



**SUCCESSING
IN TIMES
OF SUSTAINABLE
DEVELOPMENT
GOALS AND
“NET-ZERO”
AMBITIONS:
AN ECOSYSTEM
STRATEGY
PLAYBOOK**



SETTING THE STAGE



The decarbonization of the electricity sector is one of the central pillars in the global effort to tackle climate change. The United Nations has promulgated the Sustainable Development Goals (SDGs), many of which are related to mitigating climate change (shown above). Together they provide a set of aspirations that firms within the electricity sector should align their long-term priorities (e.g. net zero emissions). Progress on these SDGs within the electricity sector has been promising, namely through the increasing uptake of renewable generation, stationary energy storage, and complementary digital management and control technologies. Innovations in these new technologies often originates from new entrants and startups, attracted by the growing market opportunities and increasing the breadth of solutions available to achieve climate-related SDGs [1]. Complementary to such new players are incumbent electric utilities who play a central role in electricity industry decarbonization, as they often have attained large market shares, and control critical infrastructure [2]. However, they face the innovator's dilemma [3]: customers demand reliable, safe and cost-efficient provision and retail of electricity, however, multiple stakeholders are calling for utilities to incorporate a wider set of climate-related criteria. Given the asset-intensive legacy of these incumbents and its enabling business model, it is generally challenging for them to innovate on their own at the scale and velocity necessary to achieve climate-related SDGs. In response, managers are encouraged to “widen their lens”, adopting ecosystem strategies that combine multiple complementary offerings into coherent value propositions by coordinating with heterogenous actors [4]. Failing to consider the broader ecosystem might not only limit progress on SDGs but may also limit firms' prospects of creating and capturing value in the future [5].

THE ECOSYSTEM STRATEGY PLAYBOOK

To make the most of what an ecosystem strategy may offer to new entrants and incumbents in the electricity sector in meeting an expanded set of performance criteria such as a “net-zero” ambition, a three step approach is recommended: (1) Understand the world of ecosystems, (2) Map ecosystems that align with climate-related SDGs (3) Choose your ecosystem strategy.

Step 1: Understand the world of ecosystems

Research Context & Design

Since 2016 the authors have conducted research on ecosystems and climate-related SDGs in the context of Free Electrons - a global open innovation program (see [6] for more on open innovation), co-owned by 9/10 electric utilities from around the world. Annually, the utilities select 12-15 startups out of ~500 applications into a 6-months open innovation program. The fact that 33% of the selected startups have appeared on the SET100 list, 25% on the Cleantech 100 list, and one was a finalist of the prestigious Earthshot Award, is a preliminary indication that the program indeed attracted startups with the solutions relevant for fulfilling climate-related SDGs. Throughout the program, utilities and startups jointly experiment with nascent ecosystem strategies in the form of collaborative pilots. Thus, it offers a well-suited setting for investigating novel ecosystem strategies and their contributions to climate-related SDGs. We collected primary (interviews) and secondary data (non-public documents, expert ratings) in four editions of the program from 2017 - 2020 inclusive, totaling 57 *different* pilots with 57 startups. Based on publicly available information, we collected ratings of each pilot’s potential to contribute to climate-related SDGs from twelve large, globally focused impact, and climate-tech venture capital firms (average fund size ~ 1 bn), whose vocation is evaluating the economic and SDG potential of startups. We analyzed the data with a rigorous 3-step research design including a set-theoretic qualitative comparative analysis approach.

As a first step, managers should understand the transition from a world of linear value chains towards a world of ecosystems as outlined below and illustrated with figures adapted from [7].

From linear value chains ...



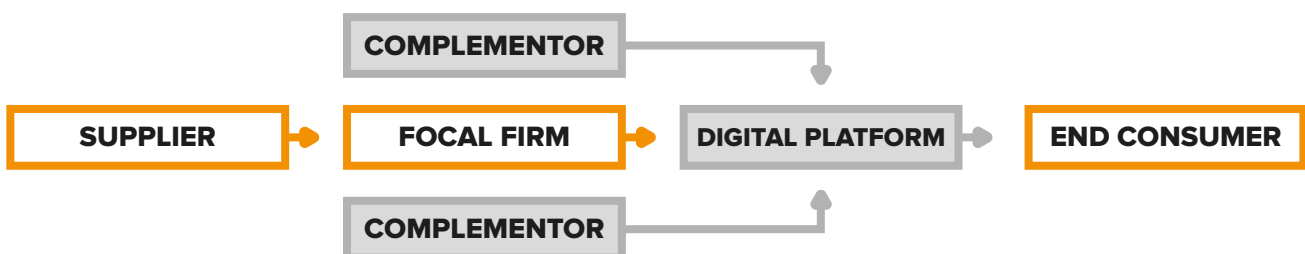
The traditional value chain focused on how firm may bundle and assemble components into products or services for their customers and on the power dynamics along this linear chain.

