By Jacklyn Ady

It's inevitable—the traditional supply chain will eventually meet the digital frontier. Imagine today's new community of makers sourcing designers to refine their inventions, and 3D printers to generate first-round prototypes. What will this brave new world look like?

A Digitally Disruptive Supply Chain

AN EFFECTIVE SUPPLY CHAIN IS A demanding beast—you must be sure to grease all the parts of the machine and continue to maintain and update best practices. Like a new romantic interest, it takes a while to figure out. You will make some mistakes along the way, and the minute you stop paying it attention, you will experience problems, and it may cost you resources, time, and energy to get back on the right track.

In some ways, supply chain management is still in its infancy. Only formally recognized in the mid-1900s mainstream, it's still forming an identity. I believe the next wave will look more like an online hacker space and less like a busy, face-to-face interaction.

With the advent of new, socially driven communication avenues—applications such as Skype—I see the supply chain moving into the digital frontier full-force. That will disrupt the traditional supply chain and its more conservative platforms. I see that new supply chain moving online, with 24/7 access for absolutely everyone. Not just the big corporations with deep pockets, but the little guys—the inventors, the mom-and-pop shops, the makers, and so on. It will run on a live schedule, and it will be flexible and adaptable in the face of market conditions, material shortages, emerging technology, and product design trends. And much of it will be driven by the "maker" movement.

In the international business world, there are many companies that function on a full 24-hour, world-clock workday. When I arrive at work in the morning, the first thing I do is check my emails from our overseas contacts. Depending on the project, my days are filled with communicating with those contacts. At the same time, I must be sure to hash out ideas and sourcing issues with my home team in the States to be sure that my optimistic design efforts have a logistical leg to stand on. It can be frustrating and frightening; it's essentially a venture into uncharted territory when one is developing new products. It can be especially daunting when you're working on new technologies and processes. Sometimes, just sourcing components can kill an idea or concept. Other times, logistics in shipping and freight policies will halt a project, and compromises will have to be made.

My biggest barriers involve sourcing the correct materials in a suitable time frame. Wouldn't it be great if there were one worldwide sourcing system I could log into, where I could choose sourcing based on my special needs and wants versus who I know, with whom I currently work, or for whom I currently work? Think of the opportunities for midsize and smaller companies, or short-run product design—there could be a much better chance of product success rates if we weren't forced into the same traditional tight box that often suffocates and murders hundreds of thousands of new design ideas every year.

Innovation and new product design can be such an exciting and invigorating creative challenge. But working through suitable supply chains is like navigating a city in heels.

Enter the makers

There is no doubt that the maker movement is a lot more than a hobby. It's a New Age revolution. It's a living, breathing movement that's creating jobs and revenue in local economies all across the country.

The maker movement has grown in part because of greater access to resources such as 3D

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printers, laser cutters, computer-aided design programs, and open-source hardware. What if those makers could source designers to refine their inventions, and 3D printers to generate first-round prototypes? What if they could instantaneously source the correct materials from around the world through sustainable manufacturers, which could then immediately distribute through a variety of wholesale or retailer locations, cutting time spent in warehouses and reducing transit time? The data provided on this digital interface could easily order and reorder based on current inventory, or possibly predict future waves of consumer needs based on previous market climates. Excess inventory could be a problem of the past. ROI could become a lean, mean machine as the cost of investment goes down.

We are already beginning to see the transformation that 3D printing can bring to the table. As that technology gets cheaper, faster, and better, we will see it become a big part of the supply chain in one form or another.

Some concepts, I believe, will be transformed with a digital platform. We'll be able to detail best practices and strategies, tools, and processes on an online system with clear expectations. We'll be able to set realistic goals. We'll be able to construct and execute evaluations for supplier performance and rate them in the same way we rate our favorite places to eat.

Performance data could be automatically measured and reported live in terms we can all understand, and we could use that data as leverage to help suppliers improve and push effectiveness in our own organizations.

Supplier reviews will become as simple as online reviews—shared worldwide across different marketplaces and areas of business like a giant customer review board. Best practices will become an evolving system of rules that changes with companies and inventors in real time. Efficiency and satisfaction will improve with the creation of a competitive atmosphere where best practices prevail.

Some questions to be answered

This new digital supply-chain frontier will involve new barriers and risks. What kinds of software and applications will it require? What interface will work best? Will the same platforms be accessible for large corporations and small companies? What kind of security will be required? What kinds of legal battles will we encounter in terms of, for instance, open sourcing and intellectual property? How will we train the next generation to work on this digital interface?

Perhaps this digital supply chain could be as easily accessible as crowd-funding services. What if the two could combine forces and offer not only funding but also complete projects, from sourcing to delivery, all in one easy-to-access system? Design to delivery.

Manufacturing organizations are beginning to form, and they will be looking for easier ways to access information. IMCP (the Investing in Manufacturing Communities Partnership) was formed under the Obama Administration and may or may not survive into the next presidential term. But these types of communities are already combining forces, sharing best practices, and networking to become stronger. They may change, but they are not going to dissolve overnight.

As suppliers and manufacturers look to expand their core competencies, I believe they will want to reach out for new and profitable business. If they cannot find it in their current client base, they will eventually search elsewhere to grow.

I'm not naive enough to think a value-driven digital supply chain is a perfect utopia, but I do believe it will surface in one form or another because of emerging trends and technologies, the maker movement, and ever-changing market conditions. ■