



Some Poland Spring water bottles were redesigned so they still stack efficiently—but they use less material for cheaper transportation and easier recycling.

The Four-Point Supply Chain Checklist: How Sustainability Creates New Opportunity

Supply chain managers are uniquely positioned to consider—and benefit from—sustainability initiatives. Edgar Blanco of the MIT Center for Transportation & Logistics says there are four key opportunities.

INTERVIEW BY MICHAEL S. HOPKINS

HERE'S ONE MORE REASON supply chains are so interesting: Every supply chain is a ready-built collection of modern day innovation levers. All those diverse inputs, all that cross-boundary creative collaboration, all that access to multilevel sources of on-the-ground information can, if attention is paid, answer questions you didn't even know you had. Managed correctly, a supply chain can be an organization's neural network. It can surprise you. It can help make a company new.

Edgar Blanco knows that.

Which is why he's a little disappointed right now.

Blanco is research director at the MIT Center for Transportation & Logistics and an expert in the design of environmentally efficient supply chains and innovations in emerging markets. His work provides him a window onto the opportunities that supply chain management can offer to



THE LEADING QUESTION

Where do supply chain goals and sustainability goals *profitably* meet?

FINDINGS

- ▶ Packaging redesign can reduce costs and environmental impact.
- ▶ Transportation programs can be tweaked to greatly reduce carbon footprints.
- ▶ Suppliers can do sustainability assessments that uncover shared opportunities.
- ▶ Sustainability decisions can be communicated to enhance reputation and align companies and consumers.

companies — and he sees companies not capitalizing on them. Supply chain managers are stuck, he says: “They’re still very much focused on cost.” Not that cost isn’t pivotal, but, ironically, a cost focus to the exclusion of innovation and sustainability payoffs can be a path not only to missing out on business-building noncost benefits but to missing out on cost-cutting benefits themselves, Blanco says.

That dynamic is changing, though. As managers of supply chains become better versed in the language of making a business case for change and also in the language of sustainability, they are getting better, Blanco says, at suggesting smart improvements in operations, logistics and sourcing that can be environmentally innovative and present real cost savings.

Blanco spoke with *MIT Sloan Management Review*’s editor-in-chief, Michael S. Hopkins, about the four key opportunities that modern supply chains present.

How do you think the supply chain world compares to the non-supply chain managerial world when it comes to thinking about sustainability issues? Ahead? Behind? The same?

I would say they’re behind.

Really? That surprises me.

If you look at logistics supply chain groups, they are still very much focused on cost. This topic of sustainability is very hard to bring to the table. Whenever you see an organization that is supply chain savvy, it’s also very advanced in sustainability, like Nike [Inc.] and Wal-Mart [Stores Inc.].

We’re starting to see examples where cost and strategy are aligned in interesting ways — for instance, the widely publicized move toward smaller, more concentrated portions of laundry detergent. It was resisted for a long time by marketers simply because they thought if you hand people a smaller item, they’ll think it’s worth less. That’s right.

But that’s an idea that obviously has sustainability benefits along with enormous cost benefits for the supply chain: more units, less space, less costly transport, easier to manage stock. It would seem that sustainability-driven efficiency initiatives and supply chain costs would serve each other, not be at odds.

The laundry detergent packaging is actually a perfect example to illustrate why supply chain is *behind*. To do that change of packaging, from a supply chain perspective, would always have been a good move. Always. You don’t even need to be talking about sustainability for that. Smaller always makes sense.

But the reason this wasn’t happening was because the supply chain was not powerful enough compared to other parts of organizations. The change in laundry detergent bottles came from retailers. Wal-Mart, in particular, pushed for it. Unilever [PLC] and Procter & Gamble [Co.] also partnered with Wal-Mart on that project. And it was a very successful idea.

But that did not come through the supply chain leadership. I’m sorry to say that. It came through a major retailer thinking of sustainability as a key competitive advantage and looking for opportunities from a sustainability perspective. They said, “Well, this is water, it’s a lot of weight. Can we do it in half?” And marketing said, “But nobody will buy it.” Once it worked, though, and the business case was easy to make, the supply chain embraced it very quickly. They said, “Absolutely, this makes my life easier. I can move more trucks.” So that change became aligned with normal supply chain goals.

So if I’m a supply chain guy, and I’ve seen this example and I know that I’m going to be rewarded because I make things cheaper and more efficient, why wouldn’t I start looking around the entire organization for other opportunities?

In theory, exactly.

Does that happen?

I do not believe businesses are fully engaged in that process yet. But I believe we are at that moment in time. I think now is that opportunity. There are four different recent pressures that are making businesses think more seriously about sustainability. One is regulation. Another is global warming — or at least the rise in press and media attention to it. We had [Hurricane] Katrina, for instance. . . .



