

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Management - Advanced Executive from the Nova School of Business and Economics.

**STEERING LARGE ORGANIZATIONS TOWARD INNOVATION AND
AMBIDEXTERITY: A CASE STUDY IN RENEWABLES**

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26/10/2024

Part A – Case description

Launch day

As the CEO introduced the new company, John Smith, appointed Head of Innovation at RenewCorp only three days ago, suddenly felt the ground shift beneath his feet. The CEO's speech started with innovation as a key enabler and main driver for ensuring the future of the company and supporting its corporate strategy, and as tool for ambidexterity, to allow for the exploration of new capabilities while exploiting current ones.

John knew that creating a new innovative company from the ground up, where everything is new, felt like building a house from the ground. How to bring people on board? How to stimulate creativity and culture? How to get people comfortable with uncertainty and ambiguity? Or how to find new ideas and figure out which projects to pursue?

Yet, the thought of fostering and nurturing innovation on a large, efficiency-driven, scale-focused, organization, felt like renovating a condo with families living in it.

He was already able to predict the challenges to be faced by the company and its leadership. How can a large company like RenewCorp, which has grown without an innovation DNA, build and nurture innovation, from the ground-up, and sustain it over time? And how can the company start exploring new possibilities while keeping the same performance at exploiting and developing its current resources?

Renewables: scale from M&A without innovation DNA

Before accepting his role at RenewCorp, John studied the sector, especially the way it evolved in recent years and how it was likely to be shaping innovation across the players. He found out that mergers and acquisition (M&A) became a global trend in renewables after 2015, with stronger momentum in Europe, pushed by the global need to decarbonize and ensure sustainability, and by the regulatory incentives for developing new facilities.

With an understanding of the benefits of scale, supply chain leverage and synergies across portfolios and geographies, and a strong appetite for accelerating their businesses, IPPs¹ (independent power producers), O&Gs (oil & gas) and financial institutions took the lead in using M&A as a tool for broader business models.

The intense competition pushed these players to successively acquire small portfolios from local SMEs (small and medium-sized enterprises) and large ones from established developers, in a continuous attempt to reach competitive differentiation based on strong cost position and on the commercial advantages of having portfolios diversified across technologies, markets and geographies.

Following the pandemic and Europe's energy crisis due to the Ukraine war, the M&A agenda did not slow down, pushed by the 2030 global sustainability goals, by strengthened balance sheets from high prices (energy and other commodities) and by the need for supply security. New players such as energy intensive industry and original equipment manufacturers (OEMs) joined the race to renewables M&A, thus continuing to change the sector's fabric.

Pushed by the competitiveness of the M&A market, acquirers have developed capabilities and business lines specifically for power plant development and M&A, and have improved their operations and platforms, thus making the sector even more competitive.

However, these producers were created as the sums of smaller ones, whose innovation had always been based on ad-hoc initiatives, pushed by pressing needs and in partnership with science institutions and startups. Even though the entire renewable sector is supported by fast-paced innovation, it's carried out by a small number of large OEMs and science institutions. Power producers have rarely built the innovation muscle.

With a strong drive for competitive advantage, the new larger IPPs and renewables'

¹ Independent Power Producers are generally those which are not utilities and are privately owned.

developers began looking at innovation as an opportunity to create value and gain advantage. However, the continuous M&A and business development workstreams hindered these efforts by continuously forcing teams to focus on new portfolios, integrations, and successive restructuring of the businesses. For these large companies, the innovation clock is always ticking for additional scale, making the task of nurturing innovation more challenging.

RenewCorp's background

During his first days, John had the chance to collect information of the company, its structure and its strategy. RenewCorp was a product of the M&A activity in the European renewable sector. It was created through the merge of two IPPs: an older company founded in 2005 and a more recent one established in 2015.

At the time of the merge, the older IPP was generating electricity from an installed capacity of 2GW, onshore wind and solar photovoltaic, in six European geographies. With the ability to trade and dispatch energy on the markets, and a large development pipeline including offshore wind, the well-established IPP grew mostly from developing and commissioning its own power plants. With over 300 staff count, its structure consisted of the typical four main pillars found in IPPs: platform, energy markets, growth and operations.

This IPP's energy markets core included trading, PPA origination and market access, while the growth functions included development of new sites, onshore and offshore, as well as construction and procurement. The operations functions, on the other hand, outsourced most of its critical tasks, such as maintenance, OT (operational technology), on-site service and technical expertise, internalising only non-technical asset management and HSQE (health safety quality and environment). A great deal of the outsourcing was, however, made to a downstream services business line owned by the same shareholder, the services of which were also sold to other players in the sector.

The more recent IPP was created from the merge of two mid-sized European IPPs, and

until 2021 grew through successive acquisitions of smaller companies and portfolios, until it reached an installed capacity of 2GW onshore wind. On the second half of that year, it bought a larger, experienced, IPP operating over 1GW with leading benchmark operational efficiency. With this acquisition and consequent merging of platforms, the company became one of the largest European IPP focusing only on onshore wind.

By the end of 2021, this IPP with, a staff count of 200, was generating energy in six European countries and its business functions reflected the focus of the company. Operations, considered one of the company's excelling points, was divided into asset management and asset performance, HSQE, procurement and technical. Growth was strongly focused on its M&A capabilities and on further developing the existing farms (hybridisation of solar and wind, repowering and overpowering). Without dispatching or trading focus, its energy markets core area was small and focused on PPA and on selling to the countries' main grids.

The company: structure and governance

RenewCorp became, in 2022, one of the top European renewable players, with over 5GW of installed onshore capacity, based on wind and solar farms, and a 6-year development pipeline of over 10GW comprising onshore and offshore wind farms, solar and hybrid sites (wind + solar). With a staff count of 500, the company was now operating in ten European geographies, with well over 80% of its installed capacity distributed across five of those countries.

The company's leadership consists of a non-executive Board of Directors (BoD) and an Executive Committee (ExCo). The BoD includes a chairman, a vice-chairman, two directors representing the shareholders, and four independent directors. The ExCo, led by the CEO, comprises chief managers overseeing operations, energy markets, growth, human resources (HR), finance, strategy, and legal functions. Beneath this leadership structure, two additional management layers report vertically to the ExCo.

The company's business functions reflect the capabilities of the two merging IPPs (Figure

1). By being born from the merge of a company with strong focus in M&A, operations and development of current sites, and another with expertise in developing new sites and trading / dispatching energy, this new player is equipped with all the tools and business functions (Figure 1) to gain competitive advantage in the European renewables market.

All but one, according to its leadership: innovation.

Energy markets		Growth	
<ul style="list-style-type: none"> • Short-term PPA & market access • Long-term PPA • Market analytics • Short-term trading 	<ul style="list-style-type: none"> • Pricing & modelling • Revenues governance • Short-term trading 	<ul style="list-style-type: none"> • M&A • Organic growth • New asset development and construction 	<ul style="list-style-type: none"> • Global procurement • Offshore
<ul style="list-style-type: none"> • Finance, planning & control, tax, audit, risk • Procurement • Legal • ESG & Comms 	<ul style="list-style-type: none"> • HR • Marketing & brand • Strategy 	<ul style="list-style-type: none"> • Asset management • Asset maintenance • Asset performance • Asset excellence 	<ul style="list-style-type: none"> • HSQE • IT • OT

Platform

Operations

Figure 1 – Business functions of RenewCorp.

