

## The Value of Adding Useful Complexity



One of the things we learn from studying both patents and product development is the cycle between adding "useful complexity" and "trimming" a product or service. Both concepts need to be thought about in evaluating new product concepts from a TRIZ perspective. There is always a market segment that will pay more for adding useful complexity and there will always be opportunities for dramatically simplified products, especially if they maintain most of their functionality. Those of you who have attended our workshops and training have seen many examples of both.

There is a tendency in TRIZ to focus primarily on the "trimming" concept as it offers possible breakthroughs and potentially eliminating the need for other products. One example is the incorporation of a pressure indicator in the valve stem of a tire. However, this is the adding of useful complexity to one system and eliminating another altogether (a tire gage). Let's look at two other recent examples.

Colgate has filed a patent application on the incorporation of a caffeine releasing mechanism into a toothbrush. This is one of several examples of adding caffeine to other products (soap is another example). Will people buy this product as an alternative to a hot cup of coffee in the morning? Who knows? Maybe it would help people find the coffee machine after brushing their teeth! This is a classic tradeoff which the market will decide based on what the toothbrush maker decides to charge. There are other examples when there is apparently not such a tradeoff.

In the Wall Street Journal, May 21, pB7, there is a discussion of many new prescription bottle concepts, backed by many startups and venture capitalists, which add many additional functions which are not inexpensive. And it's not just the bottles--it's the broader function of delivering and taking the prescription.

Here are a few:

1. The use of patient claims, data coupled with knowledge of patients taking multiple drugs, to develop reminder systems.
2. The use of "gift cards" as an enticement for patients adhering to their schedules.
3. The incorporation of sensors into the drugs themselves to track who is taking what medicines.
4. The development of medicine bottles which track how much medicine is left and "glows" different colors when it's time to take a dose or when one has been missed. This bottle can also beam data back to the provider's computers and send text alerts.

These examples go far beyond the improvements you have seen us discuss relating to the Target prescription bottle. So why will people (and that includes not just the patients, but doctors, insurance companies, and hospitals) pay what will be more than a trivial amount of money for these complex bottles and systems? Because, as this article points out, the cost of hospital and doctor visits relating to people failing to comply with prescription regimens is \$290 BILLION a year. And this doesn't count whatever value we want to assign to the loss of human life. So as we look at the complexity/simplification curve, keep an eye on the possible social implications and value of adding useful complexity.

We just finished our largest TRIZ course ever for ASME in Orlando last week and our next public course is in Miami on October 7-9: <http://www.asme.org/products/courses/triz--the-theory-of-inventive-problem-solving>

Take a look at the newest book on TRIZ basics:

<http://www.springer.com/chemistry/industrial+chemistry+and+chemical+engineering/book/978-1-4614-3706-2>