... to innovation ecosystems ...



The innovation ecosystem concept, instead, focuses on how firms can coordinate around complementary products or service that, combined, offer a superior value proposition for the end consumer. These complementarities often play out across sectors. For instance, a more comprehensive network of charging stations increases the value of an electric vehicle. However, while firms need to coordinate to ensure this complementarity (e.g. standardization across information systems for vehicle, payment, and grid integration ease), the end consumer decides how to combine the products or services (e.g. which EV to buy and which charging stations to use).

... and digital platform ecosystems



Innovation ecosystems are often mediated by digital platforms which allows a focal firm (also called “orchestrator”) to control the transactions between end consumers and complementors. For instance, iPhone users buy apps from complementors through the Apple app-store.

Step 2: Map ecosystems that are required to realize climate-related SDGs

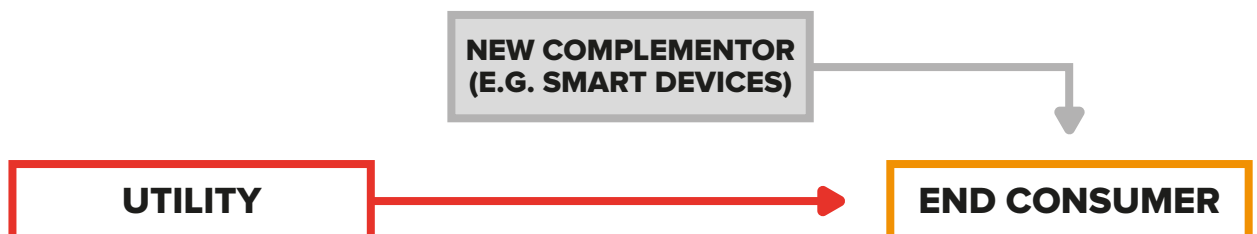
As a second step, managers ought to map: (1) the current ecosystem configuration; and (2) alternative sets of future ecosystem configurations that could meaningfully address climate-related SDGs. A wide set of stakeholders such as regulators, capital providers and civil society - in addition to existing customers - are increasing the pressure on firms to act in alignment with these SDGs. In the long-term, firms that rely on business models or position themselves in ecosystems that do not align with climate-related SDGs will struggle to create and capture value and face the risk of losing their social license to operate. The early adoption of SDG-aligned ecosystem strategies offers firms the chance to develop a sustained competitive advantage. There are three ecosystem archetypes have the highest potential to contribute to climate-related SDGs.

From a linear electricity value chain to an ...



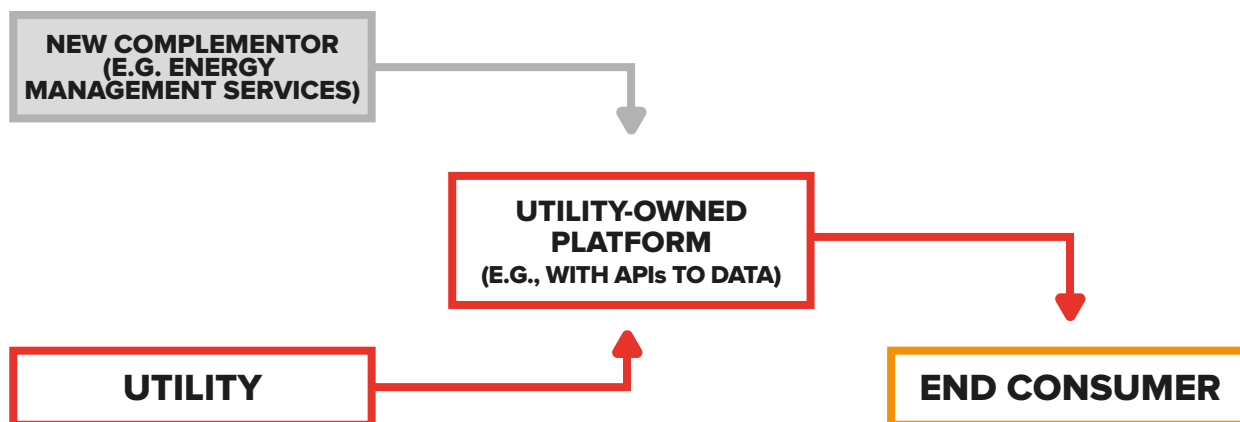
In the traditional model, utilities generate electricity and sell the electricity to their end consumers.

