


$$P = \frac{W}{t}$$

Powerful Solving:
In the Foundation of Innovation

Matthew Battle

Why innovate?

“No matter what anybody else tells you: corporations achieve competitive advantage through acts of innovation.”

PETER DRUCKER

According to the Boston Consulting Group 2006 survey Result, 72% of the executives rank innovation as a top-three strategic priority, up from 66% in 2005.

72% of respondents said their companies would increase spending on innovation in 2006. At the same time, many executives—nearly half of those surveyed—remain unsatisfied with the financial returns on their companies' investments in innovation.

Does that sound familiar to you?

WHY IS INNOVATION SO IMPORTANT TO CEOS?

In the past, there has been a major trend among companies to reduce cost. 6-Sigma tools were so efficient for cost-cutting in transactional areas, as well as in technical areas, that their reputation has reached every big company.

What they want: **To gain money!**

This rigorous approach allows you to increase your margin by the given formula:

Profits = Revenues - Costs

Big profits can for sure come from decreasing your costs. But, in the end, even if a company has become the most efficient one on earth, it doesn't mean it will be the most profitable.

Why? Because the revenues will stay fixed, and more, will decrease year after year as the customer gets used to the product, *and* because competitors will launch some new, audacious products to compete with it!

So, Innovation is the key to obtaining bigger revenues. And some companies are now in the next optimization loop, thus creating innovation for *durable* profitability.

As Jeff Immelt, CEO of General Electric once said:

“Too many companies have lost the ability to innovate because they have become business traders rather than business creators.”

WHAT BENEFITS COMPANIES WILL GET

Innovation is the key to:

- ▶▶ New products and services creation!
- ▶▶ Enhanced profits (from new products and services)
- ▶▶ Improve their brand recognition and brand value
- ▶▶ Attract employees
- ▶▶ Sustainable differentiation

PROBLEM SOLVING & INNOVATION

So, innovation is the big goal. And what is the common point between all innovations? They are all considered and created as new ways to fulfill a customer need. Behind those needs, there is always a problem you can state.

So, in the foundation of each innovation, there is a problem to be found, stated and... Solved! That is why “Powerful Solving”[®] is focusing on the foundation of the innovation and is designed to help you get skilled at problem solving. Problem solving is not always easy, and can take a great deal of creativity, as new/innovative ideas are often ideas that surprise us or are “out of the box.” Creativity is a word people are often afraid of. It is sometimes seen as a supernatural gift, but this is not right.

EVERYBODY CAN INNOVATE!

“We are all Michelangelos.”

TOM PETERS

The good news is: everybody is creative! We don't have to teach people how to be creative.

If you ask the team to remember some times where they have been creative, they could be surprised by their own answer.

Of course, each person comes with a different personality. Some are more “right brain,” others more “left brain.” We'll see that both are needed in order to be successful in innovating. The trick is that those two approaches should be separated during different parts of the process in order to get the best of all the team's thinking. There should be some “right brain”/divergent thinking process first and then a “left brain”/convergent thinking process.

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THE POWER OF A PROCESS

Creative thinking is one of the last fields that some still argue is impossible to teach or learn. They think Genius ideas are as rare as the people we think of as having those kinds of ideas. It seems they think it is a secret niche of people that would like to keep their secrets in order to keep their aura of fame.

But innovation does not solely rely on big, genius ideas! How many discoveries or inventive products have been made by chance? As Thomas Edison said, *“Innovation is 1% genius and 99% perspiration.”*

Since the beginning of time, innovation has come through an endless series of trials and errors. So, why would businesses have the same efficiency as always, while other fields of knowledge around ours are progressing? This seems to me in total contradiction to our profound nature of human being.

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LET'S THINK A MOMENT

What species of mammal is the weakest on the day of its birth? What is the specie that is the least able to survive without the help of its parents or tribe, even after two years on this earth? Yes, you've guessed... it is the human baby!

How is it possible that such a specie has progressed to the top of the pyramid and shaped the world (for the better or the worse)? Our main advantage remains in one particular characteristic: a big brain. But more important is the process of wiring what is inside this brain. Each new generation is building on the past knowledge and trying to update it. This is the snowball effect that allows our civilization to progress through the centuries. In fact, scientists are not even convinced that our IQ has increased for many centuries.

So what has made us more "clever" is the rational mind we've applied to problems across the ages to learn and learn to learn. Let's take an example in the field of sport: We've all seen a skinny Shaolin monk able to break a massive brick just with his hands. Without any process or way ("DO" in Japanese), few people in the world are naturally gifted by Mother Nature and strong enough to break those bricks without breaking their hands.

What is impressive is that somebody thought about a way to attain this goal. This has been a logical process where, only the good methods have been kept, written and taught through the years. The process was initiated. Now, almost any human being is able to do this kind of performance, provided they are motivated enough to study and learn for many years, following the path our ancestors have opened.

This is true for all fields: what about piloting a car, a plane, skiing (not very natural, right?), speaking other languages AND... Innovation & Problem Solving!

