

Verbund X

# A Journey of Energy, Innovation and Collaboration

5 Years of VERBUND X Accelerator



# Introduction and Vision

As we celebrate five years of the VERBUND X Accelerator, I am grateful for the journey we have embarked upon together. What began as a bold vision to foster innovation and collaboration has evolved into a vibrant ecosystem where ideas flourish and transformative solutions take shape.

In these past years, we have welcomed a diverse array of startups, each bringing unique perspectives and technologies to tackle pressing challenges in the energy sector. Our commitment to nurturing these innovations is rooted in a core belief: that by leveraging external expertise and fostering strong partnerships, we can accelerate the pace of technological advancement and drive meaningful change.



Michael Strugl  
CEO VERBUND AG



The VERBUND X Accelerator (VXA) is a dynamic platform designed to connect VERBUND Business Units and corporate partners with innovative startups and scaleups. VXA actively engages with these innovators to accelerate the development of technologies and novel business models in the energy and infrastructure sectors. The heart of VXA is a biannual program that starts with collaboratively identifying search fields and use cases and progresses into executing a pilot project.

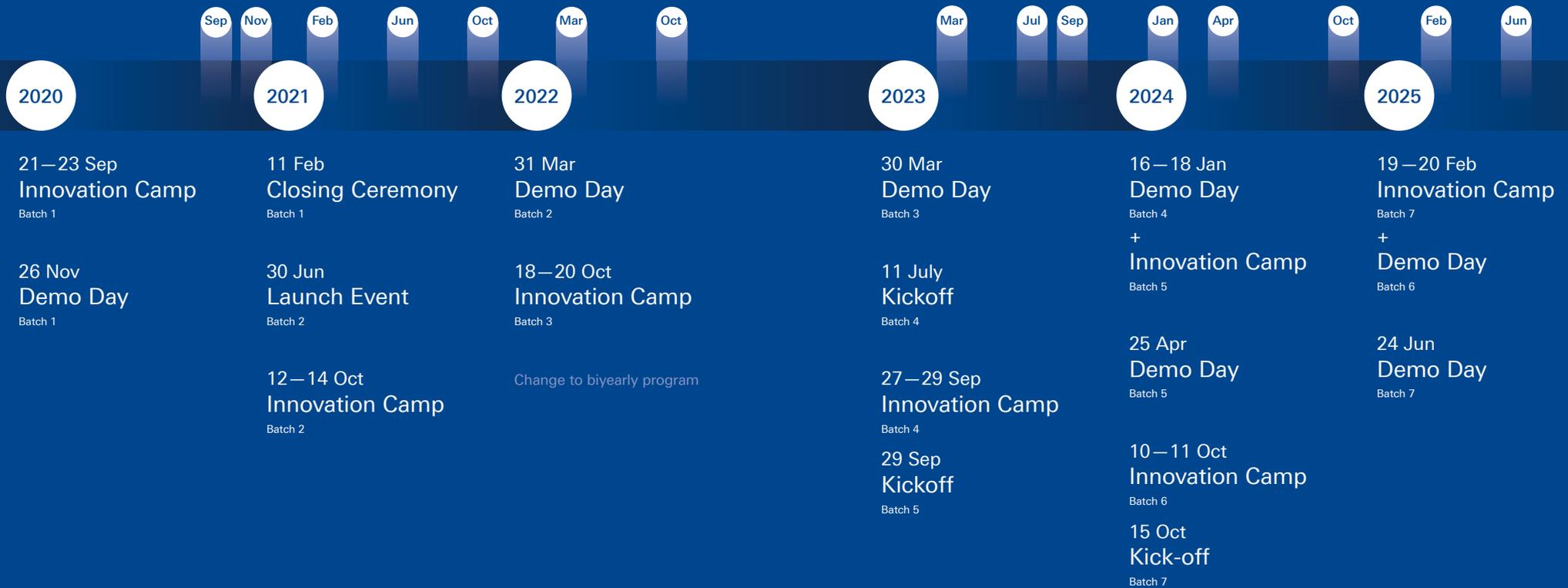
Throughout the program, targeted events provide opportunities for stakeholder engagement and serve as critical decision points. Ultimately, successful pilot projects pave the way for long-term collaboration between the startups and corporate partners.



