Materials Pooling (B): Challenges to a Collaboration for Sustainability

Two years after her initial optimism, Jan Diaz was now getting worried. After becoming deeply involved in the Materials Pooling Project within the Sustainability Consortium, she found progress was stalled. The initial enthusiasm had become dampened by a series of challenges that the group faced, and she had no idea how to move beyond them. It wasn’t the facilitation or management of the collaboration that was the problem; instead, the issues went to the heart of whether and how cross-industry collaborations can be successful at all. These issues brought forth a bigger problem for her: what could she do as a member of the Consortium, to make some progress that forwarded her company’s goals around sustainability?

Origins and Early Growth of the Project

The Sustainability Consortium was a voluntary association of Fortune 50 companies and other organizations which were interested in learning and collaborating around issues of sustainability. One of the key projects to emerge from the Consortium was the Materials Pooling Project – a multi-industry effort to create economies of scale in purchasing sustainable materials that could be used by a variety of companies. After the Big Tent Meeting in the Spring of 2003, the Materials Pooling Project became a central driver of the Sustainability Consortium.

Challenges to Collaboration

The Challenge of Making the Business Case

The initial months of progress were followed by a growing worry that the overall goals were not necessarily feasible given the structure of the Sustainability Consortium. Each group recognized the challenges in different ways. According to Pat Keller, the Chief Engineer for Product and Process at Harley Davidson,
There’s a paradox. The allure is in bringing people together from different industries, and for those people to find common cause. …The consortium is trying to be a broader community; they say that at the meetings. It’s valuable…to find opportunities for learning and action [and] new sources of knowledge and collaboration, where without such a cross-sector context these just aren’t available. The paradox is: those projects are cool, but they don’t make short term business sense – to Harley, or to any company. It’s a longer term strategic issue. The scenarios where it works are developed by senior people who believe in the long term value, or middle managers who believe in it and sponsor it, at their peril.

The distinction between the long-term strategic vision of sustainability versus the short-term business outcomes of a given project was reiterated by many people in the Consortium. It was a general issue that never seemed to get resolved. Another senior manager gave a similar account:

When the business case for sustainability is not solid, you need to make the business case that this is what needs to be done. But sustainability is a long-term investment, and it’s hard to get people to see that. People wouldn’t just make decisions for the sake of making decisions regarding sustainable business practices; there are rigid management issues and governmental policy issues.

This challenge was well summarized in a summary of the “Internal Business Value Proposition for Hexavalent Chrome as Fasteners,” which was developed in February of 2004, nearly a year after the Big Tent Meeting. (See Exhibit 1.) As participating companies recognized their vastly different business goals for this one area of the project, the momentum and commitment to the project started to wane.

**The Challenge of Diverse Specifications**

One of the key strengths of the Materials Pooling Project—its diversity—soon became a major challenge. As each of the working groups started exploring the details of their materials platform, one of the first issues was defining a single material whose properties would fulfill the specifications of each participating company. The problem was: each company’s specifications were different. The best example of this problem showed up in the working group on hexavalent chromium, which included Harley-Davidson, Pratt & Whitney, and Ford. These three companies identified eight different “end use requirements,” some of which were directly contradictory.

For example Pratt & Whitney, a manufacturer of aircraft engines, needed functionality; for them stainless steel was potentially acceptable. But Harley-Davidson needed beautiful, rust-resistant chrome for the kind of visible engine components that could endure exposure to a beach full of salt spray and emerge gleaming in the sun. If they couldn’t keep hexavalent, they’d have to find another kind of chrome. And Ford was part of the USCar consortium, which announced a decision to switch...
to trivalent chromium, a material approved by European regulations. All these differences eroded the group’s potential collective purchasing clout. (See Exhibit 2.)

Hugh Vallely of Harley Davidson captured this complexity from the perspective of McDermid, Inc., a major supplier of chrome-plated fasteners to the automotive and motorcycle industry:

McDermid – a [large] supplier of fasteners, would say: ‘We’ll do anything you say, but we can’t do 10 different specifications!’ And that was the problem. We all want to get rid of hex chrome. But we [Harley-Davidson] need a bright luster, but auto doesn’t; we need to torque it and un-torque it, but Pratt didn’t need that: once a bolt is tightened in an airplane engine, they’d leave it. Their specifications are very different. McDermid can do any single specification, but that’s not pooling per se.

There were similar incompatibilities in sourcing leather, which had to be very soft for automotive seats, hard for motorcycle seats and jackets, and waterproof for shoes. “We were looking for an environmental attribute or preference that might be shared by the different leathers and production processes that we all sourced,” said Vanessa Margolis, a project manager from Nike. “But we never defined what this attribute or preference might be. It’s the kind of design problem that nobody would likely choose on their own.”

