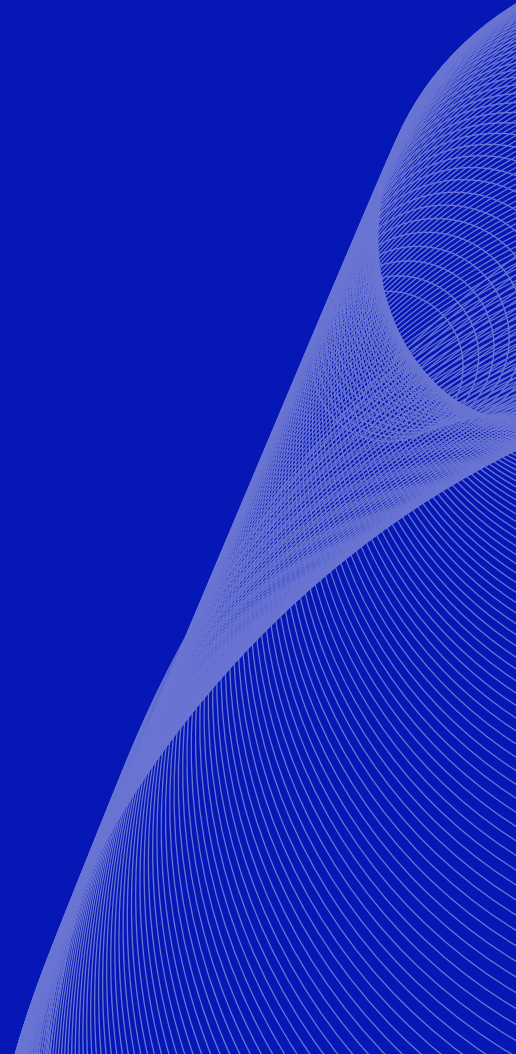
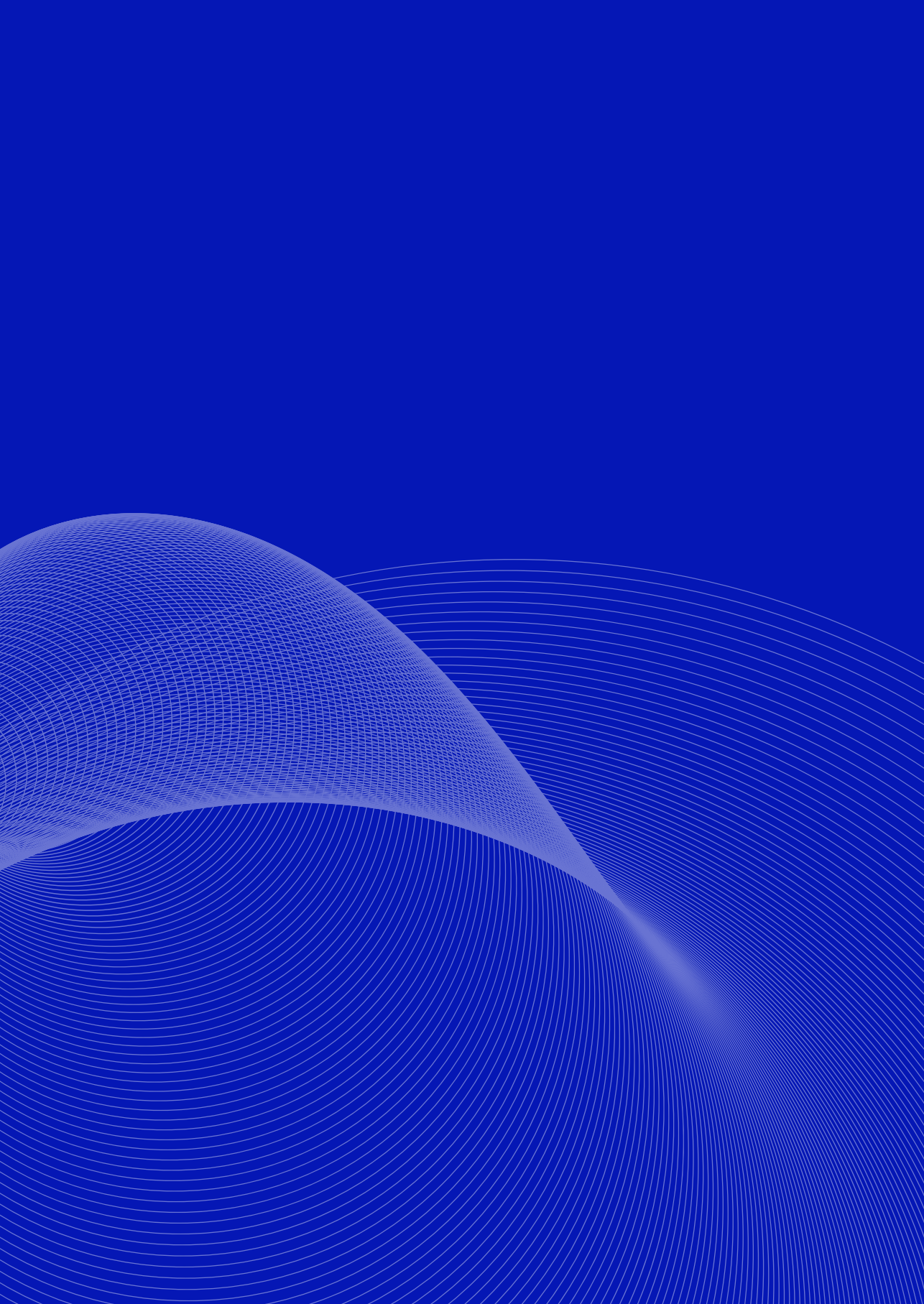