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# Timeline



## Facts & Figures



### Impact Highlights:

- 30% of successful pilots led to long-term collaborations
- 15 countries represented by participating startups
- Startups gained access to follow-up investments and corporate deals
- Accelerated time-to-market through real-world testing
- New revenue opportunities for both startups and business units

### The Accelerator Startups' countries of origin:

Austria, Belgium, Canada, Denmark, Finland, France, Germany, India, Israel, Netherlands, Portugal, Romania, Sweden, Switzerland, United Kingdom, USA



# Charting the Past, Shaping the Future

## A Conversation on the VERBUND X Accelerator

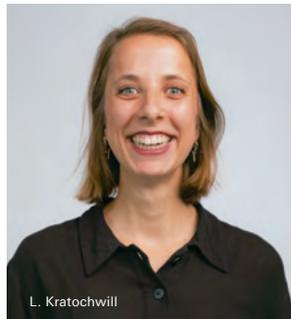
What started 2020 as an internal initiative has grown into an international, multi-corporate innovation platform: the VERBUND X Accelerator (VXA). As the program celebrates its fifth year, we sat down with three of VXA's key drivers—Franz Zöchbauer, Director Corporate Innovation (HX) and Co-founder, Edward Feltmann, Co-founder and first program-lead, and Lisa Kratochwill, current lead—to reflect on the journey, lessons learned, and the road ahead.



F. Zöchbauer



E. Feltmann



L. Kratochwill

### Franz, let's begin with the early days. What initially motivated the launch of VXA?

F: The origins go back to a time before HX existed. I had the chance to participate in the Free Electrons Program, and that experience showed me how powerful structured startup collaboration can be for a corporate like VERBUND. It was a real eye-opener. One of our first projects after founding HX was to join the EDP Starter Program as a corporate partner in 2019. It was clear to us: we wanted to build something ourselves—something that brought this international energy into VERBUND and gave startups access to real problems and real partners. That's why we decided right from the beginning to make it a multi-corporate program. At VERBUND, we call our innovation approach the 'Innovation Symphony', which means working closely with both the internal and external innovation eco-system. That's why designing the program as a multi-corporate initiative was a key priority for me. We believed that combining the perspectives and needs of several companies would make the platform richer and more resilient—and that has absolutely proven true.

### Ed, you played a central role in turning this vision into reality. What do you remember from those early operational steps?

E: For me the real kick-off happened during an intrapreneurship program in 2018. There was a shared feeling that VERBUND's startup collaboration needed to be centralized and made strategic. Things were too fragmented. So, a group of us began building the framework that would become VXA. The first real test

came with Batch One, which launched right as the pandemic hit in March 2020. Not exactly ideal timing! But we created a theme, "Infrastructure of the Future," which helped rally both startups and partners. We ran the entire first batch virtually, proved it could work, and even launched several pilots. That set the tone for everything that came after.

### What were some of the biggest challenges along the way?

E: Managing multiple partners in a single batch was one of them. We quickly learned that more than ten partners becomes very difficult to coordinate. Another challenge was the legal setup in the beginning—in hindsight, we should have outsourced that. But most importantly, we saw that just running a pilot isn't enough. We needed mechanisms to help those collaborations mature into real long-term partnerships.

### Franz, anything you would've done differently?

F: We've learned a lot over our five-year journey with the VXA. There was even a year when we participated in the EDP startup program while also launching our own VXA program. Looking back, that was probably a bit too much at once—especially during the pandemic, when we were all working from home. For me, the top priority has always been to unlock the full potential of innovation at VERBUND by connecting our business units with outstanding startups. The goal isn't just to run pilot projects or PoCs—it's to actually implement and scale the solutions within the business units. Turning innovation into real impact—that's what truly matters.

Lisa, you took over the leadership of the VERBUND X Accelerator in late 2024.

**What were your first experiences stepping into the role?**

L: When I stepped in, I saw not just a well-functioning program, but a platform with huge untapped potential. One of my first steps was meeting with a wide range of stakeholders—from startups and internal teams to partners and decision-makers. It was energizing to hear how positively they spoke about the program. But what also stood out was how aligned many of the challenges were: identifying real business needs, getting the time commitment from units, and navigating legal frameworks where corporate and startup logic don't always match. These tensions aren't easy to solve, but it also shows the scale of impact we can have if we get it right.

