



SUCCESS STORY

In 1994, Interface® Founder Ray Anderson challenged his co-workers to pursue a bold new vision “Be the first company that, by its deeds, shows the entire world what sustainability is in all its dimensions: people, process, product, place and profits – and in doing so, become restorative through the power of influence”



Interface® THE JOURNEY OF A LIFETIME...

...describes the role of The Natural Step Framework in Interface's journey towards Mission Zero.

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“Comply” is not a vision
– Ray Anderson

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the NATURAL STEP

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Contents

INTRODUCTION: Interface Inc.	5
THE OPPORTUNITY: A new sense of purpose	7
THE RESPONSE: Taking a Natural Step	9
THE PROCESS: Climbing Mount sustainability	13
THE CHANGE: Cultivating a new organisational culture	21
THE NEXT STEPS: Beyond Mission Zero	27
CLOSING NOTE: Every reason for hope	29
THE 7 FRONTS: A closer look	32

Dear Reader,

This is a case study about Interface, Inc. — a global carpet manufacturer — and its sustainability journey. The Interface narrative is one of the most studied sustainability journeys out there today, because the company's fearless pioneering has led to spectacular success.

You can read and hear about Interface's success story in many places. As a result, much of the information we showcase here is public knowledge. The new contribution this case study makes is that it sheds light on why and how Interface has been so successful at not just incorporating sustainability, but using it as a platform to drive transformational innovation and profits.

Three key elements can be distilled from this case study:

1. Interface has an extremely bold and inspiring vision that integrates sustainability at its core.
2. Interface has an intimate understanding of their own 'gap' between where they stand today and full sustainability — i.e. of the challenges they must overcome in order to achieve their vision of success.
3. Using a framework that helped its people understand strategic sustainability,

Interface has made very smart business decisions in bridging the gap between its current reality and its vision. The company understood bridging that gap would require transforming its business models, operations and products. Doing so has helped them reap a diverse range of benefits including cost savings, innovation, higher sales, improved brand reputation, etc.

The actions Interface has taken are only visible in hindsight. The power in studying them comes from understanding how these actions were thought of and selected in the first place. What is the framework, or mental model, the company has used to direct its thinking and choices?

The keystone of this approach has been the Framework for Strategic Sustainable Development (FSSD), also known as The Natural Step Framework. It has provided Interface with a manner of moving towards its vision that is both strategic and step-by-step, both long-range and short-term.

We are The Natural Step — an international sustainability NGO. We help guide decision-makers in business and the public sector towards sustainability AND overall success. In order to do so we apply and openly share the rigorous, proven method for sustainability planning we have developed through long practice over the past 25 years. We were there at the start of the Interface sustainability journey, supporting its people as they worked towards understanding as clearly as possible their sustainability 'gap', and how to bridge it.

Two decades after that journey began, we're excited to share the story of why and how Interface has achieved its outstanding success, with you.

Enjoy the read!

Freek van der Pluijm

Berend Aanraad

Director/Co-Founder
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INTRODUCTION: Interface Inc.

A company of ideas and courage

THE COMPANY

Location
Global

Type
Private sector

Web Site
www.interface.com

Employees
3,700 Global

Interface Inc. specialises in the design, manufacture and supply of modular carpets and other floor-covering products for the commercial, institutional and residential markets. Over the years Interface has gained itself a reputation not only for high quality and innovation, but also for carrying the banner of sustainability, and being a benchmark for an entire industry.

Founded by the late Ray Anderson in 1973, the business has grown from its original factory in LaGrange, Georgia into the largest global manufacturer of modular carpet with around 3500 employees and an annual turnover of approximately \$1 billion US. Interface's global distribution network expands over five continents, with sales offices in 110 countries and seven manufacturing facilities, given them a strong competitive advantage through its make-to-order capabilities. Through its most recognized brands, Interface™ and Flor™, the company's products cover diverse markets, including corporate office, retail, universities, schools, healthcare, public spaces and hospitality.

“...there is no more strategic
issue for a company, or any
organization, than its ultimate purpose. For those
who think business exists to
make a profit, I suggest they
think again. Business makes a
profit to exist. Surely it must
exist for some higher, nobler purpose than that.”

For 21 years Interface operated instinctively under the traditional industrial model of ‘take-make-waste’, being heavily reliant on fossil fuels for their products, transportation and manufacturing. The turning point came in 1994 when a series of events led Anderson to realize how little attention was being paid to the future, and the leading role the company could play in carving a new path, aiming towards a more sustainable industrial model and society¹.

Soon after this realization, Interface became the first US Company to adopt The Natural Step (TNS) framework and methodologies. Under the guidance of The Natural Step and other sustainability visionaries, a new vision for Interface was crafted — Mission Zero™; to eliminate any negative impact Interface has on the environment by 2020, showing it's possible to create a better world, and being restorative by the power of our influence.

Today, having tracked global environmental, social and commercial effects over the last 19 years, it is clear Interface has successfully dispelled the myth that focusing on sustainability negatively affects the bottom line. If anything they have proven exactly the opposite². Since 1996, the oft-cited baseline year, Interface has reduced the manufacturing waste it sends to landfill by 84%. About 49% of all raw materials are now either recycled or bio-based, including 36% of yarn and 51% of carpet backing. Savings from avoided waste costs amounted to \$450 million. In terms of energy, total energy use at the global factories has been reduced by 39% per unit. Also, 36% of energy consumed globally is from 100% renewable sources (with 7 out of 9 facilities operating with 100% renewable energy), and actual greenhouse gas emissions have been reduced by 41%^{3,4}.

Interface's business model as captured by Mission Zero has given it the edge over its competitors, and the company has been setting the pace for others by being the first

to publish corporate sustainability reports, receiving LEED and ISO14001 certifications, and accrediting all their products with Environmental Product Declarations (EPDs)⁵. Ray Anderson received a host of sustainability-related accolades throughout his lifetime, as have other individuals at Interface and several of its products. The company itself was named by Fortune as one of the “Most Admired Companies in America”, and in the UK the company was recently awarded a second Queen’s Award for Sustainable Development⁶. In addition, in 2012 the company was recognized as ‘Most Sustainable Large Corporate’ in the world by the International Green Awards initiative, and in recent years it has been ranked in the top 3 of the Globescan/SustainAbility survey of leaders^{7, 8}.

Interface’s story is unique not only for its overwhelming success, but also because the assimilation of the radical new vision was firmly rooted in a company with established operations. What started as the epiphany of one man became the mission of an entire company, and the legacy of Anderson continues to be the drive for Interface’s people, even after his passing away in 2011.

This case study is intended to shed light on the role The Natural Step played in this inspiring story, and how its guidance contributed to the true beauty Interface was able to create; not only to build a new and strong business model, but to transition the belief of people and the market, that such a model is not only possible, but is indeed the only way to go⁹.



“Comply” is
not a vision
- Ray Anderson

THE OPPORTUNITY: A new sense of purpose

When a spear of awareness hits you in the chest

Interface's sustainability journey began in 1994, when customers were beginning to ask what Interface was doing for the environment. Anderson, the CEO and founder, decided this could be handled by a world-wide task force, looking into Interface's environmental positioning. He was then called to give a keynote at the task force's first meeting, to shed some light on the company's environmental vision. His own words describe the situation best:

"Frankly, I didn't have a vision, except 'comply, comply, comply'. I sweated for three weeks over what to say to that group. Then, through what seemed like pure serendipity, somebody sent me a book; Paul Hawken's *The Ecology of Commerce*. I read it, and it changed my life. It was an epiphany; a spear in the chest. I wasn't halfway through it before the vision I sought became clear, along with a powerful sense of urgency to do something¹⁰."

The book provided a clear moral imperative and brought Anderson a new sense of purpose. It gave him not only the understanding of the need to run Interface in a sustainable way, but also the source he needed to craft a new vision which would take it far beyond mere compliance. This wake-up call resulted in Anderson challenging Interface to pursue a bold new mission:

"To be the first company that, by its deeds, shows the entire industrial world what sustainability is, in all its dimensions: people, process, product, place and profits — and in doing so, become restorative through the power of influence¹¹"

—Ray Anderson

It was this vision he shared with the task force on August 31st, 1994, and not surprisingly, it was received with tremendous confusion. Jim Hartzfeld, who was leading the task force and pressed Ray to kick off the first meeting, describes that the first reaction was one of fear and uncertainty, blended with scepticism and a growing sense of guilt, contrasted with the perceived fact that it would be impossible to stay in business without using fossil fuels of any sort¹², not to mention the apparent fact that this vision seemed to violate the basic laws of thermodynamics.

The tone changed once the discussion was reframed around the professional obligation of Interface; to show that if even a company that depends extensively on oil can transform itself, then any business can do it and no one will have an excuse not to do it¹³. It was this reframing which allowed the task force to see the professional motive to take this challenge; the business case.

After Anderson's 'dropping the bomb' speech, the task force members returned to their home bases, inspired and driven to act. Nevertheless, they had not the slightest clue where to begin with such an ambitious goal.



**"There is only one institution
on earth large enough, powerful
enough, pervasive enough,
and influential enough to really
lead humankind in a different
direction. And that is the institution
of business and industry"**

— Paul Hawken

(author, *The Ecology
of Commerce*)



Around this time it became clear help was needed in crafting the new vision and the business model to be derived from it. Anderson and others collected and read dozens of books by leading environmental thinkers and visionaries, and in 1995, they started reaching out to these authors with the purpose of drawing on their diverse perspectives and expertise.

This group of progressive thinkers became known within Interface as the Eco Dream Team. It included Paul Hawken, Amory Lovins, John Picard, Bill Browning, L. Hunter Lovins, Karl-Henrik Robèrt, Bill McDonough, Janine Benyus, Robert Fox, Jonathon Porritt, Daniel Quinn, Bernadette Cozart, John Warner, Walter Stahel and the late David Brower. They were the first ones who inspired the new direction of Interface, and through a range of interactions (mostly informal), they took part in re-defining the vision as it is captured in Mission Zero. They also assisted with promoting it inside the company and to various stakeholders.

An existing Interface programme, QUEST, proved to be the ideal vehicle to house the first initiatives. QUEST had been introduced just prior to Anderson's epiphany in order to bring about various improvements in the company¹⁴. The first step of the sustainability journey focused on waste reduction. Cross-functional teams worked on reaching certain quotas. The process was supported by team learning and sharing of best practices, as well as meeting with inspiring individuals from around the globe, to motivate thinking "outside of the box"¹⁵.