Chapter 8 / Cultural Transformation in the Italian Oil Industry

by Raffaella Montera (Pegaso University), Chiara Guiggiani (Foundation for Research and Innovation, University of Florence), Alessandro Monti (Foundation for Research and Innovation, University of Florence), Mario Rapaccini (University of Florence)





This chapter explains how an energy technology company, particularly its IT division, faces significant cultural challenges to sustainable innovation, requiring a fundamental shift to mainstream values and establish new practices.

The case outlines how the company implemented co-creating and cultivating methods to address key challenges and lead the way towards the sustainability transition in its industry.

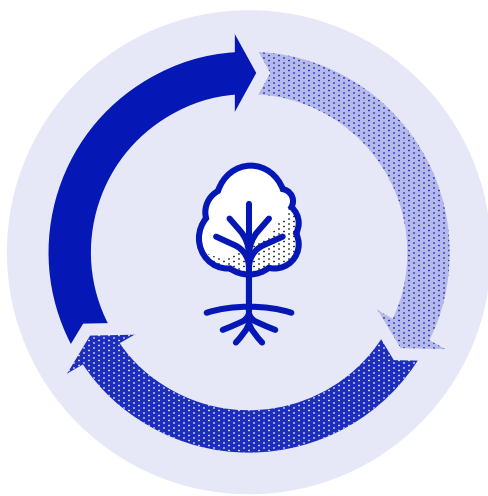


FIGURE 7. Cultivating of sustainable innovation evolving around the metaphorical illustration of a tree

8.1 Sustainable Innovation Challenges

The energy technology sector has had a massive impact on climate change. Most greenhouse gas emissions in the atmosphere are attributed to emissions generated by products and processes in the energy sector.¹ In particular, carbon emissions from the combustion of fossil fuels are a major driver of global warming.² In addition, the extraction and transportation of natural gas, a significant component of the energy industry, contribute to methane emissions. Methane is a potent greenhouse gas that intensifies the greenhouse effect and accelerates global warming.³ Oil and gas exploration often lead to deforestation and changes in land use, contributing to the release of stored carbon into the atmosphere. The impact of these activities on ecosystems exacerbates the effects of climate change.⁴ Despite this devastating impact on the climate, the major oil companies have exerted pressure on governments against emission regulation and even denied anthropogenic climate change. These behaviours have discredited an entire industry and have caused serious harm to humanity and the planet.

There is now an increasing global emphasis on transitioning away from fossil fuels and towards renewable energy sources to mitigate climate change. Energy technology companies need comprehensive sustainable strategies to mitigate their environmental impact. While efforts are underway within the industry, a holistic transition towards renewable energy and environmentally conscious practices is imperative for a more sustainable development.