**What's your vision for the program moving forward?**

L: My vision is to build on the momentum by strengthening two main pillars: first, the global perspective—continuing to attract international startups and partners, and second, increasing strategic flexibility in how we work with both. We're entering a new phase where speed, adaptability, and depth of collaboration matter more than ever. That means refining how we support pilot projects, improving decision-making points, and creating formats that respond to real market needs. And all of that with one clear goal: accelerating the energy transition through technology, partnerships, and bold experimentation.

**What role does VXA play in VERBUND's broader innovation strategy?**

F: It's a key engine for external innovation. Through VXA, we connect startups with real-world challenges from across VERBUND and help them grow beyond the pilot stage. And with our partner network, we're building a pan-European innovation space that brings together scale-ups, corporates, and research institutions. The unique value of VXA is that it acts as a bridge—between ideas and execution, startups and corporates, vision and action. We're not just scouting startups—we're shaping a collaborative ecosystem where new solutions can be tested, scaled, and eventually transform the energy system.

**If each of you had to name one highlight from the VXA journey so far—what would it be?**

E: For me, it's seeing the program thrive under new leadership. Knowing that it's not just a one-time initiative, but something sustainable and evolving—that's incredibly rewarding.

L: And for me, it's the energy of the community. Every Innovation Camp, every Demo Day—you feel the creativity, the ambition, and the willingness to challenge the status quo. That's what drives us forward.

F: For me, the highlight of five years of VXA is that we've managed to build a powerful innovation ecosystem that goes beyond company and country borders. Our goal now is to take this ecosystem to the next level in the coming years—and we're already working hard to make that happen.

## Project Overview

Success in innovation relies on building long-term partnerships and systematically testing hypotheses to validate or reject them. It also involves quickly identifying whether a technology or company requires further development and gaining knowledge and market insights that can be leveraged in the future.

Below is an outline of projects from the past five years, highlighting the diverse topics and outcomes that VXA focuses on, demonstrating that success can mean many different things.

# Green Mobility

Green mobility refers to sustainable and environmentally friendly transportation solutions aimed at reducing emissions and reliance on fossil fuels. It is being transformed by Vehicle to grid/X (V2G/V2X) technologies, which enable vehicles to act as energy storage systems within the grid. Key trends include the standardization of charging communications, the rise of autonomous driving through AI and vehicle-to-vehicle communication, and the shift to faster DC charging for the increasing number of electric vehicles.

- Rising market share in the EU**  
 In 2024, 13.6% of new car registrations were BEVs, compared to 6% in 2018.
- Increasing electrification**  
 EU Green Deal ban on combustion engines starting 2035.
- Low Emission Zones**  
 The number of low emission zones in the EU is increasing, potentially exceeding 500 by 2025.
- Environmental Awareness**  
 24% of respondents are considering buying an EV.
- Openness to Sharing**  
 In 2024, 43% of Germans used sharing services like carsharing, bike rentals, or e-scooters.



<b>Search field</b>	Vehicle 2 Grid
<b>Partners</b>	VERBUND Energy4Business & Electric Miles Ambibox
<b>Goal</b>	The project aimed to find a startup capable of managing the entire V2G (Vehicle-to-Grid) chain, allowing seamless integration of smart charging and discharge processes.
<b>Outcome</b>	The project revealed the importance of hardware and standard protocols, leading to a successful partnership with Porsche and Moon that led to a follow-up project on Technical Aggregation. Key learnings included identifying necessary stakeholders and realizing the complexities involved in implementing V2G solutions.

<b>Search field</b>	Predictive load management for charging points
<b>Partners</b>	VERBUND Energy4Business & Ogre AI
<b>Goal</b>	The project aimed to develop a forecasting model for electric vehicle charging stations, in collaboration with SMATRICES, to optimize balancing energy costs.
<b>Outcome</b>	The PoC has been completed, and the project is progressing to the next phase, continuing the collaboration between VERBUND and Ogre AI.

# Sustainable Energy Production

Sustainable energy production aims to generate power with minimal environmental impact. Solar energy costs are expected to keep falling, positioning it as the most cost-effective technology. While wind energy's complementary timing will enhance its importance, with both sectors benefiting from optimizations that reduce costs and increase efficiency. Hydropower will become more efficient through digitalization, and hydrogen is projected to grow by about 5% annually until 2030, with significant long-term growth expected. Emerging markets like geothermal energy are under development.



