June 2015

Model Behavior II

Strategies to Rewire Business

SustainAbility | Novelis | STARBUCKS

Contents

Foreword: SustainAbility

In 2011, Novelis, the largest rolled aluminum company in the world, announced a dramatic shift to its business. The company expressed its intention to adopt an almost entirely closed-loop manufacturing system in which 80% of the aluminum it uses to make its products—beverage cans, automobile parts and specialty products—would be recycled material. The decision meant investments of more than $2 billion over the course of the next four years, but it also marked the company's larger aspiration to move away from a business model focused on extraction and disposal of valuable resources.

As business leaders begin to see themselves in a larger system that is grappling with challenging business conditions—in Novelis' case, climate change risks and the possibility of a price on carbon, as well as commodity price volatility and recycling regulations—many recognize the need for dramatic shifts in the way they do business. They also see new opportunities to help their customers adapt to and thrive in a more sustainable future.

In the past, sustainability innovation has been focused primarily on creating new products or new processes that incrementally enhance an established business or brand. A processed food and beverage company launches a new line of organic snacks. A manufacturer redesigns a factory in order to reduce the energy required to produce its products. These are efforts we applaud and need to see more of.

But, companies must be more ambitious in their innovation aims. Why? External conditions such as resource scarcity and climate change require it, and evolving market conditions encourage and reward those who act first.

In 2014, SustainAbility launched a research project called *Model Behavior* that explores the promise and challenge of business model innovation for sustainability and aims to influence the appetite and ability of large companies to take on such a transformation. Our first report in the series, *Model Behavior: 20 Business Model Innovations for Sustainability*, highlighted distinct business models that produce more sustainable outcomes. It found that much of this innovation, however, is happening in smaller-scale companies and not necessarily penetrating into the core of many industries, thereby limiting its impact.

This follow-up report aims to answer a more pointed question: how can large companies innovate their own business models and, in turn, accelerate the transition to a sustainable economy?

In the following pages, we focus on how large companies can create an enabling environment and seize on specific opportunities to evolve their business models in service of greater sustainability. Companies that thrive in the future will be those that analyze and understand planetary boundaries and market risks and create responsive models. They will leverage their corporate culture, and sustainability leaders within those companies will find tools and tactics that can further prompt business model thinking across business units.

A Note About Our Sponsors

We are thrilled to have the support of our Title Sponsor, Novelis, and our Report Sponsor, Starbucks, as we evolve our thinking on business model innovation. Both companies have been incredibly helpful in driving this work forward, as well as serving as leading examples of innovation in action.

Foreword: SustainAbility

Furthermore, to make the business model innovation process more tangible for readers, this report presents the stories of four companies that are pursuing business model innovations that have sustainability impacts.

We should state upfront that we do not endorse the companies we reference throughout the report as having completely sustainable business models. Rather, they are companies that we see making a distinct effort to materially modify their approach to doing business, which is resulting in improved social, environmental or economic impact. We commend those efforts and look forward to seeing how other companies might use the ideas and case studies in this report to shift their business models to position them for the future.

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Foreword: Novelis

At Novelis, we are relentlessly focused on achieving our vision to lead our industry by producing the most innovative, technologically advanced, low-carbon aluminum flat rolled products on the market. Accomplishing this demands much more than business as usual. It requires us to pioneer a fundamentally new way of thinking and operating. It also requires a willingness to not only embrace disruption within our own company, but also to create it in our industry and the markets we serve.

This new way of operating entails shifting our business model from a traditional linear approach to an increasingly closed-loop one. This shift will enable us to accelerate and capitalize on the sustainability potential of aluminum as a lightweight, infinitely recyclable metal—and to dramatically reduce the embedded carbon in our products. It demands we apply our industry-leading research and technology capabilities to create the product innovations needed to close the loop. And, in an increasingly energy- and carbon-constrained operating environment, we are convinced it will be a key source of competitive advantage for our company—and for our customers.

At the core of our company's transformation is our unprecedented target to use 80% recycled inputs, compared to 33% three years ago. This target has implications for nearly every aspect of our business – from the basic design of our products and our portfolio mix, to the structure of our supply chain and our relationships with our customers. But when we reach it, we will cut our absolute, life cycle greenhouse gas emissions in half, even with significantly increased production, and achieve our objective to be the low-carbon aluminum producer.

Our shift toward a closed-loop and low-carbon approach also requires us to engage and partner with a broader and more diverse set of stakeholders, to challenge and inform our thinking and to advance shared objectives that cannot be achieved on our own. We are working with forward-thinking organizations like SustainAbility, whose work catalyzes innovation and provides solutions to make business and markets sustainable. SustainAbility's research helps stimulate collaboration and best practice sharing amongst organizations and companies seeking to advance sustainability within their organization, supply chain and industry, as well as across industries.

The transformation Novelis is leading is what society wants – and what the planet and the global economy need – and it will be the key driver of our company's long-term success. Although the road to a sustainable future for both our planet and the economy is not an easy or clear path, we ask you to join us on this journey and explore the potential opportunities for your business to rethink its business model.

John Gardner
Vice President and
Chief Sustainability Officer, Novelis

Executive Summary

In a more complex, resource-constrained world, companies need to move past merely creating more sustainable products and processes to generate new, fundamentally more sustainable business models. For any one company, such innovation will derive from a confluence of three key elements: evolving external conditions, the company's underlying culture and capacity to innovate, and the actions and intentions of the sustainability innovator. The companies and innovators that step up to this challenge will create business models that can drive a more sustainable future.

The External Landscape

Business model innovation today is being driven by challenging business conditions and other emerging factors that create both constraints and momentum that necessitate or encourage new approaches that result in more sustainable outcomes.

Resource scarcity, climate change, urbanization and changing demographics make it difficult for many companies to maintain the status quo. They also present an opportunity to do business differently—and more sustainably. Meanwhile, emerging factors such as digitization and the rise of the collaborative and circular economies point to increasing momentum that may put the wind in the sails of companies that choose to harness these forces.

The Internal Culture

Culture plays a significant role in enabling teams inside firms to respond to these external conditions and create new models. A review of mainstream innovation literature cites four factors influencing corporate environments to allow for innovation: supportive senior leadership, non-hierarchical structures, freedom to fail, and an ethos that encourages collaboration. Internal innovators can leverage and/or work to foster these elements to drive business model innovation for sustainability.

Actions of the Innovator

Our interviews and research, as well as our experience running innovation workshops, demonstrate that thoughtful and ambitious sustainability leaders can foster business model innovation thinking, if not entirely new business models.

These entrepreneurial leaders build networks and connections inside a company—a measure of success for one such internal changemaker is how many people across business units he can connect to one another to pursue business model innovation. The leaders introduce the concept and promise of business model innovation through tools that highlight areas of risk and opportunity for their company. They focus dialogue on value creation rather than new products or outputs.

Case Studies

Through several in-depth case studies of large, multinational companies from multiple industries—Fibria, Novelis, Starbucks and Syngenta—we put these points into relief and reveal the process and evolution involved in transforming a business model.

Interwoven between the core chapters of the report, each case study describes how one or two ambitious sustainability leaders inside a company have shepherded, or are in the early stages of launching, a business model with more sustainable outcomes; how they have gotten buy-in from senior leadership, shareholders, business units, factory-level employees, customers and consumers; challenges they have faced in the process; and how they recognized the opportunity, and/or made the case for it in the first place.

We have been inspired by hearing and writing these stories and we hope the larger field benefits from understanding how business model transformation for sustainability can come about within large, established companies.

How Sustainability Innovators Can Drive Business Model Thinking

1. Mine the network effect and jumpstart new conversations within the company
2. Map your business model to understand purpose, points of transaction and key relationships
3. Focus on identifying value created, value destroyed and value missed during the business model mapping process
4. Build the business case by understanding the numbers that will make it competitive with other innovations in the company
5. Align innovation metrics so that they are not at cross-purposes with other employee goals

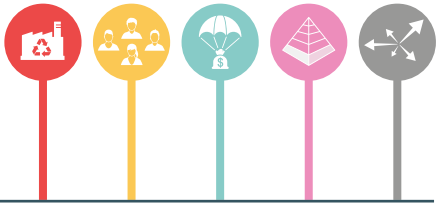
Navigating the Report

In-Depth Case Studies:

Within the report, you will find four in-depth case studies of large companies that have made shifts towards more sustainable business models. These case studies are differentiated with a green background.

Mini Case Studies:

Brief spotlights of other inspiring business model innovations are scattered throughout the report. They are indicated by colored icons corresponding to the five categories we identified in *Model Behavior*.



A Primer on Business Model Innovation for SustainAbility

Model Behavior
20 Business Model Innovations for Sustainability

In Model Behavior: 20 Business Model Innovations for Sustainability, we explored what a business model is, how it can be changed, and the kinds of shifts that are underway to make companies more sustainable.

Through our research, we learned that a business model encompasses more than just what a company produces. Innovation researchers Alexander Osterwalder and Yves Pigneur define business models as "the fundamental structures for how companies create, deliver and capture value."[1]

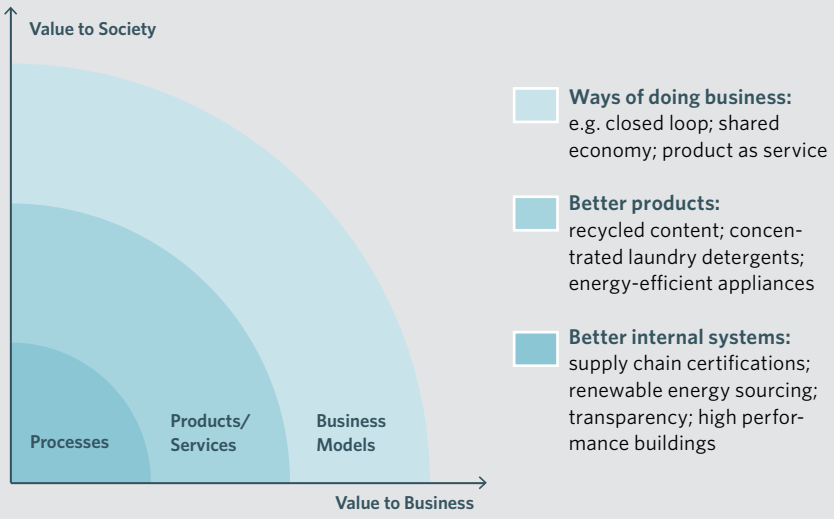
Many existing business models, however, are predicated on the assumption that vital, non-financial resources—natural, human and social capital—are in unlimited supply. For CEOs and sustainability practitioners, business model innovation is key to meeting human needs within planetary limits.

In *Model Behavior,* we defined business model innovation as a novel form of exchange at some point along a company's value chain. When that exchange creates new social or environmental value, or distributes economic value more equitably for stakeholders, then it may be considered business model innovation for sustainability.

As a company considers exchanges that occur at all points within the business model—with suppliers, employees, or its community—opportunities arise to innovate, distribute value, and shift outcomes for the better.

Business model innovation is distinct from product and process innovation. While products and services may provide incremental gains, business model innovations allow companies to change the rules of the game in order to thrive and shape their impacts on people and planet. It is not uncommon, however, that process, product and business model innovation work in concert with one another to create optimized value.

Figure 1:
Innovation Framework



Case Studies Overview

Seeing the Forest for the Trees

What does it take for a company well-positioned in one marketplace to shift into entirely new territory? Why would a successful company consider such a transition?

In 2009, faced with rising challenges from competition and risks from climate change, innovators inside the Brazilian pulp producer Fibria knew that if the company didn't reconsider its strategy, it might be unwillingly forced to do so in the future. Could the company use the thousands of square miles of land it owns for entirely different purposes, such as renewable energy provision or sustainable land development?

Altering a company's portfolio doesn't happen overnight. But little by little, Fibria's management, board members and employees have begun to reconsider how they could use their vast land assets differently. A new direction for Fibria has emerged that could transform the company's business model into one that's more sustainable. Read the details of this business model shift on page 13.

Above Ground Miner

When market volatility led to supply instability and near bankruptcy, Novelis, was forced to reconsider its place in the aluminum value chain.

A restructuring had left the company without upstream mining assets, and hence, insecure supply. Could this weakness be turned into a strength? Could the company explore an alternative source of supply—recycled aluminum?

Fast-forward to today and Novelis is the largest aluminum recycler in the world. The company aims to source 80% recycled aluminum, and already at 50% since that initiative launched in 2011, it is on its way. This shift has required restructuring internal incentives, developing designs that use recycled alloys and investing in new infrastructure. It has led to a closed-loop manufacturing model, and one that targets base of the pyramid scrap collectors.

Novelis' new path has given the company a distinct first mover advantage, but it has not been without risks and roadblocks along the way. Read the case on page 25.

Case Studies Overview

Cultivating Farmers First

For the agribusiness Syngenta, the availability of farm labor has become an increasing challenge. As urbanization lures people away from farms to cities, Syngenta has focused significant resources on developing its value proposition so that farmers will continue to invest in their farms over time.

Syngenta has started to employ inclusive models that focus more on the needs of customers at the base of the pyramid. But, the company has taken additional steps: it created an alternative marketplace model, built a trading arm that creates strong links between growers and the downstream value chain, and provided traceability software that connects buyers to the original source of the product. The models ensure a solid customer base for Syngenta and strong market linkages throughout the value chain.

The development of new models has required an entrepreneurial ethos and collaboration inside and outside company walls. To understand the elements of the model in action, read the case on page 37.

Green from Bean to Store

Since its start, Starbucks has traded on its role as a third place, a community space that stimulates interaction and serves as an alternative to home or work. Starbucks' ability to provide that unique place, however, came into question a decade ago.

The company's rapid growth had led to thousands of cookie-cutter stores around the world. But, the expansion eroded its uniqueness and it struggled to differentiate itself amidst new market entrants.

The business model associated with creating generic stores no longer provided the kind of third space that Starbucks had originally envisioned. In response, a small group of intrapreneurs proposed a strategy for differentiation—green building. Buy-in did not come immediately and required a strong business case as well as the creation of new industry standards. Today the company is rolling out LEED-certified stores around the world and retrofitting existing stores.

What appears to be a process innovation at first glance has ultimately altered the way that stakeholders gain value from the company. To understand how a small team of innovators made it happen, read the case on page 53.

Introduction

Why Focus on Business Model Innovation?

Introduction: Why Focus on Business Model Innovation?

Many of the companies that are flourishing financially today are inherently unsustainable. Despite laudable efforts to make their processes or products more sustainable, no amount of renewable energy sourcing, for example, or green product engineering can change that.

When an inherently unsustainable company experiences continued commercial success, thinking about a different, more sustainable model may seem unlikely or unrealistic. However, dwindling security of supply, rising commodity prices, changing consumer demographics and increasing competitive pressure make it prescient to consider business models that will be less volatile, less resource-intensive and more responsive to the user of the future.