To establish and drive values-based and sustainable innovation, energy technology companies must cultivate environmental awareness and responsibility. This involves acknowledging the industry's responsibility for the environment and taking proactive measures to minimise its negative impact.⁵ A key step in this transformation is the cultivation of sustainable innovation cultures based on *Participatory Decision Making* and *Stakeholder Values Integration*. Inclusivity fosters creativity within innovation cultures and validates the impact of innovation by ensuring a variety of stakeholder perspectives.⁶ Energy technology companies should invest in *Human Resource Development* programmes that promote values of sustainability and build a dynamic and adaptive workforce.⁷ A culture of continuous learning is also essential to fostering sustainable innovation. Only by contributing to sustainable development can energy companies maintain their commercial role in the global energy landscape.

Many energy technology companies are willing to diversify their business models and invest in regenerative energy, positioning themselves as responsible stewards of the planet.⁸ This shift is not solely driven by the need to comply with stringent European regulations or to evade the taxation of carbon emissions, but also by a growing recognition of the importance of sustainability for both people and the planet. In particular, European regulations, such as the European Green Deal and the EU Emissions Trading System, have set ambitious targets for reducing greenhouse gas emissions.⁹ These policies incentivise energy technology industries to innovate and adopt greener technologies to meet the new more rigorous standards. Non-compliance can result in significant financial penalties, thus acting as a strong motivator for change.

Beyond regulatory compliance, there is a notable shift in corporate ethos towards values of sustainability. This transformation is partly driven by consumer demand for environmentally friendly products and services, influencing companies to align their operations with these expectations. Companies that fail to adapt, risk losing their competitive edge in the market. Moreover, the financial community is increasingly prioritising environmental, social and governance (ESG) criteria in their investment decisions. Investors are now more likely to support businesses that demonstrate a commitment to sustainable practices. This trend further incentivises energy technology companies to invest in green technologies and sustainable operations.

Efforts are being made in the industry to take advantage of these developments, including investments in cleaner technologies, carbon capture and storage, and diversification into renewable energy. However, the overall impact of the sector on climate change remains detrimental and requires continued attention and concerted efforts to further a transition towards more sustainable practices.

What is more, energy technology companies are increasingly prioritising values of sustainability, integrating them into both their internal operations and their external market strategies. Understanding the difference between internal and external development is crucial for appreciating the breadth of sustainable innovation efforts.¹⁰

Internally, companies initiate a variety of process and normative innovations to enhance their environmental and social impacts. For instance, process innovations include reducing greenhouse gas emissions, improving energy efficiency and minimising waste in their operations. Normative innovations include the introduction of values, policies and codes of conduct that promote, for example, diversity, equity and inclusion.

With regard to their external development, companies focus on sustainable product and service innovations as outcomes. While internal efforts focus on operational efficiencies and fostering social outcomes for employees, external efforts are geared towards creating market solutions that drive broader environmental and social benefits. Both dimensions are crucial, with internal actions laying the groundwork for responsible operations and external strategies pushing forward the global sustainability agenda through innovative products and services.

The energy technology company of this case study (hereafter named Alpha) is no exception. It is undergoing a process of radical and fast-paced organisational change. Internally, it has implemented programmes to optimise facilities and reduce energy consumption, such as installing energy-efficient lighting and upgrading heating, ventilation and air conditioning systems. Additionally, the company promotes employee well-being and diversity through policies and initiatives for *Human Resource Development* and *Attracting the Right Talent*. Externally, it makes significant investments in technology innovations that support the energy transition.

A notable example is an investment in hydrogen projects. Collaborating with selected clients, the company is developing advanced solutions for hydrogen production, storage and distribution. These technologies are aimed at reducing carbon emissions and promoting the use of cleaner energy sources. Moreover, the company's product portfolio includes solutions for carbon capture and storage, which help industries manage their emissions more effectively. Across the energy technology industry, other energy companies can, must and want to play a positive role in the sustainability transition. In this context, more and more energy companies are investing in clean energy and undertaking a profound organisational shift for establishing sustainable innovation cultures.

Now let us focus on how Alpha – specifically, its Italian IT branch – is facing cultural challenges that require a significant shift of values and practices. This case demonstrates how the company has adopted two targeted approaches to tackle sustainable innovation challenges, both of which have a high potential for replication in the same or in other industries.