1994-1997 were years of radical thinking, when the way work had traditionally been done was fundamentally challenged and eventually changed. It was a slow start, yet Anderson persevered. A major turning point came in April 1997 at a week-long gathering in Maui, Hawaii. For years subsidiary companies had been conducting their own separate annual sales meetings. Now Interface decided to open its twenty-fifth year by inviting everyone to come together at one time and place. It would be 1,100 people from 34 countries, including sales forces, resource personnel, suppliers, management and factory associates.

Originally, the purpose of this extraordinary conference was to synthesize the widespread company -- to "hook it up." With the help of the Dream Team, Ray and the internal organizers of the event saw a huge opportunity to bring all attendees onto the same wavelength with regards to sustainability, not only to understand Ray's vision, but also to experience how sustainability could be put into practice. The goal was to get people unsettled enough with the current situation, while providing inspiration that would get them engaged and prompted to take action. For that purpose the hotel, one of the most opulent in the world and a symbol of human excess, became a classroom, and the conference an exercise in reducing the group's environmental impact in real time. As a result, the conference became an experiential metaphor for changing industrial practices around the world. At the end of the week the results were overwhelming. Attendees had achieved a significant reduction in the group's consumption of resources and waste generation during the conference. But more importantly, the event became an inspiring rallying call that created large-scale buy-in among employees. The lives of those who were present, including some suppliers, were changed and a door to a new phase in Interface's history had opened.

THE RESPONSE: Taking a Natural Step

Seeing the current reality through a new set of lenses

“Interface is committed to shifting from linear industrial processes to cyclical ones. To do this, we use a compass to guide us, and a set of tools to help us. They are both the result of The Natural Step”¹⁶

– Ray Anderson

The conference in Hawaii was the first time people outside the initial sustainability task force became engaged around the vision of a sustainable company. The challenge was to persuade others in Interface with this new purpose¹². Through Hawken, Anderson learned about The Natural Step (TNS), an organization Hawken was helping to launch in the US. Originally based in Sweden and founded just a few years earlier, there was a feeling that TNS could help find the “sensitivity hook-up” among employees, work communities, customers and suppliers.¹⁷

TNS was offering a very-much-needed definition of sustainability, along with a framework and tools to operationalize it, all founded on solid science. Not long after the first introduction to The Natural Step’s definition and framework, several Interface executives went to Stockholm to meet with its founder, Dr. Karl-Henrik Robèrt, who at a later stage became part of the Eco Dream Team.

Starting in April 1996, both Hawken and Robèrt were hired by Anderson to give workshops to a group of fifty managers. Later that same year Robèrt attended a gala event in Atlanta, with a crowd of 400 individuals representing a broad range of companies and organizations. It was there where Anderson announced publically for the first time his intentions to include aspects from TNS’s Framework for Strategic Sustainable Development (also known by its abbreviation – FSSD) in the company’s strategic planning process and all employee training.

The new training was co-developed by TNS and an Interface subsidiary company called One World Learning (OWL). The training included first learning the framework in its generic form, then adapting it to fit the company’s needs. At the beginning programmes were delivered to small groups of 14 to 70 executives and key players. Then in June 1997, OWL began to train internal trainers at Interface to reach all Interface employees, in workshops of various sizes, from 75 to 400 attendees¹⁸.

Gradually the FSSD became a vital and visible part in the company’s operations and culture, and it was consistently positioned as providing the most rigorous definition of sustainability. Its elements were laid down like building blocks, influencing not only the devising of the new vision, but also reshaping the decision making process and the mindsets of people.

The building blocks for the Framework for Strategic Sustainable Development are:

- Whole Systems Thinking
- The Four Sustainability Principles
- Backcasting from Principles

In the next paragraphs, we will now go deeper into each of these elements.

Whole Systems Thinking

This concept is about being aware of all the relationships and links between systems on this planet, whether they are human or non-human, and understanding that everything is connected.

This element helped the people at Interface to see the current reality of the system within which they were operating like they had never seen it before, which was crucial for transforming the company into a prototypical company of the 21st century (see fig. 1). However they had no clear picture yet of how to apply Whole System Thinking to the company's operations. So they started with a question: if nature were to design an industrial process, what might it look like? This question led them to the understanding that they must redesign commerce, and through innovation find ways to convert damaging impacts into restorative ones.

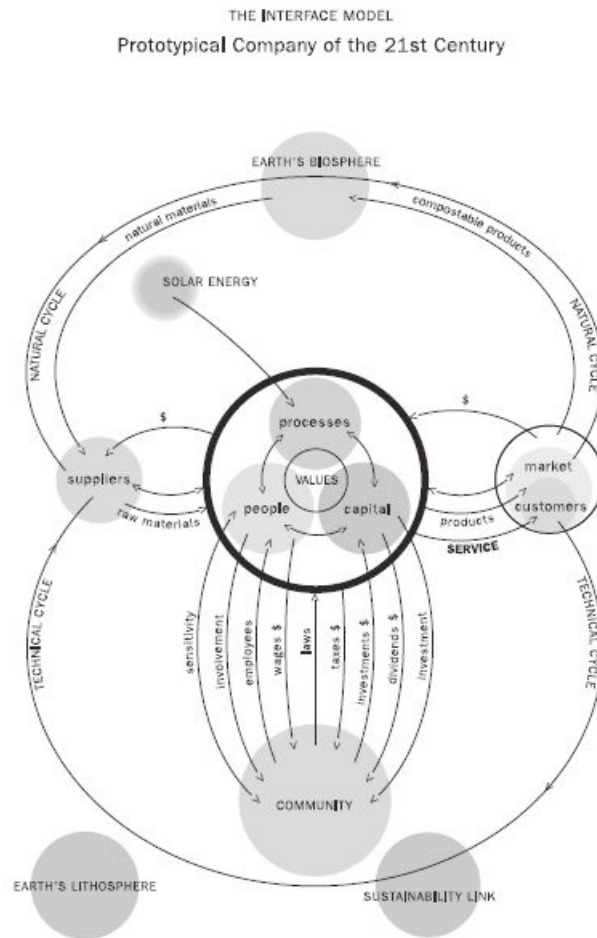


FIG. 2

fig. 1 System diagrams showing the prototypical company of the 21st century¹⁹.

The Four Sustainability Principles

The following principles provide explicit guidance for any individual or organization interested in moving towards sustainability. Coined by Dr. Karl-Henrik Robèrt working in concert with an international network of scientists through a rigorous consensus-building process, they represent the basic conditions that must be met if we want to maintain the essential resources, structures and functions that sustain human society on Earth²⁰.

The Four Sustainability Principles, as developed by The Natural Step, gave Interface the compass to set the direction of their decisions and actions, with regards to the impacts of their products and manufacturing processes along the entire length of their value chain (see fig 2)²¹.



fig. 2 The Sustainability Principles

Backcasting from principles

Backcasting is a form of creative thinking that doesn't start with today in mind and speculations about the future, but instead starts with a vision of a desired future we wish to create, then asks what we could do to get there. This is a planning approach we all take quite intuitively on a daily basis when planning for future events such as relocating or preparing for a trip. However, we often find it much more challenging to apply this technique when crafting a strategic plan for an entire organization, something in which The Natural Step has developed an expertise.

In the context of the FSSD, Backcasting is the binding element which brings the action to the principles. The desired future is that of a sustainable society (as defined by the Four Sustainability Principles), and from there we can start building and designing an action plan which will lead us from where we are today towards the sustainable future we want to create (see fig.3).

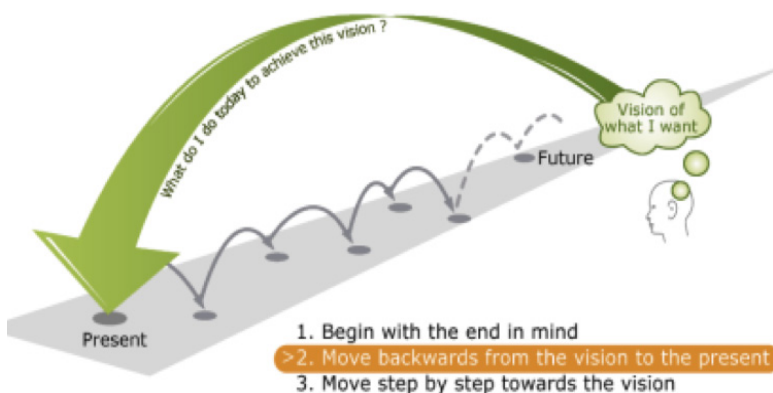


fig. 3 Backcasting from principles

These three elements form the backbone of the FSSD and the foundation of the work Interface has done with The Natural Step over the years. When combined into a tight package, these elements directly influenced the bold and iconic goal of Interface:

Mission Zero® – A commitment to eliminate any negative impact on the environment by 2020 and to become restorative. To operate this petroleum-intensive business so as to take from the earth only that which is naturally and rapidly renewable – not one fresh drop of oil – and to do no harm to the biosphere²².

Interface knew that the work doesn't end with defining a new vision. In fact it was clear that the journey had just begun. As we will see in the following section, while the FSSD had an important role in shaping Interface's new vision, its contribution didn't stop there. The FSSD developed by The Natural Step went on to guide Interface through the crafting of its initial action plan. And the framework's fingerprints have continued to be present in many of the steps and actions the company has taken over the past 19 years.

The background is an abstract composition of various geometric shapes and colors. On the left, there are large, overlapping shapes in shades of blue, brown, and white. Some of these shapes feature a pattern of small, light-colored dots. On the right side, a modern-style chair with a dark frame and light-colored seat is visible, positioned next to a small, light-colored table. The overall color palette is muted, consisting of soft blues, browns, and off-whites.

"Business is the economic engine of our Western culture, and if it could be transformed to truly serve nature as well as ourselves, it could become essential to our rescue."

- Prof. Karl-Henrik Robèrt

THE PROCESS: Climbing Mount Sustainability

Turning creative solutions into an action plan

**"In short; take nothing. Do no harm"²³
– Ray Anderson**

With a newly discovered focus on sustainable development, Interface began to move strategically towards becoming a fully sustainable company. Anderson likened this to climbing a mountain, symbolizing both the size and scope of the challenge; higher than Mt. Everest, 'Mount Sustainability' might be a difficult one to summit, yet possible when you have a carefully designed plan.