This report focuses on telling the stories of companies that have shifted their business model to become more sustainable because it made business sense. In the case studies throughout the report, readers will learn about how shifting to recycled aluminum made more financial sense for Novelis than continuing to source virgin, primary aluminum. Starbucks had to differentiate itself from competitors at the high and low end of the market and green building provided a solution. Fibria, the largest pulp company in the world, realized that while demand for its traditional products would remain strong for many years, it was risky to depend on historic patterns of demand. The company had to shift its mindset. Syngenta changed its sales approach as part of a larger effort to retain its core customers, farmers.

The new models that have been adopted are more financially sound in the long term. They also provide more value to communities, employees, the environment and future generations.

Ideally, the business case for a shift towards greater sustainability is clear. But the link between sustainability and financial gain may be unclear for some companies or industries, in particular when those industries have been able to externalize costs for so long. Nonetheless, part of the appeal of system-level transformations, including business model shifts, is trying to engineer it so radical new things can be made to make business sense.

We begin the report with the story of how a leading pulp producer in Brazil, called Fibria, is undergoing a business model transformation to position it for a future more dependent upon renewable energy and biofuels. The new business model has entailed a mindset shift among Fibria executives about the use of its assets, but the transformation is well underway and will diversify the company's product lines and make it a player in a more sustainable future.

MINI CASE STUDY - Environmental Impact

THE BROAD GROUP:
Rapid green construction that responds to challenges of Asian urbanization.

WHAT
Creates energy-efficient, multi-story buildings that can be quickly constructed to meet growing housing demand in real time.

WHY
70% of the world's population will live in cities in 2050 requiring more building infrastructure to be constructed quickly without the large negative environmental impacts related to construction.

HOW
The Broad Group is able to quickly construct multi-story buildings through 90% pre-fabricated modular components that filter 99% of particulate matter (PM2.5), are extremely energy efficient, and can withstand a 9-magnitude earthquake.

Case Study

Fibria: Seeing the Forest for the Trees

In 2009, after spending two years engineering the merger of two of the largest pulp and paper companies in the world, Aracruz Celulose and Votorantim Celulose e Papel, Vinicius Nonino, Director of Strategy and New Business for the recently created company, found himself in a unique position. He would now have a direct influence over the forward direction of a new company and the landscape appeared to be wide open.

Fibria, the company that materialized from the merger, is a specialist in creating the pulp for tissue and paper for the masses. But, as Nonino considered the current business context, with increasing competition, an inflow of new technology, an emerging global middle class and climate change challenges, he wondered if the company might aspire to something different. Fibria was a forestry leader, with assets of thousands of hectares of forest. But, what if they looked at their forest assets with an altered lens? An altered mindset? Would Fibria always be a pulp maker, or could it transform into a land steward, a biofuel company and a real estate developer?

What if they looked at their forest assets with an altered lens?

Fibria is one of the world's largest producers of pulp intended for tissue. *Image © Fibria*

Context

Fibria, headquartered in São Paulo, owns 3,700 square miles of forest across Southeast Brazil, along with four pulp mills and several ports for distributing its products. Its primary output, pulp for tissues and toilet papers, is sold and shipped to the US, Europe and Asia. Its stock is publicly traded on the BM&F Bovespa stock exchange in Brazil as well as the New York Stock Exchange (NYSE). As of 2014, the company had 15,000 employees and a production capacity of 5.4 million tons of pulp, yielding 300 tons of paper per year.

The company focuses on the cultivation and harvesting of planted eucalyptus, a tree that is not native to Brazil, but has thrived since it was imported from Australia decades ago. The trees are prized for tissue manufacturing because they provide a softness that other hardwoods don't have.

Fibria's eucalyptus trees line up in perfect columns and rows for miles at a stretch. Its total forest base is 969,000 hectares, of which 343,000 hectares (~1,300 square miles) are native and preserved for environmental conservation.

Evaluating the Landscape

As Aracruz and Votorancim joined to become one, Nonino focused on defining the direction for the new company. On the one hand, they could continue to be a pulp company for the foreseeable future. Demand was strong and growing due to China's population growth and increasing prosperity. Paper use for packaging was also growing.

However, there were other macro trends to consider. Top of mind for Nonino and the management team were developments in technology, now influencing nearly every industry, changing demographics globally, and increasing risks from climate change.

Case Study: Fibria: Seeing the Forest for the Trees

Nonino brought together internal and external stakeholders to take a closer look at the impact of these trends on the business. His team engaged in a SWOT analysis to determine which avenues the company should consider.

For example, the use of technology to create efficiencies arose as an opportunity. The company decided to explore new technologies and advanced forestry techniques to manage the planting, maintenance and harvesting of its forests. These improvements had the potential to not only improve yields, but also to cut costs by using vital resources like water and fertilizer more efficiently. These would be helpful process innovations.

Elsewhere, however, technology created significant threats for the industry. In particular, the increasing ubiquity of digital publications and other information technology has resulted in a major demand shift in more developed markets. Some of Fibria's competitors have already fallen victim to this disruption—as demand for newsprint and magazine paper has fallen, some of Europe's leading producers of graphic papers have grown weaker and in Canada, several mills have closed. Even some national economies have been disrupted. Finland's economy struggled with the rise of digital media, with paper and pulp accounting for 13% of the country's exports.

Fibria, dependent on natural resources, also faced climate change challenges. In Brazil, where water and energy shortages have become an increasing threat, business continuity in the face of climate change is a key consideration. Other climate change effects, such as decreasing groundwater recharge, also had to be factored into day-to-day operations and made maximizing water efficiency increasingly top-of-mind.

Other industry pressures also loomed. Even though Fibria is the lowest cost producer in the industry, as new players enter the market with large-scale mills, supply and price is impacted and Fibria feels every fluctuation. Meanwhile, the price of key inputs such as labor, land and raw materials are all increasing, making the reduction of prices difficult if not impossible.

There were also regional pressures hovering around the business, such as the conversion of natural vegetation to agricultural land for raising cattle (to meet the needs of a growing middle class and desire for more protein) or urban development.

The SWOT analysis resulted in a mass of knowledge and new factors to consider going forward. Fibria's management team had to determine how to balance conflicting signals from the market and find the best future course.

While Fibria owns thousands of hectares of land, not all of it is ideal for growing forests. *Image © Fibria*

Case Study: Fibria: Seeing the Forest for the Trees

Charting Out a New Path

Coming out of the SWOT review, Fibria's management could see that the industry was not structurally healthy. Although the pulp business will remain strong for many decades due to emerging market demand, the company saw an opportunity and necessity to diversify the business in light of the global challenges they had identified, and Nonino saw opportunities to use Fibria's assets to meet those challenges.

In response, he set out to explore new paths and create a more balanced portfolio. How could Fibria develop new sustainable lines of business? How could it change internal mindsets about the business, from being a pulp company to being something more?

Fibria developed a Strategic Mandate, which served as validation for exploring new areas of business.

Several ideas had emerged from the SWOT analysis and stakeholder consultations. Nonino took advantage of Fibria's "strategic dialogue," a formal window of discourse with its shareholders, to introduce the management's idea of exploring areas outside of pulp. From this formal exchange, Fibria developed a Strategic Mandate, which served as validation for exploring new areas of business.

Fibria's R&D is focused partly on developing a liquid biofuel. *Image © Fibria*

Diversifying the Business

Nonino and others had started to consider the idea of Fibria as a land-owner, rather than just a generator of pulp. How could they create value through some of their land holdings that might better meet the needs of current and future generations?

Most of Fibria's landholdings are forested—in some areas, all you can see for miles are trees. However, some of Fibria's land abuts cities, which are rapidly expanding into previously unoccupied peri-urban space. Other pieces of its land are rocky or have specifications better suited for non-growing purposes.

Due to the forces of urbanization, Brazil's cities have grown not just upward, but outward, and as a result, Fibria has experienced pressure to sell its large land assets for urban development. The company decided to look at this as an opportunity to explore new business.

Instead of selling its land to developers, it could lead the process itself and develop new communities—more sustainable communities—which would align to Fibria's values. Nonino explained, "We believe we have the expertise to play this role due to the real estate experience we have acquired related to our management of forestry areas (registering, licensing, etc.). We see an opportunity to create value, provide order to urban growth, decrease the pressure on cities and leverage Fibria's image with the concept of sustainable cities."

As a sustainable urban land developer, Fibria aims to establish partnerships to build these developments thoughtfully, equipping them with houses, schools and hospitals, and most importantly, with sustainability values and measures baked in. The company has identified thousands of hectares that could be turned into a profitable and impactful business, while supporting Fibria's local communities through a sustainable neighborhood master plan.

Case Study: Fibria: Seeing the Forest for the Trees

While the area identified is only a small portion of the company's overall land holdings, it becomes meaningful when one considers the density of large and growing Brazilian cities. Rio de Janeiro, for example, averages 12,000 people per square mile. Fibria intends to expand the amount of land used for sustainably developed communities in the coming years. Nonino says that "most investors believe this is an interesting path for value creation."

"Fibria is changing its mindset to take advantage of the low-carbon world..."

Vinicius Nonino, Director of Strategy and New Business, Fibria

Fibria is installing solar panels in areas that are not ideal for growing forest. *Image © iStockphoto*

For its areas that are not ideal for forest growing, Fibria leveraged partnerships to install wind turbines to create sustainable energy. The company is also exploring possibilities for solar energy production on these lands. This path includes working on development and zoning requirements for residential areas, coordinating with Fibria's board to figure out timing, and determining how best to develop each area.

These experiments will focus on making use of land that is unsuitable for growing forests. But, Nonino and others also thought there could be a second diversification strategy. What if they turned their trees into something other than tissue?

Currently, almost all of Fibria's forest assets go into pulp production. But, emerging technologies have opened up possibilities to maximize the value of the forests through the production of biofuels, biochemicals and bioproducts. Fibria has conducted extensive research on several of these technologies, including the production of ethanol from hydrolysis, carbon fiber and resins from lignin, and nanocellulose and biofuels from pyrolysis, which chemically decomposes organic materials through the application of heat without oxygen.

Using pyrolysis technology, which chemically decomposes organic materials through the application of heat without oxygen, Fibria has formed a strategic partnership with a Canadian company, Ensyn, which has a patented process for a commercially available technology that converts wood and other biomass into renewable liquids and chemicals. Very few firms have been able to commercialize cellulosic liquid fuel or chemicals, so this is new terrain for Fibria and its partners.

Nonino believes that these diversification efforts will position Fibria better for the future. Nonino explained, "Fibria is changing its mindset to take advantage of the low-carbon world and position itself as a company that can generate bio products from planted forests. While we will continue to invest to maintain our position in pulp, always in a sustainable way, we will gradually develop and grow the biorefinery business."

These two diversification strategies—experimenting with new land use strategies and developing new biofuels from wood—are still very small parts of the overall business. However, Fibria's goal is to make them 20% of total free cash flow* by 2025, making the company less pulp dependent and giving it alternative options for future business growth in light of looming sustainability challenges.

* Free cash flow represents the cash that a company is able to generate after laying out the money required to maintain or expand its asset base i.e., operating cash flow minus capital expenditures.

Case Study: Fibria: Seeing the Forest for the Trees

Tools for the Journey

Beginning the transition from a traditional paper and pulp company to a sustainable land and forest steward has not been without challenges. Several tools have been vital for making the journey possible.

First, top-level support has been key. From the start, Fibria's CEO, Marcelo Castelli, supported the vision to take the company to the next level. The management team also embraced the strategy, providing resources, time and people expertise.

To help provide ongoing support for the diversification strategy, Fibria created an Innovation Committee that includes members such as Nonino, Castelli and Fernando Bertolucci, Director of Technology. This committee meets four times a year, includes four members of Fibria's Board of Directors as permanent participants, and is crucial in consolidating the strategy and defining action plans for diversification.

Fibria has also shifted its governance structure to provide the resources and freedom to innovate. For example, the technology director Bertolucci and Nonino allocated specific personnel and resources to handle the development of biorefinery technologies that had not existed previously. In addition, the company moved process-oriented strategy responsibilities—such as CapEx, management systems, certifications, and other incremental operational improvements—to other parts of the business to give Nonino and Bertolucci the space to focus entirely on evolving the future direction of the company.

The drought in Brazil has caused Fibria to significantly increase its water efficiency. *Image © Fibria*

The strategic development of specific partnerships was also essential for harnessing the knowledge and resources necessary for transitioning the company. Partnering with Ensyn to develop biofuel technologies, working with renewable energy partners to place turbines on Fibria's land, and establishing cooperation with real estate companies, have been essential to advancing the new agenda.

Lastly, the team at Fibria attributes the so-far successful transition to discipline. Sticking to the strategy, even when important stakeholders within the company express discomfort with the uncertainty required, has been difficult but necessary. Even so, changing mindsets of individuals working within a traditional industrial company to implement business model innovation remains a consistent challenge.

Fibria is moving towards a new business model where it is not limited to merely growing and producing pulp for paper. In a rapidly changing landscape, Fibria is bolstering its potential to preserve and enhance future value.

Case Study: Fibria: Seeing the Forest for the Trees

Business Model Innovation Snapshot

The External Landscape	**Resource Scarcity –** Essential resources, such as water and fertilizer, are becoming increasingly scarce or expensive. **Price Volatility –** Changing demand, new low-cost industry entrants, low margins and fluctuating commodity prices cause pricing pressure that is strongly felt by the company. **Climate Change –** Rising global temperatures from climate change have caused severe droughts in Brazil, impacting agriculture, industry and populations.
The Internal Culture	**Senior Leadership –** To combat external pressures such as competition and climate change, senior leadership knew it had to think innovatively to leverage all of the company's assets and competencies. **Internal and External Collaboration –** Fibria sought alignment within the company on the new strategy—from Board Members to employees—as well as forged partnerships with other entities where they knew they could benefit.
Actions of the Innovator	**Map the Model –** Fibria mapped its model in the course of its strategy review. It includes a business model map in its 2012 sustainability report to communicate to stakeholders on its areas of impact. **Focus on Value –** By shifting the parameters of the business model to one aimed at creating value based on existing assets, namely large swaths of land, the company was able to think differently about the possibilities ahead. **Clear Business Case –** An understanding of macro trends related to resource scarcity and supply/demand made the mindset shift easier for internal leadership and shareholders.
Additional Elements at Play	**Time of Transition –** Due to the merger in 2009, leadership was open to new ideas and models.
Business Model Innovations	**Rematerialization –** Part of the business strategy entails rematerializing pulp waste into fuel. **Product to Service –** Shifting from creating new pulp products to becoming a sustainable real estate developer and renewable energy provider.