1 ... arms-length ecosystem that allows the scaling of renewables



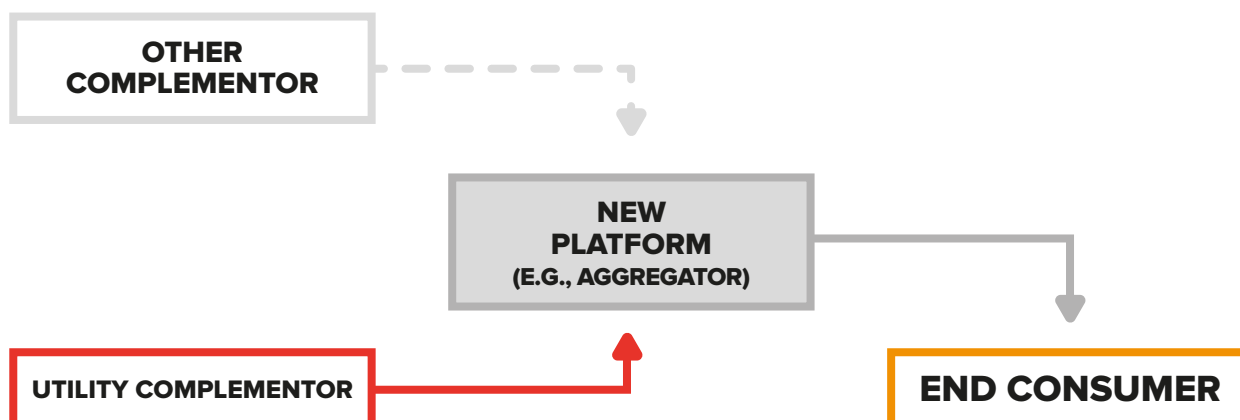
To accelerate the scaling of renewable electricity (for example), an ecosystem needs to emerge in which new specialized players offer complementary products or services to the end consumer that balance demand with variable supply of electricity. Accordingly, incumbent electric utilities will then need to coordinate this ecosystem as they control the necessary data and customer access.

2 ... digital platform ecosystem that enhances resource efficiency



While new climate-tech players develop data analytics solutions, incumbent electric utilities have access to the data that is required by - and the customers that can benefit from - these solutions. Thus, to leverage the full potential of these solutions in terms of enhanced resource efficiency, another type of ecosystem needs to emerge in which incumbent electric utilities provide third parties – i.e. customers and solution providers - access to each other through an existing (or to be developed) digital platform. The utility in this case enables value creation through developing standardized connectivity between suppliers and consumers of offerings, while not necessarily controlling the end portfolio of offerings ultimately chosen by a customer.

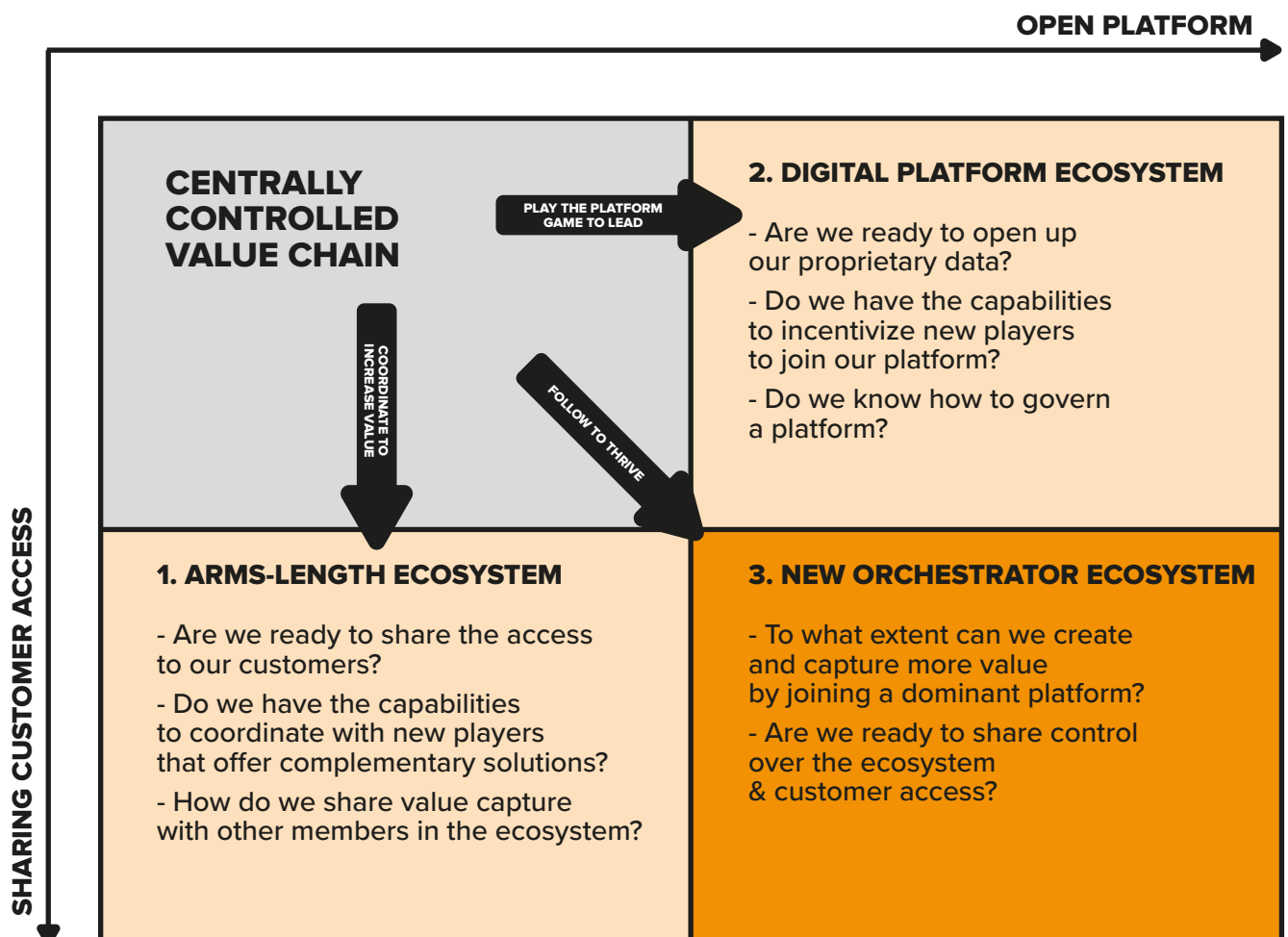
3 ... new orchestrator ecosystem for trading, sharing, and leveraging information