8.2 Ethnography to Conceive Sustainable Innovation Culture

The ongoing cultural shifts in the energy technology industry offer valuable insights on how to advance sustainable innovation cultures globally. Alpha, one of the world's leading energy technology companies, is a case in point. With over a century-long tradition in providing solutions to energy and industrial customers and with operations in more than 120 countries, this company shows how values of sustainability shape corporate identity and drive innovation management in the energy sector.

The company's official values and strategy are centred on advancing energy solutions that are cleaner, safer and more efficient. Its strategic priorities are shaped by a commitment to ESG principles, aiming to create value for stakeholders while addressing global energy challenges. The set of official values that drive the company's operations and strategic decisions include:

- **INTEGRITY:** maintaining the highest ethical standards in all business dealings
- **TEAMWORK:** collaborating across geographies and functions to deliver superior results
- **PERFORMANCE:** achieving excellence through continuous improvement and innovation
- **SAFETY:** ensuring the health and safety of employees, customers and communities
- **SUSTAINABILITY:** committing to sustainable practices to minimise environmental impact and support the transition to cleaner energy

Alpha's strategic focus is on technology innovation, digital transformation and sustainable development. Regarding technology innovation, the company makes significant investments in research and development to drive technological advancements in energy production. This includes developing cutting-edge solutions in oilfield services, gas technology and energy transition technologies such as hydrogen solutions and carbon capture, utilisation and storage. When it comes to digital transformation, a key component of the company's strategy is leveraging digital technologies to optimise operations and improve efficiency. Advanced analytics, AI and machine learning are employed to enhance predictive maintenance, optimise production and reduce downtime. With reference to sustainable development, the company is deeply committed to supporting the global energy transition with a set of ambitious targets to reduce carbon footprint and actively develop technologies that support cleaner energy production.

Using *Rapid Ethnography* we conceived Alpha's sustainable innovation culture, identifying seven key insights: 1) sustainability literacy, 2) vertical integration, 3) reductionist approach, 4) authentic communication, 5) orchestrating stakeholder relationships, 6) establishing practices from the bottom-up, 7) balancing diversity (see table 4). Each insight is described in more detail in the table below.

Insights	Illustrative Statements We want (desire) ... so that (values) ... but (tension) ...
1. Sustainability literacy	'We want to mainstream a shared sustainability literacy so that each employee understands and fulfils their role in driving clean energy innovations, but communication barriers between higher-level staff and operational employees remain a significant obstacle.'
2. Vertical integration	'We want to leverage collaboration across hierarchical levels so that that top management's sustainability goals translate into coordinated actions at the base, but middle managers remain unaware of their decisive role to bridge communication gaps.'
3. Reductionist approach	'We want a more sustainability-oriented innovation process so that our company leads the energy transition, but we continue to put more trust in the conventional market rationale and emphasise economic concerns.'
4. Authentic communication	'We want to gain a green corporate image so that we communicate our identity with pride, but balancing between authenticity and ambition is challenging.'
5. Orchestrating stakeholder relationships	'We want to orchestrate stakeholder relationships through open innovation and ecosystem engagement so that our leadership in sustainability spurs genuine commitments across suppliers and customers, but we cannot guarantee their continued dedication once they have purchased our green products and services.'
6. Establishing practices from the bottom-up	'We want to leverage the potential of bottom-up and informal initiatives for sustainable innovation so that we can make a big leap in our cultural transformation, but we still lack advanced methods and practices to harness this potential.'
7. Balancing diversity	'We want to hire young talent so that we can leverage their creativity and expertise, but we should also ensure a balanced integration with the expertise of senior employees.'

TABLE 4. Ethnographic insights on tensions and values-action gaps in an energy technology company

SUSTAINABILITY LITERACY: Alpha's corporate culture and the meaning of its espoused values evolve in response to new external pressures (i.e. the Kyoto Protocol) and internal challenges. Internally, the company has undertaken a cultural transformation with the goal of promoting clean technology adoption in the energy technology industry. This involves an evolution of its organisational values from being technical and narrowly defined towards becoming subject to interpretation. This means that the company's sustainable innovation culture changes in relation to how the company's values are redefined and mainstreamed. This requires the concurrent development of two types of literacy: first, a semantic literacy that creates a common basis for *Knowledge Sharing* regarding sustainability. And, second, an organisational literacy that defines the functional roles that are responsible for specific sustainability issues.