The External Landscape

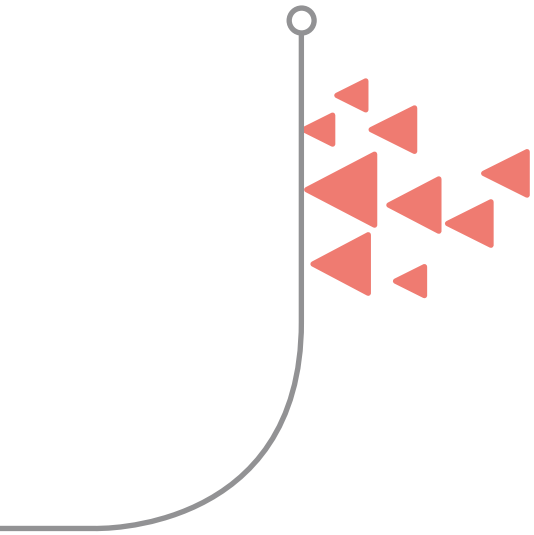
The External Landscape

Fibria's shift illustrates that business model innovations for sustainability can arise with a forward-looking understanding of the business landscape and an adjustment of the model to be resilient in the face of these external conditions. In this first section of the report, we highlight the external conditions, some of which Fibria experienced as it underwent a change to its business model, that create both constraints and momentum to drive the development of more sustainable business models.

These external conditions set up both challenging and stimulating scenarios in which to develop more sustainable business models. Resource scarcity, climate change and urbanization have led to alterations to the global economic landscape to which companies must quickly adapt. Investors and policy-makers have noticed that short-termism is not yielding the results or the economic growth they desire.

Business leaders who respond to and harness external forces to drive innovation will have a distinct advantage in the future.

Meanwhile, other factors such as digitization and the increasing density of people and ideas brought about by urbanization may help catalyze more sustainable business models. Business leaders who respond to and harness these external forces to drive innovation will have a distinct advantage in the future.



External Conditions – Constraints

Many business models that underlie the operations of the largest companies in the world were designed when resource scarcity, climate change and rapid population growth weren't mainstream concerns, allowing companies to prioritize the financial bottom line above all. But those circumstances are now shifting dramatically. Changing planetary conditions are placing new pressures on businesses and leading to a call for longer-term perspectives and radical shifts in business practice from investors and policymakers.

Resource scarcity and growing corporate competition for limited resources is changing the business landscape. According to the US Energy and Information Administration, demand for energy is expected to increase by 56% between 2010 and 2040, driving up costs and competition.[2] Water scarcity in regions around the world makes it more challenging for companies across sectors, including agriculture, apparel, mining and oil & gas.

Climate change affects all aspects of corporate value chains, from sourcing to production, distribution and sales. Some industries will feel these strains earlier and they will create a ripple effect to others. Corporate insurance premiums, for example, are likely to increase (or to disappear all together) to match growing threats from more frequent catastrophic natural disasters and sea-level rise. According to a 2014 CERES report on Insurer Climate Risk, global average annual weather-related losses increased more than tenfold in the last several decades, from $10 billion a year in the period 1974-1983 to $131 billion in 2004-2013, while the proportion of those damages that are insured is steadily declining.[3]

The External Landscape

Urbanization has also put more strain on companies' infrastructure and distribution networks within cities, making it more difficult to meet demand. The prospect of urban opportunity lures rural workers to cities; as a result, many companies, particularly those dependent upon smallholder agriculture, grapple with workforce and supply instability. Dense concentrations of people and industry in cities are also exacerbating pollution challenges. For example, while the European Union Emission Trading System (EU ETS) remains the world's largest carbon trading system aimed at reducing air pollution and global warming, companies doing business in China and Korea are closely monitoring a Chinese emissions trading system that will soon price carbon.

Institutional investors have called for a different way of doing business, one less focused on short-term profit.

Conditions are likely to get more challenging as global population surges towards nine billion and the middle class expands. This multiplying cohort will want to eat more meat, consume more energy, and buy more products and services—a boon for some companies perhaps, but also a factor that will put additional pressure on a finite supply of resources, possibly driving up costs and adding to competition across industries.

Some institutional actors have called for a different way of doing business, one less focused on short-term profit, and more focused on long-term value creation. In April 2015, Larry Fink, the CEO of Blackrock, the world's largest asset manager, wrote a letter to S&P 500 CEOs asking them to stop focusing on short-term results. Fink described an environment characterized by "acute pressure, growing with every quarter, for companies to meet short-term financial goals at the expense of building long-term value." [4]

Other actors have also called for a transition to a long-term lens. The B20, the business forum that advises G20 governments, released a report in 2014 highlighting the urgency with which policymakers must tackle the structural gap in infrastructure investment, citing the need to refocus investment horizons in favor of longer-term returns.

Looking beyond the next quarter and understanding how external conditions will impact a business model has caused some companies to shift the way they do business, potentially leading them towards creating more sustainable outcomes. Fibria, as mentioned earlier, is shifting its model from one focused on pulp production to one that uses its land assets in more diverse ways, from renewable energy production, to liquid biofuel and sustainable community development. Growing water scarcity has pushed companies like Coca-Cola to hedge their bets by investing in companies like Keurig Green Mountain that might enable them to reduce centralized water extraction in water-poor communities through self-service home soda makers but still get their products into the hands of consumers. Other companies like Philips and Rolls Royce PLC have adopted product-as-a-service models, focused on product performance over its lifetime, rather than merely making more goods. Novelis, Renault and Waste Management are adopting closed loop models in the face of market volatility.

These external constraints make it difficult for companies to generate the same level of profit over the long term. To handle growing scarcity in a climate-challenged world, business model innovation for sustainability is essential, and also desirable. It requires a steady, ongoing transition from outdated business models to those that can take us into a more sustainable future.

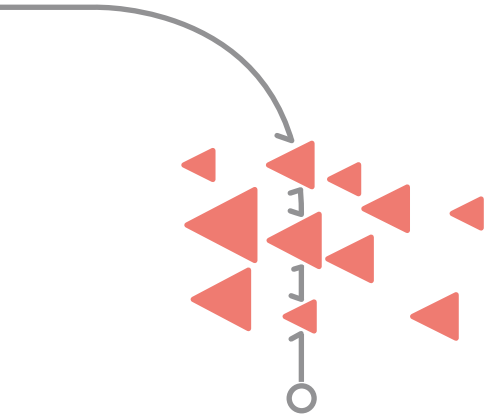
MINI CASE STUDY - Environmental Impact

WISERG:
Using technology to close the loop on food waste.

WHAT
WISErg combines bio- and high-tech systems to manage food waste and urban-generated organics.

WHY
Changing climate conditions and water scarcity among other global conditions are and will continue to impact the world's yield of food. Almost half of the food the world harvests, however, is wasted. Better management and waste technologies can help lessen this threat to food global security.

HOW
WISErg leverages a network of grocery stores and restaurants, from which it collects food waste, analyzes and collects information on the waste to help grocery stores to better stock shelves in the future, and then grinds the scraps to create a nutrient-rich liquid fertilizer.



Technology has also provided the precision, transparency and connectivity to enable more resource-efficient business models.

External Conditions – Momentum

Arguably, any company that wants to sustain into the future will need to recognize and respond to the external conditions and pressures described above. In contrast, the factors described below indicate dynamic undercurrents that may positively encourage and enable business model innovations for sustainability. Alongside each factor, we highlight a few examples illustrating its effect.

- **Digitization:** The rise of the Internet and proliferation of connectivity around the world has enabled new, more socially and environmentally impactful business models to emerge. The availability of digital technology and smartphones to hundreds of millions of new users has provided access to finance and created new job opportunities for many who were formerly excluded from the economy. Digital technology has also provided the precision, transparency and connectivity to enable more resource-efficient business models.
  - **Andela**, a growing social enterprise in Nigeria, uses technology to address a skills gap—the shortage of qualified software developers. Andela has created a four-year program that provides remote training in basic coding. Students then divide their time between schoolwork and real projects for IT companies in need of talent. Clients include Microsoft and Segovia.[5]
  - Software applications like **OPower** and **SWIIM**, the former targeted at residential energy users, and the latter for on-farm water savings, enable information transparency that advances reductions in resource use and also changes the way that users transact with water and energy providers.

- **Collaborative Economy:** The rise of the collaborative, or sharing, economy disrupts the traditional relationship between corporation and customer to accelerate peer-to-peer exchanges. This has led to business models that increase convenience, make previously idle goods more productive and extend access to new users. Peer connections have also extended the lifecycle of products that might have previously been discarded, turning one person's trash into another's treasure through sharing platforms.
  - **Gazelle** provides a marketplace for used gadgets like smartphones and tablets. The company, which calls itself a reCommerce model, gives cash to users who are ready to part with their old electronics, and then finds new owners for the old devices.
  - **Seoul**, South Korea is working to create a culture of sharing that promotes and connects citizens with businesses and encourages resource sharing. It has even branded itself a "Sharing City." The city is introducing car sharing services; opening select government parking lots and municipal buildings to the public during off hours; connecting senior citizens who have extra rooms with students who need a room; installing tool libraries and shared bookshelves in communities throughout the city; and more. Sharing enterprises chosen for city support include home-stay platforms; **Woozoo**, a company that remodels old houses into shared houses; **Wonderlend** and **Billi**, companies that facilitate the lending and borrowing of idle goods; **The Open Closet**, a company that distributes donated suits to young job seekers; and **Zipbob**, a meal sharing platform.[6]

MINI CASE STUDY - Environmental Impact

OLLECO: Running a company and cars on food industry waste.

WHAT
Olleco is a UK company that sells cooking oil to food companies and restaurants.

WHY
The food industry produces a lot of waste, including cooking oil that ends up in landfills or may be poured down drains and into water supplies. Recycling this waste, as well as creating a secure supply of renewable energy, can alleviate the environmental and social consequences of cooking oil waste.

HOW
Olleco both rematerializes and creates new value by taking the waste fats and oils from companies like McDonald's and Sainsbury's and turning it into biodiesel, which Olleco then sells back to companies to use for fueling their distribution fleets.

The External Landscape

The denser a city, the more interactions people have, and the more innovative a city may be.

- **Circular Economy:** This framework aims to create a restorative industrial economy that learns from living systems, focuses on reusing, recycling, refurbishing and repairing. In contrast, our current economic model is often characterized as following a linear take-make-waste pattern. Although the circular economy concept has been around for more than 30 years, it has gained wider acceptance and adoption in the last decade. In 2006, promoting a circular economy was included as part of China's five-year plan, and in 2010, the Ellen MacArthur Foundation was created, giving wider exposure and momentum to the concept. This year, the European Commission is presenting a strategy for a circular economy that will enable greater resource efficiency and encourage more circular business models across the continent.
  - The "table to farm" social enterprise, **Waste Capital Partners**, focuses on refashioning the waste collection system in tier 2 (population around 1 million) and tier 3 cities (population less than 1 million) across India. The business focuses on door-to-door trash collection and waste processing resulting in a low-cost, decentralized waste management model that allows local waste pickers to triple their income. The waste management industry in India is dominated by private players who are paid based on the volume of waste they send to landfill. Waste Capital Partners disintermediates the system, working with municipalities to reduce waste to landfill. They separate the collected trash and sell the organic waste to farmers as a soil nutrient, and the dry waste to processors. Investors receive carbon credits.
  - **The Plant** is a 93,000-square-foot food incubator in Chicago that aims to create a system where the waste from one food business powers another. The facility is home to a mushroom farm, three hydroponic farms and two aquaponic farms that use fish waste to feed arugula, kale and chard. The building will be heated and powered by an anaerobic digester that will be filled with spent grain from microbreweries housed there, food waste from on-site food businesses and neighborhood restaurants, as well as fats and grease from nearby meatpacking plants.
- **Density of People and Ideas:** Today, more than half of the world's population lives in cities and every month in the developing world five million people move from the countryside to the city. Cities can foster the rapid development and dispersion of new ideas, technologies, behaviors and business models that will be fundamental to long-term sustainable development.[7] They provide gateways to finance, markets and other stimuli to economic growth. According to MIT researcher Wie Pan, the measure that can predict how many patents a city will produce is termed the "social tie density," which is highly correlated with population density.[8] The denser a city, the more interactions people have, and the more innovative a city may be.

MINI CASE STUDY - Social Impact

ALGRAMO:
Providing access to affordable nutrition in Chile.

WHAT
Algramo, launched in Chile, uses an alternative marketplace model to offer nutritious food products at 40% the cost.

WHY
Low income communities often end up spending more money on staple groceries because they cannot afford these items in bulk, making saving more difficult.

HOW
By focusing on value creation in terms of providing affordable access to nutrition, Algramo leverages an existing network of shops to keep costs low and reach customers in a place they already frequent. Algramo installs vending machines that dispense bulk items in local shops that low-income residents would otherwise have to purchase in smaller, more expensive amounts. The shorter supply chain cuts out excess packaging, labeling and the middleman; products cost 40% less; and shopkeepers can now compete with supermarkets.

The External Landscape

- The City of **Singapore**, in partnership with the Public Utilities Board of Singapore (PUB) and WaterWiSe, a platform for real-time monitoring of water distribution systems, has implemented one of the world's most effective smart water grids. The smart water grid is a fully controlled network in which efforts to reduce leakage can be done remotely and interactively, and where multiple sources of water (rainwater, treatment, or reuse) are coordinated and managed automatically.
- Earlier this year, **IBM** announced a partnership with Yarra Valley Water, the largest water and sanitation utility in **Melbourne**, Australia, to enhance the management of the utility's assets and customer service to over 1.7 million people and 50,000 businesses. The partnership will leverage IBM's experience formulating cloud-based systems, combining it with their skills in big data collection and analytics to make Melbourne's water management smarter, thereby reducing the cost of managing water by 15%.[9]

The last two decades have seen a small cadre of conscious capitalists emerge.

- **Elevated Consciousness:** The last two decades have seen a small cadre of conscious capitalists emerge—business leaders who have experienced a moral awakening that has led them to build and run their businesses differently, with sustainability as a guiding principle. These leaders educate and influence others, slowly changing how corporate business models look, and influencing the way that businesses run.
  - From early pioneers like the late Ray Anderson of **Interface** to more recent sustainability leaders like Paul Polman of **Unilever** and outspoken thinkers like **Whole Foods'** John Mackey or **Starbucks'** Howard Shultz, these CEOs are not afraid to use their leadership mantle to promote the idea that companies can think beyond shareholder gain to try to influence larger conversations about value, purpose, class, race and education.
  - There is increasing excitement about purpose-led brands and businesses. Alongside the burgeoning social enterprise, impact investing and **B Corp** movements, more large companies, such as **PepsiCo**, **PwC** and **EY**—through its newly launched Beacon Institute—are aiming to embed their brands with a sense of purpose.

MINI CASE STUDY - Social Impact

ANDELA:
Up-skilling in Nigeria that solves software developer shortages for large companies while providing education and employment.