- Renewable Energy Expansion**  
 Europe plans to build 700 GW of renewable capacity by 2030, with 70% driven by solar power. Renewables are projected to constitute 42.5% of the EU electricity mix by 2030.
- Fossil Fuel Independence**  
 Independence from fossil fuels is a key driver of sustainable energy production. Ensuring supply security and affordability are essential drivers.
- Comprehensive Solutions**  
 Growth through integrated solutions in PV, battery storage, and e-mobility.
- Net-Zero Industry Act**  
 Aims for 40% of net-zero tech demand to be met through local production and a 50 million ton carbon storage capacity.

**“Innovation thrives when ideas are brought into the field, transforming concepts into real-world impact.”**

Rudolf Zauner, VERBUND Corporate Innovation

<b>Search field</b>	<b>Next Level PV: Agri-PV</b>
<b>Partners</b>	<b>VERBUND Green Power &amp; Insolight</b>
<b>Goal</b>	Exploring the feasibility of Agri-PV systems by utilizing semi-transparent photovoltaic modules, allowing light to reach plants while generating electricity, especially where VERBUND faced challenges with free-field solar installations.
<b>Outcome</b>	The market direction ultimately favored traditional photovoltaic modules with increased height and spacing over the innovative semi-transparent approach.
<b>Search field</b>	<b>Next Level PV: Floating PV</b>
<b>Partners</b>	<b>VERBUND Green Power &amp; Swimsol</b>
<b>Goal</b>	Evaluating the feasibility of implementing innovative technology for reservoirs, focusing on potential locations for floating installations.
<b>Outcome</b>	Although a suitable site was not found due to economic viability concerns—particularly the emptying of water every 10 years—the technology remains of interest.
<b>Search field</b>	<b>Micro Wind Turbines</b>
<b>Partners</b>	<b>ASFINAG &amp; Flower Turbines &amp; LuvSide</b>
<b>Goal</b>	Advancing the deployment and evaluation of micro wind turbines in collaboration with various industries, including exploration of cross-industry synergies.
<b>Outcome</b>	The project is currently in the evaluation phase, leading to a decision for further development and street deployment.
<b>Search field</b>	<b>Alternative forms of energy generation</b>
<b>Partners</b>	<b>Austrian Post &amp; Heliatek</b>
<b>Goal</b>	Exploring and developing alternative forms of energy generation.
<b>Outcome</b>	The startup develops an extremely lightweight, flexible, and fully sustainable solar film, that can easily be applied to various surfaces without drilling, like a “sticker”. After a planning phase, an implementation is projected in the near future.
	Initially VERBUND was not involved, but it eventually started collaborating with the startup and is integrating the setup into a training workshop. The project is innovative with a lower CO2 footprint compared to photovoltaic (PV) systems. There are market opportunities for this less efficient yet environmentally friendly solution.

# Flexibility and Energy Storage

Flexibility and energy storage are vital for integrating renewables and ensuring grid stability. Future wind and solar projects will need on-site grid-level storage, with opportunities in scaling software and hardware solutions. Long-duration storage alternatives to lithium-ion should be considered for over 12-hour needs, with competitive options by 2030. Home Energy Storage Management (HEMS) will rise in importance. Grid investments will enhance stability, and AI will drive optimization, particularly as data centers increase electricity demand.

- Expansion of Wind and Solar**  
 This growth necessitates increased grid and flexibility capacity.
- Substantial Grid Investments**  
 Over \$3 trillion in global investments are anticipated by 2030.
- Rising Demand for Storage**  
 Out to 2030, the global energy storage market is bolstered by an annual growth rate of 21% to 137GW/442GWh by 2030.
- Green Hydrogen Growth**  
 Consumption of green hydrogen in the EU is expected to grow from 9.7 million tons in 2023 to 20 million tons by 2030. The EU Hydrogen Strategy targets to produce and import 10 million tons each of hydrogen by 2030.

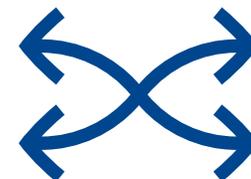
**“A heat pump is not just handiwork; it’s brain work. It requires innovative thinking and strategic planning to optimize energy efficiency. The Accelerator gave a push to the topic and helped build up knowledge through collaboration with the startup.”**

Michael Schramel, VERBUND Energy4Business

<b>Search field</b>	Hydrogen
<b>Partners</b>	VERBUND HX & Integrated Bioprocess Development Group TU Wien
<b>Goal</b>	Exploring alternative methods for electrolysis in the production of green hydrogen, initially developing the concept in theoretical form.
<b>Outcome</b>	The project advanced to the stage where calculations and a master’s thesis were completed, revealing significant safety obstacles and associated costs, particularly with the dangerous combination of hydrogen and oxygen. These factors led to the project’s termination, though valuable insights were gained regarding technological limits.