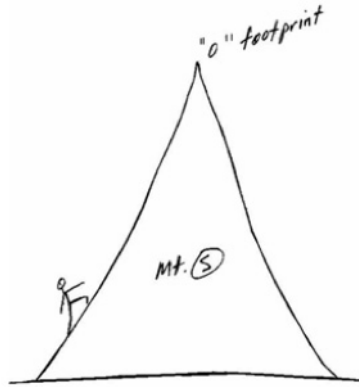


fig 4. The original drawing of mount sustainability as done by Ray Anderson

The Eco Dream Team had a key role in laying the necessary foundations to build a route towards the summit; it was their eclectic collection of concepts and theories which weaved the new mind set, and from there structured a homemade road map²⁴. While Hawken's Ecology of Commerce and the concept of Whole System Thinking gave Interface the understanding of the context in which they were operating, Mission Zero gave the clear vision and a definition of success. With the 4 Sustainability Principles stationed at the top of the mountain acting as the compass, Interface could now start Backcasting from its desired future, and carefully plan a roadmap to lead them to the summit.

Grasping the true nature of the complex challenges ahead was a crucial part of understanding the process, and the company started to consider indicators such as physical waste, energy usage, greenhouse gas emissions and water consumption, as essential for tracking and measuring their progress as they moved forward. Interface had a different set of lenses now for sustainability, and they started to define the steps that would need to be taken in order to produce zero impact floor coverings.

Through careful work and by focusing on learning how problems are solved in nature, Interface identified key areas where progress was needed, and with them in mind set out to structure a sustainability strategy. These areas were, and still are, referred to as the 7 Fronts. The commitment to Mission Zero is present in each of them. Sticking to the metaphor; if sustainability is a mountain, then the fronts are the faces that need to be scaled in order to reach the top. Together these 7 fronts compile the roadmap, and they guide Interface's decision making process, regarding where to direct efforts and resources, as well as what should be tracked and measured in order to ensure they are heading in the right direction.

7 FRONTS

FRONT 1 — ELIMINATE WASTE

Eliminate all forms of waste in every area of business.

FRONT 2 — BENIGN EMISSIONS

Eliminate toxic substances from products, vehicles and facilities.

FRONT 3 — RENEWABLE ENERGY

Operate facilities with 100% renewable energy

FRONT 4 — CLOSE THE LOOP

Redesign processes and products to close the technical loop using recovered and bio-based materials

FRONT 5 — RESOURCE EFFICIENT TRANSPORTATION

Transport people and products efficiently to eliminate waste and emissions.

FRONT 6 — SENSITIZE STAKEHOLDERS

Create a culture that uses sustainability principles to improve the lives and livelihoods of all of our stakeholders — employees, partners, suppliers, customers, investors and communities.

FRONT 7 — REDESIGN COMMERCE

Create a new business model that demonstrates and supports the value of sustainability-based commerce

These key areas emerged from the same theories that served as inspiration for the new vision, and they create the basis from which Interface can explore new solutions in manufacturing, design processes, employee engagement, and products and services.

The **7 Fronts** are not isolated from one another. Many of the solutions they inspire overlap, offering answers to the challenges of several fronts at once if not all of them, as it should be in a system which strives to be as holistic as possible. Over the years Interface has been able to achieve much through its continuous research and development of the 7 Fronts, mostly by cultivating a culture of innovative thinking and collaboration with stakeholders.

The following section offers a quick summary of some of the main tools Interface uses to determine its sustainability strategy, including a brief introduction of each of the fronts. However, for those interested in the specifics behind Interface's ideas and innovations, a closer look at the 7 Fronts can be found at the end of this document. Here, each front is further elaborated with examples and solid numbers regarding cost savings and reduction in resources. These can offer great inspiration and ideas to anyone practicing the implementation of sustainable development.



Restoring Natural
Habitats by reclaiming and
recycling old fish nets and turning
them into carpet tiles

The 7 Fronts: A brief look

The opportunity to derive value from using sustainability as a growth platform is available to every company, yet the possible paths to follow are diverse and not all will lead to success. Interface set out to explore its own path with solid foundations; Mission Zero™ as the inspiring vision of a sustainable company, and Backcasting and the 4 Sustainability Principles to guide its strategic thinking and prioritization process. Once the 7 Fronts were identified as key focus areas, the next step was to jump into ideas and actions that could start taking the company towards its vision.

The first steps taken focused mainly on waste management, and introducing recycled materials to the manufacturing process. The ReEntry™ program was launched in 1995, as a collecting service for carpets which are being replaced, to be re-used or recycled if possible²⁵.

A major pivotal point came in 2000 when Interface started using the tool of **Life Cycle Assessment (LCA)**, in order to determine where the most important environmental impacts and opportunities lay. Conducting a LCA gives a company the full scope of impact of a product throughout its lifecycle, and therefore pushes the company to take responsibility for impacts taking place beyond the direct effect of its own activities. It offers the insight that focusing only on the direct impact of the company is not that transformational, considering that 80-90% comes from the entire supply chain. It is an opening to complete transparency, and eventually brings alignment to the company and the whole supply chain; what you tell the suppliers is the same thing you tell the clients, the designers, the marketing people, and the engineers, and it is all based on facts²⁶.

Whether it applies to product design, marketing or suppliers, LCA offers an analysis which put the concept of Backcasting into practice; when you start with mapping the impacts of a product, you start with the end point in mind, and you will then redesign it to lessen its undesirable impacts.

Though LCA was not the first tool to be used by Interface, and as can be seen in the following examples it is definitely not the only one, in recent years Interface experienced the actual transformative effect of embracing LCA as a strategic instrument. Though the main output of the process is data and facts, when coupled with a clear vision and the 4 Sustainability Principles, LCA can also serve as a prioritization tool. It can direct the decision making process and give structure to innovation and creativity; two things found in a truly inspiring way throughout the 7 Fronts.



“Start by defining completely sustainable products rather than trying to improve the existing, flawed one. Try to get it 90-100% sustainable. Work backwards from the perfect.”

Nigel Stansfield (VP & Chief Innovations Officer, Interface, Inc)

Front 1– Eliminate waste

The objective: To eliminate the concept of waste, by redefining it as anything that doesn't provide value to the customer.

The approach: Developing new products, processes and alternative resources. Products include Entropy™, the randomly-installed carpet tiles which results in 1.5% waste compared with broadloom's 8–10% or the 3–4% of traditional carpet tiles. An example of a new efficient manufacturing process is the **Ultrasonic precision cutting machine**, which reduces waste by 80%, and a new alternative resource is threads made from reclaimed fishnets from the water in the Philippines, thus contributing also to the restoration of the planet.

The bottom line: when compared to the baseline of 1996, Interface's re-defined perception of waste has resulted in achieving a reduction of 84% of waste sent to landfill, more than \$450 million in avoided waste costs and an 89% reduction in water intake for manufacturing. In addition, currently 49% of total raw materials used globally are either recycled or bio-based..

Front 2– Benign emissions

The objective: The elimination of molecular waste emissions, by focusing on waste streams that have negative or toxic effects on natural systems.

The approach: Reducing, phasing out or replacing different hazardous materials such as plasticisers, ozone depleting substances and dyes. Introducing new systems such as the revolutionary **TacTiles™** stickers, which allow for the installation of carpets without glue, and the **Intelligent conveyor belts** employed in nearly all Interface facilities, which move only when tiles need to be transported and result in 60% energy savings.

The bottom line: since 1996 total energy consumption has been reduced globally by 39% and actual GHG emissions at manufacturing facilities have been reduced by 41% (See fig 9). Using the TacTiles™ stickers has made it easier to reclaim carpets and recycle them to produce threads.

Front 3– Renewable energy

The objective: To reduce the company's total energy consumption, while substituting non-renewable sources with renewable ones, and decreasing the dependency on fossil fuels.

The approach: There is a wide range of solutions for this, including collaborating to build a biogas plant to convert methane from landfills into energy, buying renewable energy from certified sources, and increasing sales of products with lower carbon footprints.

The bottom line: At the moment electricity in 7 out of 9 facilities comes from renewable resources, usage of non-renewable energy is down by 39% since 1996, and 36% of Interface's global energy consumption is renewable.

Front 4– Close the loop

The objective: Redesigning processes and products so that all resources used can be recovered and reused, closing the technical or natural loop.

The approach: In 2007 Interface introduced **ReEntry 2.0™**, which separates the fibres and backings of old carpet tiles. The fibre is then recycled into new threads, which are combined with recycled yarn from discarded fishnets, to produce **Biosfera™**, a carpet with 100% recycled yarn. The main elements of products are designed with purpose, and there is a continuous search for alternatives to conventional yarns, whether recycled or bio-based, like the one used in **Fotosfera™**.

The bottom line: In 2012 alone 7500 tons of carpet and carpet scraps were diverted from landfills, by using ReEntry 2.0™. Yarn is not the only recycled material; reused limestone is used in carpet tile backings as well. Altogether, Interface's products contain 39% to 79% recycled content²⁷.

Front 5- Efficient transport

The objective: Transporting all people and products efficiently and with minimal waste and emissions. This includes plant location, logistics and commuting.

The approach: Interface applies a few carbon offset programs for both product shipping and employee commuting, such as **Trees for Travel™**, **Cool Fuel™** and **Cool CO2mmut™**. In addition they focus on local production and distribution, while multi-modal transportation assists with ensuring that the transportation that does need to take place is as efficient as possible.

The bottom line: Since 1997 Interface has planted over 160,000 trees through its carbon offset programs. Cost savings from grouping deliveries result in 290,000 € every year, and almost 99% of all products sold in Europe are also produced in Europe.

Front 6- Sensitising stakeholders

The objective: Creating a community within and around Interface that understands the functioning of natural systems and human impacts on them.

The approach: Equipping everyone within Interface's network with knowledge about sustainability in general, and the 7 Fronts in particular, offering tools and opportunities to promote that agenda. Interface only works with suppliers that agree to meet its sustainability requirements, and partners with others to develop new products, like a lightweight carpet for **Boeing**. The **FastForward 2020** program offers mandatory, advanced training to employees and associates, while a network of sustainability ambassadors help further development and promotion of Mission Zero within the company.

The bottom line: solutions and ideas from the **QUEST** program have resulted in savings of more than \$450 million since 1995. Strong partnerships with suppliers, networks and other organizations have been created, which allow Interface to promote sustainability at a wider scale. One example is its involvement with establishing and leading Green Councils around the world. There is a strong sense of commitment among the employees of Interface to accomplish the vision, which is captured in the **I am Mission Zero** project, a collection of videos where individuals share what the vision means for them personally, and how they move towards it in their daily life²⁸.