The corporate strategy

RenewCorp’s strategy is simple and consists of creating value, measured as NAV – net asset value – either by increasing revenues / margins from the selling of energy, or by reducing the LCoE – levelized cost of energy². Value creation is expected from the execution of 9 foundational projects, framed in four main business areas (Table 1): operations, energy markets, growth and platform.

The strategic focus of the growth area is to increase installed capacity and scale with a 6-year development program, from 5GW to 15GW, and is divided in two main initiatives (Table 1). The first addresses new asset development, mergers and acquisitions (M&A), and strategic partnerships in geographies, in which the company has gained sufficient scale. The second is

² The NAV for year t is the sum of physical asset values, future cash flows from energy sales, CFs, and renewable energy credits, RECs, subtracted by all liabilities, such as debt, operational costs, and decommissioning costs. The LCoE is a measure of the average cost, per unit of electricity, generated by a particular energy asset over its lifetime.

centred on optimizing existing assets by repowering, overpowering, and hybridization, combining multiple technologies such as wind and solar.

For operations (Table 1), the strategy aims at reducing the LCoE through active asset management (AM) and reducing the scope of O&M contracts with providers by insourcing asset maintenance. The second initiative focuses on implementing technologies that enhance asset performance, increase availability and production, and safely extend the lifespan of existing assets.

For the energy markets area, the strategy relies on increasing margins and reducing risk by insourcing dispatching activities and by focusing on long-term contracts (PPAs – power purchase agreements).

Finally, platform is not expected to significantly increase NAV but be an enabler for the remaining foundational projects. The unification of systems, tools and processes, and the development of the IT/OT infrastructures are two of the foundational platform projects, and the third is the building of capabilities to take the most out of the company’s data assets, using the most recent advances in analytics and artificial intelligence (Table 1).

Table 1 – Foundational strategic initiatives.

		Foundational projects	Time horizon	Stage
Growth	G1	Portfolio focus and accretive M&A: based on IRR and NAV, addressing core markets and technologies.	>5 years	In delivery
	G2	Develop existing assets: repowering, overpowering, colocation and hybridization.	>5 years	In delivery
Operations	O1	Active Asset Management and Self-Perform: in-source management and maintenance to ensure lower O&M costs.	4-5 years	Emergent opportunity
	O2	Asset performance: uplift asset performance, increase availability, life extension and performance upgrades.	>5 years	Emergent opportunity
Markets	M1	Expand dispatch: in-house energy dispatch to retain premiums paid to off takers / marketers.	1-2 years	Dimensioned opportunity
	M2	Shift contracting models to long-term PPAs: from pay-as-produced to long-term or selling in open market.	1-2 years	Dimensioned opportunity
Platform	P1	Data&AI: build on the company’s data assets for improved automation, analytics, reporting and decision-making.	3 years	Dimensioned opportunity
	P2	Unified processes and infrastructure: integration and unification of IT/OT infrastructure, critical processes and tools like control centre, procurement, SCADA, EAM, etc.	<1 years	Dimensioned opportunity
	P3	Advanced procurement: governance, data, category, supplier and contract management.	1-2 years	Dimensioned opportunity

The leadership defined the nine foundational initiatives which set the main strategic projects and the company’s NAV (Table 1). Yet, to fulfil each of these within the expected time horizon (Figure 2), each business unit and area must define their own strategies, through their own sets of initiatives. Each initiative defined across the company can be defined as protective or accretive, where they aim at protecting the company’s NAV or at increasing its value, respectively.

Each of the strategic initiatives developed by RenewCorp’s business units, must be framed and reported according to the one-way stage-gate strategic pipeline shown in Figure 3, where the “emergent opportunity” stage is the pipeline’s first step, and the only where uncertainty can be accounted for in initiatives. After going through this gate, projects must already provide clear NAV estimates and resource requirements. “Dimensioned opportunities” can only become “planned projects” with financials, workplan and resource plan, while a “planned project” can only move into execution with a full business case with clear target milestones, timeline and low risk. “Projects in delivery” consist of the execution phase.

In addition to the general strategic pipeline, each business unit can define its own processes to ensure efficiency and effectiveness in their activities. For those, a management framework is in place in the company, based on ISO standards.

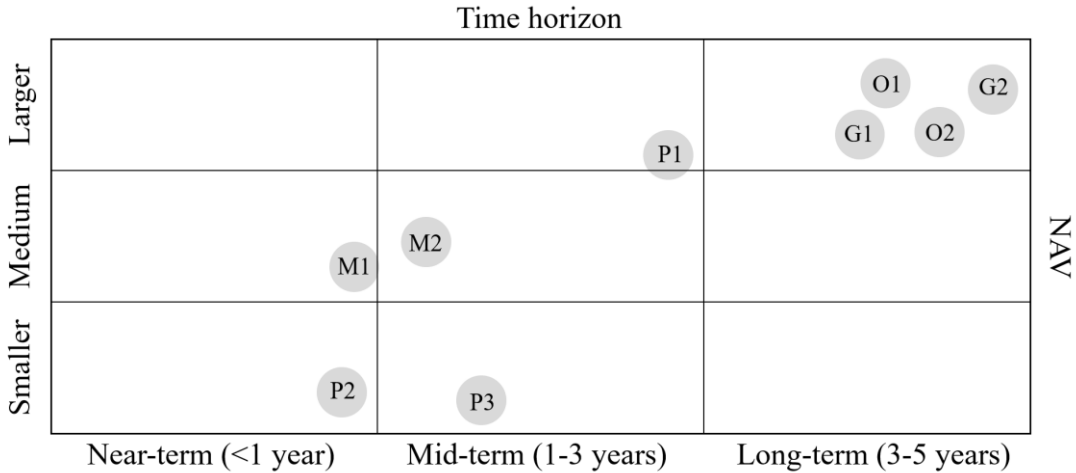


Figure 2 – Time frame and value, expressed as NAV, of the foundational strategic initiatives.

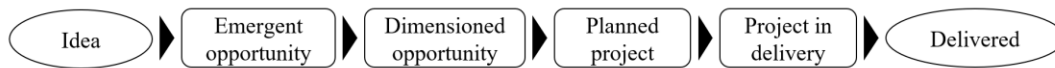


Figure 3 – Strategic framework stage-gate pipeline.

Looking back

By the time the two IPPs merged to form RenewCorp, both companies had previously attempted to build the innovation capabilities. To better understand what limited these programs and how to address the innovation journey, John undertook a series of interviews to leadership, management and general staff.

Based on these interviews, he found out that the older IPP had previously attempted building innovation by employing an innovation manager, hiring specialized innovation consultancy companies and organizing *hackatons* to collect ideas and mature projects.

However, no innovation strategy was put in place and the ideas obtained from the *hackatons* were followed up by the innovation manager, which was given autonomy to explore them with science institutions and universities.

Without an innovation strategy in place, the business areas did not participate in testing and validating the ideas. They continued to push only incremental innovation initiatives in their specific areas, in short-term time horizons, with no exploration, and small resource allocation.

