



INTERNAL MODEL — VALIDATION & EARLY DEPLOYMENT



National Grid Innovation

Overview

As the case of energy company National Grid (NG) attests, private, regulated companies can benefit when they integrate their internal RD&D initiatives to accelerate validation and early deployment. In this way, NG has successfully rebuilt their internal innovation mechanisms and demonstrated the key relationship between internal corporate structures and the external innovation and startup ecosystem.

ACTION:

Leverage a center of excellence to accelerate innovation and disruption

Challenge

Before energy companies can enact aggressive, long-term net-zero emissions policies, they may need to change the way their internal systems operate. This is a particular challenge for regulated companies such as utilities since innovation in that space has historically focused on cost and/or efficiency improvements rather than systemic disruption. Launching new innovative structures can sometimes conflict with a company's core business. At the same time, keeping a company growing while it moves toward its decarbonization goals often requires significant skills and resources as well.

Goals

National Grid (NG) has made a commitment to [reach net-zero carbon emissions by 2050](#). This includes an interim reduction target of 70 percent by 2030 and the enactment of a carbon price to help inform major investment decisions. The company understood that meeting these commitments would "disrupt" their legacy innovation model, requiring multi-level changes—like new internal structures that leverage centralized technical expertise for new business models and technologies across the entire organization. The goal is to shift the whole company's mindset when it comes to identifying and solving problems that arise from working toward decarbonization.



NG reorganized their strategic approach to innovation by building a separate team dedicated to investment and innovation and by embedding innovation activities across business units to ensure their alignment with corporate objectives.

Operational Overview

In 2017, NG decided to reorganize their strategic approach to innovation in two ways. They built a separate team dedicated to investment and innovation, and they embedded innovation activities across business units to ensure they were aligned with corporate objectives. This hybrid two-pronged approach recognized the importance of improving cost and efficiency within the core (usually regulated) businesses while also focusing company-wide efforts to understand, demonstrate, and implement new technology and business models.

In 2018, as part of this strategy, NG launched [National Grid Partners \(NGP\)](#), a \$250 million corporate venture fund that spearheads the company's disruptive innovation efforts. Led by a president who also serves as NG's Chief Technology and Innovation Officer, the [NGP team consists of about 40 people](#), including the employees running the venture fund, incubation, business development, fellowship, and an Innovation Center of Excellence. This team can most efficiently deploy new ideas across the organization.

NGP works to integrate two separate innovation efforts: sustaining innovation, led by engineering, technical, and regulatory specialists in each individual business unit and disruptive innovation, led by the Vice President of Innovation. This effort focuses on two main project areas: Performance and Growth.

Performance works to bring projects to the core business that will add significant value. These are typically later-stage technologies that still must be proven in some capacity. Sometimes, the company establishes key supplier partnerships to engineer and deploy a specific innovation. The Innovation Center of Excellence, an internal home base for innovation, often pulls together internal technical specialists to encourage better and more consistent outcomes with a clear methodology and approach. It also includes initiatives to help drive innovative skills and thinking across the organization. For example, NG selects specialists to spend 2–3 months working with an innovative startup or places a more senior leader on the board of an NGP portfolio company.

For Growth, the \$250 million fund invests in seed- through later-stage capital for strategic companies that could grow NG's business. In the current portfolio of twenty investments, about 75 percent are strategic, while the other 25 percent are at much earlier, "path-finding" stages. The focus of these investments is primarily on new and unregulated growth streams. NGP also participates in several fund of funds (FOFs) around the globe to gain insights into evolving technology and business models. Additionally, the team works on growth projects that will be spun out of National Grid outside of the fund.

Key Inputs and Resources

NG has about 22,000 employees in the U.K. and U.S. It is organized into a dozen business units, each of which has a technology group. Across all the business units, there are approximately 100 technical specialists—individuals with engineering, marketing, or operations backgrounds whose primary goal is to drive costs down, not necessarily innovate. Engaging these technical specialists is critical to shifting the culture of innovation at NG. For example, the Electricity Transmission business unit has a team of about 10 core technical innovation specialists that are responsible for building innovation back into their unit.



NGP has about 40 employees and an initial \$250 million investment fund with a specific mandate for renewable energy and to drive new revenue streams for NG. The Innovation Center of Excellence, headed by a new Vice President of Innovation, sits at the nexus of NGP's efforts to bring in disruptive innovations and technologies while still meeting the core business where it is. The center's suite of services and programs aims to bring employees into a more innovative environment, encouraging them to develop skills to make their home units more innovative and proactive as well.

Key Outputs

There are several desired outcomes for this new shift at NG: a) to “spin in” new technologies or products to NG from external sources, b) to develop innovative technologies internally, and c) to identify new technologies to “spin out” as new businesses separate from NG.

A successful example of the spin-in approach is NG's supplier partnership with Copperleaf, a growth startup and software optimization company. In 2016, NG tested and implemented Copperleaf's C55 Decision Analytics software to enhance its gas distribution infrastructure in the northeast U.S., and in 2018, NG selected C55 for its electricity transmission and gas transmission operations in the U.K. In 2019, NG [made a direct investment \(\\$10 million\)](#) from its VC fund. This cascading series of engagements across NG provided a product that saved tens of millions of dollars for NG along with an important investment opportunity. ([Read more here.](#))

All innovation projects across the business units and at NGP are summarized quarterly for review by the CEO and executive team. This helps ensure that new solutions are top-of-mind across NG and that appropriate pilots, demonstrations, and scale can happen efficiently.

Replicating for Impact

Senior leadership must drive innovation efforts, starting with the CEO. For example, NG's CEO oversees innovation efforts and [often speaks about NGP's new approach](#). Standardized reporting is also crucial: NG has company-wide innovation reporting from both internal and external sources to the CEO level.

While NG's approach is not entirely centralized, having a centralized platform or center of excellence with staff and resources is an important source of structural and operational change. Companies should be willing to invest significant resources internally and adapt to new management structures.

For broader success, internal RD&D investment should be part of a comprehensive approach. Companies should consider the entire life cycle of innovation and commercialization as they consider their emissions goals. Getting the linkage right between external investments and the core business is also critical. Companies that can work with academic partners or VCs have an advantage as well.