WHAT
Andela is a talent accelerator that trains and teaches software developers in Africa and connects them with companies around the globe who need their skills.

WHY
Addressing a global skills gap, Andela enables youth to become equipped with essential skills they can offer to global businesses at competitive prices and successfully earn a livelihood in the tech economy.

HOW
Mapping the value companies were missing by not having enough skilled developers enabled Andela to focus on flipping the traditional education model so that students are paid to learn.

Responding to External Landscape

While large companies today face myriad challenges, these dynamic undercurrents highlighted above indicate momentum that can be harnessed to develop new models. These are exciting times.

In the next case study, we examine how one company evaluated several of the aforementioned external constraints and determined that it would do business differently. Novelis' case study demonstrates a company's strategic response to these conditions. It also provides a window through which to observe how company culture plays a role in initiating a business model shift towards greater sustainable—the focus of Section II—and the actions of the innovators inside the company—the focus of Section III.

Case Study

Novelis: Above Ground Miner

On a chilly autumn day in early October 2014, in the small German village of Nacherstedt, a crowd of customers, suppliers and local leaders watched as a recycling facility hummed with activity. Shredders broke up bailed briquettes of aluminum scrap. Conveyer belts drew the scrap up to a massive furnace. A crane pulled cast aluminum ingots onto a train to be sent to a hot mill. The festive gathering marked the opening of the largest aluminum recycling facility in the world and perhaps more importantly, a beacon of progress and a show of commitment by a leading company.

This was an important milestone in the redesign of the company for a new kind of economy, one where take-make-waste patterns of consumption would no longer be acceptable, and where regenerative practices...would become the norm.

Novelis is the world's largest producer of rolled aluminum. *Image © Novelis*

The Split

Novelis was born in 2005 from the division of an existing aluminum industry giant, Alcan. In an attempt to unlock additional value, Alcan was split into a mining company, which retained the upstream mines, alumina production facilities and smelters, and Novelis, which kept the majority of the downstream assets where the aluminum is recycled and rolled into thin sheets and coils. Overnight, Novelis became a rare breed—a $10 billion publicly listed company operating with a start-up mentality but run by a veteran management team.

Novelis did not fare well in the immediate aftermath of the demerger. The company, which specializes in creating the material used for canned beverages (e.g., sodas and beers); car body parts; flat screen televisions and other electronics; and roofs and other architectural materials, was crippled by its complete dependence upon upstream primary aluminum, the price of which spiked shortly after the demerger. Unfortunately, the executive team had failed to sufficiently hedge its aluminum supply at the start; within eighteen months, the Board put Novelis up for sale.

In 2007, the Aditya Birla Group, an Indian conglomerate, bought the company (in essence making it private although it still had some public debt). They hired Phil Martens as CEO in 2009. He spent his first year stabilizing the company, but by 2010, he began to look for a compelling mission to drive the company forward for the foreseeable future.

Case Study: Novelis: Above Ground Miner

Using scrap aluminum could result in significant cost savings and reduced carbon emissions. *Image © Novelis*

Creating One Novelis

The aluminum industry had been in transition for several decades. Due to energy shocks in the 1970s and the growth of emerging markets, the industry's dynamics had shifted. Previously dominated by a handful of vertically integrated players that owned and operated upstream mines and refineries as well as downstream production facilities, new entrants were emerging.

The idea of a global downstream aluminum company—one that had no mining assets whatsoever—was new. Martens saw that perhaps there was an opportunity to completely change the way that Novelis did business.

When he became CEO, Martens first sought to unify the company and repair its balance sheet. He launched an initiative called "One Novelis" to integrate various decentralized parts of the company by combining systems and creating a shared vision. By 2011, he had restored the financial health of the company, taking EBITDA from $400 million to $1 billion. He felt it was time to unite the company around something bigger. What he did not yet realize was how important One Novelis would prove to be in his next challenge.

The idea of a global downstream aluminum company—one that had no mining assets—was new.

Climate Change as Strategic Driver

Martens' intuition and experience told him that climate change would soon become a core driver of strategy for any industry with a large energy and resource footprint. While at Ford, he had served on the Climate Change Task Force under Executive Chairman Bill Ford. It had become increasingly clear to him that the challenges associated with global sustainability—energy, climate, biodiversity, poverty and inequality—would soon become central to any company's corporate strategy, especially in material- and energy-intensive industries.

The mining of bauxite, an aluminum ore, and the production of primary aluminum use massive amounts of energy and produce vast quantities of waste in the form of mine refuse—roughly three to four kilograms of bauxite are required for every kilogram of pure aluminum produced. Martens wondered if Novelis' perceived weakness—a lack of upstream mining assets—might be turned into a strength. The production of aluminum from recycled scrap consumes 95% less energy and produces 95% fewer GHGs than the production of "prime" aluminum.

What if Novelis could reinvent itself as an 'above ground miner' of recycled materials?

Case Study: Novelis: Above Ground Miner

Getting to 80% Recycled Material

Martens started to build a team that could transform Novelis into a different kind of company. A leader inside Novelis Europe named John Gardner—then Vice President of Human Resources and Communication—had been pitching recycling to Martens since he had joined the company. Martens recruited Gardner to join the senior management team in Atlanta as Chief Sustainability Officer in January 2011.

At first, Gardner resisted. "At some companies, sustainability can be peripheral to the business strategy or a little too academic," says Gardner. But he discussed his concerns with Martens, who said, "I don't want this to be peripheral. Go build us a strategy." Gardner decided to take the job and built a small team around him with business backgrounds so that they could figure out how a more sustainable Novelis might look. Debate ensued: what aspirational targets could they set on recycling as well as other key impact areas like energy and water?

In 2011, the company was already using 33% recycled aluminum. While 100% recycled aluminum would probably never be possible because of the need to mix some pure aluminum with the alloys that make up the scrap waste stream, Gardner thought they could aim high. He and his colleagues created a range of targets on recycling, in particular, moving from 30% all the way up to 72%, taking into account various investments and portfolio allocations they would have to make. Martens reviewed the numbers and told Gardner, if you all can put together a plan to get to 72% in a short amount of time, then that's not challenging enough. I want a game-changing target that will push the whole company to work at this.

The business case and the environmental benefits were clear. Using scrap aluminum can be as much as 5-10% cheaper on a per ton basis than prime aluminum. It also uses only a fraction (5%) of the energy required. Accordingly, Gardner and other members of the senior team put in place a vision for the next decade: double profits from $1.1 billion to $2 billion; increase recycled content from 30% to 80%; halve greenhouse gas emissions; significantly reduce water and energy use, and produce zero waste, along with other social targets on safety, community engagement and training.

Achieving 80% would require nothing short of transformation—of product portfolio, customer relations, design and innovation, marketing, operations, product take-back, and scrap recycling. No one knew how to achieve such a goal. Novelis had already grabbed the "low hanging fruit" in used beverage can (UBC) recycling and recovery of automotive aluminum scrap. Now, the company would have to change the design of its products and work with customers, such as major players in the auto industry, to consider end-of-life recycling and incorporate recycling into the product. It would have to set up an infrastructure not only to recycle the scrap, but also to help stimulate the fragmented, largely informal sector of recyclers, scrap merchants, waste management companies, street/community collectors and waste pickers.

Achieving such high recycled content required R&D for a new aluminum alloy. *Image © Novelis*

Case Study: Novelis: Above Ground Miner

Execution

A six-point plan was developed to break down the challenge into milestones:

1. **Design for closed loop recycling:** Create new product designs to include increased recycled content, like the evercan™, the first independently certified, high-recycled content (90%) aluminum can body sheet.

2. **Fix the mix:** Dramatically reduce the use of prime aluminum, eliminating product lines that were primary aluminum-based (e.g., converter foil).

3. **Globalize the supply chain:** Establish a new organization to buy scrap locally across the regions but with global strategy. Optimize scrap inventory in order to reach recycling objectives instead of using a more decentralized decision-making process about the collection and processing of scrap.

4. **Increase recycling capacity:** Invest more than $500 million in recycling infrastructure in the US and around the world—consisting of research and technology team investments to create new recyclable alloys, new recycling and scrap collections centers, etc. Investments included the $250 million Nachterstedt facility as well as several other centers in Korea, Brazil and Europe.

5. **Diversify the scrap stream:** Reduce reliance on used beverage cans (UBCs) for scrap input, as UBCs constitute only 17% of the overall aluminum scrap available globally. Bring in more variety of scrap, and prepare for this by increasing research and technological capabilities by seeking how to put these new types into the product mix.

6. **Increase post-consumer recycling through advocacy and public policy:** Become actively engaged with policy makers. Work to educate diverse stakeholders and build infrastructure to enable post-consumer recycling. Reconsider memberships and partnerships (Novelis left the US National Association of Manufacturers in favor of a proactive stance on climate change and the need for carbon policy; in 2013, the company signed the Climate Declaration, joined the United Nations Global Compact, and has aligned to Global Reporting Initiative guidelines.) Extend the company's reach within the supply chain by opening scrap collection centers or establishing unconventional partnerships with cooperatives, community groups and small scrap dealers.

The sustainability vision proved important when it came to recruiting graduates and engineers—a clear differentiator.

The senior management team was completely aligned to, motivated by and working towards the 2020 goal using the six-point-plan. In fact, the sustainability vision proved important when it came to recruiting graduates and engineers—a clear differentiator. However, corporate business units, including R&D, constituted less than 10% of the total workforce. More than 60% of the employees are represented by unions at the facility level across twelve countries. Getting 11,000 employees to adopt and embrace the sustainability vision without a clear line of sight has not come easily, and will remain a part of the work that Gardner and others have ahead of them to reach the 80% goal.

Case Study: Novelis: Above Ground Miner

Obtaining enough scrap aluminum proved to be a new challenge for the company.
Image © Novelis

Market Reaction

Customers and competitors had mixed reactions. Some can makers—a concentrated market of only three large players—were fearful of being held hostage by a single aluminum supplier should closed-loop aluminum become the consumer preference of beverage companies. They were working to commoditize the market, and the introduction of a specialized product like evercan™ would make that more difficult. As a potential alternative to address can makers' concerns, Novelis had offered to assist other companies to certify high-recycled content can sheet.

Automobile makers, on the other hand, were lining up at the door to make the move to all-aluminum vehicles. This would enable them to meet new fuel efficiency standards in the US that required manufacturers to nearly double fleet fuel economy to more than 50 miles a gallon by 2025. Novelis continued to invest hundreds of millions to produce closed loop aluminum for the auto industry, and to make huge investments in manufacturing lightweight automobile material.

On the Horizon

Novelis is in a unique position: while other aluminum companies consider incorporating scrap into their supply chains, none have yet demonstrated the commitment and speed of Novelis. Given its size and scale and the capital investments required, it has a first mover advantage.

When asked about risks associated with the company's approach, Gardner explains, "The biggest risk is not doing this and just relying on high volatility, high carbon primary aluminum. Of course, we're making lots of big investments and moving our supply base from 4-5 primary sources to tens of thousands of recyclers around the world. But, it's much less risky than doing nothing."

Although can makers and beverage companies are still slow moving in their desire to adopt Novelis' recycled aluminum evercan™, they are starting to see movement. "Beverage companies are coming along," Gardner says. "We have two very active discussions, one with a beer company and one with a soft drinks customer and I'm hopeful we'll secure a few very big brands soon. And the craft brew sector is exploding. By this summer (2015), we will have moved from one to two customers to at least a dozen."

"The biggest risk is not doing this and just relying on high volatility, high carbon primary aluminum. Of course, we're making lots of big investments...But, it's much less risky than doing nothing."

John Gardner,
Chief Sustainability Officer,
Novelis

Case Study: Novelis: Above Ground Miner

Novelis also has a unique advantage in its path towards a circular economy. Because it manufactures one core material for its product portfolio, it can more easily fulfill a circular economy or closed-loop goal than other companies with more complex product portfolios or corporate structures. It presents a compelling example for how to go about designing a business model that many have said is the key to a more positive, regenerative economy. Learning from Novelis, could some industries benefit from a similar disaggregation in order to create more circular value networks?

Novelis' journey will not be without challenges. In April of this year, CEO Phil Martens left the company. Will Gardner be able to continue to pursue this ambitious strategy when the new leadership comes aboard? For its parent company, the Aditya Birla Group, Novelis is both a poster child and an anomaly—the rest of the company is not nearly as advanced in its sustainability efforts. How will it raise money for future financing and could that affect its sustainability journey? Such questions will only be answered in time.

Note: This case has benefited from material provided by © 2014 Enterprise for a Sustainable World and researchers/writers Stuart L. Hart, Priya Dasgupta, and Andrea Shpak.

Novelis' sustainability strategy has attracted talent who appreciate the company's innovative approach. *Image © Novelis*

Case Study: Novelis: Above Ground Miner

Business Model Innovation Snapshot

The External Landscape

Resource Scarcity – Aluminum is a limited resource but in growing demand for its use in electronics, vehicles and other products.

Price Volatility – Commodity markets are becoming more volatile from increased resource scarcity; spikes in aluminum supply prices forced the company to be sold in 2007.

Climate Change – Manufacturing aluminum is a high-energy endeavor that contributes to GHG emissions and global warming. Possible incoming regulations could bring significant risks to a high-emitting company.

Increasing Competition – New entrants to the aluminum market called for Novelis to achieve competitive differentiation and advantage through a new strategy.

The Internal Culture

Supportive Leadership – In addition to competitive pressures, CEO Martens' own experience told him that climate change would have an effect on Novelis' business and he boldly drove the effort, keeping that threat and opportunity in mind.

Internal and External Collaboration – In order to execute a new business model for the company, employees had to work across functions and departments, as well as to engage outside parts of the company's value network—suppliers, customers, policy makers—to make closed loop innovation possible.

Actions of the Innovator

Map the Model & Focus on Value - When developing the strategy and business model, the company evaluated options and assessed investment and value-creation opportunities.

Clear Business Case - The company was already struggling, given the 2005 split, and the cost benefits of sourcing recycled aluminum were clear.

Align Metrics – Gardner and his team had to be thoughtful about how to align high-level recycling metrics with existing plant-level targets focused on efficiency.

Additional Elements at Play

Time of Transition – Novelis changed ownership and was a company in transition (from almost bankrupt to highly profitable), where new ideas and approaches could more easily be deployed.

Privately Held Company – Novelis' investors have been very supportive of the long-term sustainability strategy.

Business Model Innovations

Closed Loop – The company's shift to 80% recycled aluminum makes this a circular or closed loop model.

Inclusive Sourcing – Part of supply chain strategy includes sourcing scrap aluminum from base of the pyramid marketplaces.