Alpha develops semantic literacy about sustainability-related values through a series of workshops and training sessions that educate employees on, for example, the carbon footprint, the circular economy and renewable energy. These sessions ensure that everyone – from factory workers to top executives – has a shared understanding of these terms and their relevance, giving them a shared language and knowledge base to communicate about sustainability. For example, when discussing product design, engineers and marketers are able to communicate effectively about how to minimise environmental impact, leading to more innovative and sustainable product solutions. However, one respondent reported that while higher-level ‘employees are engaged in defining and communicating new values in accordance with the language specificities in different departments’, workers at the bottom of the organisational pyramid face a linguistic barrier, as the values are communicated in English.

VERTICAL INTEGRATION: Top managers have a clear understanding of the cultural transformation undertaken by Alpha, in terms of both revised values and sustainability strategy. However, there is misalignment with the lower-level managers who autonomously interpret the changes imposed from above. For example, the top management has introduced a new policy to significantly reduce greenhouse gas emissions by 30% within two years across all operations. However, the interpretations of this policy by lower-level managers vary widely, leading to inconsistent implementations across the organisation.

An operational manager focuses primarily on reducing emissions through quick fixes, such as upgrading heating, ventilation and air conditioning systems as well as installing energy-efficient lighting. He does not, however, consider more comprehensive changes to operational processes or equipment that could lead to long-term emission reductions. A procurement manager interprets the directive as a mandate to source materials from suppliers who have certifications for environmental standards. A research and development manager views the directive as an opportunity to innovate and develop new products that use renewable energy sources.

However, all these employees are not coordinating with other departments, resulting in innovative solutions that are not necessarily aligned with current manufacturing capabilities or market demand. This misalignment leads to an inconsistent implementation of sustainability-related values to drive innovation, reducing the transformational impact of the cultural change across the organisation. The role of middle management becomes crucial to allow a smooth exchange of guidelines from top managers to lower managers, but they are lacking awareness about their decisive role.

REDUCTIONIST APPROACH: Despite its increasing awareness of the importance of sustainable innovation for competing in the current economic scenario, the company seems to have adopted a reductionist approach to sustainable innovation. By ‘reductionist approach’, we mean that the company treats sustainability as a secondary or incidental aspect of its innovation strategy rather than integrating it

as a core principle. This could be due to the company still being in the early stages of its cultural transformation and global energy transition. Key characteristics of the reductionist approach are the following:

- **SUSTAINABILITY CONCERNS ARE NOT A DRIVER OF INNOVATION:** In Alpha, sustainability concerns are not always the primary driver of innovation. Instead, it is often considered after the innovation process is complete, if at all.
- **POST-INNOVATION CONSIDERATIONS:** Sustainability considerations are incorporated only after the main innovation decisions have been made, rather than being a foundational part of the process.
- **MARKET-DRIVEN INNOVATION:** There is no proactive effort towards sustainable innovation that is independent of market demand. Economic variables – such as cost, marketability and profitability – are driving the company's innovation choices.
- **LACK OF HOLISTIC INTEGRATION:** Alpha has yet to achieve a holistic integration of sustainability concerns into its organisational culture and innovation strategies.

For instance, when the company's research and development department is tasked with developing a new product, its primary focus is on improving performance and reducing costs. The team designs and tests several prototypes without considering their environmental impact or potential sustainability benefits. After finalising the design, Alpha collects feedback from the market indicating a growing preference for sustainable products. In response, the company retrofits the innovation project's output with a few eco-friendly features, such as using recycled materials and improving energy efficiency. These sustainability-related features are added primarily because of market demand and potential economic benefits, such as better market positioning and compliance with emerging environmental regulations, rather than a genuine commitment to sustainability.

Thus, while the company does eventually incorporate some sustainable features into the product, they are not integral to the initial product development process. The focus remains on traditional economic drivers, confirming a reductionist approach. The company's innovation strategy is still far from being holistic, with sustainability considerations only addressed incidentally and in response to external pressures rather than as a proactive, integral components of innovation.

AUTHENTIC COMMUNICATION: The key challenge for communication in the context of sustainable innovation lies in balancing authenticity with ambition, effectively managing communication flows inside and outside the company.