Third, to trade, share, and leverage information and resources, a third type of ecosystems needs to emerge in which new players – either digital natives or digital startups – will develop a dominant platform that bundles the complementary products and services from utilities and other players. Here, a new player assumes the platform orchestrator role enabling the necessary speed and scale that can only be achieved by firms that are free from legacy assets or business models. Consequently, in contrast to the previous two ecosystems in which the incumbent electric utility remains the central orchestrator of the ecosystem, here the incumbent will become a complementor at the periphery of the novel ecosystem.

Step 3: Choose your ecosystem strategy

Mapping the ecosystems that are required to realize climate-related SDGs provides managers with an opportunity to assess strategic options regarding how to position their firms in these ecosystems. The ecosystem strategy matrix (below) visualizes three strategic options and highlights the most important strategic considerations for each.



First, firms can coordinate with third-party complementors to increase the value for the end customer in an arms-length ecosystem. This strategy requires firms to share customer access, set up effective coordination principles with third-party complementors, and find arrangements of how to divide the value captured among the players in the ecosystem.

Second, firms can “play the platform” game to lead a digital platform ecosystem that enhances resource efficiency. This requires them to open up proprietary data through a platform, incentivize complementors (and customers) to join the platform, and set up an effective platform governance.

Third, firms can follow a new digital platform player to thrive as a complementor in a new orchestrator ecosystem. This requires firms to consider if joining the dominant platform will lead to higher value creation and capture opportunities for the firm compared to building its own platform. Then, incumbent firms need to assess if they are ready to share leadership and customer access.

Following these strategic considerations, firms need to decide (1) which ecosystem strategy to pursue (first), (2) which capabilities to build in order to succeed, and (3) which partners to collaborate with.

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ABOUT THE AUTHORS



Stephen Comello is a Lecturer in Management, and the Director of the Energy Business Innovations focus area at the Stanford Graduate School of Business. His work is situated at the intersection of economics, systems analysis, and innovation management. Broadly, he researches the effects of financing structures, business models, innovation strategy, and public policy on the development and deployment of low-carbon energy and environmental solutions. (scomello@stanford.edu)



Ann-Kristin Zobel is an Associate Professor of Management at the Institute of Management and Strategy at the University of St. Gallen. In her research, she investigates how firms search for and absorb knowledge residing outside their boundaries, how they coordinate and govern more complex multi-party collaborations, and how they capture value in a collaborative innovation setting. (ann-kristin.zobel@unisg.ch)



Lukas Falcke is a Research Associate and doctoral student at the Institute for Strategy and Management at the University of St. Gallen. In his research, he combines insights from information systems management (digital technology architectures, digital platforms) and collaborative innovation (innovation ecosystems, platform ecosystems) to investigate how firms collaborate and co-innovate for digital and low-carbon innovations. (lukas.falcke@unisg.ch)



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