

# Special Report: Achieving Results

By Dan Siems

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“However beautiful the strategy, you should occasionally look at the results.” – Winston Churchill

“Never mistake motion for action.” – Ernest Hemingway

“What keeps us from achieving our results?” – Dan Siems

I’ve noodled over this question in various capacities and management roles, read books, attended conferences, talked with colleagues and eventually return to: Us. We keep ourselves from achieving our results. And what is it about “us”? It’s our thinking. Specifically our thinking about how things work – or how work gets done. As leaders, our thinking determines action – and action brings results.

My journey has led me to distill a few basic thoughts describing the dynamics determining results. Whether your business is manufacturing or services the principles are the same. I hope you find these beneficial and invite you to share your observations in turn.

## There are Five Kinds of Customer Variation<sup>1</sup>

Our customers inherently express five kinds of variation:

- Arrival time – When will they place an order?
- Quantity ordered – How many will they want?
- Effort expended – How much of their own capacity will they put into making it happen?
- Capability demonstrated – Do they understand what they are doing? Do they need help?
- Expectation threshold – What level of service-product-care do they expect?

It’s incumbent on us to create systems to manage this variation and create a first-rate customer experience. This starts with understanding how the customer perceives our product-service.<sup>2</sup> See figure 1.

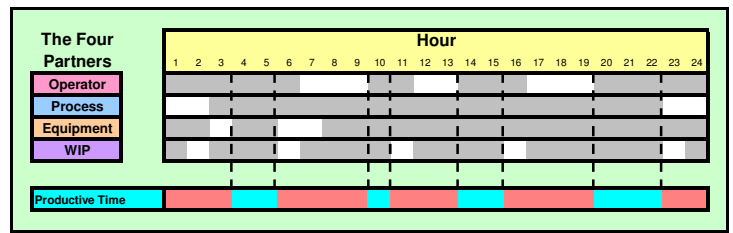


Figure 2 – The Four Partners. Notice system “productive time” occurs at the intersection of each partners availabilities (gray space).

But – there is a bigger – more sinister problem when work stops: Work bunches up. When work bunches up – and starts to move in chunks instead of a continuous flow – capacity is reduced, cycle time increases, and inventory builds. The increased *variation due to outages* by any one of the four partners produces shortages, poor on-time delivery, uncertainty, short-cuts, expedites, and eventually – missed results.

## There are Three Buffers

There is no getting around physics – so it’s best to understand it. John Little observed:

$$CT = \frac{WIP}{TH}$$

This is the F=ma of factory physics, where CT is cycle time; WIP is work in process; and TH is throughput. Another key observation: “Variability in a production system will be buffered by some combination of Inventory, Capacity and Time.”<sup>3</sup> This is useful in applying another handy relationship:

$$CT = SCV \frac{RPT}{(1 - u)}$$

SCV is the squared coefficient of variation; u is utilization; and RPT raw process time. Hang in there – what you need to see: **variation (SCV) is a player in cycle time** – one of our buffers. Lean and Six Sigma activities should be directed at eliminating *this* variation for maximum bottom line impact.

What does this mean to us? We have choices – policy choices – to manage our results. We choose (or do not choose) how to manage these buffers:

- How long *will you allow* lead times to become?
- How much inventory *will you carry*?
- How much capacity (throughput) *will you add/subtract* to the system?

We often approach our problems like squeezing a balloon – squeezing one buffer only to move our problem to another. **Removing variation between the four partners and putting policies in place to protect the system are the only ways to improve.** Examples include:

- *No expediting.* Think of how traffic on a highway is disrupted when it services an expedite – an emergency vehicle: all traffic stops to allow the expedite to pass. Now think of how many “emergency vehicles” are allowed in your processes...Is it any wonder why work doesn’t flow?
- *Cap the WIP.* By placing an upper bound on WIP you ensure flow. Again, think of a highway at rush hour – WIP not capped – traffic slows to a crawl – missed on-time delivery....
- *Keep the Bottleneck – and ONLY the bottleneck – busy all the time.* Everyone else should strive for the “ideal state” – which is, surprisingly, “idle but ready”. Is there an unwritten policy that everyone should always be busy? What action do your measures support?

During a recent three day sales meeting, it became clear at the end of the first day we would not accomplish our agenda. The group had three choices: Work longer (time buffer), work faster (capacity buffer), or work on less stuff (inventory buffer). Because the group thought the quality of presentations would suffer if we worked faster, and because they could only endure three days of presentations and longer days would decrease their listening effectiveness, they chose to cut inventory – the number of presentations – to accomplish their meeting objectives. This forced them to prioritize the presentations and move others to another venue. Factory physics at work.

