Perseverance Pays in the Innovation Game

By Ashley Dorna and Jim Rice

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You are grappling with age-old questions: What should my supply chain look like in the future? What new innovation can I apply to lower costs, increase service levels, and disrupt competitors?

Then it hits you—that new technology you read about recently is the answer. Applied to your supply chain, it will not only reap millions in savings, but your supply chain team will immediately move out of the corporate basement it currently occupies and climb the management ladder of success. Adoring senior executives from across the organization will want to emulate you by applying the new technology to innovate within their function.

Snap out of it!

That story line works in Hollywood but not in the real world. The vast majority of initiatives that qualify as a supply chain innovation (SCI) will not come from "light bulb" revelations. Instead, most will come from a series of incremental changes and continuous improvement initiatives in response to competitive pressures and market dynamics.

This approach may not sound sexy—but it is very effective.

MIT CTL's research points to this. Successful SCIs take a lot of patience, hard work, adoptive creativity, and trial-and-error learning over an extended period of time. Exhibit A is Niagara Bottling LLC. The Ontario, Calif.-based private label bottled water company has been innovating for decades, since it started operating in 1963.

A String of Pearls

As one of the first companies in the bottled water business to vertically integrate, Niagara took a contrarian approach by bringing bottle and cap manufacturing inhouse. In the process it reaped the benefits of integrated operations that have enabled Niagara to deploy innovations such as changes to its product packaging.

Like a number of other bottled water companies, Niagara has put a lot of effort in over recent years to reduce the weight of its products and improve the supply chain's carbon footprint. Over the last 15 years the company has reduced the amount of plastic in its Eco Air Bottle™ by over 60 percent. In the course of its continuous improvement, the manufacturer cut the PET content of its packaging by some 46 percent over a seven year period. These are industry leading accomplishments, the company believes.

Niagara recently completed a project to remove the corrugated cardboard tray from cases of bottled water using the company's new Eco-Air Package™ that reduces the amount of space required for each pallet. The project generated significant results—17 percent increased case density per pallet, an estimated 108 million pounds reduction of greenhouse gases, and a reduction of nearly 1 million gallons of fuel annually.

Importantly, a long, arduous renovation along the entire supply chain was key to the success of this SCI.

How did they do it? The removal of a cardboard tray required Niagara to work with OEMs to engineer case packing and palletizing equipment to support the new configuration at previously established high speeds. The organization worked upstream with raw material suppliers to reconfigure flexible packaging to support the change. And it engaged customers to adjust shelving configurations. Another important factor in the success of the transition was extensive stability trials to ensure that the new configuration could handle all of the rigors of the supply chain.

The company discovered that the changes improved both pallet density and structural stability.

Also critical to the project's success is what might be called adaptive creativity—the ability to be creative through adaptation of existing processes and materials. By working across the entire system, and using trial-and-error to test small improvements on materials, packing configurations, and bottle design, Niagara turned a series of relatively modest improvements into the removal of the corrugated tray.

It took about 10 months to roll out the tray-free units. The CEO and an actively engaged management team gave their full support to the project. In addition, Niagara crafted a value arrangement such that every trading partner (except the cardboard supplier) gained in some way from the change, making it easier to sell the redesigned packaging format.

Niagara's vertically integrated operations also played an important role. Manufacturing bottles and caps internally gives the organization close control over the supply of these items. That, together with the company's in-house technical expertise, allowed it to tweak and refine the bottle and packaging design as an integrated system on a rapid cycle time. Rather than having to depend on external parties, Niagara was able to deploy their own production engineers on critical materials planning and manufacturing processes in alignment with the supply chain.

Continuous Innovation

Niagara is already looking at further innovations. This time the manufacturer is focusing on streamlining the supply chain, an area it sees as offering huge potential for improvement. The company is committed to innovating both upstream and downstream within the supply chain, and is working closely with trading partners to uncover the next big win.

In addition, Niagara is introducing more automation. The goal is to streamline manufacturing and distribution facilities by minimizing the need for human operators on its plant or warehouse floors over the next three to five years. Innovations such as the introduction of laser-guided vehicles, automated storage and retrieval systems, and manufacturing execution systems, are all importance pieces of the puzzle.

The ROI of Persistence

As the Niagara experience underscores, supply chain innovation is usually a work in progress. And it takes a lot of effort. You are probably not going to bring a black box to the office, plug it in, and watch as a wave of innovation spreads across every node in the network.

Rather than frantically searching for the Next Big Thing, the Niagara examples shows that supply chain teams can build innovation into their DNA. And they can systematically improve operational efficiency through regular application of continuous improvement and some adaptive creativity—what we refer to as Sustaining SCI.

There is a lot to be said for this stepped approach. Rather than frantically searching for the Next Big Thing, the Niagara examples shows that supply chain teams can build innovation into their DNA. And they can systematically improve operational efficiency through regular application of continuous improvement and some adaptive creativity—what we refer to as Sustaining SCI.

There will be failures along the way, but the downside is minimal when the trial-and-error method is used. Moreover, organizations that take this incremental approach to SCI do not become overly committed to a single new idea.

Niagara's accomplishments also demonstrate an important, less tangible benefit of systematic SCIs. Projects such as the introduction of the remodeled palletized units that involve multiple trading partners have established Niagara as an expert in the bottled water category. These interactions have enhanced the organization's reputation across the industry, and this has paybacks on many fronts.