The younger IPP, on the other hand, employed three elements with R&D background to create its innovation team. This team started defining an innovation system and process, which differed from the strategic pipeline shown in Figure 3 by being able to accommodate uncertain projects, and implemented in a web platform, used as the company’s innovation hub and social network.

However, without an innovation strategy, the team was free to pursue any initiatives they considered relevant, which, given the team’s R&D background, consisted in exploratory projects in specific technological areas, based on opportunities and new trends. As a result, no ideas were collected or developed, rendering the developed innovation system ineffective.

Without a functioning innovation system capable of generating ideas and projects to be developed by the company, the business areas of the company pushed only for incremental development, based on their needs.

Finally, John could not conclude about how much the companies' cultures were promoting innovation. Yet, he was able to understand that both had a pronounced hierarchical structure and that challenging the *status quo* were as uncommon as was cross-team collaboration or the will to pursue risky projects and experimentation.

John realized that although these two companies started differently, their approaches to had been similar: they did not address all required key innovation components.

Innovation workshop: the dilemmas

John knew that the first step in RenewCorp's innovation journey was securing the full commitment of the leadership team. Innovation had been identified by the BoD as a key enabler and main driver, but now he needed the ExCo to agree on what was innovation to the company, on its importance, and on how to build the necessary capabilities.

John lay the ground for the discussion by presenting his findings on the innovation experiences of the two IPPs. Some of the leaders believed that, given the challenges and the required effort, the company should buy and adopt what other innovative companies created, while others believed that it made sense to acquire small innovative companies and build innovation by cross-pollinating their values and attitudes across the wider business.

Yet, at the end of the discussion there was general agreement on the need for building the innovation capacity to acquire competitive advantage over other players in the market, as mentioned by the CEO: "Only once the innovation muscle is built, we will have unique advantage over our competitors. If this capacity could be gained by acquiring services or companies, competitors would do the same".

Having committed to this course of action, the group recognized, based on the recent

experiences, that fostering innovation involves more than just defining the right initiatives and processes. It requires more profound changes that will inevitably pose significant dilemmas.

How will this large organization, which is focused on efficiency and born from a merger, build the innovation capabilities from the ground up, knowing that it did not grow as a result of innovation?

And how will the company be able to explore new opportunities by innovating, while maintaining the current performance and efficiency at exploiting the current capabilities?

And from what perspectives, or based on which key components, should innovation be built at RenewCorp?

Part B - Teaching Note

Scope, context and approach

The case study addresses a European IPP named RenewCorp, created during the renewable race to M&A (Busscher et al. 2022) and which aims at building innovation capabilities to gain competitive advantage.

The case's dilemmas, faced by the leadership and the Head of Innovation, John Smith, arise from the innovation-scale paradox (or success syndrome) and the innovator's dilemma (Gary Pisano 2019; Moore 2015; Yeadon-Lee 2018; S. Anthony 2012; Ende 2021). The paradox shows that innovation drives success and growth, but growth leads to scale, which hinders new innovation. The innovator's dilemma is faced by companies balancing resource exploitation and opportunity exploration, a skill known as ambidexterity (Kassotaki 2022; Raisch et al. 2009).

The case illustrates the challenges of building innovation based on past attempts from the IPPs that merged into RenewCorp. From these, three key components arise as needed to build innovation: culture, system, and strategy. Literature supports these as the most critical areas for fostering innovation in large firms and puts them as leadership capabilities (G. Pisano 2015; Gary Pisano 2019), emphasizing their complementary nature: addressing one without the others is likely to render the innovation effort unsuccessful, as seen by the two IPPs.

Regardless of how the three key domains are handled, literature clearly highlights that no recipes or “silver bullets” solutions exist for innovation (Satell 2017a; Gary Pisano 2019). Each approach to innovation is unique and tailor-made (Narayen 2023; Dobni, Wilson, and Klassen 2022; Podolny and Hansen 2021; Furr and Dyer 2020; Satell 2017a).

This teaching note follows the practice-focused literature to address the case's dilemmas, fostering discussion using the RenewCorp case, and is organized around the key innovation components: culture, strategy, and system.

Innovation culture

The challenge

Creating and nurturing an innovation culture is referred to as the hardest (Cap Gemini 2022), yet most important (Ende 2021; Utley and Klebahnc 2022; Beswick, Bishop, and Geraghty 2015; McCausland 2022; Horibe 2016), part of building the innovation capacity.

Corporate culture is the set of values, attitudes, behaviours, expectations and norms of the people within the organization (Beswick, Bishop, and Geraghty 2015; Watkins 2013; Gary Pisano 2019). It significantly influences and changes how individuals think and act, and therefore it shapes the organization's capacity to innovate (G. P. Pisano 2019; Leavy 2005; Crews, Euchner, and Kates 2022; Deschamps-Sonsino 2020).

The innovation cultural challenge for large organizations arises from the fact that the existing culture is usually not innovative (Leavy 2005; Gary Pisano 2019), but focused also efficiency, formality, risk-avoidance and less spontaneity, inhibiting them from innovating (S. D. Anthony et al. 2019). These non-innovative cultures become deeply ingrained, and therefore challenging to change (G. P. Pisano 2019; Gary Pisano 2019; S. D. Anthony et al. 2019).

The complexity

The literature addressing innovative cultures seems to generally agree on their key attributes (G. P. Pisano 2019; Horibe 2016; S. D. Anthony et al. 2019; Crews, Euchner, and Kates 2022; Beswick, Bishop, and Geraghty 2015):

1. tolerance for failures (G. P. Pisano 2019; Zaharee et al. 2021; Leavy 2005);
2. willingness to experiment and take risks, by being comfortable with uncertainty and ambiguity (S. D. Anthony et al. 2019; Dimitrova 2018; G. P. Pisano 2019);
3. psychological safety (G. P. Pisano 2019), or the encouragement of dissent (Horibe 2016), or of challenging the *status quo* (S. D. Anthony et al. 2019);
4. collaboration (S. D. Anthony et al. 2019; G. P. Pisano 2019; Cap Gemini 2022) and

5. cultural flatness (Gary Pisano 2019), based on autonomy and empowering (S. D. Anthony et al. 2019).

An oversimplification of innovation cultures consists of believing that each attribute can be addressed individually. However, their complexity lies in the interdependence of these attributes, where one can scarcely exist, or be developed, without the others (Gary Pisano 2019; Leavy 2005).

Willingness to experiment and taking risk requires being tolerant to failure, which in turn demands that people feel psychologically safe in their roles. Psychological safety encourages dissent and challenging of the *status quo*, which requires openness, and supports flatness. Finally, flatness both fosters and depends on autonomy and collaboration, and nurtures tolerance for failure and willingness to experiment.

This relation chain, shown in Figure 4, is a simplified example of this network of beliefs and behaviours that boost innovation. Focusing or aiming to set up only a few is not enough.

The paradox

The attributes of innovation cultures - openness, willingness to speak up, empowerment, flat hierarchy, and autonomy – all seem good and positive leadership practices and conducive to a healthy work environment (Leavy 2005; G. P. Pisano 2019). If this is the case, why are these cultures so hard to implement, and why aren't more organizations applying them?

