four years. This is the Business Case Benefit Stream.

Let's also say that the situation which we have just identified has actually existed for two years, i.e. it has taken us two years (24 months) to recognize or identify the opportunity. Therefore, the *Opportunity Identification Cost* is the equivalent of two years' worth of the *Benefit Stream* or \$2.4 million because we didn't recognize the opportunity earlier.

Let's further imagine that it takes 6 months before a decision is made to actually resource a project and actually begin the project. Therefore, the *Opportunity Decision Cost* is the equivalent of six months worth of the *Benefit Stream* or \$600,000.

If the project takes 18 months to deliver, then the *Project Schedule Cost* is \$1.8 million.

The *Project Delivery Cost* represents the expenditures of people and other resources. Let's say that this is \$2.4 million. This is what we normally refer to as the cost (actual) or budget in the triple constraint model.

Let's summarize these in a table:

Category	Opportunity Level	Opportunity Delay \$ M	Project Schedule \$ M	Project Value \$ M
Opportunity Identification	Enterprise PM	- \$ 2.4		
Opportunity Decision	Enterprise PM	- \$ 0.6		
Schedule Cost	Project		- \$ 1.8	
Bus. Case Benefit Stream	Project			+4.8
Project Delivery Cost	Project			- 2.4
Subtotals		- \$ 3.0	- \$ 1.8	+ \$2.4

If we take an enterprise view, where are the opportunities?

We can see that there is a potential \$3 million dollar goldmine opportunity that is completely outside the project level management. If we could recognize opportunities earlier and make decisions more quickly, then we could have access to that pot of gold. Of course to see the true opportunity we would need to compile such a table for all projects. That would give us an enterprise level view and enterprise level trends.

Attempting to improve the way we manage an actual project has a total pot of \$4.2 million. It looks like we should focus there, but this is where most of the resources are consumed. Our actual ability to reduce that number is very small. The fact that so many projects miss their schedule and budget targets is statistical evidence that we may not have much real opportunity here. However, this is where most of the focus is today.

In addition, looking at project level metrics does not show us selection errors. This is where the Opportunity Identification and Opportunity Decision Costs really shine. Suppose we mistakenly select a Project A with a \$100k per month Benefit Stream over Project B which we later determine has a \$400k Benefit Stream. Suppose that project had to wait an additional year as a result. Then that one year will add \$4.8 million (12 months X \$400k per month) to the Opportunity Decision Cost for Project B. When management reviews that cost and asks what happened they will be able to see that the organization made a costly selection error. Had they selected Project B and delayed Project A instead, we would have added \$1.2 million to project A, but reduced the Opportunity Cost for B by \$4.8 million for a net gain of \$3.6 million.

We can't predict what any organization's actual metrics would be, but right now few organizations are using quantifiable metrics such as these to tune their selection approaches.

The Value Triple Constraint provides an exceptional opportunity to expand our focus from individual projects to true enterprise Project Management. Don't confuse this with simply managing large groups of individual projects. This is about managing how each organization implements the whole PM paradigm.

If we think in terms of two organizations in parallel universes, both of which undertake the exact same projects we can imagine that the one that can recognize opportunities earlier and make decisions to act on those earlier will

realize greater benefits even if the projects themselves require the exact same budget and schedule and deliver the same benefits. The Value Triple Constraint Framework provides a way for us to be in the winning universe.

Potential role for the Project Office

Tracking these metrics is an enterprise activity. It implements accountability for each project as well as for the project paradigm over time. Although not strictly necessary, a PMO, if one exists, may be the ideal organizational unit to carry out this responsibility. A PMO can ensure that each project's VTC metrics are properly captured and verified and that they are used to improve all aspects of that organization's Project Management Paradigm.

Summary

The Value Triple Constraint model goes beyond the individual project and allows us to measure portfolios and even the project management process itself over time. We can compare how much value is generated one year as compared to another year. It allows us to measure not only the delivered value of each project, but also the delivered value against the predicted or budget value. In other words it allows us to separate project success versus estimating success. The current model only allows us to measure estimating success. After all, budget and schedule, on their own, have no meaning. But it also allows us to measure how much value we have left behind. This is a measure of how capable the organization is at finding opportunities and acting on them.

The Value Triple Constraint moves the focus away from the project manager to project management as a whole. It engages both management and users because now identification and quantification of measurable benefits becomes a necessary component. It allows the project manager to truly manage conflicting demands because it provides a measurement which includes the total effects of cost, opportunity and schedule into a single value that is project specific. In essence we want to accept a change in scope if it raises the relevant Value and not accept it if it reduces the Value. Such a decision is often not made at all on many projects because we work primarily with cost and schedule as separate elements.

A project manager sometimes lengthens the schedule to accommodate a scope change which, on its own, seems to be justified. This can lead to decisions which look correct but actually cost the organization because it has not considered Schedule Cost. For example, if we were to consider the fact that an additional month on the schedule means one month of lost benefit, then the change may no longer be justified. In addition, such justification needs to be driven by the business user requesting the change, not the project manager in isolation.

This model forces the business to take responsibility for establishing and confirming the benefit. It also focuses attention on the greater opportunity of identification and decision rather than solely on delivery. It provides us with the ability to attach a true cost to such things as user non-availability and resource shortages because rather than simple schedule delays, we can now show how these events change the Value of the project. In addition, it allows us to identify high risk, low Value projects up front. We can continue to focus on Value throughout the project and monitor Value changes rather than just budget and schedule changes.

Organizations actually only manage a small part of their true cost. The VTC highlights the importance of project identification and selection. It also stresses the importance of identifying, quantifying and revising the project benefit throughout. Without that metric only the project delivery cost can be determined and this may be a small part of the true overall cost.

The Value Triple Constraint requires us to quantify and validate project benefits when the project is complete. This attacks the practice of overstating benefits to get project approval and then abandoning that metric. The proposed triple constraint model gives us a better way to evaluate project success. It also allows us to focus our attention on where the true opportunity lies. If most of the cost is in the identification and selection, then there may be more opportunity in improving how we identify opportunities and how quickly we make decisions rather than improving our delivery capability.

It allows us as project managers to engage management and users more fully in the process and deliver greater benefits to the organization.

The Value Triple Constraint represents a true relationship among Value, Scope and Capability.

References

- Baratta, A. (October 2006) *The Triple Constraint, A Triple Illusion*. 2006 PMI Global Congress Proceedings – Seattle, Washington.
- Box, G. E. P. (1979) Robustness is the Strategy of Scientific Model Building. In R.L. Launer & G.N. Wilkinson, (Eds) *Robustness in Statistics*. Burlington, MA: Academic Press
- Breyfogle III, F. W. (2003) *Implementing Six Sigma* (2nd ed.). Hoboken, New Jersey: John Wiley & Sons.
- Hartman, F. T. (2000) *Don't Park Your Brain Outside*. Newtown Square, PA: Project Management Institute.
- Kaplan, R. S. & Norton D. P. (1996) *The Balanced Scorecard*. Boston: Harvard Business School Press.
- Naisbitt, J. (2006) *Mind Set! Reset Your Thinking and See the Future*. New York: HarperCollins Publishers
- Project Management Institute. (2004) *A guide to the project management body of knowledge (PMBOK®)* (3rd ed.). Newtown Square, PA: Project Management Institute.
- Stamatis, D. H. (2004). *Six Sigma Fundamentals*. New York: Productivity Press.