Inside the Box Creativity: A systematic Method for Yielding Extraordinary Innovation

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It's easy to get comfortable using the same innovation methods over and over again. We convince ourselves the lackluster methods we've been using all along will continue to produce inventive products and services to fill the organizational pipeline. But what if there was a method of innovation that could systematically yield extraordinary innovation?

Innovation is the creation and implementation of anything that is new, useful and surprising. Organizations realize it is vital for success, yet they often struggle with how to embrace it.

Historically, organizations have relied on variations of the same methods of innovation, primarily based on the concept of brainstorming. We've been conditioned to think that creativity results from an unstructured process that has no rules, confines or patterns and that it will result in unexpected, original ideas. But would you believe that you're most creative when you focus on the internal aspects of a problem — when you constrain your options rather than broaden them?

For thousands of years, innovators have used a set of five simple patterns in their inventions, usually without even realizing it. In ancient Greece, Hero of Alexandria used one of the patterns called "task unification" that we'll discuss in this article to create the first vending machine. The secret to his invention is how he used payment in the form of a coin to also act as a trigger to dispense the machine's product.

These patterns are embedded into the products and services you see around you almost like DNA. We've found that these patterns can be formed into techniques. The techniques regulate thinking and channel the ideation process in a structured way that overcomes brainstorming's randomness, making people even more creative.

The method, called ***Systematic Inventive Thinking*** (or **SIT**, for short), works by taking a product or service and breaking it into components. Using one of five techniques, innovators can manipulate components to create new-to-the-world ideas that can then be put to valuable use.

Take a look at the five techniques and how organizations around the world have used Systematic Inventive Thinking to yield innovative results.

1. Subtraction – Removing a seemingly essential element

Innovative products and services tend to have had something removed; usually something previously thought to be essential to use the product or service. Consider a contact lens, an exercise bicycle and an ATM machine. What do they have in common? They have all had something subtracted. Subtract the frame of a pair of glasses and you have the contact lens. Remove a bike's rear wheel and you invent the exercise bicycle. Take the bank employee out of a cash transaction and you have an ATM. In each case, subtracting an essential component from the original product created a new innovative use or benefit.

The world of plastics offers many outcomes resulting from the use of Systematic Inventive Thinking. Consider how a team of engineers at Newell Rubbermaid used the SIT Method to create new product concepts. They applied the subtraction technique to remove all the nuts, bolts and screws from a traditional cabinet. The end product was the first-of-its-kind, hardware-less cabinet built exclusively using interlocking parts and no hardware whatsoever. Multiple benefits include no small pieces to lose and reduced assembly time.

2. Task Unification – Bringing functions together

Using this technique, innovative products and services result when tasks are unified within one component of the product or service. Often the component was previously thought to be unrelated to the initial task. A clever example of task unification is the use of the rear window defroster of a car as the antenna for the radio.

Recall the ancient vending machine created by Hero of Alexandria. While his was a lot different than the ones we see today, the basic concept was there. In order to use the machine, a patron would deposit a coin into a slot. The coin would fall into a pan. The pan was attached to a lever. The coin's weight would cause the lever to open a valve and holy water would gush out. The coin would continue to tilt the pan downward and its counterweight would snap the pan back into place, closing the valve. In this invention, Hero used the technique of task unification, assigning the coin two jobs – first as payment for the product and second as a trigger for the mechanism of action to dispense the product.

A modern day example of task unification also comes from Newell Rubbermaid. In this case, the engineers found a clever way to provide stability for their deck box product. They installed a slender containment area at the base of the deck box so the owner could place dirt or rocks inside. The weight of the material not only keeps the lightweight deck box in place, but also gives the homeowner a convenient way to get rid of unneeded material from the yard.

Newell Rubbermaid's deck storage box can be stabilized by filling the base with dirt from the garden

3. Multiplication – Copying and altering a component

Innovative products and services often include a component that is copied but altered, usually in a way that initially seemed unnecessary or redundant. Many innovations in cameras, including the basis of photography itself, are based on copying a component and then changing it. For example, multiple flashes when snapping a photo reduce the likelihood of red-eye.

Biodegradable milk jugs are an excellent example of the use of multiplication. These milk jugs are actually two jugs in one – an inner container made of biodegradable plastic and a stronger, outside recyclable container made of cardboard. In this case, the jug has been multiplied, creating a container that has two different layers to allow it to be both sturdy and recyclable.

4. Division – Separating and rearranging a product component

Innovative products and services emerge when a component is divided out of the product or service and then re-arranged somewhere on or in the vicinity of the product, usually in a way that initially may seem unproductive or unworkable. A warming oven that is separated from a traditional range is an example of division.

For another example of the use of division, consider an alternative to gas or chemical foaming for injection molding called Streamoulding®. The R&D Factory, located in the UK, created Streamoulding® as method of water foaming of polymers. The process of injection into a mold has been reassigned at a different time than in a traditional molding process. In addition, the foaming occurs in smaller steps as the material is injected and not in big batches. According to the company, “foam is produced one shot at a time as the material is injected into the mold and only when the molding machine is running. The polymer remains virgin in the barrel and the hopper, and no changes are needed to the molds.”

The invention of Streamoulding® used two other techniques. The use of tap water to foam the polymer instead of the traditional foaming material is an example of both subtraction and task unification. The use of the heat of the polymer to vaporize the water at the nozzle is also an example of task unification.

Streamoulding® uses division, subtraction and task unification to create a green, affordable and effective method

of reducing polymer and energy costs. The invention received accolades in 2012 from The Plastics Industry Awards

5. Attribute Dependency – Interrelating previously unrelated elements

This technique reflects innovative products and services that have had two previously unrelated attributes correlated with each other. As one attribute changes, so does another. Eyewear with transition lenses that change from light to dark in the sunlight is an excellent example. Another example is the telescoping storage containers from Tupperware that can be adapted by size to the amount of food, beverage or other items to be stored in it. When not in use, the empty, flattened container requires little storage space.

Systematic Inventive Thinking has been used globally in a wide variety of industries for new products, services, processes and business models. It is particularly well-suited for organizations that want to develop innovation as a competency. And it is an invaluable tool for those who that want to take ownership of generating their own new growth opportunities rather than source them externally.

Using patterns purposefully yields excellent results. And, perhaps even more surprising, the patterns don't rely on the vagaries of brainstorming. These techniques not only boost creativity, they help you be more consistently innovative by applying Systematic Inventive Thinking to the world around you.

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Drew Boyd and **Jacob Goldenberg** co-authored **Inside the Box: A Proven System of Creativity for Breakthrough Results** (***Simon & Schuster***, **June 2013**).