The short answer is that innovation cultures are paradoxical: those attributes are only one side of the innovation cultural coin. One can ask what happens if we tolerate too much failure? Or if too many risky experiments may remove the focus from execution? And what about too much freedom to speak? Does it lead to conflict?

Innovation cultures have, in fact, a hard side with “unpleasant” attributes that are as crucial as the “positive” ones mentioned so far, making implementation even more complex (G. P. Pisano 2019). The following tough attributes, listed and explained in Table 2, must exist and

counterbalance the pleasant ones, in a delicate balancing act (Leavy 2005; G. P. Pisano 2019; Gary Pisano 2019).

Table 2 – “Positive” and “hard” innovation culture features (Gary Pisano 2019).

Positive feature	Tough feature	Why?
Tolerance for failure	↔ Intolerance to incompetence	If failure-tolerant organizations do not set the highest standards on competence, the motives for failure can be misinterpreted between thoughtful risk-taking and lack of capabilities.
Willingness to experiment	↔ But highly disciplined	Experimentation, if not carefully planned, analysed and validated, will consume too much cost and time.
Psychological safety	↔ Brutally candid	A safe environment for criticism is only valuable if it enables frank feedback and scrutiny, essential for developing ideas and creativity.
Collaborative	↔ Individual accountable	Broad input is critical to innovation, but without individual accountability, people will refrain from collaborating openly, fearing shared responsibility.
Cultural flatness	↔ Strong leadership	Flatness is based on autonomy, latitude of actions and openness which, without strong leadership setting the rules, priorities and directions, can easily result in chaos, and compromise innovation.

Innovation system

Pillars and challenges

An organization’s capacity to innovate is entirely dependent on its culture but must be rooted in a system of choices, practices and capabilities. This system acts as a framework for converting innovation culture into actionable steps, according to the strategy, and is a way to support, measure, and sustain innovation (Benraouane and Harrington 2021; Ende 2021; Dobni, Wilson, and Klassen 2022).

The capabilities of the innovation system must be built upon four organization pillars – people, process, structure and behaviours (Gary Pisano 2019) – to allow performing two main tasks (see Figure 5): (1) ideation; (2) idea/concept development.

Building an innovation system is a tailored effort addressing dilemmas within each of the four pillars (Gary Pisano 2019; Ende 2021). Yet, the most critical one is the choice between routine innovation and disruption, because it shapes all subsequent requirements (G. Pisano 2015; Moore 2015; S. D. Anthony et al. 2019): the skills and resources needed for routine innovation are less demanding than for disruption (Gary Pisano 2019; G. Pisano 2015).

Routine innovation is a comfortable choice, enabling some innovation with minimal

effort and fewer requirements. However, in an era of continuous disruption (Utley and Klebahnc 2022), the skills to disrupt and respond to disruption are mandatory for competitive advantage (Moore 2015; Gary Pisano 2019), and the main challenge for building the innovation system.

Search and ideation

While routine innovation focuses on well-defined problems and solutions found within company's expertise (Gary Pisano 2019), disruption requires searching in unfamiliar areas.

Considering that search is the process by which individuals identify relevant problems and solutions (Gary Pisano 2019), and that problem-solving is the expression of creativity, achievable only by generating ideas (Utley and Klebahnc 2022; Ende 2021), one can conclude that search and ideation are two sides of the same coin, and the pair of most powerful skills of the organization's innovation system (Ende 2021; Gary Pisano 2019).

The capacity to search and ideate relies on the abilities of its individuals (pillar: people) and stands at the intersection of culture and system. Organizations can boost these skills by following initiatives such as those listed in the next paragraphs (Gary Pisano 2019; Ende 2021).

On the structural pillar, the company's organisation and hiring policies can be used to enhance creativity and problem-solving (Gary Pisano 2019; Ende 2021) by increasing diversity. Diversity can be fostered by forcing individuals to speak about topics they usually do not, using mechanisms such as jams and *hackatons*, pair mentoring programs and cross-disciplinary communities (Horibe 2016). Creating teams with broad variety of perspectives also enhances diversity (Utley and Klebahnc 2022) and can be made by avoiding hire monoculture and encouraging rotation through secondments, exchange programs and internal recruitment (Gary Pisano 2019).

On the behavioural pillar, organisations can boost ideation and search by making individuals challenge sacred assumptions, or orthodoxies, and learn through analogies (Osterwalder and Bland 2020; Utley and Klebahnc 2022). Instead of looking for advances in

literature, individuals in the organization must find new ones by wondering “if only this were true would it be really valuable” and use examples from other industries and technologies (Utley and Klebahnc 2022; Osterwalder and Bland 2020; Horibe 2016). To push these behaviours, the organization can organize specific innovation training (“what-if” or “assumption-busting” workshops) and challenges (“cross-pollination”, “borrow and build”).

In the process pillar, organizations can enhance problem-solving by validating concepts early and by opening to external ideas (Ende 2021; Hwang, Lai, and Wang 2023; Fabbri, Manceau, and Moatti 2017; Osterwalder and Bland 2020). While early-validation processes, which encourage ideation, rapid testing and proof-of-concept validation, helps confirm or disprove assumptions swiftly, embracing open innovation through scouting, partnerships, co-development or external incubators can leverage diverse problem solvers, leading to breakthroughs that may not emerge from internal efforts alone (Gary Pisano 2019).

Synthesis and idea development

Organizations excelling at search and ideation are capable of retaining large portfolios of ideas. However, these ideas rarely become true innovations without a structured workflow that iteratively involves synthesis, testing, and validation, to convert them into innovative concepts (Osterwalder and Bland 2020; Utley and Klebahnc 2022; Gary Pisano 2019). This process, referred herein as idea development, relies heavily on synthesis — a critical capability that, like culture or search, must be cultivated within organizations (Gary Pisano 2019; Deschamps-Sonsino 2020; Fayard et al. 2024; Harrington and Voehl 2023; Satell 2017a).

Synthesis is key to creativity and defined as the capacity to blend multiple strands of seemingly disparate ideas into coherent innovative concepts (Gary Pisano 2019). The ability to synthesize ideas into concepts is largely behavioural but also relies on leadership choices on the other pillars (Figure 6): people, processes, and structures.

The ability to synthesize relies on the organization’s ability to retain synthesizers, which

are individuals who can cross boundaries, sort and filter ideas, and see connections between fields (Gary Pisano 2019; De Jong, Marston, and Roth 2015). Hence, on the people pillar, identifying such talent is the primary challenge; yet the synthesizers' backgrounds often reveal this capability through diverse career paths and interdisciplinary interests. Once identified, organizations should aim at retaining them through external and internal recruitment, and through mobility (secondments/exchanges).

The processes involved in idea development are among the most extensively studied topics in innovation (pillar: process). Combining diverse knowledge streams is inherently unpredictable, and as diversity increases, the outcomes become even harder to foresee. Therefore, idea development requires more flexible processes compared to the widely used structured, stage-gate models, which dictate a detailed sequence of activities grouped into well-defined phases (Gary Pisano 2019; Ende 2021; Utley and Klebahnc 2022).