Actually, in 1946, Genrich Altshuller was the first to set down an innovation *method*, one he called TRIZ.

LEARNING WITH A PROCESS

A few years ago, I discovered this method while part a workgroup focusing on some new product development with technical difficulties. The method was totally new to me: I didn't get any info on the websites I was surfing, nor did I hear about it during my engineering school years. Although it had been developed and used in Russia for decades, it seems it was still just spreading to occidental companies.

The method was a revelation for me, and I began to think about the power of such a process. I was very eager to learn. We had a five-day workgroup, with the help of a facilitator, so we could progress step by step, respecting the TRIZ methodology. In the span of those 5 days, my group and I accustomed ourselves to the vocabulary and what we perceived as a promising but complex methodology. This was another world, with another vocabulary, and concepts hard to get at first.

The real power came up when we arrived at the contradiction matrix. Such a collection of concepts and ideas really amazed me. As this was our first TRIZ session, we decided to pass through the entire matrix in order to generate the maximum number of ideas. This was very interesting but also... very long!

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THE GENESIS OF POWERFUL SOLVING[©]

At that time, the industrial person I was—busy with urgent projects and department cost—could not manage *not* to look at the clock during those sessions! But, at the conclusion of the five-day session, we had almost 100 creative concepts. Among those 100 concepts, 5 were very promising ones. As those concepts were different from what we would have thought of otherwise, and had huge potential, that's not too bad. So, I decided to learn more about this methodology in order to better understand this "world." I thought it was possible to get the most of TRIZ in a shorter time.

Pareto law states that 20% of things cause 80% of the problems. If you concentrate your energy on 20% of the appropriate things, you will end with 80% of the results.

This was professional reflex of mine to try to optimize things in terms of time efficiency and find shortcuts. I was using Pareto law almost every day. Pareto law states that 20% of things cause 80% of the problems. If you concentrate your energy on 20% of the appropriate things, you will end with 80% of the results. This is a non-formal law that has lots of applications.

It appeared to me that there were already some interesting statistics about the TRIZ concepts used in the contradictions matrix. And the concepts were ranked by frequency. From now on, I decided

to use this short list as the first tool to find new ideas. I also searched for as much information about existing methods about creativity, brainstorming & innovation. It seemed to me that lots of different approaches exist, more or less powerful depending on the type of problems and type of persons invited to the meetings. I decided to try to find the best processes existing on the market.

If you have ever tried to find some methodology to be the creative process, how to choose the best ideas in your area of work (which won't be the same for another company in another domain), then you know what a huge quantity of material there is on the subject! I nevertheless tried each method I could find, trying to apply them first by myself and then with the team. A few worked really well with certain teams in certain situations, but with different teams the application was harder.

I then tried to guess what the enablers were. What was different? I found it was simply the projects and the people. I found that the major factor was actually the people AND the culture (Yes, intercultural teams are great, but only if you know how to manage them). After a lot of trial and error, I had a global view and decided to find the common denominator among all those methods that seem to work. This was the genesis of the **Powerful Solving**® method.

THE CONCEPT OF POWERFUL SOLVING[©]

We want to perform some Powerful Solving. Ok, but what do we mean by “powerful?”

Let’s go back to the scientific definition of power: Power is the amount of work done per unit of time.

$$P = W/t$$

W: Work is the force multiplied by the length it has been applied to (range).

In order to be powerful, you need to deliver as much force, covering as much distance, in the shortest time possible. Consequently, given a force, if you want to improve the power you need to apply the force over a greater range OR decrease the time needed!

Let’s now make an analogy in the cognitive world.

What is the force analogy? Force is the origin of the move in the mechanical world. In the cognitive world, the move is initiated by your ideas. So:

$$F = \text{Ideas}$$

Now, let’s look at the path.

Mechanical area: The longer the path (range), the better the work value.

Cognitive area: The more applicable—touching different domains/sciences/product opportunities—the higher value of the work performed.

The last variable is the time, which is the same in the mechanical world as in the cognitive world (though time appreciation may vary from one person to another).

So Creative thinking power can be defined as:

$$P = I(\text{deas}).R(\text{ange})/T(\text{ime})$$

So in order to be powerful we will work on these three variables:

- Quality/Force of the Ideas
- Range of the ideas and application: from how many different fields did we get our ideas?
How many products can use the ideas, how many customers are concerned?
- The time needed to generate those ideas. (As short as possible!)

Then, among those Powerful Solving ideas, we will get what we could call “elegant” solutions. Those using the least amount of resources as possible—the “leaner” ones. 🧠

ABOUT THE AUTHOR

Matthew N. Battle has been working within the car industry for the last 7 years for Toyota, GM, BMW, as well as at French and Korean car manufacturers. During that time, he has worked in R&D and operations with worldwide teams in North America, Europe and Asia. Following his practical approach to problem solving, he has recently written his first full-scale problem solving [eBook](#), which this manifesto is derived from. At the same time he has built a Web site that supports the book's readers.

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