<b>Search field</b>	Innovative Energy Storage
<b>Partners</b>	VERBUND HX, OMV & Kraftblock
<b>Goal</b>	Leveraging the VXA network to involve key stakeholders in energy storage projects alongside internal scouting, aiming to identify feasible use cases for Mellach.
<b>Outcome</b>	The project focused on energy storage with an eventual emphasis on thermal storage. Unfortunately, the feasibility study for the Thermal Power Plant in Mellach showed that at this point it would be economically unfeasible.

<b>Search field</b>	Heat Pumps: Retrofit technologies & services and innovative hardware (B2C)
<b>Partners</b>	VERBUND Energy4Customers & lun
<b>Goal</b>	The initiative originally aimed to implement large-scale heat pump projects along the Danube, with an alternative focus suggested on heat pumps for single-family homes.
<b>Outcome</b>	The collaboration with the startup lun brought innovation and increased internal pressure for change, supported by discussions on investment opportunities. The project highlighted the need for VEC to adapt for prototype testing amid market changes and funding booms.



# Digitalization

Digitalization and AI are reshaping the energy sector by boosting efficiency, optimizing resources, and enabling smarter energy management. With real-time data and machine learning, digital tools improve energy production, distribution, and consumption—allowing for more accurate forecasting and grid control. This transformation supports the energy transition by increasing system flexibility, cutting costs, and enabling the smooth integration of renewables—driving progress toward a cleaner, more resilient energy future.

**“There was a longstanding hypothesis about the strong impact of public news data on energy trading, but through our collaboration with the startup we found only limited support for it. This realization has strengthened our collaboration with the trading team and allows us to redirect resources for further developments more effectively.”**

Kurt Fritz, VERBUND Energy4Business

- **Growth of AI in Renewable Energy**  
The market size of AI applications in the renewable energy sector is expected to approach EUR 11 billion by 2032.
- **Data Center Energy Demand**  
Global power demand from data centers will increase by 50% by 2027 and by as much as 165% by 2030, driven significantly by AI applications.
- **Grid Management**  
Digital technologies and data hold tremendous potential to forecast and match electrical supply and demand, thereby cutting costs, improving efficiency and resilience, and reducing emissions.
- **AI Adoption in Energy Sector**  
Nearly half of senior energy professionals plan to integrate AI-driven applications into their operations within the next year, indicating a rapid digital transformation in the energy industry.

<b>Search field</b>	<b>Energy Management Forecasting</b>
<b>Partners</b>	<b>VERBUND Energy4Business &amp; Origami Energy</b>
<b>Goal</b>	Development of an Energy Management Forecasting System with real-time monitoring to quickly react to forecast deviations, integrating with existing processes.
<b>Outcome</b>	Although the proof of concept (PoC) was not continued, the decision was made to proceed internally, leading to the successful development of internal competencies. The external input helped shape the system architecture. The tool also became integral to other projects.
<b>Search field</b>	<b>Digital Solutions for Industrial Energy Management</b>
<b>Partners</b>	<b>VERBUND HI &amp; Campfire Solutions / Gnista</b>
<b>Goal</b>	Developing a solution for data streaming and live simulation/visualization from the edge for industrial clients.
<b>Outcome</b>	The project failed since no tangible results could be generated. The experience underscored the importance of quickly identifying non-viable projects (“Fail fast”), enhancing future project evaluations.
<b>Search field</b>	<b>Advanced Data Analytics for Wind farms &amp; PV plants</b>
<b>Partners</b>	<b>VERBUND Green Power &amp; SmartHelio</b>
<b>Goal</b>	Developing a comprehensive cloud-based data processing system for PV plants, focusing on data sourcing and integration of external software.
<b>Outcome</b>	The proof of concept was successfully validated at smaller test installations, demonstrating high satisfaction with technical performance. Ongoing operational testing will determine whether the software costs justify scaling up by assessing them against potential cost reductions.
<b>Search field</b>	<b>Generative AI applications - Energy Market Intelligence</b>
<b>Partners</b>	<b>VERBUND Energy4Business &amp; YUKKA Lab</b>
<b>Goal</b>	To analyze the informational content of news data for predicting price developments and supporting trading through an AI assistant, with an emphasis on identifying potential impacts of news events on prices.
<b>Outcome</b>	Through the collaboration a model for analyzing commodity-specific impacts on electricity prices was developed. After the PoC phase, it was concluded that news had a limited influence on trading decisions, leading to the project’s end.