The Internal Culture

The Internal Culture

In the first section of the report, we highlighted external conditions that both constrain and encourage companies to shift towards a more sustainable business model. However, by identifying these conditions we do not mean to imply that companies or business leaders should sit and wait for these factors to take effect before considering a more sustainable business model. Nor do we argue that innovation will necessarily come about as a natural result of these external conditions. To the contrary, there are ways that a company and its leadership can cultivate an internal culture that prioritizes innovation, and tools that individual leaders inside companies can use to catalyze business model innovation for sustainability. This section focuses on the former: how can a company foster a culture that encourages business model innovation.

Literature on business model innovation is a relatively new arena. The first articles explicitly focused on the topic were published in 1990 and soon increased exponentially. Throughout the literature, there is repeated mention of the importance of the cultural contribution to drive innovation within a company. In fact, corporate culture is likely to be the primary and most important driver of innovation.[10,11,12] As competition increases, encouraging a culture that fosters relentless innovation may help ensure that a firm stays constantly at the leading edge of innovation.[12,13]

Literature specifically focused on business model innovation for sustainability is a small subset, with only a handful of academics dedicated to understanding the connections between corporate sustainability and business model innovation.[14] Some academics assert that a company that aims to improve its sustainability performance has to change its business model, however incrementally or radically.[15] So far these business model shifts, especially among large companies, are few and far between. However, enabling company cultures will facilitate that process and increase the likelihood of those shifts.

While there is no set recipe for developing a company culture that enables innovation, several key factors have emerged from the literature, each of which is briefly discussed below.

As competition increases, encouraging a culture that fosters relentless innovation may help ensure that a firm stays constantly at the leading edge of innovation.

The Internal Culture

Supportive Leadership

Leadership often sets the tone for promoting a culture of innovation. In a 2007 study by McKinsey that surveyed 600 global business executives, managers, and professionals, respondents pointed to leadership as the best predictor of innovation performance. The respondents' description of their leadership often mirrored that of the organization—strong leadership and the ability of the organization to innovate were reflected in one another.[16]

Today, CEOs and other senior management members are paying more attention to the art and science of business model innovation. A business model can define a leadership agenda whereas other process or operational improvements cannot.[17,18]

It is often the responsibility of the CEO to make innovation happen more systematically. Deliberate choices from senior leadership can translate directly into greater innovation on a company-wide level.

Novelis' former CEO Phil Martens made it clear to senior team members that he wanted to reboot the business and that he was open to radical ideas. Syngenta's CEO (see page 37) chose to combine functional areas of the business—seeds and crop protection—to encourage the development of new business models that were more focused on farmers. By presenting direction about where the company should go, each respective CEO provided his employees with the framework within which to innovate.

While most literature and experts agree that getting top management support is essential, not all contend that business model innovations must be orchestrated from the top. Simply achieving CEO buy-in can be sufficient for supporting business model innovation. In the case of Starbucks (see page 53), a small team slowly built buy-in across business units to apply new green building designs for Starbucks' retail locations. While the CEO Howard Shultz is supportive of the LEED-certified standard and its roll out, he left it up to the original team to direct its development and implementation.

Deflate Hierarchies

Experts and academics stress how a team-oriented culture rather than segregated pockets of innovators will drive more innovation, and hence, more profitability.[7] Phrases such as "go flat," "spirit of inclusiveness," and "emergent culture" indicate a departure from a more traditional top-down and hierarchical company structure.[19,20]

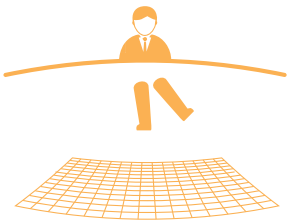
Deflating hierarchies to put employees on a more level playing field not only leads to empowerment, but also stimulates idea-sharing that would otherwise not occur. A flatter organizational structure can catalyze increased communication, and hence, greater innovation among different people with diverse perspectives and skillsets.

Companies like IDEO, Valve (a gaming company), and W.L Gore & Associates (known for its Gore-Tex fabrics) that downplay or completely discard titles and formal hierarchies demonstrate how team-oriented approaches can yield greater innovation. IDEO, a leading design and innovation consulting firm, attributes part of its success to its flat organizational structure that allows all employees to contribute and build upon each other's ideas. The company's mentoring system, or reverse mentoring where a junior person mentors someone more senior, is a unique aspect of this structure. At Valve no employee reports to anyone else; decisions are made through consensus and spontaneous subcommittees. Likewise at Gore, a team-based, flat-lattice organizational structure allows open communication. Leaders emerge naturally, appointed by their peers rather than top-down promotions.

The same thinking applies to the way sustainability is organized within a company. Some innovative companies integrate it directly into operations and planning. "We have sustainability in all of our operations," says Hans Jöhr, Nestlé's corporate head of agriculture. "We don't even have a sustainability officer. We believe that you can't make good progress by using a 'doctor' prescribing to everyone what they should do." [21]

Deliberate choices from senior leadership can translate directly into greater innovation on a company-wide level.

The Internal Culture



Comfort with Failure

Allowing employees to take risks and experiment, while not harboring a stigma against failing, also encourages greater likelihood of transformative business model innovations. Even simply erasing the word "failure" from business lexicon and seeing it as a "glitch" or part of the process towards innovation and new discoveries can make a difference.

Companies like Alibaba and Google have made taking risks with business customers look easy, which is often attributed to their ability to learn fast, fail fast and work collaboratively. Google accepts a failure rate of about 36%.[22]

Risk-taking means being subject to failure and its favorable flipside: new possibilities and business opportunities.

Risk-taking means being subject to failure and its favorable flipside: new possibilities and business opportunities. Google's failures—Google Answers, Google Video, iGoogle, Google Reader—are many, but so are its successes—namely Google Search, Gmail and Google Drive, as well as many of the initiatives that fall under the Google Green umbrella including Google Maps, its investments in renewable energy, and acquisitions, like the NEST thermostat.

A reoccurring challenge for implementing innovation includes a fear that new business models will be met with skepticism and not readily adopted by customers.[23] When Novelis designed the 90% recycled aluminum evercan™, some customers expressed hesitance about adopting it. Even though the can clearly had environmental, financial and reputational benefits, Novelis' business customers were unsure how a branded can would affect their own businesses. Novelis proceeded with its plans anyway and is slowly gaining buy-in from a growing customer base, demonstrating that while some business model innovations respond to customer desire, others lead and ultimately have to create demand.

Business model innovations for sustainability are likely to require experimentation and some degree of comfort with risk-taking.

Collaboration Within and Beyond

Our case studies describing shifts at Novelis and Syngenta, in particular, highlight the value that came from employees across business units coming together to contribute new thinking to strategic challenges. Enabling siloed employees to talk to one another and share their expertise and viewpoints can be transformative.

Creating groundbreaking business model innovations requires collaboration, both internally and externally.

At Intel, part of the responsibility of the corporate finance unit is to apply its expertise to help quantify the impact of sustainability activities across the business.[12] This internal collaboration is advantageous for achieving effective integration of sustainability into the company and its business model.

Many companies, conversely, have experienced much higher levels of innovation when collaborating outside their four walls. For example, in Zambia, the pharmaceutical company GlaxoSmithKline (GSK) and Barclays bank are removing the financial barriers to healthcare access, while simultaneously building a new marketplace by offering micro-insurance and support to new businesses. The aim is to create improved economic conditions for growth, providing value to each company and the communities in which the program is rolling out.

Meanwhile, multi-company business model collaborations also generate new solutions to tackle complex sustainability problems. In order to gain LEED certification for its stores at scale, Starbucks led the development of a new green building standard alongside other interested retailers through the US Green Building Council. The collaboration has resulted in a business model innovation for Starbucks described in detail on page 53.

More recently, the Closed Loop Fund, whose members include Coca Cola, Keurig Green Mountain, PepsiCo, Walmart and others, crowdsources financing from companies to give zero interest loans to municipalities to build better recycling infrastructure—a collaborative corporate business model innovation.

Leveraging Company Culture in Action

Business model innovations like the Starbucks example or the Closed Loop Fund require a company culture open to collaboration and encouraging of innovative ideas.

The next case study demonstrates how global agribusiness Syngenta fostered business model innovation through supportive senior leadership, calculated risk-taking, and internal and external collaborations.

MINI CASE STUDY - Financial Innovation

CLOSED LOOP FUND:
Corporate crowdsourcing drives investment in recycling infrastructure.

WHAT
A collaboration between several large companies to launch and contribute financially to a fund that will invest in recycling infrastructure in cities.

WHY
In the face of growing waste, recycling infrastructure is sorely needed, but often too expensive for municipalities or individual companies to implement, especially in developing countries.

HOW
The Fund leverages collaboration and aligns metrics to provide 0% interest loans to municipalities and below market interest loans to private companies to develop local and recycling infrastructure.

Case Study

Syngenta: Cultivating Farmers First

Securing crop yields can be challenging for farmers given unstable weather patterns from climate change. *Image © Syngenta*

In February 2011, as CEO Mike Mack announced Syngenta's full-year results in a conference call, he outlined a new strategy focused on developing a "a fully integrated offer...to meet the needs of the farmer of the future." The goal was clear: to create value for Syngenta's shareholders by first creating value for its customers, particularly farmers.

Syngenta, the agribusiness based in Basel, Switzerland, generated $15 billion in sales in 2014, more than half of which occurred in emerging markets. Its primary products include herbicides, insecticides and fungicides for crop protection, seed care products, field crops, vegetables and flower seeds, and garden care products.

The company's new approach stemmed from a combination of factors. As a result of the westernization of diets and surging population growth, the company was experiencing strong demand for its range of crop protection and seeds products. Syngenta's portfolio, pipeline and reach gave it a unique opportunity to move to an integrated model and gain first mover advantage against the competition.

Leadership realized that combining the seed and crop protection businesses in a way that created more value for growers and their customers would better position it for the future. The ensuing reorganization created eight new crop-centric business units. Whereas the previous strategy had tasked business units with targeting a particular disease or creating a specific seed variety, the new approach was far more focused on the emerging needs of growers, and their overall challenges—finance, operations, marketing and sales.

The Specialty Crops unit, one of the eight crop-focused units, spans a collection of more than 40 diverse crops, like fruits, potatoes, cotton, and plantation crops including coffee and cocoa. For these crops, the availability of farm labor has become an increasing challenge. As urbanization leads to a population shift away from rural communities into cities, Syngenta and other agribusinesses focus resources on helping growers build sustainable businesses that they can invest in over time.

Mark Bidwell became Head of Specialty Crops in 2011. Bidwell wanted to make sure that each specialty crop continued to represent an area of performance and growth for Syngenta. He also wanted to tackle a new challenge: meeting the unmet needs of the farmer to ensure longer-term relationships and continuity for the business. Having trained as an anthropologist before going into business, this role offered Bidwell an opportunity to make a difference in the financial sustainability of smallholder farmers.

A Focus on Collaboration

Syngenta's business transformation required significant planning and change management, both to ensure ongoing delivery of the current business and to align internal teams with the new strategy.

As a result of merging its seed and crop protection businesses, the jobs of more than a quarter of the company's 29,000 workforce were redesigned. This redesign did not require training per se, but rather a change in mindsets and capabilities of the employees in the new crop organizations and encouragement of individuals and teams to think more expansively and collaboratively.

Case Study: Syngenta: Cultivating Farmers First

The early days of the new strategy were characterized by workshops and innovation events focused as much on driving collaborative behaviors as they were on delivering breakthrough ideas. Bidwell explains how things took shape in his unit: "We often brought in people from different parts of the value chain: customers, traders, supermarket representatives, agriculturally-focused VCs or other innovative companies, like Hilti, the machine tool company that has created a product-as-a-service model."

In parallel with this commercial transformation, company leadership initiated the complex process of redirecting the $1.3bn spent annually on Research and Development to facilitate the development of new solutions and services that build on core skills of genetics and chemistry. Syngenta shifted to more systemic solutions that considered how different products might interact with one another throughout the growing season or in challenging, drought-prone geographies.

Bidwell comments, "It was about understanding a particular grower's struggles, whether it was selling his products in the marketplace or financing his operations. It completely changed the conversation. It became far more consultative in nature."

"It was about understanding a particular grower's struggles... (and) it completely changed the conversation."

Mark Bidwell,
Former Head of Specialty Crops,
Syngenta

Those focused on a specific crop might be brought together to generate new farmer-focused ideas as opposed to the former strategy of crop protection. A meeting for a particular fruit might include a chemist, a biologist, someone from the supply chain and a member of the regulatory and intellectual property teams, as well as a few people from marketing. These meetings spurred new ideas and collaborations that were necessary to understand and address the evolving needs of the growers.

Growing food may not be an attractive livelihood for younger generations.
Image © Syngenta

New Grower-Focused Models

Bidwell acted like an entrepreneur running a start-up business—an intrapreneur, so to speak. "My team and I had to shift our mindset. I asked my team, 'If this was your money or your family's money, what would you do?' This took them out of the protective company perspective and threw people right into the kitchen and made it personal."

But, the process was not always smooth sailing. Syngenta's Specialty Crop product portfolio offered farmers benefits in terms of increased yield of premium end products. Yet growers showed little interest in making the upfront investment in the agronomic offer comprising herbicides, fungicides and insecticides if they were unsure whether they would be able to market their premium product at a high enough price to justify the increased costs. As a result, Syngenta's teams on the ground in each country started to wrestle with the question of how to ensure that farmers could capture the extra value that the new investments would enable.

Case Study: Syngenta: Cultivating Farmers First

The team worked to fully understand each crop value chain, from the point at which a farmer plants the seed through to the point of sale in a specialty shop or grocery store. This understanding enabled them to identify pain points across the entire chain and explore how Syngenta could address them by leveraging its resources and capabilities.

The team started to work fully to understand each crop value chain and identify pain points and opportunities.

The solution that emerged was a new program, a farmer-to-consumer model that links growers with others in the value chain and comprises three main elements:

1. Syngenta sought to address the issue of upfront investment by developing a barter model in which the farmer pays for his agronomic products with his harvest at the end of the season (i.e., a farmer with 20 hectares that yields 500 bags of produce in a growing season might barter with 10% of his harvest). This overcame cash flow issues for growers.

2. To ensure growers receive a premium for the high quality product that they grow, Syngenta established a trading arm to maximize the value of the harvest. The trading arm established relationships with buyers around the world and created strong links between growers and the downstream value chain.

3. By implementing traceability software that connects buyers to the original source of the product (the farmers), Syngenta enables buyers to differentiate their harvest from others in the market. It should be noted that farmers are not required to buy anything from Syngenta to take advantage of its technical assistance or linkages to co-operatives and buyers.[24]

"We increased productivity for growers by 20% and the value of the harvest by 30%."

Willie Cintra, Technical Marketing, Syngenta

The resulting business model innovation is transforming the company's relationships with growers in key markets around the world. Growers are willing to invest in premium agronomic programs with no up-front cash payment, taking advantage of Syngenta's barter model. Willie Cintra, who works in technical marketing for Syngenta in Brazil, reports, "We increased productivity for growers by 20% and the value of the harvest by 30%. After two years, this was the equivalent of one additional harvest."