<sup>3</sup> Factory Physics, second edition, by Spearman & Hopp. McGraw-Hill publishing. Copyright 2001, 1999, 1995 • www.factoryphysics.com

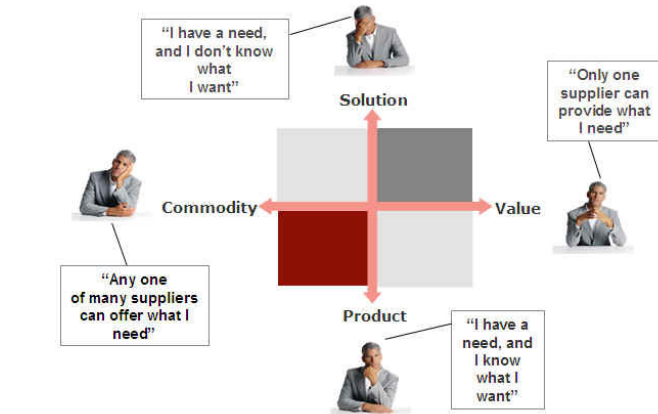


Figure 1: The Four Buying Quadrants. ©2007 Market-Partners Inc

If our business processes and strategies are aligned toward one quadrant and our customers are found in another quadrant, results will suffer.

## There are Four Partners

For work to get done, there exists Four Partners that, when properly synchronized, produce results – see figure 2. These Four Partners are:

- People
- Process (business process or manufacturing process)
- Equipment and/or Information
- Inventory (work to work on)

Not too profound – but what is often overlooked is the *intersection* of the four partners *availabilities* – or said another way – *their time together*. This intersection determines the *complete availability* of the system. Often work cannot be done because one partner is missing – and it only takes one to go missing for work (results) to stop.

<sup>1</sup>Breaking the Trade-Off Between Efficiency and Service by Frances X. Frei, Harvard Business Review • hbr.org • November 2006

<sup>2</sup> Market-Partners’ 4-Quadrant buying model [www.market-partners.com](http://www.market-partners.com)

## There are Two Conflicts

How often have you heard, "Well boss, do you want quantity or quality?" And you replied, "I want both!" Did you ever wonder what drives this conflict? Put into a glyph:

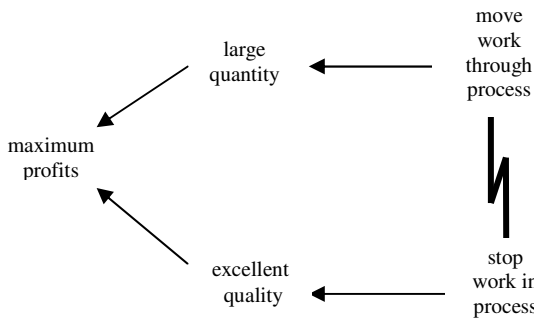


Figure 3 -- This is called a "cloud", reference Goldratt & Cox, *The Goal*. To read a cloud, start at the left and move right: We want to *maximize profits*. In order to *maximize profits*, we need a *large quantity of product* **and** *excellent product quality*. A *large quantity of product* requires *work to move through the process*, while *excellent quality* requires we *stop work in process*. You cannot *move work* and *stop work* at the same time – this is a conflict.

The physical conflict is – We cannot move work and stop work at the same time. Someone must decide what to do.

You may ask, Why would we stop work? Examples include:

- Cleaning or fixing equipment, or correcting erroneous information
- Measuring, calibration, setup, qualification, double-checking
- Servicing an expedite, interruptions, distractions, do-over's
- Unclear requirements, process entropy, manufacturability, reworks...

If the process is not stopped and acted on, product (or service) quality is at risk. This conflict is often dismissed with statements like "quality is a given" when in fact experience teaches us that quality is never a given in light of entropy, uncertainty and changing expectations.

Left unresolved, this conflict drives a multitude of undesirable effects – all of them consuming time and capacity (to compensate, we inflate inventory). A better intervention – of several possible interventions – "reset" the default position of the "GO" button by empowering the operator (or anyone) to STOP. You may think this is obvious or not applicable to you – but a quick look at rework, scrap and a dependence on inspection tells another story. The person controlling the "moment of truth" – the GO button – should have the confidence – every time they press it (or "DO" it) – that they are making excellent product. Confidence comes from data – process data – which can be used to predict outcomes and assess capability. And collecting data takes time – or stopping the product. Clear policies are needed to ensure this conflict doesn't gain the upper hand.