# Lessons Learned and Challenges

The VERBUND X Accelerator has been a dynamic environment fostering innovation and collaboration. Over the years, participants encountered various challenges and learned key lessons that have been instrumental for their growth.

**“VXA offers a good overview of startups, even for very specialized use cases. Solutions that have at least reached the prototype stage are of interest to us.”**

Bernd Hollauf, VERBUND Hydro Power

**“Though the startup wasn’t the right fit, participating in the Accelerator led us to address the challenge with greater focus.”**

Thomas Frank, VERBUND Hydro Power

## Partnerships

Successful projects often benefit from external expertise through startups, which helps refine decision-making processes and system architecture. Strong partnerships drive projects with clearer focus and direction, leading to tangible technological advancements.

## Flexibility

Need for longer decision-making periods to avoid artificial pressure and maximize project potential. Flexibility in timelines can lead to more thorough exploration and evaluation of potential solutions.

## Failure Culture

Innovation thrives in an environment that embraces failure as a learning opportunity. The courage to terminate non-viable projects is a critical part of this culture. This mindset not only conserves resources but also opens pathways to more promising ventures.

## Corporate Culture

Integrating innovative solutions within a corporate structure presents challenges due to ingrained priorities and slower decision processes.

## Expectations

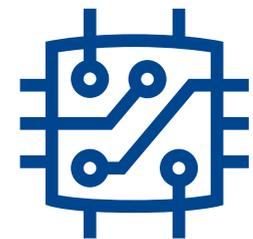
Some projects facing difficulties in achieving a satisfactory return on investment, which impacted their scalability and continuation. Aligning startup agility with corporate expectations can be challenging.

**“Innovation also requires the courage to terminate a project when necessary—this is an essential part of a healthy culture of failure, which doesn’t view setbacks as defeats but as steppingstones to better solutions.”**

Franz Eisner, VERBUND Energy4Business

**“Failing fast means quickly testing ideas to identify what works and what doesn’t. It’s not necessarily a sign of failure but a strategic approach. The strength of failing fast lies in its ability to swiftly differentiate between potential and promises yet to be fulfilled.”**

Hans-Linus Pfau, VERBUND Digital Power



## Partner Insights



“The VERBUND X Accelerator stands out for its tremendous commitment and forward-looking choice of topics. All relevant stakeholders—from established companies to innovative startups—are seamlessly integrated and can collaborate effectively. The result is a program that is always in tune with the times and delivers sustainable outcomes.”

Christian Huter  
Innovation Manager, OEAMTC



“Every search field at VXA was an exciting journey of discovery for us. Thanks to the structured support—from defining the scope to the in-depth discussions with selected startups—we were able to make well-informed decisions and unlock new innovation potential.”

Gilles Amberg  
Manager at Group Innovation, Axpo



“Participating in the VERBUND X Accelerator enabled us to develop innovative solutions together with startups like RoBoa and neoom. The exchange—both with VERBUND and its partners, as well as internally with innovation-driven employees—provided valuable momentum for greater digitalization, sustainability, and efficiency in real estate operations.”

Roma Kaur  
Corporate Strategy Consultant, BIG



“The collaboration between OMV and the VERBUND X Accelerator was inspiring from the very beginning, marked by open exchange and innovative approaches.

What impressed us most was the potential and added value that cooperation between startups and established companies can unlock. As an early partner, we’re proud to have been part of this journey. Through the collaboration, we gained numerous valuable insights that we can now strategically apply to future projects and use in a sustainable way.”

Karin Tonhauser  
Senior Expert Innovation Scouting, OMV



“I experienced the collaboration with the VERBUND X Accelerator as open and supported by a positive network. What stands out most are our projects in the field of CCUS—they delivered real proof of concepts and demonstrated what’s possible. My biggest takeaway: collaboration between industry and startups holds tremendous potential—and corporates can indeed act quickly and adaptively when they truly want to.”

Juan Rosenzweig  
Innovation Manager, RHI Magnesita

## Impressions





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