Front 7- Redesign commerce

The objective: Redesign commerce to focus on the delivery of services and values instead of products; promote and expand the concept of circular economy; re-think the potential of networks and create situations that make a positive contribution to society and the environment.

The approach: Interface is moving towards openness and transparency, and invests in efforts to promote its more sustainable options, as well as to certify all products with EPDs, which enable people to make decisions based on facts, and not labels. Products like **Net Effect™**, carpet tiles made from reclaimed fishing nets, offer new possibilities, as do services such as the **Evergreen™** carpet leasing program initiated in 1996. Tile exchange and Tile care programs aim to extend the life of a carpet through maintenance, reducing both costs for clients and environmental impact, as well as creating new jobs and markets.

The bottom line: Both ecological and social sustainability have been integrated into the core of the business, generating a restorative impact on the environment and making a positive contribution to sustainable livelihoods. Over 2.5 million tonnes of verified emission reduction credits have been purchased and retired since **CoolCarpet™** started in 2003. Interface's EPDs are recognized by LEED and green building councils, and have been adopted by the European Union as well²⁹.

A closer look at the 7 Fronts can be found at the end of this case study.

MISSIONZERO_{METRICS}

Waste to Landfill	-/- 91 %	unit product
Energy	-/- 39 %	unit product
Non-Renewable Energy	-/- 61 %	unit product
Renewable Energy	+/+ 36 %	unit product
GHG Emissions	-/- 41 %	unit product
Recycled/Biobased Raw Materials	+/+ 49%	unit product
Water intake	-/- 81 %	unit product
Global Product Footprint Production Phase	-/- 19 %	global weighted average product



FOTOSFERA™: Made with sunlight

The key ingredient in 63% of the yarn used to make Fotosfera™ carpet tiles is an oil from the seeds of the castor-bean plant. This yarn replaces traditional petroleum-based yarns. Fast-growing castor bean plants are rapidly renewable, grow in dry climates, require almost no water, prevent erosion of soil and don't compete with food crops since they thrive in places mostly unsuitable for other crops. These bio-based threads are combined with virgin nylon, thereby reducing the overall amount of nylon required to manufacture the product. The resulting carpet tiles are finished with TacTiles™, the glue-less installation method, and offered with Cool Carpet™, the carbon neutral service, all of which results in a product that has the closest-to-zero impact available on the market. The intention is that in the future this product will contain 100% bio-based threads, which is currently not possible due to quality issues.

These measures alone contribute to eliminating waste and toxic substances, closing the loop and efficient transportation, but there's more. All of Interface's European facilities use electricity from renewable resources, and the company's total global consumption of energy is down by 64% since 1995. In addition, given that 70% of castor-bean plants grow in India this generates a beneficial source of revenues for the locals, usually in addition to their regular incomes. The product is of course EPD certified, and the complete package of Fotosfera™ offers a new kind of commerce; it considers and addresses all 7 Fronts successfully.

More Information can be found in the following link: <http://www.interfaceflor.co.uk/web/Products/fotosfera>

THE CHANGE: Cultivating a new organizational culture

Key lessons on embedding sustainability

“Everything is connected...no one thing can change by itself”

Paul Hawken (author, *Ecology of Commerce*)

Interface started in 1973 from one entrepreneur with an idea and a desire to follow a path of his own. Anderson often referred to the company as his ‘third child’, and as it turns out the apple didn’t fall very far—forty years later there is no doubt Interface has made its own unique path, in a field where a path didn’t exist before.

Being the path-makers is always a challenging task for an individual, let alone for an entire company, with steep learning curves and deep setbacks. Though there have been, and there always will be, less successful attempts along the way, for Interface the business model based on sustainability has proven itself beyond expectations and they are doing better than ever. It seems like all the signals are lined up for the company and it is moving on the right track towards achieving Mission Zero™.

The work Interface did with TNS, the Biomimicry institute and the Eco Dream Team in the early years has heavily influenced the way they do business today, on all levels. Interface’s commitment to sustainability is linked to the FSSD and the 4 Sustainability Principals, and the seeds planted in 1996 sprouted and grew the roots for what Interface has been able to achieve and accomplish so far.

Though developed by The Natural Step, the FSSD is an open source method, available for anyone who wishes to pick it up. Following that spirit, Interface has always been interested and eager to share with others whatever knowledge it has acquired through its years of experience. Though there is no single winning recipe for embedding sustainability into an organization, Interface has identified a few key ingredients in the successful unfolding of its story, which can be blended into the context of any other organization, to be acted upon in their own distinctive way.

These are practical lessons, but it is also important to note that Interface also worked hard to embed these things into the company’s DNA and organizational culture. These lessons can inspire others to craft their own pathways towards sustainable innovation, to find new creative business models and to accelerate sustainable growth.



8 Practical lessons for inspiring sustainable innovation and practice³⁰

Organize transparency

EPD offers full transparency around the true environmental impacts of products, and it is grounded on the work of LCA, which allows a company to identify where those biggest impacts are and focus their efforts on them (see LCA p19 and EPD p28).

Focus on expanding towards related markets

A company's strength lies in its ability to expand its core competencies to new markets. Interface expanded its core competency of modular carpets with innovations like TacTiles™.

Embrace successful failures

When looking for breaking-through solutions, people need to have the safe space to experiment with their ideas, and to celebrate failures just as much as success.

Look at what nature would do

Nature has been around long enough, and it embodies million of years of trial and error. Researching how nature deals with challenges can inspire creative solutions.

Be open to external input

Given that not all smart people work in the same place, looking for feedback and input from outside the organization increases the chances of finding the best ideas.

Share innovations

Not all innovations fit within a business model at first, but by inventing and commercializing with partners to share risk and reward, some innovations can become the solution for other challenges along the way, sometimes even in different sectors.

Offer chances to intra-preneurs

Cultivating a culture of participatory leadership stimulates people to contribute to the shared effort, through self development and empowerment.

Create new partnerships

Opportunities exist outside of an organization's supply chain and industry. Looking for external collaborations can enhance the likelihood of coming across alternative business models and new avenues to explore.



“A good benchmark is when everyone has sustainability goals embedded in their role, and they are not even named or labelled as ‘sustainability goals’, because it is your business anyway³¹“

-Luuk de Jong



“Sustainability as a destination is an infectious goal at Interface and a positive force. It is woven into nearly every aspect of our business, proven out economically over the long-term and changed how we think, operate, communicate and interact.”

(Dan Hendrix, President and Chief Executive Officer, Interface)

The underlying elements

There is another set of elements that exist in Interface, running like guidelines through the entire organization on a much deeper level. If the 8 Practical lessons constitute methods and approaches for tending and maintaining the organizational culture, the underlying elements are the soil. They are the ground that holds everything and provides the right conditions for good ideas to emerge and grow.

Taken together, these elements illustrate the profile of Interface—its characteristics and the mindset that distinguishes it from others. This is the same mindset that enabled them to see that the barriers to innovation around sustainability are not real, they are only perceived as such³².

These are strong characteristics, which could have driven Interface to success, regardless of its focus on sustainability. However, perhaps it was the combination of these forces with a meaningful goal, such as the one encompassed in Mission Zero™, which brought out the absolute best from people in a way that pushed the company to success.

Be the early adopter

In 1994 Interface knew to recognize the rising level of awareness among its customers as a shift in paradigms, and it stepped up to the challenge³³. It led to Interface becoming the first company in the US to work with TNS, and integrate elements of the FSSD into their strategic planning.

It is always risky to be the early adopter, yet making a commitment to sustainability as early as Interface did has played a crucial part in its success. The metaphor of the Funnel, as developed by TNS, at least partially explains why this happens; while over time various pressures related to the need for sustainability increase (e.g. stricter legislation or higher costs for raw materials), thereby constricting the amount of room in which a company can manoeuvre (the narrowing walls of the funnel), those who adopt strategies based on sustainability can gain a competitive advantage by avoiding many pitfalls while simultaneously creating an opening of new opportunities for themselves (fig 7)³⁴.

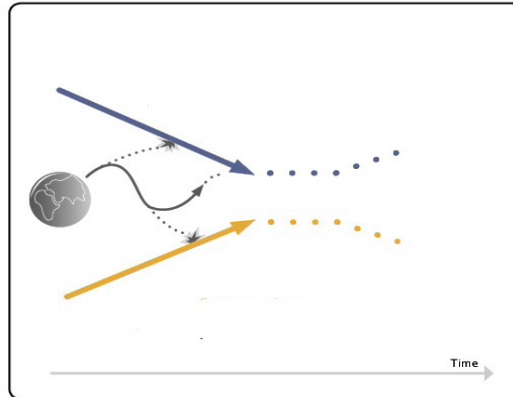


fig 5. The funnel

Interface's early start allowed them to collect the 'low-hanging-fruits', and then invest resources in the further exploration of sustainable practices and capabilities, generating new profitable avenues and placing the company far ahead of its competitors. This goes hand in hand with embracing successful failures, given that a major part of being an early adopter will always include experimenting, taking risks and learning. And the earlier one begins, the more time one has to learn before others, gaining the competitive advantage.

An ambitious vision

"You unleash the creativity of a company when you hold up a vision that is so outrageous it takes the breath away."

(Ray C. Anderson)

Mission Zero is the result of a close connection between Anderson and the Eco Dream Team, and it remained relevant at all times, aligning and inspiring a global company to one shared vision; never too far away, always just far enough to inspire and challenge³⁵. One cannot overstate the significance of aiming high with a goal such as zero impact by 2020, which inevitably requires people to think beyond their own current capabilities. What really influences people about Mission Zero™ is not so much the various actions to which it might give rise, but rather that it offers a new way to see the world. And seeing things in a different way can lead to a change in mindset³⁶. There is a unique combination of factors for each person that makes sustainability real for them, and they cannot be pushed to it- they need to see it. Once they have, they can't un-see it. You get people to see when you engage everybody, everywhere, and invite them to imagine a different future which is based on the best they ever were³⁷. It is then that people understand their role in the company has a part in achieving an ambitious vision, and they are contributing for something higher than just maximising profits. Working with a vision uncovers the indispensable value of the 'soft side' of business; the emotional, caring, nurturing side of people's personalities, and the extent to which Mission Zero has helped in uncovering it within Interface is remarkable³⁸. When people's emotions are engaged, they work harder, bringing more creativity and energy to their mandates.