The purpose of stage-gate processes is to ensure the organization executes familiar tasks. But, when dealing with innovation, where the foundational elements are unknown, then no amount of scripting removes the underlying uncertainty. In fact, imposing a structured process on an uncertain one may provide a false sense of control (Gary Pisano 2019).

Due to the inherent uncertainty of idea development, organizations need flexible processes focused on rapid experimentation, iteration, and learning. Frameworks like lean startup or design thinking, on top of agile management (Figure 7), are commonly used in innovation (Ende 2021). However, no framework is better than others and no recipes are more correct than others; organizations must focus on ensuring that idea development is based on synthesis and embraces uncertainty through cycles of experimentation, validation, and learning (Ende 2021).

To enhance synthesis, structural changes (pillar: structure) are often the simplest: synthesis involves integrating diverse perspectives, so functional teams should ideally be structured to include all relevant domains and expertise (Figure 8a). However, the challenge with

this approach lies in the dynamic nature of sectors and markets, which demand for frequent or even continuous transformation.

A common alternative is to use cross-functional matrix teams to mitigate the limitations of functional structures. While appealing in theory, these structures face budget and authority limitations, and compete with functional teams for resources (Ende 2021; Gary Pisano 2019).

A third valuable option for large organizations is to create soft structures like cross-functional innovation teams or temporary organizations for innovation (Ende 2021). Among these, the lightweight multi-function teams have limited authority, focusing on coordination, while heavyweight teams grant authority to innovation project managers and may involve co-location of members. Autonomous innovation project teams operate within the organizations like any functional team but are temporary (Figure 8b-d).

Innovation strategy

Definition

Innovation strategy is frequently defined in broad terms (G. Pisano 2015; Gary Pisano 2019) using aspirations or buzzwords like “internal venturing” or “decentralized innovation”. But strategy is actually about resource and effort allocation, so an innovation strategy must set priorities and trade-offs to support the corporate strategy and drive value creation (Ansoff 1968; Capon and Mintzberg 1996; Porter 1997; G. Pisano 2015; Gary Pisano 2019). Innovation strategies require detailed planning on investments and types of innovation, balancing short-term exploitation of capabilities with long-term exploration of opportunities (Yeadon-Lee 2018), and aligning organizational parts (Gary Pisano 2019).

Frameworks

Strategic frameworks support the selection and prioritization of initiatives and effort, according to two or more criteria (value, time frame, familiarity, impact, etc), and most organizations set

their own criteria to ensure alignment of the innovation and corporate strategies (Ende 2021; Satell 2017a; G. Pisano 2015). However, while these criteria allow framing initiatives into the companies' needs, they do not help organize or implement innovation (Satell 2017a).

Several innovation specific strategic frameworks have been used to select, prioritize and implement innovation in organizations. The most used is the three-horizon framework (Baghai, Coley, and White 1999), used for its versatility in aligning investments with time frames (see Figure 9a): Horizon 1 (H1) targets ROI the same year, H2 investments are diluted over a few years, while H3 covers long-term investments not included in the operational plan.

Yet the framework assumes two misleading premises: associating horizons and innovation types (Satell 2017a; Moore 2015), and correlating horizons, capabilities and markets (Blank 2019) (Figure 9a). Modern disruptions are now occurring in shorter timeframes, making large organizations select initiatives beyond time criteria, to ensure ambidexterity (Moore 2015; Yeadon-Lee 2018; Utley and Klebahnc 2022).

A framework defined independent of timeframes was proposed by (G. Pisano 2015; Gary Pisano 2019), allowing resource and initiative allocation based on two criteria: technological competences (TC) and business model (BM) (Figure 9b). This 2D domain splits innovation into: (1) routine innovation, focusing on core TC and BM; (2) disruptive innovation, new BM on core TC; (3) radical innovation, core BM new TC, and (4) architectural innovation, new BM and TC.

This division between BM and TC helps detail the innovation strategy by identifying areas to innovate beyond core competencies, both in TC and BM, making it useful for large organizations, where time frames between may not be as important as for smaller companies.

A similar framework by Satell (Satell 2017a; 2017b) divides innovation by problem and domain definition (Figure 9c), focusing more on the capabilities needed to address technical challenges. Although the allocation is similar to Pisano, Satell replaces architectural innovation with basic research, to focus on ambiguous problems, and his sustaining, disruptive, and

breakthrough innovations correspond to Pisano's routine, disruptive, and radical innovations.

A different framework was proposed by (Moore 2015) based on the premise that large organizations are more effective dividing initiatives based on disruptiveness and investment needs, creating what the author names as management zones (Figure 9d).

In this framework, the performance zone (revenue & routine innovation) focuses on ROI and performance. Acts as the revenue and top-line engine, scaling disruptions or neutralizing competitors by scaling incubated innovations (Moore 2015). The productivity (investment & routine) zone uses sustaining innovation to generate ROI by enhancing efficiency. It typically handles platforms, services and compliance, takes savings to the bottom-line and creates new business lines without pressuring the performance zone (Moore 2015). The incubation zone (investment & disruption) iterates fast and values failure, focusing on catching the next wave (Moore 2015) and the transformation zone (revenue & disruption) is typically empty, activated only to address disruption crises. Its goal is to scale incubated assets or neutralize disruptions.

Finally, if choice is to organize innovation and define an operational plan, a framework such as the Archetypes (BOI 2024) can be used (Figure 9e). The dilemmas consist of investment and internal / external focus, and the output is one of sixteen innovation archetypes.

Initiative selection, prioritization and planning

The selection and prioritization of initiatives aims at reducing the uncertainty and ambiguity in developing each idea into valuable concepts (Ende 2021). This process is heavily influenced by the adopted frameworks and the corresponding dilemmas each is designed to address.

The horizons (Blank 2019) framework requires choosing competencies, time and markets, while Pisano's (G. Pisano 2015) demands deciding about business models and competencies, making the choice of initiatives dependent on internal and external factors, and (Satell 2017b) focuses on problem and domain definition.

The zones framework, however, aligns its trade-offs with the major strategic innovation

dilemmas (Moore 2015): how much to invest and to disrupt (Gary Pisano 2019; Moore 2015; Yeadon-Lee 2018). Therefore, the combination of this framework with a bespoke one for aligning innovation and corporate strategies is likely the best choice to use as the first steps for selecting and prioritizing the innovation initiatives across the organization (Figure 10).

Depending on the specificities of the innovation in each organization, one or more of the frameworks like the Horizon's, Satell's or Pisano's, should then be used to support selection and prioritization and to quantify the effort and resources needed (Figure 10). Finally, a framework like the Archetypes' can be used to link strategy and implementation.

Building innovation at RenewCorp

Building the culture

The innovation culture was built at RenewCorp in a 3-year roadmap, focusing on people and behaviours (Figure 11), each targeting more than one cultural feature, as shown in Table 3.

Table 3 – Initiatives focused on culture, implemented at RenewCorp.