Once you see the total cost of an item, and really think of all the things that took place to get it to you, then you start looking at waste and environmental impact and carbon footprint through a different optic. That's a conversation you can have with the customer. — EDGAR BLANCO

Now we see what rising sea level means.

Exactly, and there was the movie *Inconvenient Truth*, and lots of media attention to global warming. We tracked the number of articles that talked about greenhouse gases and global warming, and it increased 10-fold in 2008 compared to 2006.

In addition to regulation and global warming attention, we had the spike of oil prices.

And, fourth, we began to see some companies start talking seriously about sustainability as a source of competitiveness. I'm not sure it's a widespread belief in the corporate world, but the conversations have started. More talk about reusing and recovering materials, the closed loop of a product.

So people are looking at some cost considerations that were taboo before, because organizations are starting to listen to ideas that are out of the box. And that's a result of looking through the sustainability lens. Companies are talking about tradeoffs, like something being a little bit more expensive here but producing other values in my supply chain there — like spending a little more in transportation if it brings a better carbon footprint overall.

The supply chain part of an operation is pretty uniquely positioned to look around a company for areas where the interests of several departments are aligned — or maybe collide.

I agree completely that that opportunity lies in supply chain organizations. They are the parts of the company tasked to look at partners, even beyond partners, even beyond customers.

One question is, why weren't they looking at sustainability-related concerns before? And the answer is, partly because there was not a lot of acceptance at the corporate level, and partly because that was not part of what they thought they should be doing.

Now that the corporate piece is ready, the question becomes, can I communicate these things effectively within the organization as I look for this

opportunity? I need to know not only the language of the business case, which the old boys know how to do, but the language of sustainability. How can I measure outcomes environmentally? How can I justify a tradeoff on, say, more emissions but less water? How do I manage this complexity?

That's where I believe supply chain now can do a great service to the company.

If we were to make a checklist of the places we might look inside a company for new opportunities to align competitive goals with sustainability goals, what would be on the list?

The first thing is to start from zero on your packaging. Packaging determines lots of the movement and lots of the constraints in your supply chain.

Say what you mean by "start from zero."

When you design the package of any product, that immediately constrains lots of things you can do with it. I have one right here that is a great idea — I'm holding the new Poland Spring bottle, which is a "green" bottle. It's a perfect example of a total package redesign that not only satisfies the customer but satisfies the whole sustainability aspect. This bottle is extremely fragile: The weight has been reduced significantly, it uses less material. Look at this cap: It's one-third the size of a regular cap. When the bottle is empty, you can recycle it very quickly. And yet its stackability, when it's full of water, is the same as before.

So you start from zero. Whenever you have a package that is round, weird-shaped, very marketing-oriented, it requires a big box around it so it can be stacked. That's wasted space and wasted material. Looking at packaging is a fairly straightforward first step that you can take.

Could this bottle be greener if it were square?

In this particular case, maybe. Maybe square and shorter. Maybe greener in terms of you can stack more

of them. Some product design does not affect supply chain, but sizes and dimensions certainly can.

What's next?

The second thing on that checklist is something everyone should be looking at on a regular basis, and that's transportation. That's straightforward analysis. You look at where you're moving things, how much utilization you're putting to the trucks, how much energy you're consuming and how much oil you're burning. This is what companies should be doing on a regular basis — rethinking their network.

And they have been, forever. Obviously, as energy gets more expensive and less available, it makes sense to build plants, build storage closer to customers, etc.

Exactly, but there are new dimensions. You can do the normal cost business case, but there are tradeoffs that were not as clear before that become clearer now.

Let me give you an example. We did a whole exercise on transportation for a major international manufacturer. We looked at the global transportation network and found that 95% of shipments were by ocean, truck and rail, and 5% were air. No one in management was paying attention to that 5%. They'd just say, "Oh, yeah, send them air."

But we found out that that 5% accounted for over 40% of their transportation carbon footprint.

So 40% of the carbon footprint, not 40% of the cost?

Carbon footprint, right. Well, suddenly, the tradeoff changes. Everyone knows that air freight is expensive. But once you put it in light of *sustainability*, that tradeoff is different. That 5%, although it's minuscule in terms of the overall number of shipments, becomes a very important thing to focus on to make sure you maintain your environmental commitment. So this company started working with all its planners, its customers, its plants to get that 5% cut to 1%. Maybe in cost it doesn't make a big difference, but in carbon footprint it creates a huge reduction.

So on that checklist of the places where the supply chain can look for opportunities for alignment with sustainability concerns, you've talked about packaging and transportation. What else?