Seeing challenges as opportunities

“I have no clue what were the biggest challenges, because when I look back it all looks like one big opportunity”

Luuk de Jong (former Organizational Development director EMEA)

With a goal as ambitious as zero negative impact, in order to really move forward you have to address the elephants in the room, and Interface didn't hesitate to ask one inevitable question – ‘do people really need to buy oil and nylon in the shape of a carpet?’. Their answer was ‘no’. Though this answer could easily be perceived as a barrier for a carpet-manufacturing company, Interface chose to see it as an opportunity, acting as a positive engine for creativity and innovation³⁹.

The focus was shifted from ‘carpets’ to the role carpets play in customers’ lives: interior design, comfort underfoot and noise control. It also allowed them to come up with ideas like TacTiles™ and Intercell™, which are more about ‘flooring’ rather than ‘carpets’ per se⁴⁰. This new line of thought broadened Interface’s perception of itself, and resulted in its exploring and creating new products and services, with a resulting expansion to new markets⁴¹.

Communicating the change

Interface is always interested in hearing what people think about its work, which is why everything is communicated internally as well as externally, especially when there are possible large-scale implications for the core paradigm of the company. The company maintains several different platforms where this kind of feedback can happen. It then distils from this feedback what matters most to people, and integrates that into the action plan where possible.

This creates a reinforcement mechanism, enabling Interface to gradually change its DNA by contextualizing the issues it hears about from people into small steps in the long-term plan, and then use those to balance ‘bigger-scale’ steps, which otherwise might be received with suspicion⁴².

This openness along with the alignment between the statements in Mission Zero and the actual actions taken by the company have brought credibility to Interface in the eyes of its stakeholders and the market. The resulting positive feedback the company and its people receive amplifies their motivation to continue on the path they have chosen⁴³.

“You need to embrace uncertainty, and just let go, and see that people are doing their job. Because if you don’t do it with people, then you do it yourself... and that’s just won’t fly”⁴⁴

Luuk de Jong (former Organizational Development director EMEA)

Cultivating innovation

Interface has shown a phenomenal talent for recognizing and implementing new practical solutions. According to Dan Hendrix, current President and CEO, research and development in manufacturing processes and product innovation have been driving the organisation’s journey to date⁴⁵.

For a company to be as alert to new strategies as Interface is, being constantly on the lookout for such strategies has to be embedded in the company’s culture so thoroughly that it transforms the way everybody in the company sees the world and how their work connects to it⁴⁶. Through actively engaging with uncertainty, alertness and active learning, this foundational culture of discovery has created the conditions for many successful strategic actions to be taken.

“Go ‘outside’ — listen to the radical or stupid ideas... It’s incredibly liberating and inspiring”

Nigel Stansfield (VP & Chief Innovations Officer, Interface.Inc)

All of Interface's biggest initiatives have come from people who were simply doing their jobs; people who went through the sustainability training, and as a result wanted to create new things to align with what they'd just learned. There is continuous encouragement in the company to keep ideas flowing and to try them, as well as a conscious lookout to sense whether people are using their talents in the right way, and whether it would be to their greater benefit and the company's if they were shifted to a different place or position.

The additional section, "A Closer Look" offers an elaborative view into how Practical lessons and Underlying currents can be translated into practices and actions. In this section the 7 Fronts are described at length, which can serve and add value to anyone who is interested in seeing how it is possible to cultivate change within a context of an organization.



“Sustainability
is about staying
relevant in an in-
creasingly com-
plex and interde-
pendent world”

Nadine Gudz

(Director, Sustainability
Strategy Interface Inc.)

THE NEXT STEPS: Beyond Mission Zero

Future challenges and opportunities

The corporate attitude towards sustainability has come a long way since 1994, and it will continue to evolve, as the company moves closer to delivering on its promise to eliminate any negative impact it might have on Earth by 2020, and to expand its practices of restoration. While Interface continues to push towards finding the best solutions, it must also accept a subtle, yet existing, feeling of entering a phase of ‘status quo’.

It has been noted in Interface that the impressive cumulative accomplishments have actually levelled off recently; they have reached a ‘plateau’ and have been there for several years now⁴⁷. Interface is now entering the home stretch towards their goal, and while working to keep the vision alive, they are heading into a chapter which will hold the next generation of challenges.

Challenges 3.0

Sustainability challenges are complex, and in order to reach its goals Interface will have to continue joining forces with others. Teamwork is the key factor. It is about working throughout the supply chain and across sectors, expanding participation, and partnering around these essential elements:

trust, innovation, leadership, alignment and performance. This must be done both internally and externally, and involve new approaches to collaboration with consumers, suppliers and other organisations across the industry⁴⁸.

For this reason greater focus will go into the further sharing with others of the learning Interface has accumulated around sustainability⁴⁹. Interface is looking forward to continuing its leadership within the industry, and to using the information they have obtained to strengthen and enhance the culture of sustainability amongst all associates. A step towards that was the launching of two big visitor centres, first one in 2012 in Atlanta, United States, and the other in the Scherpenzeel facility in the Netherlands in March 2012. The Awarehouse is a well-designed hi-tech visitors’ suite. The facility itself is a real-life example of sustainable renovation and design, and the displays and information it houses provide a look at what design, innovation and sustainability for Interface are all about⁵⁰.

With regards to the 7 Fronts, Interface is still facing challenges in the field of energy mainly due to a shortage in renewable energy sources. There are also challenges with fully closing material loops (especially with achieving 100% recycled or bio-based materials) due to the limited availability of recycled materials. The imperative to extend product lifetime while still making a profit also poses a challenge to be worked out⁵¹.



The issue of consumer and public trust is expected to become increasingly important over the next few years, sometimes manifesting as tighter government regulation due mainly to public demand. The good news is that businesses can already step up today and take ownership of addressing this issue⁵². Interface's 'head start' in this arena translates to a competitive advantage, since it has been moving in this direction already for the last 20 years.

As Interface learns its way into the future, we may rest assured that the changes that will inevitably take place will be facilitated with confidence thanks to its strong culture of inclusion and engagement. There is solid ground in the company for linking any operational side with innovation, and as long as that culture of constantly learning, redesigning and innovating is maintained, then the business will not only strengthen its own sustainability practices, but perhaps more important, could also establish a broad and strong base for its resiliency⁵³.

“Ray Anderson was knowledgeable enough to put the basic sustainability principles mentioned on the table, pragmatic enough to begin approaching them step by step whilst improving bottom line results, and was bold enough to tell the world.”

interview with Prof. Karl-Henrik Robèrt
read more on Ray Anderson : <http://www.raycandersonfoundation.org/rays-life>

CLOSING NOTE: Every reason for hope

“This is about the future of business and industry, a future driven by a new and powerful idea: Sustainability.”⁵⁴

Ray Anderson

A journey of a lifetime

Interface, Inc. was founded in 1973 because Ray Anderson believed in the global potential of modular carpet tile. Anderson's epiphany in 1994 revolutionized Interface's business strategy from that day forward, and has characterized the company's development ever since. The company has gone through an intensive transformational change. In 2013 Interface is a world leader with an established reputation and a respected list of accomplishments and breakthroughs. It has a clear path forward, and what is leading it there is also what it wishes to be known for: **Sustainability, Design and Innovation**.

Innovation

Past success has built up great trust throughout Interface around the business model based on Sustainability and its strengths. Just like any other company, Interface has gone through rocky times. Unlike many companies, however, it has survived and thrived. Among other reasons, this success can be linked to the strong and stable reputation Interface has in the field of sustainable innovation, a reputation that could not have been bought with marketing or public relations alone; it is founded on real practice and real results.

Interface knows much will depend on its ability to capitalise on its strengths and to further implement a business strategy based on innovation. The challenge is about reshaping the management approach, as much as it is about finding new technical solutions⁵⁵. The company always continues to challenge itself, and is confident that strategic initiatives, once properly calibrated, will enable it to handle any challenges it encounters on its way towards Mission Zero⁵⁶.

Design

There is an on-going quest at Interface for new solutions, rooted in the belief that a better way to operate can always be found. It is this belief that has led to the development of some of the company's leading sustainable practices and patented products. The company's innovative designs are a result of the assimilation of Design with Purpose as a way of thinking into the DNA of the organizational culture, and across all aspects⁵⁷. Its distinctive designs have proven that sustainable carpets can excel in quality and colours, and offer customers the opportunity to create inspiring interiors with better indoor climates. An inspiring concept which illustrates this line of thought is Biophilic design; an approach that taps into the natural orientation of humans. It has been shown that contact with nature through sunlight, outdoor air and living plants has an extensive impact on human health and well-being. Significant quantitative data, collected in universities, offices and hospitals, show that we are more comfortable, more productive and less stressed in spaces that reflect familiar natural habitats⁵⁸. Through its designs Interface aspires to create spaces which are more than environmentally responsible. It aspires to create spaces which are restorative to the human spirit, reflecting our collective need to respect, protect and learn from nature⁵⁹.

Some companies feel a sense of responsibility larger than the products they sell. For these companies, design has become central to their core calling. Interface is one such company. Decreasing environmentally and socially harmful corporate impacts is meaningless compared to what can be achieved by re-designing the products, which is why Interface keeps questioning the known concepts of design and experimenting with new ideas⁶⁰. It has already added an 8th Front around social equity, as Ray Anderson mentioned in his book, and a 9th could be waiting just around the corner⁶¹.

Sustainability

Interface knows that sustainability is a life-time journey, and it is in it for the long run. The focus on sustainability makes sense from the business perspective; it has brought resiliency to the company and better survival chances. Sustainability has made the company more proactive and equipped to endure turbulence in the market. It was the sustainability strategy that first made Interface invest in sourcing alternative threads, which ultimately made it less affected by scarcity and the rising cost of raw materials. Interface's circular economy business model is not only profitable, but also ensures a 'licence to exist' in a sustainable world.