Culture-focused initiatives	
1	Innovation department created, and “Intrapreneurship and culture” manager hired.
2	Committee of culture champions created to oversee culture initiatives.
3	Corporate organizational chart built with smaller teams and less hierarchy levels.
	Recruitment updated to:
4	(1) increase standards required to applicants, including interviews also from peers, (2) include the assessment of the ability to collaborate, tolerate failure, accountability and candidness, (3) ensure higher team diversity, of background and geographies.
5	Induction on innovation included for all newcomers.
6	Managers required to specifically assess innovation culture during the probation period.
	Program to instil comfort with uncertainty, communication, diversity and collaboration, comprising:
7	(1) 25% of annual evaluation (and variable salary) tied to performing these behaviours, (2) monthly employee-manager and peer-to-peer feedback meetings on the behaviours.
8	Coffee chat: biweekly initiative where employees are randomly paired for a chat.
9	Create fail-wall in the offices: white boards that publicly celebrate project failures.
10	Yearly innovation training, on search and synthesis, for employees and management.
11	Do-it-yourself innovation challenges, with monetary prizes.
12	Innovation awards, awarded twice a year in town hall meetings, with monetary prize.
13	Internal innovation social platform used for managing ideation and idea development (NOSCO 2024).

Designing the innovation system

The people and behaviours initiatives used for building the culture were designed to build also the company's ability to ideate and develop. Hiring, innovation training, challenges and the

awards simultaneously address culture as well as ideation, learning through analogies and challenging orthodoxies. Therefore, the initiatives specifically defined to design and implement the innovation system are, mostly processual, structural and governance, and listed in Table 4.

Table 4 – Initiatives for designing the innovation system at RenewCorp.

Initiatives for designing and implementing the innovation system	
1	Adaptation of stage gate strategic pipeline (Figure 3), enabling ideation and idea development, through search, synthesis and rapid testing, prototyping and validation (Figure 12).
2	Process governance defined with two approval gates and support from the innovation department (Figure 12).
3	New process and governance implemented and managed in the innovation social platform (NOSCO 2024).
4	Nine innovation spaces defined to match the nine foundational initiatives, G1 to PGA3 in Table 1.
5	Ideation campaigns defined with specified time frames, and creation of always-open-idea-boxes.
6	Development of selected ideas (Figure 12) according to archetypes (Figure 9e) and team governance (Figure 8).
7	Functional teams created for key topics currently not addressed in the company: R&D and Data&AI.
8	Ideas fully developed and approved are taken for selection and prioritization, according to innovation strategy.

Defining the innovation portfolio

To build the innovation portfolio, idea campaigns were defined within the innovation space considered simultaneously most disruptive and transversal, and one of the most valuable: Data & AI.

The campaigns took place through a series of workshops addressing three layers of the company’s structure. These began with senior management, to understand how Data&AI was expected to serve the foundational initiatives (top-down). Then the workshops were addressed at the teams, starting with idea collection and then with idea enhancement and requirement collection. Finally, the workshops addressed the leadership, to finalize idea shaping and approval. The ideation phase outputted over 60 ideas, which were then shaped (Figure 12) into a set of 12 compound core Data&AI ideas, shown in the leftmost column of Table 5.

Selecting, prioritization and planning

The 12 compound ideas were first selected and prioritized (according to Figure 10) using value Vs. strategic alignment (Figure 13a and Table 5), and revealed three clusters of higher, medium and lower priority. These were then analysed using the Zones, Pisano’s and Archetypes frameworks (Figure 13b,c,d and Table 5), following the procedure proposed in Figure 10.

Table 5 – Data and AI compound shaped idea, classified according to the strategic frameworks.

	Shaped compound ideas	Str.Align/Value	Zones	TC/BM	Archetypes
DA1	Unified database, single source of truth	High/High	Product.	Radical	Co-dev.
DA2	Unified core reporting, critical data&KPIs	High/High	Product.	Radical	Int. incub.
DA3	Asset availability, monitoring and forecast	High/Med	Product.	Routine	Des. Sprint
DA4	AI-based asset condition monitoring	High/High	Incub.	Radical	Int. incub.
DA5	Real-time operation/performance monitoring	Med/Med	Incub.	Radical	Int. incub.
DA6	Asset optimization and life-extension	High/High	Perform.	Disruptiv.	Des. sprint
DA7	GenAI document analysis	Low/Med	Incub.	Radical	Co-exper.
DA8	GenAI log and alert prescriptive systems	Med/Low	Incub.	Radical	Co-exper.
DA9	Weather and power forecasting	Med/Med	Product.	Radical	Co-dev.
DA10	Market price forecast	High/High	Incub.	Radical	Co-dev.
DA11	AI-driven automated asset inspection	Med/Low	Product.	Routine	Scout
DA12	Monitoring based on satellite data and AI	Med/Low	Product.	Routine	Scout

The zones' framework (Figure 13b) revealed 10 out of 12 initiatives in the productivity and incubation zone, thus outlining the need for investment and staff allocation. Pisano's framework revealed the same 9 initiatives demanding new capabilities, thus suggesting the need for experimenting, scouting, and partnering (Figure 13c).

By analysing initiatives on these three frameworks and on the Archetypes, the company was able to select, prioritize and plan for innovation in Data&AI, as follows (Figure 13):

- DA3,6 are medium and higher priority (Figure 13a, Table 5), and the company has internal know-how to undertake them (Figure 13b,c), making them sustained innovation, performance zone and pushed in design sprints (Figure 13d) by the functional teams.
- DA1,2,4,5,9,10 are both medium/higher priority (Figure 13a, Table 5) and require new competences (Figure 13c), even if only DA4,5,10 actually require incubation (Figure 13b). Based on the internal capabilities, the company approaches DA1,9,10 by co-developing with partners and D2,4,5 by separating and dedicating internal resources (Figure 13d).
- DA7,8,11,12 were assigned lower priority (Figure 13a, Table 5), even if requiring investments (Figure 13b) and new competences (Figure 13c). Yet, DA7,8 are in the incubation zone (Figure 13b) and so are addressed in co-experimentation (Figure 13d), while DA11,12 on the productivity zone and so addressed by partner scouting (Figure 13d).

Given the archetypes defined, RenewCorp then defined, for each initiative, the ownership, team

governance (Figure 8) and start date, as shown in Table 6, and the corresponding budget.

Table 6 – Data and AI compound shaped ideas assigned to teams, owners and start date.

Shaped compound ideas		Ownership	Team	Start date
DA1	Unified database, single source of truth	HDAI	Partner + functional: Data&AI	Now
DA2	Unified core reporting, critical data&KPIs		Functional: Data&AI	Now
DA3	Asset availability, monitoring and forecast	COO	Functional: Asset performance	Now
DA4	AI-based asset condition monitoring		Heavyweight: R&D + Data&AI	Now
DA5	Real-time operation/perf. monitoring		Heavyweight: Asset.perf.+Data&AI	Now + Q
DA6	Asset optimization and life-extension		Functional: Asset excellence	Now
DA7	GenAI document analysis	HDAI +	Partner + lightweight: Data&AI +	Now + 2Q
DA8	GenAI log and alert prescriptive systems	HINO	Innovation	Now + 2Q
DA9	Weather and power forecasting	CCO +	Partner + lightweight: Data&AI +	Now + Q
DA10	Market price forecast	HINO	Energy markets + Innovation	Now + Q
DA11	AI-driven automated asset inspection	COO +	Lightweight: Asset maintenance +	Now
DA12	Monitoring based on satellite data and AI	HINO	Innovation	Now

COO – Chief operations officer, CCO – Chief commercial officer, HDAI – Head of data and AI, HINO – Head of Innovation

Key learning objectives

The case was designed to be concise and straightforward, serving as an application example and to provide context, and reinforce, the key learning objectives, shown in Table 7.