The hardest piece of the exercise is to engage your suppliers. Without them, you cannot meaningfully improve, or capture the advantages that sustainability-driven changes can create for you. The best way is to lead by example. You have to start really measuring your sustainability impact and invite your suppliers to go through that same process. In the carbon footprint world — the one that I spend most of my time thinking about — this has happened thanks to the establishment of collaborative protocols, voluntary programs that start engaging the discussion.

Companies should do measurements, do an assessment and share that with suppliers. Because you want *them* to share theirs with *you* down the road, so you will be able to have the whole picture of your environmental impact.

Are you saying that you can find ways to save suppliers money as well? Help them gain ground in the same way you are?

Exactly. And share the burden of how much it costs to reduce. Let me give you another example. I worked with a packaged food manufacturing company looking at the whole carbon footprint of its production and its environmental impact. And it turns out that most of its impact came not from the growing of the main food ingredient, or from the primary manufacturing process, but from the manufacturing and transportation used in the sugar processing operation.

This creates a conundrum. Sugar makes up less than 5% of the final product, but 30% or more of the product's environmental impact. So to really do a service and have less impact means working with the sugar providers, trying to make them more efficient, maybe trying to think differently about how to source with them.

This is where you say, Who pays for it? And this is the question and that's why it's hard. But it's what needs to happen. You have to at some point decide how committed you are to this process.

Now, with this particular company, it's at the first step. We've identified the source of its environmental impact and now the company is struggling with what to do next. How do I tell my suppliers that I believe that we should work together? Do I want to give that information to my customers?



The ability to communicate with their customers about the seasonal nature of product ingredients gives Natura Cosméticos more flexibility to pursue sustainability practices.

So packaging, transportation and what we could call supplier engagement. Is there any other place that would be good to look for alignment with sustainability issues? Are there any opportunities, say, in marketing?

Yes, and here's a great example: Natura [Cosméticos SA], in Brazil. Natura sells creams and other cosmetic products to Brazilian and now European and U.S. markets.

Natura has a product that's made from a special nut from the Amazon jungle. And that nut is only harvested at certain times in the year.

Now, that cream is a bestseller, and it would be great for them if they had it all year long. But this is where marketing can really align with sustainability. The fact is, if the company tries to offer the product year-round, it's going to have to force a change to the natural cycle of the Amazon jungle. The other option is to let customers know that this cream is tied to the season. The message is that making the cream available in the off season would involve chopping things down and we'd all rather keep the environment as pristine as possible. The price that everyone pays is not having the product all year long but only for three or four months at whatever quantities we can get.

All of this can only happen when the marketing and sales organization communicates with the customer and lets them know that everyone has to adapt to be more sustainable. You have to talk to the customer, so marketing becomes a big piece of product strategy, right alongside of supply chain realities. If you have customer alignment, then you have more flexibility to pursue sustainability.

Customer alignment, marketing and product strategy, as a piece.

Yes. If you have that alignment, then you can start exploring new directions. If you only think from the constrained view of your current products, you are bound by that relationship.

The people in the supply chain are uniquely positioned to be able to see the whole ecology of a company's business, because they're so close to all the pieces in the system, yes?

I wholeheartedly agree with that statement. At Chiquita [Brands International Inc.], for example,

the supply chain organization is taking the lead in sustainability.

You know, I was reading this morning about the big debate about the [proposed] Cape Cod [Massachusetts] wind farm. There were two people talking, and one of them was saying, "I don't want these wind farms, because the view will not be as nice and, well, maybe there's some disruption to the wildlife."

Somebody else said something like, "If I know that for every kilowatt-hour that the farm generates we will not have a miner in Colombia die, or one less soldier protecting an oil field, this discussion is trivial." Yeah, you sacrifice your view a little bit, but you're saving lives.

Imagine that discussion in the supply chain. I'll use an example from Starbucks [Corp.], because it's spot on. They said they always knew that they sometimes brewed too much coffee. Brewed it then threw it away. Costwise, it doesn't look like too much. But if you trace the coffee back, what it represents really is wasted work by a farmer in Guatemala.

If you could see that, then you suddenly start saying this waste is very expensive.

Does that represent an opportunity?

A major opportunity. Especially if you let the consumer know, because the consumer has a stake in this. Starbucks is doing something very clever. They say, you know what? We are not going to brew a variety of coffees after 2 p.m. We'll more efficiently use up just one type. If a customer comes in and wants something we've stopped brewing, we will ask them, please wait a little bit, because I'm going to brew one cup for you. And they have a special machine now to brew one cup. Simple as that.

Once you see the total cost of an item, and really think of all the things that took place to get it to you, then you start looking at waste and environmental impact and carbon footprint through a different optic. That's a conversation you can have with the customer. I had no idea, but if I am told that throwing out one of those batches of coffee translates to six months' work for a farmer, I will gladly be willing to wait one more minute for them to brew my cup.

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