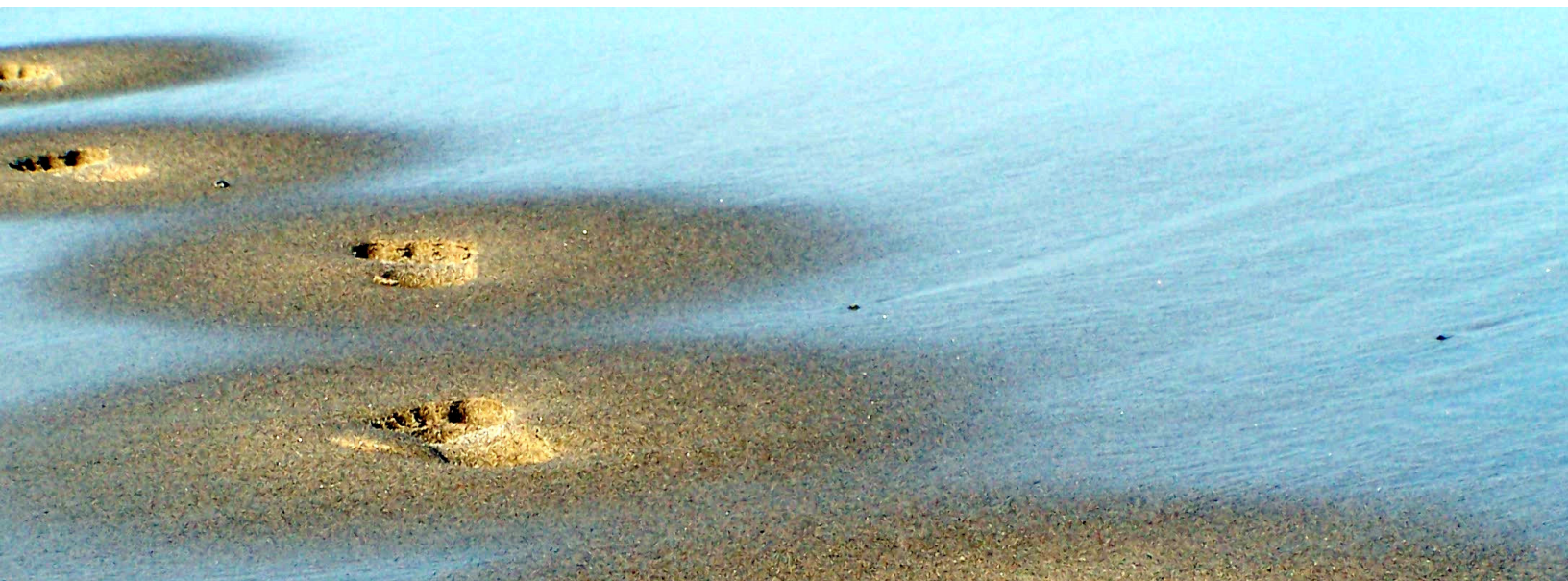
The sustainability strategy of Interface has been shaped and framed over the years through the work it has done with The Natural Step. The elements of the FSSD trickled into different layers of the company, fundamentally transforming the ways Interface thinks and learns around natural science facts, systems and strategic thinking processes, innovation, dialogue processes, design with purpose and perhaps more than anything — shifting the entire world view of a person.

Over time The Natural Step and the FSSD have become less visible in Interface's conversations, yet their fingerprints are all over the company's current paradigm. For the last 20 years Interface has been looking at the world through the lens of the FSSD, and though the link itself was slowly forgotten on the conscious level, it simply moved into the unconscious, where it still resides. As described by Jim Hartzfeld:

"I imagine it may be like an amphibian going back into the water. For the first few minutes or the first hour, he says, yes, there's the water again, but later the water disappears from his consciousness"⁶².

There is still a long way to go for a company that stands for sustainability. Though the future holds uncertainty, and though it will require continued focus and investment, there is also a huge sense of hopefulness that Mission ZeroTM can be accomplished. With a spirit of innovation, Interface continues on the same path that led them to meet with The Natural Step and adopt the FSSD many years ago; when you believe in an initiative, there is no need to evaluate, rather just go with it⁶³.

Interface is a showcase for step-wise approaches to radical change. It remains one of the prime examples of a company that successfully embedded the Framework for Strategic Sustainable Development developed by The Natural Step. Interface has the numbers to prove their way is working. It is a powerful role model for others. Passion and devotion, has driven Interface up to this point; the people there really mean what they do, and what they wish to do is to plant a seed of change and influence, and roll it out⁶⁴.



THE 7 FRONTS: A closer look

Front 1 — Eliminate Waste

Eliminate all forms of waste in every area of business

The objective

To change the concept of 'waste'. This means going beyond mere waste reduction into completely redefining waste as anything which is not essential for the performance of a product, and does not add any value to the customer.

This new definition of waste includes traditional forms of waste such as off-quality and scrap product, as well as non-traditional forms such as the overuse of materials, inventory losses, misdirected shipments, energy usage and inefficient processes. The end of the product lifecycle (e.g. when old carpets need to be disposed of) is also considered.

The approach

Life Cycle Assessment

Since 2000, Interface has used Life Cycle Assessment (LCA) to assess the environmental footprint of its products and subsequently devise ways in which it would be possible to reduce, and ultimately eliminate, these undesirable impacts. Engaging in LCA for all Interface products showed that 70% of the total environmental impact from Interface carpet tiles is related to the raw materials used to make them (fig 4). Polyamide (nylon) threads, which are used to make the face of the carpet tiles, have by far the highest environmental impact. This insight allowed Interface to focus on taking measures where they would have the most significant impact: restricting the amount of threads used (dematerialization), searching for ways to recycle used threads into new ones, and searching for alternative thread materials⁶⁹.



fig 6. Typical LCA of a simple physical product that does not consume energy in use

Dematerialization: Entropy

Entropy is an Interface carpet tile design that imitates the random way in which leaves carpet a forest floor. The inspiration for this design came from Janine Benyus, an innovation consultant and the author of *Biomimicry*⁷⁰. The tiles are similar yet not identical to one another. This allows for non-directional installation, which is faster and less wasteful as it removes the need to match lots. The randomness of the pattern means dye lots are merge-able. This eliminates the need for attic stock and allows individual tiles to be removed and replaced without disrupting the overall design of the floor, even after years of use. Not only does Entropy flooring result in as little as 1.5% waste compared with up to 14% for traditional broadloom carpet⁷¹, but following its release in 2000, it quickly came to dominate the product line, leading to a significant increase in market share.

The concept of dematerialization is closely related to other fronts as well, as can be seen in Front 4: Closing the loop. Reducing the amount of materials used is only the first step; followed by looking for renewable and alternative choices.

Alternative threads: NetWorks

In June 2012 Interface partnered with the Zoological Society of London (ZSL), and Aquafil, an Italian yarn supplier, under the name of Net-Works with the purpose of addressing the major environmental issue of fishing nets discarded in some of the world's poorest coastal communities. The focus is on 'sustainable livelihood' and the partnership aims to establish a community-based supply chain for discarded nets that will improve the livelihood of local fishers, while providing Interface with an innovative source of recycled materials for carpet tiles. As explained by Nigel Stansfield, VP & Chief Innovations Officer at Interface Inc., this is a remarkable example of cross-sector collaboration, with the potential to deliver both social and commercial benefits⁷².

A pilot was launched in the summer of 2012, with 4 communities near Danajon bank in the Philippines. The project has now branched out into 15 more villages in the Philippines, providing income to 280 households. The ultimate goal is to expand to other areas where loose fishnets abound and are endangering coral reefs and local ecosystems, such as India and South Africa⁷³.

The bottom line

In the first three and a half years following the company's mid-course correction, harvesting the so-called 'low-hanging fruit' enabled Interface to reduce total waste by 40% and realise savings of \$67 million.

These savings enabled them to fund subsequent sustainability initiatives, such as precision cutting machinery introduced in 2008⁷⁴. The ultrasonic machine installed at Scherpenzeel in the Netherlands cuts 24 carpet tiles at once out of rolls of carpet, reducing waste by 80%. This results in the elimination of up to 310 tonnes of waste material each year⁷⁵.

Interface's re-definition of the perception of waste involved a massive employee engagement program aimed at including everyone, down to the factory floor, in eliminating in any resource that did not deliver value to the customer. In total, the Eliminate Waste programs have achieved \$450 million in avoided waste costs and diverted a total of 103,400 tonnes of carpet and carpet scraps from landfill since 1995. 1 metric ton of discarded fishnets was collected during the first month of the Net-Works pilot, and it is estimated that 20 metric tons would be collected by April 2013. Apart from cleaning up the planet, these nets feed into Interface's pool of alternative-source threads. Currently, 49% of Interface's total raw materials used globally are either recycled or bio-based, and the search for possible sources of post-consumer materials in the larger waste streams continues.

Front 2 — Benign Emissions

Eliminate toxic substances from products, vehicles and facilities.

The objective

Closely related to Front 1, the second front refers to the elimination of molecular waste emissions, by focusing on waste streams that have negative or toxic effects on natural systems.

The goal is to ensure all emissions are non-harmful and that no toxic substances are used in any of the processes or present in any of the products. This means maintaining the quality of what goes out, including Greenhouse Gas (GHG) emissions, but also of what stays in, like the air quality in the facilities. Perhaps the biggest challenge is to maintain these controls throughout the entire lifecycle of a product, which means bringing the suppliers on board as well.

The approach

Removal of toxic substances: TacTiles™

Biomimicry was also a source of inspiration when looking at alternatives for the adhesive glues typically used in carpet installation. In a brainstorming session people were asked, “Is there something we can learn from the gecko? Because surely if the gecko can hold itself on a glass surface using only one toe, we should be able to install carpets without using toxic glues.”

The result of that brainstorming session was TacTiles™, adhesive stickers that fix carpet tiles to the floor, without the need for synthetic glues. This means fewer Volatile Organic Compounds (VOCs) in the manufacturing process and end product⁷⁶. Installation with TacTiles™ is durable, faster and healthier for anyone around at the time. Without the permanent adhesion, the removal of tiles for recycling or replacement is easier, which contributes to reductions in waste and costs⁷⁷.

Reduction of GHGs: Energy Efficiency

The manufacturing process is currently 47% less energy-intensive when compared to 1996. This has been achieved through a combination of methods. Among them are the **Intelligent conveyor belts**, which many of the facilities now employ. These belts only move when tiles need to be transported, resulting in energy savings of around 60% over normal conveyor belts.

The **Energy Mirror Wall** in the main office building of the Scherpenzeel facility in the Netherlands allows real-time tracking with a display of energy consumption data. This 24-hour access to energy data has increased employee awareness of opportunities for conservation and cost savings by eliminating excessive uses of energy.

The bottom line

Significant progress has been achieved in removing a variety of toxic chemicals from the manufacturing processes, including dyeing substances, CFCs and other VOC-emitting materials. In 2008 a laser-coding system was introduced, which replaced the need to mark all tiles with solvent-based ink. The TacTiles™ stickers enable easier reclaiming of old carpets, and recycling of them into new threads, which enhances the process of closing the materials loop (Front 4).