Table 7 – Key learning objectives.

KLO	Description
1	Building the innovation capacity in large organizations is challenging and a bespoke task: a particular approach may neither work for a long period nor for another organization.
2	The innovation capacity relies on three key components - culture, system and strategy – and the largest effort must usually be put in culture, followed by system, and then strategy.
3	Innovation cultures are: <ul style="list-style-type: none"> 3.1 – Challenging to build in large organizations, which are usually inertial and risk-avoidant; 3.2 – Composed of 5 “pleasant” features but complex to implement because each of the 5 cannot exist (or be implemented) without the others; 3.3 – Paradoxical, because the 5 “pleasant” features can only exist if paired with another 5 “hard” ones, making implementation of these cultures even more difficult.
4	The innovation system relies on four pillars - people, process, structure and behaviours – to perform two key tasks – (i) ideation and (ii) idea development into concepts. <ul style="list-style-type: none"> 4.1 – Ideation relies on the company’s ability to: (1) search, which is enhanced by promoting communication, diversity, early-validation, external partnerships; (2) challenge orthodoxies and (3) learn from analogies. 4.2 – Idea development relies on the ability to synthesize, which can be enhanced by removing structural boundaries, retaining synthesizers and defining iterative testing processes.
5	Innovation strategy is addressed using frameworks for selection and prioritization. <ul style="list-style-type: none"> 5.1 – Bespoke frameworks are used to prioritize and align innovation with corporate strategy, with criteria such as value, strategic alignment, impact or time frame. 5.2 – Other features such as the Zones, allow organizing innovation or an higher level with the organizations; 5.3 – Specific frameworks such as the Horizons’, Pisano’s or Satell’s allow identifying the resources needed; 5.4 – Framework such as the Archetypes allow for planning innovation and link with implementation. 5.5 – Several frameworks can be used according to the choices and dilemmas to solve and a sequence is proposed to go from strategic alignment to selection, organization and planning of innovative initiatives (Figure 10).

Class plan, questions and discussion

The class addressing the RenewCorp case is intended for 120 minutes and divided into the main moments (M), numbered below, along with the suggested questions (Q) and expected discussions and insights (DI), as shown in Table 8.

Table 8 – Class plan.

Type	Description	Time (min)
M1	Reading the case.	15
M2	Review the case focusing on the company’s background, context, strategy.	10
M2Q	Following the merge, what company is RenewCorp and what’s its strategy?	
M2DI	Understand the company’s capabilities. Understand the strategy: asset development, M&A, insourcing, self-performing, Data&AI. Conclude that innovation is key to fulfil the strategy.	
M3	The case’s problem and the dilemma.	5
M3Q	What is the main problem? How challenging is it?	
M3DI	The main problem is building innovation on a non-innovative large company. It is challenging. Innovation is a competitive weapon if built, not acquired or used.	
M4	Key components of building innovation, understood as leadership tasks.	10
M4Q	What happened when each of the two IPPs that merged into RenewCorp tried to build the innovation muscle?	
M4DI	Walk through the innovation journey of each IPP to identify the three components: culture, system and strategy. Understand that not all were built and that this is common in companies.	
M5	Learning that innovation cultures are challenging, complex and paradoxical.	15
M5Q	What are the main features of an innovation culture? Why are these cultures challenging to implement in large organizations?	
M5DI	Students expected to provide answers framed into the 5 “pleasant” cultural features. Class is then led to understand that organizations do not usually have these features. Lecturer then leads class into understanding that each of 5 features cannot be implemented without the others (interdependence schematic in Figure 4). Finally, the class is led to understand that the challenge also arises from the cultural paradox: having to implement 5 “hard” features, without which the 5 “pleasant” ones cannot exist.	
M6	How RenewCorp is building the culture.	15
M6D	Description of the initiatives taken by RenewCorp to build the culture, and how each contributes to the 10 cultural features (suggestion: Figure 11).	
M7	Understanding the system, its pillars and steps.	15
M7Q	What is the innovation system and how its built?	
M7D	Students expected to answer that the innovation system is built for ideation and idea development into concept. Class then led to understand that ideation relies on synthesis and early testing, and that development relies on testing, prototyping and validating. Finally, class realizes how each pillar should contribute for ideation and development (Figure 6).	
M8	How RenewCorp built its innovation system.	10
M8D	Go through the initiatives for building the innovation system and the portfolio of ideas, generated and ready for development.	
M9	Getting familiar with the innovation strategy and the types of frameworks.	15
M9Q	What is innovation strategy? What is it needed for and how is it usually designed?	
M9D	The students are led to answer, and the lecturer leads them to, the correct definition of innovation strategy and that it is needed for selecting, prioritizing and planning initiatives. The lecturer than introduces 4 innovation strategic frameworks as the division of domains according to two or more criteria and asks the students for suggestions on the relevant criteria. The students are then introduced to the concept of using multiple frameworks for aligning innovation with corporate strategy, for strategizing, organizing and planning.	
M10	How RenewCorp selects, prioritizes, organizes and plans innovation initiatives.	10
M10D	The students are led to provide suggestions on the best frameworks and the lecturer leads them to those used. Then the class analyses the placement of RenewCorp’s ideas into the 4 frameworks and, from there, understand together the archetype and team governance.	

References

- Anthony, Scott. 2012. *The Little Black Book of Innovation: How It Works, How to Do It*. *Choice Reviews Online*. Vol. 49. Boston: Harvard Business School Publishing Corporation. <https://doi.org/10.5860/choice.49-6364>.
- Anthony, Scott D, Paul Cobban, Rahul Nair, and Natalie Painchaud. 2019. "Breaking Down the Barriers to Innovation." *Harvard Business Review* 97 (6).
- Baghai, Mehrdad, Stephen Coley, and David White. 1999. *The Alchemy of Growth*. *The Journal of Business Strategy*. Perseus Books.
- Benraouane, Sid, and H. James Harrington. 2021. *Using the ISO 56002 Innovation Management System*. *Using the ISO 56002 Innovation Management System*. <https://doi.org/10.4324/9780367701420>.
- Beswick, Chris, Derek Bishop, and Jo Geraghty. 2015. *Building a Culture of Innovation : A Practical Framework for Placing Innovation at the Core of Your Business*. London: Kogan Page.
- Blank, Steve. 2019. "McKinsey's Three Horizons Model Defined Innovation for Years. Here's Why It No Longer Applies." *Harvard Business Review* 126 (1).
- BOI. 2024. "Board of Innovation - The AI Innovation Consultancy Company." October 2024.
- Busscher, Floris, Nadine Janecke, Florian Kuhn, Boris Rezniceck, Cristina Schmiduber, and Rafael Winter. 2022. "Ready, Set, Grow: Winning the M&A Race for Renewables Developers." *Mckinsey and Company*. <https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/ready-set-grow-winning-the-m-and-a-race-for-renewables-developers#/>.
- Cap Gemini. 2022. "Breathe in(Novation). Uncover Innovation That Matters." *Conversations for Tomorrow*, 2022.
- Crews, Christian, Jim Euchner, and Andrea Kates. 2022. "Innovation Culture and The Hero's Journey." *Research-Technology Management* 65 (6). <https://doi.org/10.1080/08956308.2022.2120704>.
- Deschamps-Sonsino, Alexandra. 2020. *Creating a Culture of Innovation: Design an Optimal Environment to Create and Execute New Ideas*. *Creating a Culture of Innovation: Design an Optimal Environment to Create and Execute New Ideas*. <https://doi.org/10.1007/978-1->

4842-6291-7.