The primary challenge for internal communication lies in mainstreaming values of sustainability across all levels and functions of the organisation. Not all employees are informed about sustainability-related initiatives, as only few of them have read the latest corporate sustainability report. This indicates a lack of awareness of and engagement with sustainability-related topics and the company's ongoing cultural transformation.

Externally, Alpha faces the challenge of crafting a green corporate image that promotes the reputation and legitimacy it needs to operate in the global energy technology market. A respondent highlighted the risk of reputational damage if ESG data are not communicated accurately and transparently, as this could lead to accusations of greenwashing. Additionally, with high CO₂-emitting products still in its portfolio, Alpha must ensure that it clearly communicates its efforts to improve its product mix, so that both employees and external stakeholders can register the progress being made. As the company strives to project its sustainable development efforts, it must carefully balance its current situation with its ambitious goals, ensuring that public statements are credible and backed by daily practice.

ORCHESTRATING STAKEHOLDER RELATIONSHIPS: Transforming both strategy and culture towards sustainable innovation requires fostering stakeholder relationships within the business ecosystem, particularly by *Engaging in Open Innovation* and *Engaging in Innovation Ecosystems*. In this context, Alpha is well integrated with major suppliers and energy customers, who have altered their business priorities in light of its ongoing energy transition and its disruptive impact on the energy market. By adopting sustainability as a core corporate value, the company has positioned itself as a leader of the energy transition and a role model for its suppliers and customers. Still, rather than resting on its achievements as an early mover in integrating values of sustainability into corporate management, it continues to learn from other more advanced incumbents.

For example, it benchmarks top players in the fashion and food industries as references for the depth of the cultural transformation they have achieved. However, even though the company is an inspiration for its partners, it cannot know whether their commitment to sustainability is genuine. Even though Alpha provides green products and services, it remains the clients' responsibility to determine how they utilise these offerings – and whether they choose to mainstream sustainable energy consumption in their own operations.

Establishing Practices from the Bottom-up: Alpha's operational transformation towards sustainable innovation is still a new and widely unexplored territory for the company. This becomes evident from the absence of sustainability-oriented *Management Systems* and associated methods to guide the implementation and evaluation of sustainable innovation. As a result, a wide variety of informal practices have emerged at the bottom level of the company, driven by individual employees' experiences and their trial-and-error approach to implementing the value of sustainability.

Despite their informal nature, these practices can be leveraged as foundations to establish new evidence-based practices throughout the organisation. For example, an employee, who was passionate about energy conservation, started an informal campaign to reduce energy consumption in his office building. The campaign, which focused on optimising thermostat settings, reducing unnecessary lighting and unplugging equipment after hours, led to significant savings and was successfully replicated across other locations. However, Alpha still needs to recog-

nise the potential of other similar bottom-up initiatives and establish them across the entire organisation.

BALANCING DIVERSITY: Alpha's diverse workforce is a unique and vital asset for the cultivation of sustainable innovation. The resourcefulness, sustainability focus and digital expertise of younger employees have accelerated the adoption of new manufacturing techniques and the integration of clean, smart technologies into production processes. Meanwhile, the deep industry knowledge and confidence of experienced employees have ensured smooth transitions from prototype to production, meeting all regulatory standards. The innovations introduced by younger employees, when validated and refined by the experienced team, have led to successful project outcomes.

However, when investigating the company, we found that the potential of intergenerational cooperation to foster sustainable innovation is still largely underutilised. The speed, creativity and sustainability mindset of younger employees has not yet been fully synergised with the experience and confidence of employees with long tenure. For example, recent engineering graduates and seasoned project managers with a track record of leading large, complex projects rarely work together on the same team.