Meanwhile, buyers are able to use traceability to market their crops to their customers in a way that differentiates them from other sources. This has created demand both in the field and in the downstream value chain for participating in the program, giving rise to a double-sided business model, which generates increased value—in this case financial value—for all players in the chain.

Case Study: Syngenta: Cultivating Farmers First

An exciting ride

During this journey, the team used the analogy of riding a roller-coaster: the starting point was familiar, well-known and well-understood, but the journey promised to take them out of their comfort zone, beyond the boundaries of collective knowledge and experience, and deep into the unknown. It was both exhilarating and terrifying, and required a willingness to give up control, suspend disbelief and trust the process.

"We were encouraged to put the grower at the heart of the process, to bring the right people on the journey and to hold our nerve through the ride," Bidwell said. "Mack created the frame for us to go away and have the freedom to think. When we came back with some attractive options, he looked across the portfolios to determine where best to allocate capital."

By encouraging teams to focus on creating value that enabled growers to invest in their crops for the long term, Syngenta helped its customers build sustainable farming enterprises that could withstand the volatility of crop prices, credit terms, weather and end-user demand.

Many farmers rely on crop sales to support their families and communities. *Image © Syngenta*

The Link to Sustainability

Because many Specialty Crops are grown by smallholder farmers, there were synergies between Bidwell's work and the work of the Food Security team within the corporate affairs function. In fact, the innovative models created by Bidwell's team helped enhance the ambitions of the Good Growth Plan, Syngenta's flagship corporate responsibility platform launched in 2013, which aims to "feed the world in a sustainable way." In part due to the work of the Specialty Crop unit, aspects of the Good Growth Plan relating to smallholder farmers received increased focus—there was a direct tie to the business.

Bidwell explained, "Syngenta has historically worked with smallholders, but with the launch of the Good Growth Plan, we were able to bring additional insights to growers and new solutions that were economically sustainable from a livelihoods perspective."

Scaling the Model

The results of this change in strategy are becoming evident. Syngenta announced in February 2015 that sales in integrated solutions are progressing well alongside traditional product sales. In some markets, the grower program is gaining market share and rolling out into co-operatives and smallholder farms, bringing with it the promise of enhanced productivity and financial performance of farmers.

Syngenta is now focused on scaling elements of the business model to other crops and geographies.

Case Study: Syngenta: Cultivating Farmers First

As a result of this success, Syngenta is now focused on scaling elements of the business model to other crops and geographies. For example, an offer has been developed for European grape growers that enables them to customize their agronomic programs depending on the end markets they are targeting for their produce, thereby eliminating market access risks. The barter program continues to be extended into additional crops, as well as into new geographies. Traceability tools are also being piloted in several other crops and markets, both in the developed and developing world.

Lindsay Clinton, Director at SustainAbility and Mark Bidwell, Head of Specialty Crops for Syngenta from 2011 to 2014, co-wrote this case. Bidwell recently joined Clareo Partners to help companies grow through innovation. He can be reached at mbidwell@clareopartners.com

Smallholder farmers can benefit from being more connected to buyers and markets. *Image © Syngenta*

Case Study: Syngenta: Cultivating Farmers First

Business Model Innovation Snapshot

The External Landscape	**Urbanization –** The migration of farmers to cities makes it difficult to retain core customers. **Increasing Competition –** Syngenta was performing well in the marketplace, but increasingly at risk from changes in the regulatory and competitive environments.
The Internal Culture	**Supportive Leadership –** The crop teams were given the permission and framework within which to create new business models. **Internal and External Collaboration –** Syngenta brought together internal leaders from across different business units as well as external participants from along the value chain to generate ideas.
Actions of the Innovator	**Mine the Network Effect -** Bidwell assembled people from inside and outside the business who would generate new ideas and creatively tackle the challenge of developing a new model. **Focus on Value -** By shifting the parameters of the business model to one aimed at creating value for growers—rather than one focused solely on selling a product—the business units were challenged to think creatively and to truly understand the customer.
Additional Elements at Play	**Intrapreneurship -** Bidwell thought of his business as an entrepreneur running a start-up, taking on risks as if they were his own. **Time of Transition –** The new company strategy created the ideal backdrop for exploring new frontiers and pushing the boundaries of innovation.
Business Model Innovations	**Inclusive Sourcing/Sales –** Syngenta retooled its offerings to make them more inclusive to its main customers—farmers—through a barter method, network approach and IT. **Alternative Marketplace –** Syngenta's farmer-to-consumer model served as a new marketplace for farmers to sell and gain financial value for their harvest. **Freemium –** The company offers farmers technical assistance and links to buyers for free. **Double sided -** Demand is created at both ends of the value chain, in the field and at retail.

Actions of The Innovator

Actions of The Innovator

Section I focused on how external conditions can create constraints and provide momentum for business model innovations for sustainability and Section II highlighted how company culture can be leveraged to respond to these outside factors. However, intention and action are needed even where the right conditions or environment exist, and this is where the internal sustainability innovator comes in.

The ambitious sustainability leader can use several tools and tactics to catalyze change within a supportive corporate culture, or even in cases where the corporate environment is not entirely supportive. We share these key actions below.

Mine the Network Effect

The myth of the "lone innovator"—that only individual geniuses can produce groundbreaking innovations—is subsiding and for good reason. Today, innovations are increasingly brought to market by whole networks of internal collaborators or even networks of firms that operate in a coordinated manner.

However, corporations are often organized into hierarchies and silos, causing challenges for those trying to shift mindsets or influence a new way of doing things. When trying to get buy-in for a new idea or to encourage teams to generate breakthrough ideas, tapping into the right networks and bringing diverse subsets of the business to the table is vital.

"One of my success metrics is about getting more people inside the company talking to each other."

Manoj Fenelon,
Director of Foresight and Innovation,
PepsiCo

Manoj Fenelon, Director of Foresight and Innovation for PepsiCo, says that he evaluates his own success to influence business model innovation thinking inside the company by considering the strength of the network he is creating. Fenelon explains, "One of my success metrics is about getting more and more people inside the company talking to each other, and getting them to realize that there is a lot more potential for innovative collaboration than their formal roles and responsibilities allow for."

Actions of The Innovator

Academic research has found that differences in individual creativity and intelligence may matter far less for innovation than connections and networks.[25,26] This is important when considering how well employees are networked with each other in order to quickly communicate, gather resources and ultimately realize their innovations. Fortunately, most sustainability leaders are well-equipped to drive this kind of interaction because they often work across business units to extract information for the corporate responsibility report or to integrate sustainability thinking and programming.

Compelling examples of business model innovation emerge when unusual suspects have been engaged inside a company.

Getting a network of external stakeholders—in this case, suppliers—physically in the same room rather than speaking to them individually worked well for Kingfisher, the UK-based home-improvement retailer, which is trying to execute on its plan to become Net Positive. Kingfisher's teams often approach individual suppliers to drive green innovations and new resource-efficient products. But, as the company worked to develop the new product range that would reduce its GHG emissions—easyGrow, bedding plants that use peat-free and polystyrene-free teabag technology—suppliers initially pushed back.

Dax Lovegrove, Kingfisher's Director of Sustainability & Innovation, explains, "There was initial resistance from suppliers in one-to-one conversations and doubt that this innovation could be achieved. However, when the innovation brief was put out to a room full of suppliers, the competitive and creative energies got going. easyGrow is now one of B&Q's (a Kingfisher subsidiary) best sellers." In a group setting, a challenge can unleash the competitive spirit.

Increasingly, compelling examples of business model innovation emerge when unusual suspects have been engaged inside a company. For example, the Dockers WellThread collection, a line of socially and environmentally sustainable apparel, emerged from the mind of Paul Dillinger, Levi's Head of Global Product Innovation, a fashion designer by training. The new line has become a demonstration of the inclusive sourcing model through its programs to improve the lives of apparel workers.

Engaging product designers, research and development teams, risk management officers, and others outside the core sustainability team can generate new thinking and seed the business model innovation process in other parts of the business.

MINI CASE STUDY - Financial Innovation

PLASTICBANK:
Turning trash into currency.

WHAT
PlasticBank exchanges cash for collected plastic trash.

WHY
In developing countries with increasing trash but little or nonexistent waste and/or recycling infrastructure, PlasticBank pays people to bring in plastic waste, which it then sells to companies to be incorporated into products or as usable feedstock in 3D printing.

HOW
PlasticBank creates new value for companies and communities by utilizing an innovative product financing model where it pays its suppliers of plastic waste and makes a margin off its sales of the collected plastic to companies.

Actions of The Innovator

Map Your Model

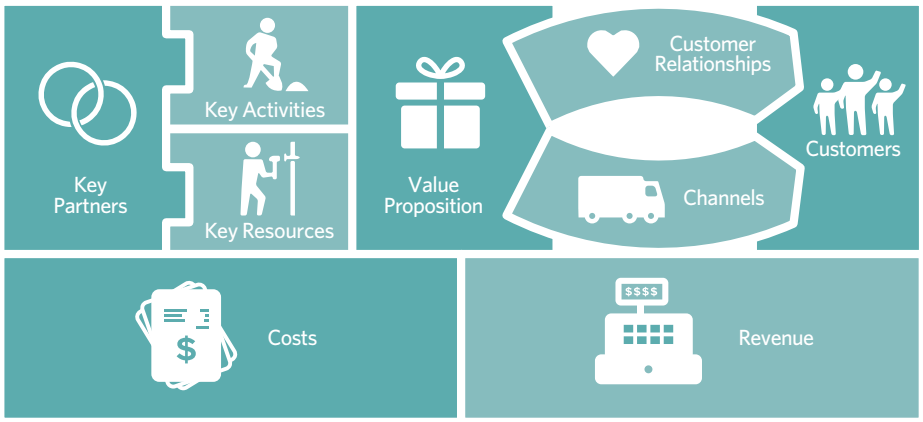
A key step towards business model innovation lies in mapping the current business model, sustainability priorities, and potential risks that lurk outside the company. Surprisingly, studies show that between 60% and 85% of most firms' employees do not know or understand their organization's strategy, including its business model.[27] Simply educating employees about how the company generates value and examining this through a sustainability lens, amongst other lenses, can advance dialogue about business model innovation.

Studies show that between 60% and 85% of firm's employees do not know or understand its business model.

Outside forces, like climate change, regulation and consumer perception affect the future success of a business. Mapping the company's business in relation to these external conditions can provide better clarity to the network of internal and external stakeholders that will develop new models. Educating team members on these impacts is a primary step to mitigate negative influences while emphasizing and adding to positive ones.

Business Model Canvas

Source: Osterwalder & Pigneur 2010

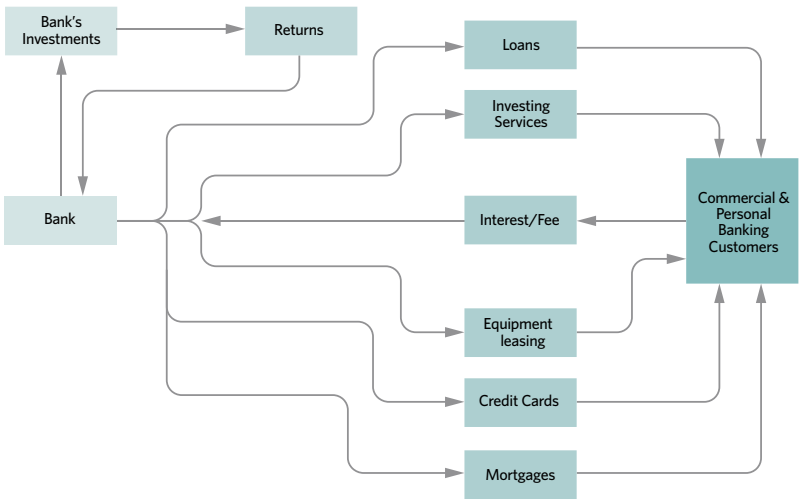


Actions of The Innovator

Business model mapping tools like the business model canvas developed by Alex Osterwalder and Yves Pigneur (see Business Model Canvas on previous page) or simple value chain diagrams or maps (see Generic Retail Bank map below) can provide mental clarity around the transactions and relationships in which a company engages. can provide mental clarity around the transactions and relationships in which a company engages. Adding an additional lens focused on value created and destroyed can provide even greater understanding around evaluating the sustainability of the model. By seeing interconnections and areas where transactions occur, and by identifying value creation and destruction, business model mappers can see the company in context and evaluate the model for social and environmental impacts and risks.

Value Chain Map - Generic Retail Bank

Source: SustainAbility



The companies profiled in this report's case studies faced pressures from competitors, felt the challenge of rising resource costs, or bore the brunt of global trends like urbanization and population growth. Rather than wait to be beaten, disrupted or acquired, they innovated, and did so in a way that created more value for society and/or more value for the environment, while ensuring financial stability. Fibria mapped megatrends and driving forces related to its business in order to better understand its move from a pulp company to a forest and land steward (see Fibria's 2012 sustainability report for a visual of its business model map and value judgments). Likewise, Novelis had to consider how to increase its supply of recycled aluminum by mapping its network of individual and institutional trash collectors.

MINI CASE STUDY - Base of the Pyramid

NOVOPAY:
Providing access to secure banking to India's underbanked.

WHAT
Novopay is a bottom-of-the-pyramid banking system that serves the 50% of India's population that often do not have access to any type of banking services.

WHY
Access to reliable forms of banking can help alleviate poverty and help the world's poorest populations to develop and succeed. Without secure banking services, individuals are often subject to unreliable middlemen who collect extremely high fees or offer little security of return.

HOW
Novopay uses a distributed network of street-corner convenience stores and bank services to secure transactions at kirana shops, street-corner convenience stores that are easy to access.

Actions of The Innovator

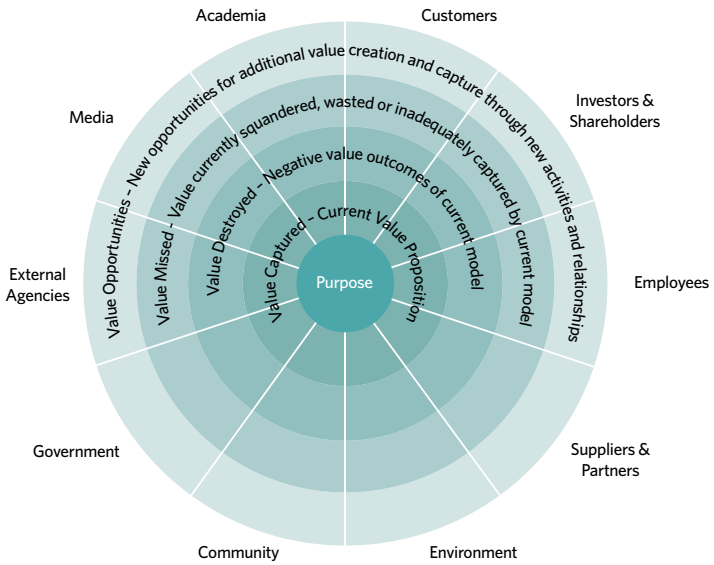
Focus on Value

Whereas many companies focus solely on financial value creation, business model mapping with a lens focused on social and environmental value creation, too, can more effectively convey a company's externalities, positive and negative, and demonstrate whether it is equipped to be part of a sustainable future.