By applying energy efficiency, reducing energy consumption and switching to renewable sources of energy (Front 3), since 1996 Interface’s total energy consumption has been reduced globally by 39% (See fig. 8) and actual GHG emissions at manufacturing facilities have been reduced by 41%⁷⁸.

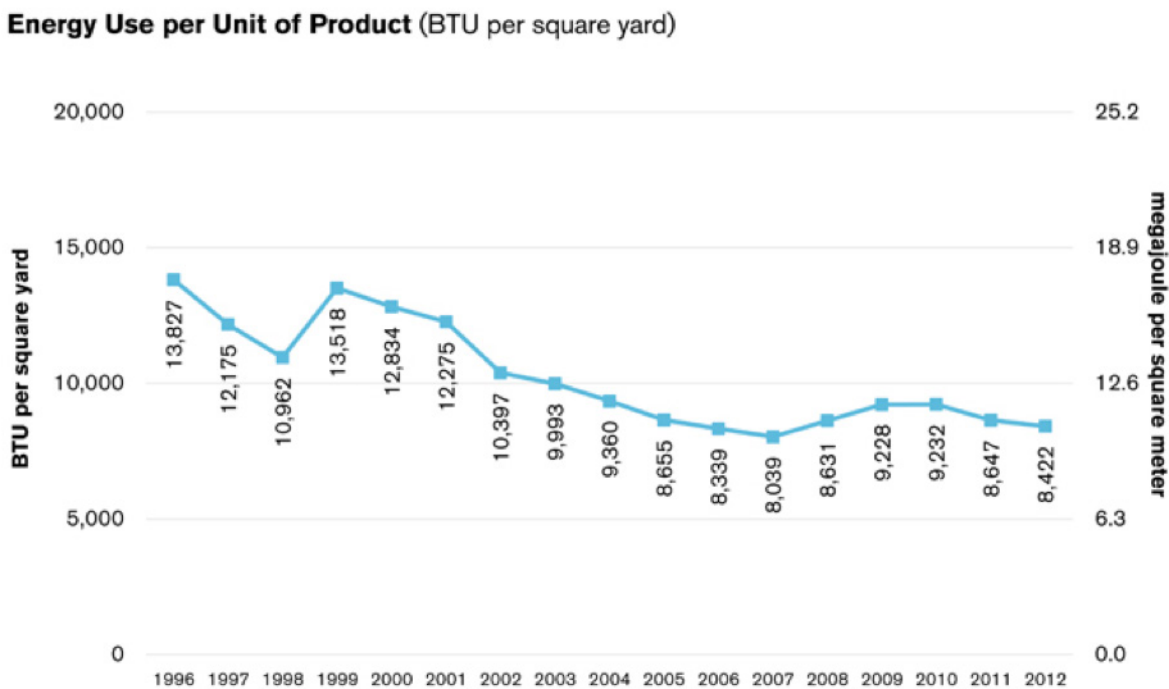


fig 8. Usage of non-renewable energy per unit of product (BTU per square yard)

Front 3 — Renewable Energy

Operate facilities with 100% renewable energy

The objective

To reduce the company's total energy consumption, while substituting non-renewable sources with renewable ones, and decreasing the dependency on fossil fuels.

Among the first steps taken towards renewable energy was the installation of photovoltaic arrays in factories in 2000, both in The Netherlands and Atlanta, United States. Since then Interface has expended its renewable energy sources to include solar for electricity, biogas for energy in Europe, and reclaimed gas from landfills in the United States. Renewable energy is either produced with Interface's own utilities, or it is purchased from other renewable energy projects, to support and encourage the renewable energy market.

The approach

Biogas: LeGrange City Biogas plant

In a beautiful example of public-private partnership, Interface teamed up with the city of LaGrange in Georgia to build a biogas plant to convert methane, a waste stream from the city landfill site, into a source of fuel for two of the boilers at the LaGrange facility, thus providing a revenue stream of more than \$300,000 per year for the city. Burning methane is 30% cheaper than natural gas (per unit of energy). It has reduced the factory's fossil fuel usage and has extended the life of the landfill by an estimated 15 year⁷⁹.

Solar: Photovoltaic arrays

In 2003 Interface installed 450 photovoltaic (PV) panels in Southern California, and though some subsidies came from the government, at the time this was the largest privately funded commercial solar array in America. Installed at an estimated cost of \$1.2 million, the array generated enough to satisfy 6% of the factory's electrical demand. When channelled to run one of the factory's carpet tufting machines, the electricity powered the production of one million square yards of carpet each year. Solar-Made carpet was born, and the product generated sales that greatly reduced the payback time of the PV panels.

The bottom line

With regards to reducing energy consumption, non-renewable energy usage per unit of production is down globally by 64% since 1996. In terms of progress towards the goal of using 100% renewable energy by 2020, today 31% of energy consumed globally is from renewable sources and eight out of ten production plants operate on 100% renewable electricity (including all of the European sites)⁸⁰ (See fig. 9). This has been achieved with a wide span of solutions, including avoiding usage, reducing usage of energy and replacing to renewable sources when possible.

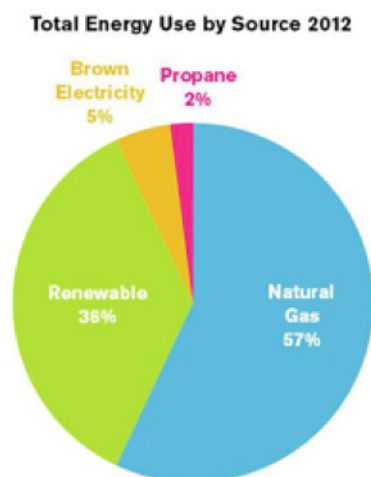


fig 9. Percentage of total energy use in 2012⁸¹

Front 4 — Close the Loop

Redesign processes and products to close the technical loop using recovered and bio-based materials

The objective

The 7 Fronts of Interface might appear to indicate several distinct areas of focus, yet they are all highly inter-connected, which allows the company to pursue avenues of development that generate results on multiple fronts at once. For example, Front 4 (Close the Loop) builds on the concept of eliminating waste (Front 1), and goes beyond it, aiming to reinvent the concept of 'Design with purpose', by placing sustainability at its very core. By introducing processes that allow for the recovery and reuse of various resources, these new designs allow the reclaimed resources to return to other cycles as inputs (either the 'industrial cycle', meaning back to the factories to create new carpets, or the 'natural cycle', where resources are returned to earth in a form that is not harmful to natural systems).

The approach

Redesign process: Re Entry 2.0™

Closing the resource loop on a large scale was brought one step closer in 2007 with the introduction of Re-entry 2.0, first in the US and later in the Scherpenzeel production facility in the Netherlands⁸². This technology allows Interface to reclaim any old carpet by separating yarn from backing⁸³ (fig. 7).

Through partnerships with yarn suppliers such as Aquafil, the reclaimed materials are then processed to yield recycled raw materials. The resulting yarn is made from 100% non-virgin material, containing a minimum of 25% post-consumer yarn content. This can then be used in products such as Biosfera™ (see below). In 2011 alone through this technology 121,000 tonnes of carpet was diverted from landfills globally⁸⁴.

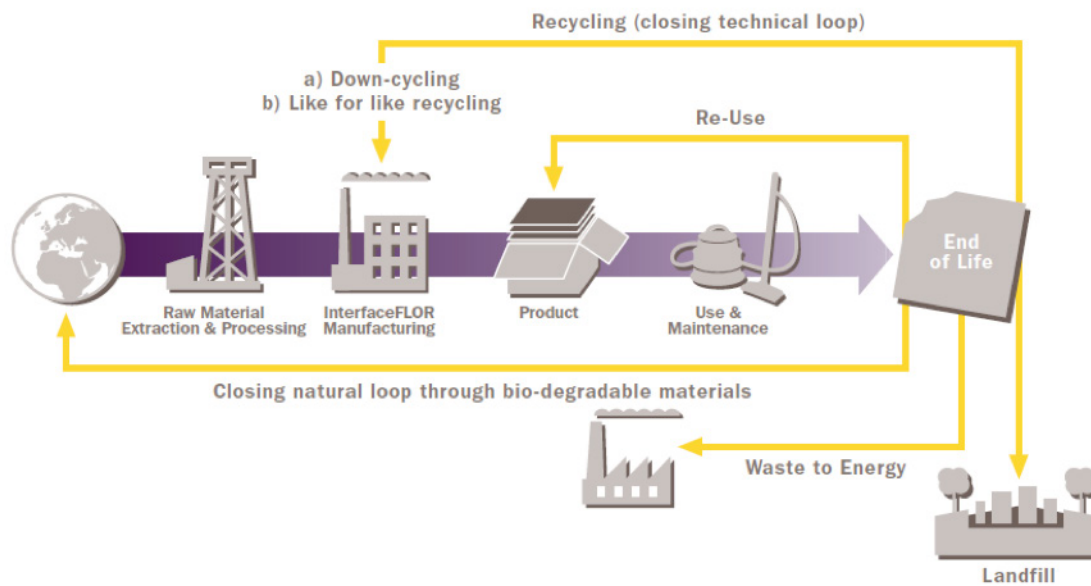


fig 10. closing the loop with ReEntry 2.0™

Redesign Product: Biosfera™

Biosfera™ is a carpet made of – amongst others – fibre from the company's Re Entry 2.0™ program, as well as fibre derived from salvaged commercial fishnets (see Front 1). The 100% recycled yarn is then combined with Graphlex™, a backing with high recycled material content, to yield carpet tiles with a total recycled content of 71%⁸⁵. To take it one step further, Biosfera™ also went through a process to reduce the amount of yarn used by 50%, resulting in a product that demonstrates a full scope solution to mitigating the largest contributor to the company's environmental impact — the nylon yarn.

The Bottom Line

Over the six years leading up to 2010, the percentage of recycled and bio-based raw material used in Interface's manufacturing processes rose from 4% to 49%⁸⁶. Interface continues to research new types of recycled and natural alternatives for nylon⁸⁷. And yarn is not the only recycled material in the production line. Limestone 'waste' reclaimed from different industries is used in carpet tile backings.

Design has a key role in closing the loop, by either designing products that can be easily separated for recycling, or designing products made from single or similar components that don't even need to be separated. Having the technology to manufacture products with up to 100% recycled content is highly impressive, yet perhaps what is even more impressive with products like Biosfera™ is that through innovation and collaboration it is indeed possible to close the loop, in a way that is beneficial to everyone involved.