The Challenge of Relying on Technical Experts

An underlying aspect of this problem was the need to rely increasingly on technical people to accomplish the actual work needed for materials pooling. These engineers were not members of the Sustainability Consortium, nor did they necessarily have a motivation for doing this work on their own time, a point highlighted by Bob Tierney from Pratt & Whitney:

It’s interesting because we start from concepts of sustainability, to concepts of material management, to concepts of toxic materials, to concepts of replacement. And then when you get to about that level, the people that are typically involved with the SoL Consortium start to fall off the wagon. They don’t know the processes, they don’t know the part configurations, they don’t know the functionality, etc. And so part of the challenge has been to get the…broader involvement of the technical community…people who maybe either don’t understand or to whom we haven’t taken the time to explain the broader vision of what we’re trying to do here. Yet, we’re asking them very discrete questions. I think we’re at a very challenging point right now from a technical standpoint – getting those other people involved.

Making real progress required generating precise technical information, which was a problem for two reasons, according to Hugh Vallely:

If we wanted to share information, we had to share tests. For example, Harley needs a salt spray test. But other companies don’t. Pratt & Whitney doesn’t get salt in their airplane engines.
However, they have to deal with tremendous temperature variations but we don’t. The requirements were so different. We determined that we weren’t going to run their tests and they weren’t going to take the time and energy to run ours. So while you hoped this could happen, it was difficult to use data across lines.

Secondly the tech people were busy with their own problems… These technical people do what their boss tells them to do. And this work is a ‘sidebar.’ And there’s always a shortage of tech people – it’s not like they are looking for things to do! None of them said ‘No,’ or if they did, it was a gentle ‘No.’ They know it’s important, and they really want to help.

The Challenge of Sharing Information

A more pervasive challenge involved barriers to gaining information from suppliers that could be shared within these working groups. For example, after agreeing to canvas their suppliers for details about materials, many of the corporate members returned empty-handed. According to Chris Page, “…in many cases the supplier had no idea what toxic materials were in the product, and no incentive, financial or competitive, to find out what they were. On the off chance that a supplier did know what materials of concern were contained in its product, it had almost zero reason to share that information – particularly if the supplier suspected that the end result would be another hurdle or expense to deal with in order to keep a buyer happy.”

Furthermore, suppliers had their own constraints, like the potential supplier of the polypropylene that John Delfausse had found. Upon investigation, the supplier discovered that it did not have the contractual right to pass on the polymer to Aveda.

The challenge of sharing information was present even among consortium members. One member expressed, “I still am amazed at some of the conversations that we’ve been having of people not wanting or not being able to put forth more information. It’s not even competitive information per se, because we don’t have a lot of competitive players in the room. But even so, they don’t want to get certain information out of their company.”

As one might imagine, this issue was compounded amidst competitors. Ford quietly balked at inviting Toyota into the Consortium, and Nike balked at inviting Reebok or Adidas. At Aveda, which spearheaded some industry-wide recycling projects including one for aluminum, Delfausse said he would need to think twice before sharing broader materials information with non-Estee Lauder cosmetics companies. Hugh Vallely framed the problem even more bluntly:

If we were in a room with Honda, we would be cordial, but we wouldn’t talk about anything. We compete with them! They’d be the same way. If they had a beautiful finish that did all the things that hex chrome does, they’d sell it at a profit and wouldn’t tell us how to do it – and we would do the same. It’s capitalism.
The Challenge of the System

Art Kleiner aptly summarized the multi-level nature of these issues:

It’s hard enough to talk openly and honestly with people from other industries about the differences, say, between shoe leather and car-seat leather. But to reinvent industrial society and eliminate all potential toxins would require almost unimaginable openness. Manufacturers and suppliers alike would have to entrust competitors with some of their most carefully held secrets.

Visionaries such as Michael Braungart and William McDonough will continue to set the bar for what we can imagine is possible. But it is the work of the people who are willing to dig down into the messy details of the day-to-day operating realities that will realize a sustainable society.

Reflecting on the long-term process, Matt Roman of Visteon sent the following e-mail to Chris Page:

The fundamental issue I encountered throughout this whole process pertained to a rather non-economic, non-scientific…notion of trust and relationships. … We have set up our economic models around the concept of competition and the hoarding of information. But that is totally antithetical to what is needed when we are looking for materials pooling. Even in situations such as this where we had a very non-competitive environment…we still found it very hard to share information (whether it was because we didn’t think it worth our time to provide or because of competitive concerns). From that standpoint I think the Materials Pooling Project was very successful…I see it as the only way to break down those walls.”