University of Cambridge and Delft University of Technology scholar, Nancy Bocken, recommends undertaking sustainable business modeling by looking through a value lens. In fact, Bocken finds that talking about "business model innovation" is often too abstract for a company to grasp. She has created a qualitative "value mapping tool" and approach to generate ideas for sustainable business model innovation by mapping the value captured, missed and destroyed of the current business model followed by new opportunities for a range of stakeholders. "Environment" and "Society" are considered to be key stakeholders, in addition to more conventional ones such as customers and suppliers (see Value Mapping Tool below).[28] The tool is meant to stimulate idea generation and discussion.

Value Mapping Tool

Source: Bocken et al. 2013



MINI CASE STUDY - Base of the Pyramid

ENEZA EDUCATION:
Providing education to the world's "very end of the last mile" children.

WHAT
A tech startup from Nairobi's iHub community creates educational content that kids in low-income rural areas can access on low-end cell phones.

WHY
Income inequality often stems from a lack of education in already impoverished communities. By focusing on the "very end of the last mile"—students who have dropped out of school, girls in extremely impoverished areas, and children who can't attend school due to conflict—more children have a shot at better opportunities through education.

HOW
By focusing on value and bringing networks together via digitization, at risk and underprivileged youth have a chance to learn.

Actions of The Innovator

Applying a systemic perspective to a company's current model helps to not just sell more stuff, but create more value.

Applying a forward-looking, systemic perspective to the company's current model, its place in society and its impacts on the environment jumpstart thinking about more sustainable models that don't just sell more stuff, but create increased value. For example, in 2015, SustainAbility worked with a multinational healthcare diagnostics company to map its business model and discuss the value it creates, destroys and misses. When working with the team focused on diabetes diagnostic tools, we highlighted that the company's future financial value would largely depend on adverse health outcomes in the wider population, and thus, would not be a very "valuable" proposition for society at large. Encouraging the company to conceptualize a business model focused on prevention of diabetes instead enabled it to envision what the company might look like to be a positive contributor to better future health outcomes. As a result, the company realized it was missing a tremendous societal value creation opportunity by only focusing on the treatment marketplace.

Value networks can help scale up ideas and bring sustainable products to market.

When innovating, it is helpful to think of the company as part of a larger network that creates or decreases value—a value network. A value network can be defined as "the web of relationships that generates tangible and intangible value through complex dynamic exchanges."[29] A value network approach can generate new business models for sustainability solutions by tapping into underutilized or underleveraged aspects of the company's value network—whether from suppliers, customers, investors, employees or other outside stakeholders. Value networks scale up ideas and bring sustainable products to market.

The value network approach is particularly relevant for those pursuing more circular models. For example, Walmart utilizes a formal sustainable value network approach for several of its sustainability issue areas, including achieving zero waste on its packaging. Through a tiered network of touch points, including associates, vice presidents and suppliers, Walmart holds conferences, workshops and expos designed to serve as a hub for innovation and collaboration. The sustainable value network system is a form of business model innovation that has generated tangible results for improving sustainability for both the company and its vast network of suppliers and customers. For example, Walmart now pelletizes and sells plastic to its packaging suppliers. This plastic had previously been sent to landfill, at a cost to Walmart of $16 million a year. Selling the plastic back to suppliers has turned this equation on its head; instead of a cost, the transaction cycle adds $28 million a year to the company's bottom line while providing a steady source of raw material to suppliers and reducing waste.[30]

For Starbucks, there came a point when the company realized its current business model of creating cookie-cutter stores around the world wasn't providing its designers, employees, suppliers or customers with the value they actually cared about. Aligning their store designs to the overall mission statement of the company, and committing to build LEED-certified stores actually had a tremendous impact on value creation for many of the stakeholders in Starbucks value chain. According to Arthur Rubinfeld, Chief Creative Officer at Starbucks, "We realized that green design could be a real differentiator for us."

MINI CASE STUDY - Diverse Impact

ECOATM:
Turning used cell phones into cash through a circular economy model.

WHAT
Exchange a used cell phone for cash at ATM-like machines.

WHY
Transitioning to a circular economy where products and materials are reused and recycled is key to equipping a growing population with services that enable and improve a healthy quality of life.

WHAT
Activating a network of manufacturers, companies, customers and take-back infrastructure incentivizes people to return materials to the system to be re-purposed. To date, three million used cell phones have been collected.

Actions of The Innovator

Build the Business Case

As with any new innovation, the business case for action must be clear when gaining internal buy-in for a business model innovation focused on sustainable outcomes. Selling an innovation internally, with solid financial estimates, that are competitive with mainstream models or programs, will enable it to gain broad appeal and turn an idea into action.

At a 2014 workshop put on by the BMI-Lab at the Institute of Technology Management at the University of St. Gallen, Switzerland, corporate participants were asked to calculate reverse financials in their pursuit of a new business model. To do this, small groups around the room estimated base case hurdle rates, or required rates of return, many of which were upwards of $100M in revenue, to work backwards and calculate upfront investments needed and probable sales figures for the first 3-5 years in operation. This exercise helped make concrete the scale of investment each business model innovation might require.

Defining for a minimum rate of return on a new business model can prepare sustainability leaders for challenging conversations with business units and senior leadership. In fact, leading with the business case can gain traction for a business model innovation, whereas the sustainability story may not sell. For example, the case for green building did not resonate for business unit leaders inside Starbucks until the internal environmental team calculated and communicated the benefits in business terms to the operations, marketing and design teams. It was only then that team members heard and gave approval to the concept.

Aiming for a minimum rate of return on a new business model can prepare sustainability leaders for challenging conversations.

Likewise, Novelis had to prove the business case to its parent company, the Aditya Birla Group. Its goal to incorporate 80% recycled aluminum into its products is commendable from an environmental standpoint but had a compelling business case from its initial creation—using scrap aluminum can be as much as 5-10% cheaper on a per ton basis than primary aluminum.

Align Metrics

Metrics are an important driver for innovation at the corporate level, but they can also incentivize innovation for sustainability by steering individual performance. Aligning employee performance metrics with innovation goals, for example, by making them part of a quarterly or annual performance review, is an important enabler for business model innovation. If employees are not incentivized to innovate, or are discouraged from innovating because their performance rating is more dependent on other metrics, this can block progress towards a business model shift.

When Novelis decided to "close the loop" on its aluminum manufacturing, senior management acceptance came rather easily because they were motivated by the 2020 goal of achieving 80% recycled aluminum. However, getting 11,000 factory-level employees to embrace the sustainability vision has not been as simple. As Leslie Joyce, their former Chief People Officer explained, "The 80% goal created work and change at the plant level. People are not used to innovation as a cornerstone of plant operations."

"The 80% goal created work and change at the plant level. People are not used to innovation as a cornerstone of operations."

Leslie Joyce,
former Chief People Officer,
Novelis

Novelis' previous factory level metrics rewarded employees for meeting environmental targets like reducing energy or scrap waste. Where the overall life cycle analysis (LCA) of recycled aluminum is much lower than extracting primary aluminum, recycling more aluminum to meet its ambitious goals often creates more scrap and uses more energy at the individual plant level. This circumstance creates tension between Novelis' new sustainability vision and its historic environmental targets. Plant operators have found this frustrating, as some of their incentives were aligned to meeting more immediate targets than the new forward vision.

Gerrard Fisher is Special Advisor on Business Models at WRAP UK, a non-profit organization funded by the UK government focused on creating a sustainable resource-efficient economy. He explains that the challenge of misaligned incentives can also occur when a company tries to shift from selling a product to leasing a product. Fisher continues, "If you think about buyers in a retail organization, they are usually measured by the amount of products they buy and sell, so getting them to hire products out doesn't meet their objectives. They need permission to have relief from their targets or they need new targets to encourage innovation."

Sustainability leaders must account for how individuals have been rewarded historically and how any new innovation goals might conflict with previous messaging. Building new ways to evaluate performance—and removing any barriers—will incentivize those who are necessary to implementing a new model.

The Internal Innovator in Action

Sustainability leaders have a key role to play in driving business model innovation thinking and the new models that emerge from that process. Individuals can take action to drive a new kind of thinking across business units and hopefully, drive sustainable change in the process, through the tools and tactics described.

In our last case study, a team of internal innovators at Starbucks was able to gain buy in for a green building innovation that successfully created value using some of the approaches described above.

MINI CASE STUDY - Diverse Impact

LENDING CLUB:
A shared resource model where the resource is financial capital.

WHAT
By connecting borrowers and lenders via an online marketplace, borrowers can take out loans at lower rates than traditional bank lending programs and lenders can receive better returns on their investments.

WHY
As a wave of entrepreneurism ripples through global markets and individuals become more comfortable with the collaborative economy, companies like Lending Club allow innovators easier access to credit to jumpstart projects or pursue education.

WHAT
Lending Club leverages the connectivity of the Internet to aggregate a marketplace. The company went public in 2014 and is now traded on the New York Stock Exchange. In April 2015, Citigroup lent US$150 million through Lending Club to provide affordable credit to underserved borrowers and communities.

Case Study

Starbucks: Green from Bean to Store

Order a latte at one of the newer Starbucks locations in Brooklyn, New York, Porto Chino, Thailand or Chengdu, China, and you might be surprised—not by the coffee, but by the store's design. In Brooklyn, you'll find a bohemian vibe with local art on the walls and plants from neighborhood florists; in Porto Chino, tables made of recycled coffee grounds; in Chengdu, reclaimed wood planks and zero volatile organic compound (VOC) paint in earth tones.

Increasingly, Starbucks is building its retail spaces in line with local preferences, whether it's a modern modular drive-in made from reclaimed barn walls that blends into the Colorado landscape, or a plush flagship store highlighting the art of roasting fine beans in coffee-centric Seattle. One thing is certain—Starbucks is getting back to community, and doing so in a targeted way. It is using thoughtful design—focused on local materials and environmental efficiency—and shifting its business model to catalyze behavior change throughout its value chain and industry.

Starbucks designers reused shipping containers to create this LEED® certified store in Seattle. Similar stores are in Chicago and Denver. *Image © Starbucks*

Introducing Green Building

Ten years ago, the look and feel within each Starbucks store was generic and utilitarian, and perhaps reflected where the business was then: it was growing as fast as possible and cookie-cutter stores were necessary to maintain the pace.

Around that time, however, a team inside Starbucks was trying to shift that approach. Tony Gale, Starbucks' corporate architect and Ben Packard, who led its environmental initiatives for years, focused on introducing green building. While Starbucks is now known for leading sustainability efforts around responsible sourcing and reducing and recycling cup waste, in 2005 things were different. The team faced strong headwinds when they proposed the idea of a different, more eco-friendly construction design, and found it difficult to get traction within any of the business units.

Additionally, a new employee named Jim Hanna had just left a job at Yellowstone National Park to join the Starbucks environmental team, lured by the company's focus on values and putting its store employees (or "partners" in Starbucks terminology) first. Hanna and his colleagues reasoned that Starbucks could consider its growth, and its stores, differently.

Hanna and his colleagues reasoned that Starbucks could consider its growth, and its stores, differently.

As a new employee, Hanna recalls focusing initially on the values conversation to "sell" green building to the business leaders in the company. "We'd go in and meet with the P&L owners in store design, operations or marketing and focus on Starbucks' tradition of corporate values as to why we should tackle green building and make it part of the company. Time and again we heard, 'Yes, corporate values are core to our business, but I've got five metrics on my team's strategic plan that determine our success for the year, and green building isn't one of them. " Hanna, Packard and others had to change their approach.

They needed to build credibility with people across the company, particularly the leaders who were responsible for the financial success of their business units. And, they needed to sell the idea in a way that would appeal to each unit uniquely.

They didn't change the tactic of building green stores, but they changed the pitch.

Instead of focusing on corporate values or CSR success metrics, they led with a conversation relevant to each business unit and its goals. With the marketing lead, they talked about improving the store experience. With the store design team, they proposed how green building might overcome their existing challenge of recruiting and retaining talented designers. With the operations team, they sold the opportunity to reduce operating costs by 10%. These arguments got them more airtime, and a lot better response. It made business sense to these groups in a way that the argument focused on values had not.

But the team needed a strong test case to prove out their theory that green stores would be good for Starbucks' business. Fortunately, that path was cleared with some serendipity when the City of Hillsboro, Oregon invited Starbucks to open a store in their new City Hall complex, but also mandated the store, and all tenants of the complex, be LEED-certified. So, in 2005, Starbucks opened its first LEED-certified store in the up-and-coming Portland suburb.

External Factors

The Hillsboro store became a living lab for the company to observe not only how customers experienced the new design, but also how they could replicate or improve Starbucks' stores elsewhere.

The new store design was more environmentally efficient, but unintended benefits were unearthed too. The case for a more environmentally friendly store went beyond lowering operating costs. It was a great tool for Starbucks to differentiate itself in the wider marketplace.

Business conditions had changed. Whereas Starbucks had led the trend of espresso-based beverages and specialty coffee drinks, its foothold in the market was no longer as clear. External factors had started to give Starbucks pause in its aggressive growth trajectory. High-end coffee roasters like Intelligentsia and Stumptown were gaining traction and taking market share, while fast food companies like Dunkin' Donuts were establishing firm footing in the retail coffee market. Starbucks was increasingly squeezed in the middle of these two trends and needed to better define itself and its offering.

Beyond the environmental and cost benefits, redesigning the store atmosphere to be more customized, more local, and greener started to look like a distinct differentiator and a new way to express leadership in a crowded market.

Case Study: Starbucks: Green from Bean to Store

The LEED System

Originally, LEED was created for large-scale office buildings. It was cumbersome and expensive, and certifying each building meant going through a long, manual process. To certify its stores as green, Starbucks would have to get each and every new store individually evaluated and approved. And because each LEED application was a unique, individual process, most companies seeking certification had to bring on external consultants to perform the work, or dedicate long internal hours to fill out applications. Often certification costs would run into the tens of thousands of dollars for individual LEED buildings. For Starbucks, executing this plan at scale was a nonstarter.

The company decided to look to the US Green Building Council (USGBC), of which it had been a member for more than ten years, for help. The Council, a diverse membership organization comprised of builders, environmentalists, corporations and nonprofits aims to create a sustainable built environment within the next generation. The LEED certification system is USGBC's flagship green building rating system and the most widely recognized green building program around the world.