8.3 Co-creating to Enhance Alpha's Innovation Strategy and Cultural Transformation

To address these challenges with co-creating, we worked closely with Alpha's IT branch and its senior managers. We selected a number of insights based on criteria such as current corporate interests and strategic alignment and specified the following two challenges to address:

- **PUSHING SUSTAINABILITY IN THE INNOVATION STRATEGY:** Despite growing awareness of the importance of sustainable innovation for the company's competitiveness, Alpha continues to adopt a reductionist approach to sustainable innovation. Sustainability criteria and KPIs are only used to evaluate innovation projects ex-post rather than from their outset. This means that sustainability is treated as a secondary or incidental factor, rather than being integrated as a core principle.
- **DEVELOPING THE OPERATIVE ASPECTS OF THE CULTURAL TRANSFORMATION:** The company's cultural shift towards sustainable innovation is still in its early stages, lacking the support of *Management Systems* and associated methods for implementing and evaluating sustainability initiatives. In response, a variety of informal practices have emerged at the grassroots level, driven by individual employee efforts and a trial-and-error approach. While these practices are informal, they represent an untapped potential for building evidence-based, formal sustainability practices across the organisation.

To address these two challenges to sustainable innovation, we devised two co-creating formats for targeted interventions: an ideation contest and an innovation impact assessment.

IDEATION CONTEST FOR NEW SUSTAINABLE INNOVATION PROJECTS

We started by launching a company-wide *Ideation Contest* to gather a wide range of sustainability-oriented ideas related to both products and processes, ensuring cross-functional participation and relevance for all corporate operations. This *Ideation Contest* addressed a noticeable lack of concrete actions from the bottom-up level in the field of sustainable innovation, beyond a few occasional initiatives where employees gathered to discuss the topic but did not follow up on their ideas. The contest aimed to foster a mindset shift and empower employees, especially from younger generations, to contribute freely to sustainable innovation, unbound by existing barriers, change resistance and the conventional business rationale.

To facilitate the process of collecting ideas from all employees interested in developing sustainable innovation projects and to enable out-of-the-box thinking, we defined an innovation funnel process, which was then taken up by a group of young talents. They initiated a platform for collecting ideas that addressed environmental challenges, such as water conservation, waste reduction and CO₂ emission minimisation. After the submission stage, a selection process determined the best ideas and granted the owners with a budget for the feasibility study, after which the idea could be sponsored.

The *Ideation Contest* provided an opportunity for employees to participate in sustainable innovation efforts without needing to be concerned by economic or decision-making limitations. The process encouraged collaboration between idea providers and managers in charge of the development of their idea, allowing employees to work on their ideas from conception to implementation. The first call for ideas collected almost 250 ideas, demonstrating a successful effort to integrate sustainability into the innovation process and reduce the reductionist approach to sustainable innovation.

The *Ideation Contest* enabled the evaluation, selection and sponsorship of bottom-up initiatives. It also positioned sustainability in technical and vertical projects at the very beginning of the process, countering the reductionist approach to sustainable innovation. Such a call for ideas is an informal way to stimulate a grassroots cultural transformation and sustainable innovation in a controlled environment, starting with the employees of a single company or a single branch, as in this case.

CO-CREATING AN INNOVATION IMPACT ASSESSMENT

The second co-creating measure focused on developing sustainability KPIs for *Innovation Impact Assessment*. Typically, when the technology readiness level of an idea or project is quite high, very specific KPIs can be applied during structured processes such as the technological and/or product development phases (TD/PD), where it would be possible to numerically quantify specific information (e.g. ma-

terials, production process, etc.). However, at the early stages of innovation, before the TD/PD phases, there is only a rough conceptual idea and quantification is not possible.

The reasoning on new customised KPIs considered that if sustainable innovation is to be introduced in the equation, for example, in the IT branch, the set of KPIs should be adapted over time with more elaborate indicators and thresholds. Following this approach, the *Ideation Contest* generated a first set of KPIs, applying them to other processes and divisions in order to set up general sustainability criteria as a minimum sustainability standard for the early stages of Alpha's innovation process.

The newly introduced *Innovation Impact Assessment* follows a dynamic iterative process. In a typical scenario, a project would begin a first round of evaluation, with sustainable KPIs with a low threshold level. The purpose of starting like this is to ensure that most initial ideas will meet the basic criteria, pass the first decision gate and gradually improve over time. In further evaluations, the KPI thresholds are set higher or with additional technical requirements, allowing the project to evolve. For example, in the first generation of sustainable projects, a KPI reassessment of ongoing projects is performed to increase thresholds and technical requirements. In the second generation of sustainable projects, higher KPIs arising from the experience of the previous generation of projects is set. This mechanism is then reiterated for the third, fourth and further generations of this type of projects.