The second core conflict – figure 4 -- concerns product (or service, and so on through the example) development – or how we get into our first conflict to begin with:

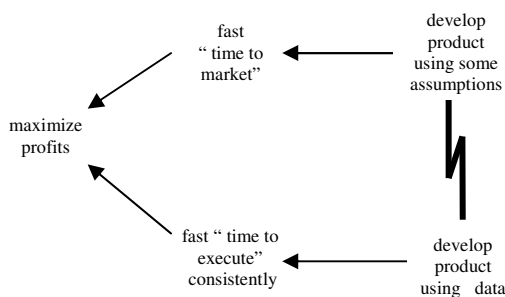


Figure 4 – Data vs. Assumption Core Conflict

There are advantages to fast product development:

- first to market – best prices, capture market share
- "It's better to provide something than nothing." (Remember your first mobile phone with a camera? Pretty bad quality, huh?)
- faster return on research investment
- the customer can't change their mind as often (they have less time to change it !)
- faster cycles of learning generally lead to better products more often

But to get fast development time, we often act on incomplete information – assumptions – such as:

- customer requirements
- manufacturing or service capabilities
- raw material properties or information integrity
- design unknowns – after all, it is "new"

An assumption (lack of data) is contradictory -- or in conflict -- to data. Product development assumptions are often at odds to the data required for a fast (robust) manufacturing/delivery ramp. Waiting for data before taking a development decision may result in a better long term outcome – robust product delivery – but jeopardizes the short term mission – develop the product on time. Often products are developed and "thrown over the wall" for others to make (or do), shifting the conflict to quality vs. quantity.

One intervention into this core conflict: dedicate manufacturing/service capacity to development. This breaks down "the wall" and surfaces bold assumptions quickly. By managing the capacity buffer, time can be saved in development and future capacity gained in manufacturing/service delivery. An easy way to accomplish this is by capping WIP and allocating a percentage of WIP to development – no strings attached. Development cycle times are maintained while disruptions are managed.

Are there other conflicts? Yes – and they can be generalized as Long Term vs. Short Term – the tension between building (or maintaining) the future business health and the immediate need for results. These two conflicts capture most of our current reality.

To recap – there are Five kinds of Customer variation, Four Partners, Three Buffers, Two Conflicts and finally,

## There is One Fact of Life and One Rule to Follow

Everything is constrained; therefore, **MANAGE THE CONSTRAINT**. The Theory of Constraints<sup>4</sup> supplies the Thinking Processes needed to manage the constraint and starts with five simple focusing steps:

1. *Identify* the constraint.
2. Decide how to *exploit* the constraint.
3. *Subordinate and synchronize* everything else to the above decisions.
4. *Elevate* the performance of the constraint.
5. If in any of the above steps the constraint has shifted, *go back to Step 1*

We cannot produce (or provide a service) more than the constraint allows. Put another way – You cannot get anymore dollars out of the business than you can get through the constraint.

Applying this to policy constraints – A thought experiment about an everyday constraint – life on the highway: What is the constraint on the highway? Or, **What keeps us from achieving our result faster?**

We usually answer: TRAFFIC (too much WIP)! But what if I were the only one on the highway (no WIP – the highway is empty), how long would it take to go from LA to south Orange County? Sixty minutes. What constrains me? The posted speed limit determines my maximum speed. This is an example of a policy constraint. Let's say we removed the speed limit – or the consequence of the speed limit; what is the next constraint? For some, another policy constraint kicks in – concern for our own safety. For others, they are constrained by the quality of their tires, or horsepower of their engine – these are physical constraints. Notice that as conditions change – for example, the weather – the constraint may change. (Clue – to find the constraint, look for idle WIP – in this example, a traffic jam! You may have to lower the WIP to identify the constraint.)

Growth is (thankfully) constrained. What constrains your businesses? Find this, and you've found the key to growth. Always manage the constraint – don't let it manage you. There is always a constraint; and most often the constraint is a policy.

Who manages policy? We do. And we are back to our question: *What keeps us from achieving our results?*

About the author: Dan Siems lives in Orange County, California. As a finance-focused operations executive bent on operational excellence, Dan believes in growing profitability by growing people and can be contacted at [www.OperatingCurve.com](http://www.OperatingCurve.com). Would you like elements of this special report "unpacked" and expanded on? He is available for public speaking, in-house training, facilitation or operations consultation. Dan also specializes in helping organizations develop and deploy strategy linked to processes and budgets.

<sup>4</sup> White Paper: The Theory of Constraints and its Thinking Processes *A Brief Introduction to TOC* by Tracey Burton-Houle, Partner, The Goldratt Institute © The Goldratt Institute, 2001. • [www.goldratt.com](http://www.goldratt.com)