Starbucks approached the USGBC and explained that they wanted to use LEED to build greener, but that the standard didn't work for their small-footprint retail model. LEED was originally designed for large office buildings, not for the coffeehouses Starbucks was rolling out on a weekly basis around the world. Upon approaching the USGBC, Starbucks heard, "We hear your challenge. You're a member, go fix it."

Ben Packard, then director of environmental affairs, took on the task. Packard formed a committee of retailers—including Aveda, Chipotle Mexican Grill, Harley-Davidson Motor Company and Target, among others—to conceptualize what a better retail standard might look like. It took years of consultation and review to ensure the standard remained robust, while accounting for the unique distinctions between small retail stores and big box or office buildings. But two new certifications resulted: the LEED Retail Standard and the Volume Build Standard, of which the latter has been instrumental in helping Starbucks and other retailers, such as Kohl's, achieve green building ambitions at scale.

This store in Ohori Park, Fukuoka City, Japan was designed to reflect the natural environment while minimizing the store's impact. *Image © Starbucks*

The Volume Build Standard creates a streamlined process for store certification by focusing not on individual stores, but rather on a list of pre-vetted green practices and strategies that earn "credits" that contribute to a building achieving LEED certification. For example, a specific water filtration system might gain approval by the USGBC for a particular region and can then be implemented in stores across that region. Or Starbucks may get six distinct sets of lighting packages approved by USGBC, then give its designers the choice to use the right package for their store type and region. This method gives Starbucks' designers the ability to create locally relevant, beautifully designed stores that adapt to needs and constraints within each community.

A Shift at Scale

Using LEED certification has completely transformed how Starbucks builds all of its company-owned stores. Starbucks currently has 21,000 stores and expects to have 30,000 stores by the end of 2019. To date, Starbucks has LEED certified more than 600 stores in 19 countries around the world. It has committed to making 100% of its new stores LEED certified by 2015 and deploying these green attributes as it retrofits its existing store portfolio.

Case Study: Starbucks: Green from Bean to Store

Making the shift to greener stores makes business sense. Colleen Chapman, Vice President of Global Responsibility and Public Policy, remarks, "The focus on LEED certification has elevated the quality of construction and sustainable design across our stores, has saved us money, pays for the resources we put into LEED itself, and results in fewer change orders overall."

"The focus on LEED certification has elevated the quality of construction and sustainable design across our stores..."

Colleen Chapman, VP of Global Responsibility and Public Policy, Starbucks

It also brings significant wins in terms of environmental impact. Low-flush toilets, swapping out costly dipper wells (a food industry tool to keep utensils clean by using a constant stream of water) for more efficient ones, and installing aerated faucets save each store about 150 gallons of water each day. Shifting to sourcing new and salvaged materials for each store within a 500-mile radius lowers emissions from transporting materials to those stores—and supports local economies.

A shift in store lighting has been a marked energy saver. However, more efficient lighting options, such as LEDs, didn't match up to Starbucks' specific aesthetic and functional requirements when the company started seeking new lighting options. Starbucks decided to work in partnership with GE to create highly efficient LEDs that could meet its precise needs. The LEDs that GE developed in 2010 met Starbucks' design and experiential standards, and were also tremendously efficient, so much so that Starbucks went on to use the new bulbs to retrofit its entire portfolio of stores. Thus far, Starbucks has seen a 7% decrease in energy use from the lighting change. In addition, one of the best markers of success of the global lighting retrofit was that no one actually noticed that Starbucks did it. Starbucks was able to achieve significant energy savings and dramatically lower maintenance costs because the LED bulbs have a longer life, without sacrificing any aspect of the customers' in-store experience. As an added bonus, HVAC costs have lowered because LEDs are significantly cooler than traditional, less efficient bulbs.

Partner and Designer Benefits

Greener stores have not just been good for utility savings; they hold greater appeal for Starbucks partners (employees) who work in their stores. Starbucks partners in the newly certified stores often share positive posts about working in a greener building on their social networks. Most Baristas are Millennials (average age is 24) who have grown up with a strong sustainability-focused value system. These employees enjoy working in an environment where they can more easily see their personal values come to life.

The new stores have also led to beneficial behavior changes. Employees are empowered to become an integral part of reducing water and energy use, and are known to turn off machines more often and adjust lighting to fit the time of day. As a result, store managers, who are keenly aware of their bottom line, can better meet their operational efficiency targets.

At its headquarters, members of the design and architect teams also feel more engaged.

Case Study: Starbucks: Green from Bean to Store

Starbucks Reserve® Roastery and Tasting Room – designed to be LEED Platinum certified – showcases a commitment to coffee and green design. *Image © Starbucks*

At the Starbucks headquarters in Seattle, members of the design and architect teams also feel more engaged. Every year, hundreds of individuals graduate from design and architecture schools where innovation and creativity are encouraged. When these blossoming designers enter the professional world, however, standardization and functionality often overtake the originality they cultivated during their training. Starbucks is becoming a design employer of choice with a reputation for giving its designers creative freedom to embed stores within regional surroundings. Designers recently launched a "container store" in Denver built from reclaimed shipping containers that once carried coffee and tea overseas to Washington. A store in Dongguan, China in the Pearl River Delta is inspired by natural surroundings; there are no windows, doors or air conditioning, as the store is an open concept and allows fresh air to flow throughout.

Not only are these green building initiatives positively impacting recruitment and retention rates of designers, but Starbucks is also creating a work environment that promotes creativity and innovation. Now, people like Anthony Perez, Director of Global Store Design, who was the lead designer behind Starbucks' signature container store, have a place to apply their exceptional talents. The shift in design prerogatives has enabled Starbucks to "lead the integration of sustainability-inspired business into the everyday design psyche of designers going forward," explains Arthur Rubinfeld, Chief Creative Officer.

A Business Model Innovation Disguised by Process

At first glance, Starbucks' green building innovation seems to be a mere shift of its building style, but it is much more. This green building transformation, something normally labeled as a process or product innovation, has happened at such scale and has evolved to have such far-reaching impacts, that it amounts to a fundamental business model shift.

In the first edition of *Model Behavior*, we defined business model innovation as "a novel form of exchange in the value chain that creates new or different value." Starbucks' innovation—with the novel exchange happening within its primary commerce channel, the retail store—has led to shifts in the way its employees, suppliers, building contractors, peers and industry associations behave. They derive new value from their relationship with Starbucks by how people work within, build, design and interact with the retail spaces, all of which has been stimulated and changed by Starbucks' green building innovation.

This green building transformation has happened at such large scale and evolved to have far-reaching impacts.

The entire retail industry, and the USGBC itself, has gained value from Starbucks' leadership on the new LEED standards. Starbucks had become an advocate and trailblazer for the Volume Build standard, which has mobilized green building for players such as Target and Kohl's. Collaborating with companies, such as GE on more aesthetic LED lights, has also sent ripple effects throughout Starbucks' value network by making better, more sustainable options available to other retailers. Starbucks has created new value for its stakeholders, while investing in its own future.

Case Study: Starbucks: Green from Bean to Store

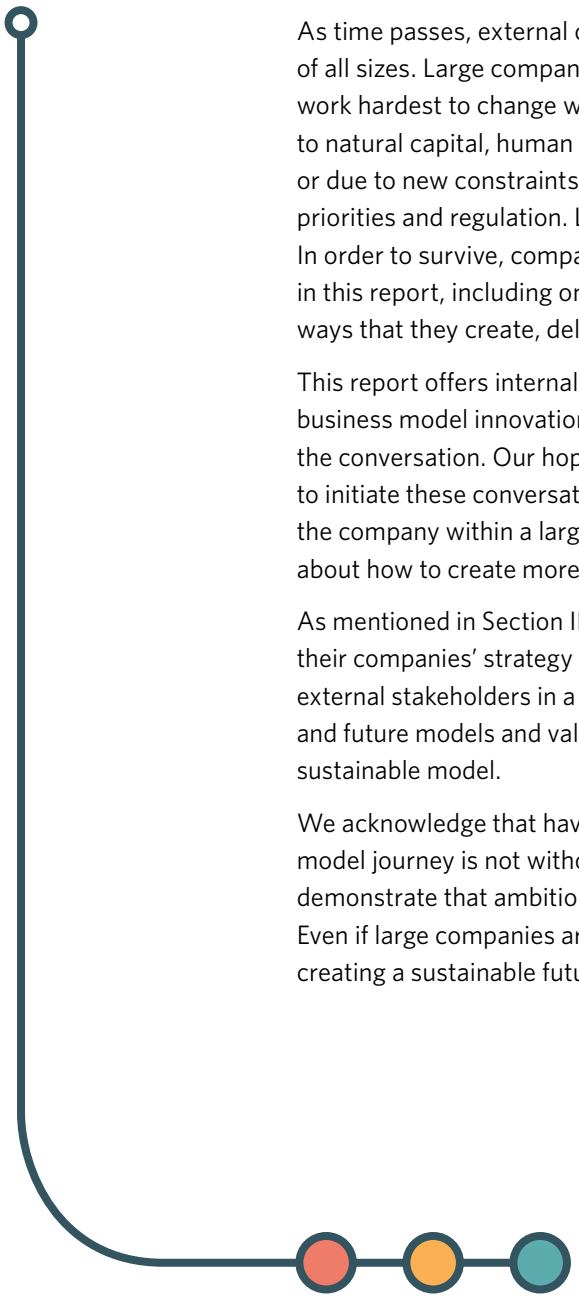
Business Model Innovation Snapshot

The External Landscape	**Resource Scarcity –** Most buildings use large amounts of raw materials and do not recycle used construction materials. By using reclaimed components, Starbucks' stores could lower their impact on raw material extraction. **Globalization –** As the world becomes more connected, local and regional diversity sometimes disappears. By tapping into a cultural movement focused on maintaining local authenticity and uniqueness, Starbucks tapped into an opportunity. **Climate Change –** Buildings emit large amounts of GHG emissions for heating, cooling and using electricity. Lowering the environmental impact from Starbucks' many buildings was an important company priority. **Increasing Competition –** Competition from both high end and mass-market coffeehouse retailers put a squeeze on Starbucks to differentiate.
The Internal Culture	**Supportive Leadership –** Although the CEO was not a driving force in the innovation approach, he endorsed it because it aligned with the company's values. **Internal and External Collaboration –** From designing a new Volume Build LEED certification with members of USGBC to creating a new light bulb with GE, driving external collaborations have reaped wide-reaching benefits for Starbucks.
Actions of the Innovator	**Focus on Value –** Tapping into a growing local and sustainability-focused movement among Starbucks' customers directed the company to a better place, financially, competitively, and socially. **Clear Business Case –** When a group of intrapreneurs first tried to pitch green building based on values, it fell on deaf (and busy) ears, but when they showed financial and brand benefits, support quickly ensued.
Additional Elements at Play	**Integrating Sustainability into Design –** Starbucks benefited by leveraging sustainability design expertise from architects and designers who could make large-scale green building a reality.
Business Model Innovations	**Behavior Change –** Green building helped stimulate behavior change to reduce resource consumption at its individual stores and influenced construction habits of other retailers to build greener.

Closing Thoughts

In one of the final interviews conducted for this report, Andrew Winston, a leading author and sustainability thinker, stated that business model innovation for sustainability is not likely to arise from Fortune 500 companies. He is right. Innovation will more likely come from disruptors bubbling up from below.

That does not negate the need for large companies to reconsider their business models and how they are positioned for the future. The stories of Fibria, Novelis, Syngenta and Starbucks demonstrate that large companies can in fact undertake transformative shifts to their business models that will set them on a more sustainable path. These shifts may not attract the kind of notice that AirBnB or Uber do, but they help to position a company more strategically for a sustainable future.



As time passes, external conditions will become more challenging for companies of all sizes. Large companies with well-established business models will have to work hardest to change when it is demanded, for example as externalities related to natural capital, human capital, and social capital come to be formally valued, or due to new constraints imposed by resource scarcity or changes in investor priorities and regulation. Large incumbents will have the most at risk in transition. In order to survive, companies will need to consider the kinds of shifts we describe in this report, including ones related to their traditional business models and the ways that they create, deliver, capture or destroy value.

This report offers internal innovators an understanding of how to approach business model innovation for sustainability, and gives them tools to start and drive the conversation. Our hope is that corporate sustainability leaders will be able to initiate these conversations by helping employees envision better models, see the company within a larger value network, and drive productive decision-making about how to create more and different worth in financial as well as other terms.

As mentioned in Section III, most employees don't have a clear understanding of their companies' strategy or their business model. Simply engaging internal and external stakeholders in a dialogue about the risks and opportunities for current and future models and value creation can begin a long-term transition to a more sustainable model.

We acknowledge that having these conversations and embarking on a business model journey is not without challenge. But, the stories within this report demonstrate that ambitious innovators, acting with intention, can catalyze change. Even if large companies are not the best source of innovation, they are vital to creating a sustainable future because they can facilitate impact at scale.

Closing Thoughts

What might the future hold? Imagine:

- Pharmaceutical companies that contribute to disease prevention, alongside treatment.
- Food and beverage companies that profit based on improved nutritional outcomes.
- Entertainment companies that educate while they amuse.
- Oil and gas companies that take the lead in the transition to a low-carbon economy, becoming the key to rapid scaling of renewable energy.
- Agricultural companies that become profitable by prioritizing the value chain livelihoods and ecosystems upon which they depend.

In future reports, we plan to explore sustainable business models across individual industries. In the meantime, we look forward to engaging in further discussion about driving innovation at companies around the world.

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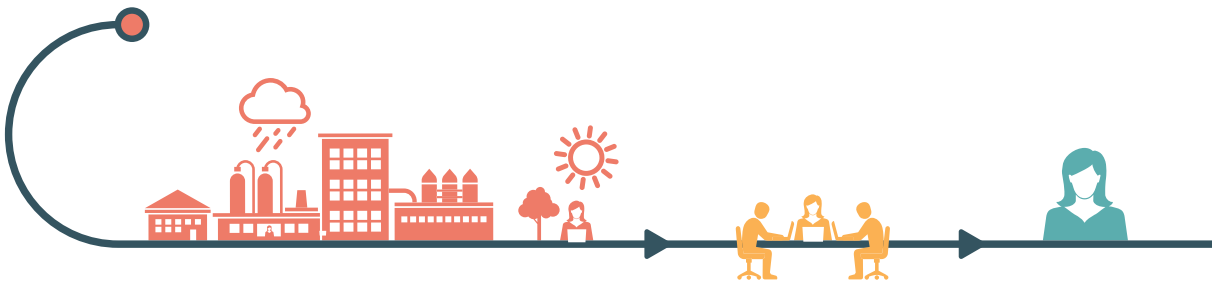

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