As sustainable projects evolve, the KPIs for them are reassessed and adjusted, leading to higher thresholds and more stringent requirements in subsequent project development. This iterative approach ensures that sustainability criteria are incorporated throughout all innovation stages and with respect to all three sustainability dimensions: economic, environmental and social.

The introduction of the *Innovation Impact Assessment* is an iterative process, which requires parameters to be adjusted. KPIs are dynamic and adaptable, and they can be evaluated differently according to the project type. For instance, a project with high impact on social sustainability might have lower environmental or economic impact, but if social sustainability is a company priority, the social indicators will take precedence in the selection processes. Nonetheless, the *Innovation Impact Assessment* ensures that project evaluations are better informed and values-based, highlighting the crucial importance of implementing sustainability KPIs from the outset of innovation projects.

The co-creating process has spawned a methodology with a high degree of replicability that can be exploited in many enterprise typologies. A set of cards was developed to simplify the implementation of such methodology, exploiting a gamified approach to trigger cultural change toward sustainable innovation.¹¹ For instance, one card set, Formalising Sustainable Informal Practices, facilitates workshops to integrate informal sustainability initiatives into formal practices through an iterative, reflective process.

BUNDLING CO-CREATING EFFORTS TO DRIVE CULTURAL TRANSFORMATION

The co-creating measures in this case produced KPI guidelines for low-level managers to contribute to sustainable innovation and for middle and high-level managers to ensure that innovation efforts have a sustainable business impact. It became clear that establishing sustainability-related KPIs and embedding cultural changes is a gradual process, especially for companies just beginning their transition to corporate sustainability. Moreover, the case showed that sustainable innovation is constantly evolving in the energy technology industry, both as a concept and as a process. Regular reflection and re-evaluation of priorities is needed at least every six to twelve months, in order to align with the company's values and shifting market trends, while maintaining a focus on business outcomes.

One key lesson learned from collaboration with the company is how bundling different measures, such as the *Ideation Contest* and the *Innovation Impact Assessment*, can help synergise parallel efforts for greater impact. For example, the *Ideation Contest* needs indicators to evaluate the potential projects, which could then be used to become KPIs in an *Innovation Impact Assessment* of ongoing projects. The latter will enable optimisation of the KPIs, which will then feed back into new indicators for future contests, creating a cycle of continuous fine-tuning, customisation and learning.

Through the bundling of the two co-creating measures, the company was able to follow up on the sustainable innovation projects emerging from the bottom-up, opening the call to literally everyone in the company and making the process democratic, open and inclusive. This also marks a significant step towards cultural transformation, as sustainability is now not only part of the company's values but also enacted in practice, through its ongoing co-creating activities and the funds allocated to develop the most feasible and interesting ideas.

8.4 Key Takeaways

The sustainability transition is finally making its first significant steps globally, at different stages and in different forms. This is also true for energy technology companies, and the example in this chapter speaks for itself. These types of companies are a fertile ground for cultivating sustainable innovation. But for new values to take root, it is important to remember that ideas come from the ground up, a ground that first has to be fertilised, for example, by harnessing the expertise of lower-level managers.

The case study presented here demonstrates that the cultural transformation towards sustainable innovation is a complex and ongoing journey that requires concerted effort and collaboration across all organisational levels. Moreover, this transformation requires a re-evaluation of existing values and practices, which may have been contributing to unsustainable patterns of production and consumption, and the adoption of new mindsets that embrace innovation as a means to create positive environmental and social impact.

The process put in place by Alpha is highly replicable. The KPIs used in the *Innovation Impact Assessment* can be adjusted to any company's needs, the thresholds are variable and meant to be highly flexible in the first steps and become more binding later on. Likewise, *Ideation Contests & Markets* can be easily adjusted by any company and in any industry.

A key takeaway is that the cultivation of sustainable innovation is not only an opportunity for every energy technology company and its value chain, but also a necessity. In the case of Alpha, a big and initially hesitant energy technology company embraced the pathway of sustainability-oriented transformation. However, for this shift to have a lasting impact across industrial, economic and societal levels, the corporate value chains will need to overcome their hesitations too and follow in the steps of the big player. While the journey will be challenging, value chain players can benefit from the leadership and guidance of the Alpha company, which has already taken the first steps towards a more sustainable future.