Many participants remained as optimistic as Matt Roman for two years and more. The cradle to cradle framework and the system-learning tools seemed well designed to tackle the challenges. However by the middle of 2004 more and more companies were questioning how progress would be made through the project’s current structure.

Moving Beyond Obstacles

In the face of these challenges, some participants started thinking beyond the boundaries of the Sustainability Consortium. For example, Vanessa Margolis of Nike started questioning the whole idea of materials pooling:

The classic definition of materials pooling, I didn’t see how that was going to work. Which was fine. That’s the ultimate vision, but we have a lot of baby steps from here to there. I’m just trying to get a point of view on what’s better leather, and how do you get visibility of it…. The Materials Pooling Project gave me an understanding of issues in other industries. Like, how they work with their supply chain, versus in my industry. And different legislative problems that they had to tackle, that we didn’t. … But that doesn’t help me. And what I’m doing doesn’t help you.
Ultimately, she realized that the only way to make progress was by limiting her focus to her single industry:

We had more meetings and a series of conference calls. But at some point it became clear to me that I really needed to be within my industry because of the supply chain base. I had done a trip to Asia to look at tanners there – they are all suppliers to the same brands. Suddenly it became obvious that I needed to be talking within the industry… we needed to be working together in our industry.

John Delfausse, the product manager at Aveda, came to the exact same conclusion:

When it came to polypropylene pooling everyone had different additives and requirements. Getting common ground wasn’t that easy. It became an issue of time; people had different interests and different priorities….What I found from this whole thing was that rather than taking a pool from different industries it worked much more effectively to have a specific use within a specific industry. This made it a lot easier to then drive to what you wanted to produce and maintain.

Over the next year or so, each of the different working groups faced similar obstacles, and each in its own way learned that by limiting their focus to within-industry issues, they could make far more progress. Three such initiatives arose outside of the Consortium: John Delfausse pursued recycled sourcing of aluminum for Aveda products, Vanessa Margolis spearheaded a sustainable leather sourcing protocol for tanners in the entire leather industry, and Seetha Coleman-Kamula was initiating a green life-cycle value-chain initiative for polypropylene.
Case Questions:

1. Initially the Materials Pooling participants were optimistic about the collaboration, but clearly there were risks and challenges they were overlooking. Could any of these challenges have been mitigated up front? What if anything would you have done to improve the success of the Material’s pooling project?

2. Consider the challenges described by participants in the Consortium. In what ways are these challenges (a) specific to the Materials Pooling project, (b) common to any cross-industry effort around sustainability, and/or (c) expectable in any multi-organizational collaboration that crosses sectors or industries? Use examples from other cases and your own experience to back up your argument.

3. If you were consulting to Jan Diaz, what would you recommend her to do next? Should she pull out of the Materials Pooling project? Should she continue to support the Consortium on behalf of her company? Either way, how can she use the connections and learning from the Consortium to further progress toward sustainability for her company?
Harley-Davidson
The Japan Automobile Manufacturer’s Association (JAMA) regarding motorcycles is suggesting a voluntary action to reduce environmentally hazardous substances in products which include hexavalent chrome by 2008. It is important that Harley seriously consider this voluntary regulation as our Japanese competitors are active in this field and the proposal applies to their home market.

Ford
European "end of vehicle life" regulations effective 2006 required Ford to eliminate hexavalent chrome on fasteners.

Visteon
As a supplier to Ford, Visteon is required to comply with the European regulations for "end of vehicle life."

UTC
UTC's internal directive is to eliminate hexavalent chrome on all new products by 2007.

MacDermid
MacDermid is involved with all aspects of finishing, touching many industries. We need to be aware of any changes in coating requirements and be able to provide products to meet those needs. We are also dedicated to developing more environmentally friendly processes capable of replacing older more unfriendly materials when ever possible. Providing the best technology available allows our customers the ability to meet their customers’ current and future needs.
Exhibit 2 Hex Chrome Summary

Need: To develop a cost effective and sustainable coating for light metals

End Use Requirements

Harley-Davidson:
- High temperature (>90° C)
- Clear appearance (pass 192 hour neutral salt spray to red rust)
- Fastener focus (torque/tension requirements)

UTC:
- High temperature (> x° C)
- Long life (x hours neutral salt spray to red rust)
- Color not critical
- Non-fastener focus

Automotive:
- Corrosion resistance equivalent to 8 micron zinc plate plus iridescent chromate
- Torque/tension requirements for fastener applications
- Color - clear or black although yellow is acceptable
- Corrosion life - 144 hours neutral salt spray to red rust.

Note: In some applications conductivity and or grounding required.
Endnotes

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2 The Sustainability Consortium is sponsored by the Society for Organizational Learning [SoL]. Sustainability Consortium: http://www.solsustainability.org/. SoL: http://www.solonline.org/