Front 5 — Resource Efficient Transportation

Transport people and products efficiently to eliminate waste and emissions

The objective

Interface relies on moving people, products and resources from one point to the other using transportation modes that emit GHGs. The goal is that all kinds of transportation, including commuting, will be maximally efficient and minimally wasteful. In 2008 Interface ran a program to establish what the baseline was for the impact transportation in its operations was having. It was through a LCA that they learned that 8% of the carbon footprint of carpet tiles comes from the shipping. This, along with transportation in other areas, needed to be addressed, first by mapping all transportation-related impacts and then through innovative programs around product shipping and business travel.

The approach

Business travel: Offsetting

Trees for Travel™, begun in 1997, offered tree-planting to offset the air miles travelled by Interface business associates. In addition, the Cool Fuel™ and Cool CO2mmut™ programmes were introduced in several US facilities in 2002⁸⁸. The first aims to balance the carbon emissions of the corporate fleet, while the latter offers to apply carbon offsets to the daily commute of employees. In addition to the offsetting option, employees are also offered incentives to join a carpooling network as well as the opportunity to work remotely from home for up to 58 days a year⁸⁹.

Product shipping: Smartway™ and multi-modal transportation

Interface realized a major step towards efficient transportation is to shift to local production, in coherence with the demands of local markets. Interface has three main manufacturing centres: in the Netherlands, the US and Thailand, which respectively supply Europe, the Americas and Asia. Currently 99% of the products manufactured in Europe are delivered in Europe, and when possible, raw materials are also sourced from suppliers who are close to the production sites. This significantly reduces the shipping distances and therefore the CO2 emissions as well.

Smartway™ is a program introduced by the US Environmental Protection Agency, which encouraged a partnership between Interface and Meridian IQ, a global logistics management company. The models they developed measure Interface's transportation footprint to the level of the partial truckload, then combine it with strategies for choosing the most effective mode of shipment. The model of multi-modal transportation helps with that by using the most energy-efficient transport for each part of the journey. For example, shipments might be routed using a train or a barge, which have relatively low emissions, instead of a truck or a container ship.

The bottom Line

Since 1997, Interface has planted more than 118,000 trees through the Trees for Travel™ program, and nearly 45,000 trees have been planted since Cool CO2mmut™ began in 2002. By grouping deliveries and reducing the number of empty trucks on the road, Interface saves close to 290,000 € every year. Both Interface and its transport suppliers use modern vehicles that comply with emissions standards set out by the EU's Kyoto agreement and suppliers are continuously encouraged to search for lower-carbon transport alternatives.

Furthermore, Interface realized that the only way to truly tackle this is by joining forces with its associates and suppliers, and the willingness to collaborate on the matter has created trust among their partners, which led to long term partnerships and cost savings.

Front 6 — Sensitise Stakeholders

Create a culture that uses sustainability principles to improve the lives and livelihoods of all stakeholders — employees, partners, suppliers, customers, investors and communities

The objective

As a company with a sustainability mission, it means everybody has a part to play in order to achieve the goal. Employees, suppliers, and customers all need to be on board with sustainability in order to achieve Mission Zero™. Interface is fully aware of how significant social capital is, as a critical component for advancement and further development. Thanks to its commitment to becoming a learning organisation, Interface has sought ways to communicate its vision internally and externally, and share the knowledge it gains along its sustainability journey, so everyone is stimulated and trained to think about how he or she can contribute to making progress towards Mission Zero⁹⁰.

“When you want to do something so challenging, the only way to do it is by inviting people”

(Luuk de Jong, former Organizational Development director EMEAI, now owner-director DeltaD)

The approach

Partnerships: Boeing

In 2012 Interface partnered with Boeing, after participating in a retreat lead by Boeing on the topic of Biomimicry, to develop special lightweight carpet tiles. The original intention was to offer carpets to Boeing offices, however an idea was born and later these tiles were installed on Southwest Airlines' first “green plane”. This allowed tailored-innovation to the airline's specifications, which expanded Interface's perception of the structural design of a product, its performance in different settings and the possible different applications for it.

Employees development: FastForward 2020

One of the first key concepts to be offered to employees and associates was the TNS Framework (or FSSD), as delivered through the OWL training⁹¹. Interface also works with its sales forces to educate and listen to its customers, so as to ensure accurate feedback about what works in the marketplace.

FastForward 2020 is the vehicle to embed sustainability throughout the organization. It is a learning program for equipping the workplace with knowledge about sustainability, and aims at using people's own ambitions and strengths to reach Mission Zero™. The program contains three levels, with the first level, Induction, being mandatory for everyone at Interface.

The trainings are also used to give sustainability special status and focus by putting together an elite network of Sustainability Ambassadors, employees who choose to drive the sustainability agenda within Interface, working on awareness campaigns and personal projects. These Ambassadors complete all three levels of training

- Level 1 Induction: Mandatory, with the purpose of creating a basic understanding among all regarding Mission Zero™ and the 7 Fronts, including the work done around it.
- Level 2 functional specialization: A course for all employees' which aims to expand and go beyond sustainability in general, towards what it means in specific roles and business areas to be informed about actual sustainability topics.
- Level 3 Critical Analysis: The purpose of this course is to equip individuals with tools to drive the company's sustainability agenda even further and being able to match their passion with the company goals⁹².

The bottom line

Inviting others to participate has many advantages, as seen with savings from the QUEST program, which netted over \$450 million since 1995 (see page 4 for more information on Quest). The Quest program was merged in 1996 with the Ecosense™ program, which tracks the progress of sustainability initiatives and offers incentives for performance. Perhaps even more impressive is the strong internal motivation Interface employees have to keep moving towards the vision, as captured beautifully in a series of videos titled I am Mission Zero, in which company's employees share how they relate to the vision, and the meaning it holds for them⁹³.

Interface realised it had sufficient purchasing power to influence suppliers; those who were willing to align their business with Interface's sustainability agenda benefitted from a greater share of business. Bringing these suppliers on board with the agenda is a strategic move that helps ensure a low negative impact of a product throughout its lifecycle. In certain cases, such as removing harmful substances at the source, supplier engagement is absolutely critical.

Collaborations can also lead to unexpected results, as demonstrated in the partnership with Boeing, which resulted in a whole new line of modular carpets targeting a new market segment (airplanes). Other successful examples have been mentioned in the discussions of the other Fronts, such as the partnership with Aquafil and the Smartway program. Interface is also a member in several networks and organizations, which allows it to keep promoting sustainability beyond its doors. One example is its work establishing and leading Green Councils around the world, which gained Interface substantial visibility and credibility in the growing green building marketplace.

Front 7 — Redesign Commerce

Create a new business model that demonstrates and supports the value of sustainability-based commerce

The objective

Interface knows that to truly achieve Mission Zero, they must develop other business models to replace the fundamentally unsustainable ones currently dominating the market. These should be models that are grounded in providing services, instead of materials and products, and would be showcases for the value of sustainability-based commerce. The following examples illustrate how Interface is innovating and prototyping such business models. And all of these demonstrate close interrelation with the other six Fronts

The approach

Promoting Transparency: Environmental Product Declarations (EPDs)

EPD is a voluntary, LCA-based tool, standardized against ISO 14025 and ISO 14040, which communicates a factual account of the life cycle of a product, analysed across a series of environmental impact categories⁹⁴. It is neither a label nor a claim, rather a third party credible certification which creates a basis for comparing similar products and systems.

Much like the ingredient list on the back of packaged foods, EPDs help people to move away from making decisions based on artful labeling, to decisions based on facts. Interface believes in a future of openness and transparency, which is why in 2009 the company was the first in its industry to obtain an EPD for one of their designs. Today all Interface products have been verified and are carrying EPDs⁹⁵.

Service design: Evergreen™, TileExchange and TileCare

A major avenue in redesigning commerce, and in the concept of a circular economy, is the shift towards industries based on services, rather than products. One example is EverGreen™, which was launched in 1996, and reflects Interface's pioneering approach to sell carpets without selling carpets. EverGreen™ is a leasing concept where Interface produces, installs, cleans, maintains and replaces the carpeting when needed, and the customers get all the benefits of a carpet, without really owning one. The carpet is owned by Interface, which ensures two main things: proper disposal (i.e. re-claiming the carpet for recycling) and no carpets ending up in landfills⁹⁶. While this concept never developed beyond a small number of prototype contracts, its vision helped push Interface deeper into carpet reclamation and other services.

TileExchange and TileCare are services which branch out from the original leasing program. With these programs, individual tiles can be replaced or treated with no need to replace the entire carpet. The goals of these services are to extend the life of a carpet tile through proper maintenance (for which Interface assumes responsibility), to reduce both environmental impact and costs for clients, and to create new jobs in the circular economy. In addition, when both the installation and disposal are under the control of Interface, this also ensures a constant stream of carpet tiles to go into the ReEntry 2.0™ program, where they are recycled into new carpet tiles (see Front 4, p 24)⁹⁷.

Restorative Impact: Net Effect Collection™

Net Effect Collection™ is the next step in the project of NetWorks partnership (Front 1, pg 20). These are carpet tiles made partly from the reclaimed fishing nets collected by fishing communities in the Philippines. It is the classic example of processes that not only generate a new source of income for the locals, but that do it while restoring the environment, having a positive impact on the biodiversity of the region. This is what redesigning commerce is about.

Neutral products: CoolCarpet™

When it comes to GHG emissions, offsetting is considered the last resort after renewable energy and reducing consumption. Yet, services like CoolCarpet™, do represent a way for customers to choose 'climate neutral' products that have had the GHGs that will be emitted during their entire life cycles offset. This is accomplished by Interface investing in verified projects for reducing emissions around the world, and rolling this cost into the pricing of the product.

CoolCarpet™ is included with certain products, like Biosfera™, and is available for all products. It is highly promoted by Interface sales forces (as are all Interface products with low carbon footprints), and when used in conjunction with building projects, it can count for credits towards various green building certifications, such as LEED⁹⁸.

The bottom Line

The mainstream has already started to shift towards sustainability and circular economy concepts. EPDs are recognised by LEED and green building councils, as well as being encouraged by the European Union. The underlying trends in civil society and regulations call for increasing openness. Very soon EPDs and services like CoolCarpet™ will become requirements for architects and interior designers⁹⁹.

Interface is moving towards closing material loops and redefining commerce. In an industrial world where the majority of products are 'designed to fail', Interface brings forward a business model that introduces long-lasting value, high performance products and transparency¹⁰⁰.

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