Dimitrova, Yanica. 2018. "The Culture of Innovation Model." *Economid Studies* 27 (1).

Dobni, C. Brooke, Grant Alexander Wilson, and Mark Klassen. 2022. "Business Practices of Highly Innovative Japanese Firms." *Asia Pacific Management Review* 27 (3): 155–62. <https://doi.org/10.1016/j.apmr.2021.06.005>.

Ende, Jan. 2021. *Innovation Management*. London: Macmillan Education Limite.

Fabbri, Julie, Delphine Manceau, and Valérie Moatti. 2017. "Enter The Open Innovation Matrix: How to Open Innovation Processes." *Gestion 2000* Volume 33 (4). <https://doi.org/10.3917/g2000.333.0077>.

Fayard, Anne Laure, Jess Majekodunmi, Martina Mendola, and Rachel Kenny. 2024. "Nurturing Innovation." *Harvard Business Review* 2024. <https://doi.org/10.1021/cen-09148-bus1>.

Furr, Nathan, and Jeff Dyer. 2020. "Lessons from Tesla's Approach to Innovation." *Harvard Business Review* February:1–5.

Gary Pisano. 2019. *Creative Construction - The DNA of Sustained Innovation*. New York: Public Affairs.

Harrington, H. James, and Frank Voehl. 2023. "The Innovation Systems Cycle." In *The Performance Management Systems Playbook*. <https://doi.org/10.4324/9781003413509-2>.

Horibe, Francis. 2016. *Creating the Innovation Culture*. VisionArts Inc.

Hwang, Bang Ning, Yi Ping Lai, and Chunhsien Wang. 2023. "Open Innovation and Organizational Ambidexterity." *European Journal of Innovation Management* 26 (3). <https://doi.org/10.1108/EJIM-06-2021-0303>.

Jong, Marc De, Nathan Marston, and Erik Roth. 2015. "The Eight Essentials of Innovation." *McKinsey Quarterly*.

Kassotaki, Olga. 2022. "Review of Organizational Ambidexterity Research." *SAGE Open* 12 (1). <https://doi.org/10.1177/21582440221082127>.

Leavy, Brian. 2005. "A Leader's Guide to Creating an Innovation Culture." *Strategy & Leadership* 33 (4): 3845.

McCausland, T. 2022. "Culture to Support Innovation." *Research Technology Management* 65:73–75.

Moore, Goeffrey. 2015. *Zone to Win*. New York: Diversion Books.

- Narayan, Shantanu. 2023. "How We Did It. Adobe's CEO on Making Big Bets on Innovation." *Harvard Business Review* Nov-Dec:36–39.
- NOSCO. 2024. "Innovation Platform - NOSCO." <https://Nos.Co/Innovation-Platform/>.
October 2024.
- Osterwalder, Alexander, and D. Bland. 2020. *Testing Business Ideas. Strategyzer*. New Jersey: John Wiley and Sons.
- Pisano, Gary. 2015. "You Need an Innovation Strategy." Harvard: Harvard Business Review.
- Pisano, Gary P. 2019. "The Hard Truth about Innovative Cultures." *Harvard Business Review*.
- Podolny, Joel M, and Morten T Hansen. 2021. "How Apple Is Organized for Innovation." *Harvard Business Review* Summer.
- Raisch, Sebastian, Julian Birkinshaw, Gilbert Probst, and Michael L. Tushman. 2009. "Organizational Ambidexterity: Balancing Exploitation and Exploration for Sustained Performance." *Organization Science* 20 (4). <https://doi.org/10.1287/orsc.1090.0428>.
- Satell, Greg. 2017a. *Mapping Innovation. A Playbook for Navigating a Disruptive Age*. Macgraw-Hill.
- . 2017b. "The 4 Types of Innovation and the Problems They Solve." *Harvard Business Review Digital Articles* 6/21/2017.
- Utley, J, and P Klebahnc. 2022. *Ideaflow. Why Creative Businesses Win*. London: Ebury Publishing.
- Watkins, Michael. 2013. "What Is Organizational Culture? And Why Should We Care?" *Harvard Business Review* May 15 (May).
- Yeadon-Lee, Annie. 2018. "Lead and Disrupt – How to Solve the Innovator's Dilemma." *Action Learning: Research and Practice* 15 (1).
<https://doi.org/10.1080/14767333.2017.1414674>.
- Zaharee, Marcie, Preeti Chandra, Candee Krautkramer, Stewart Mehlman, Joel Schall, and Kathryn Taylor. 2021. "How Companies Can Benefit from Brilliant Failures." *Research Technology Management*, March, 31–38.

Appendices – optional schematics to support class plan

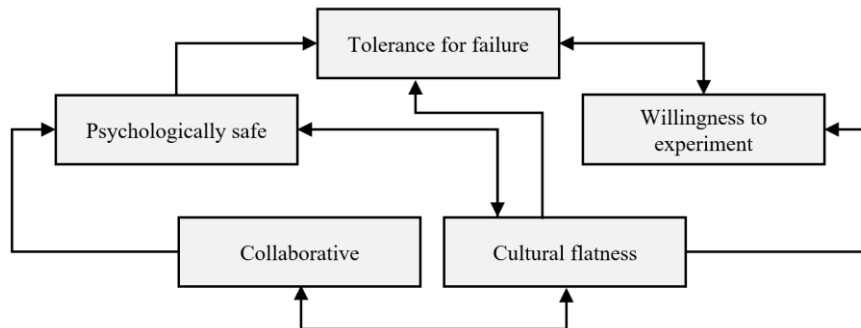


Figure 4 – Dependencies between innovation culture attributes.

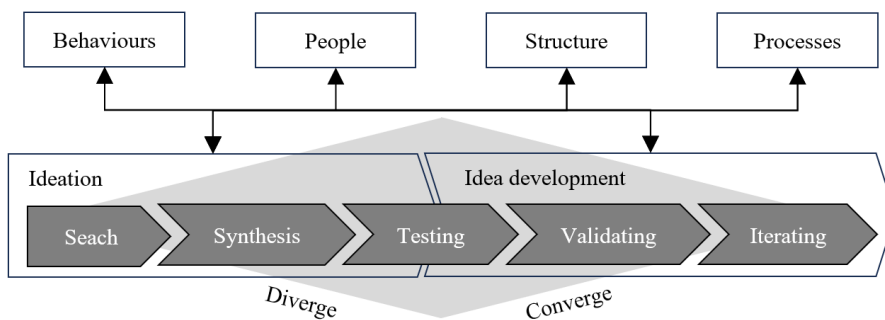


Figure 5 – Tasks and elements of the innovation system.

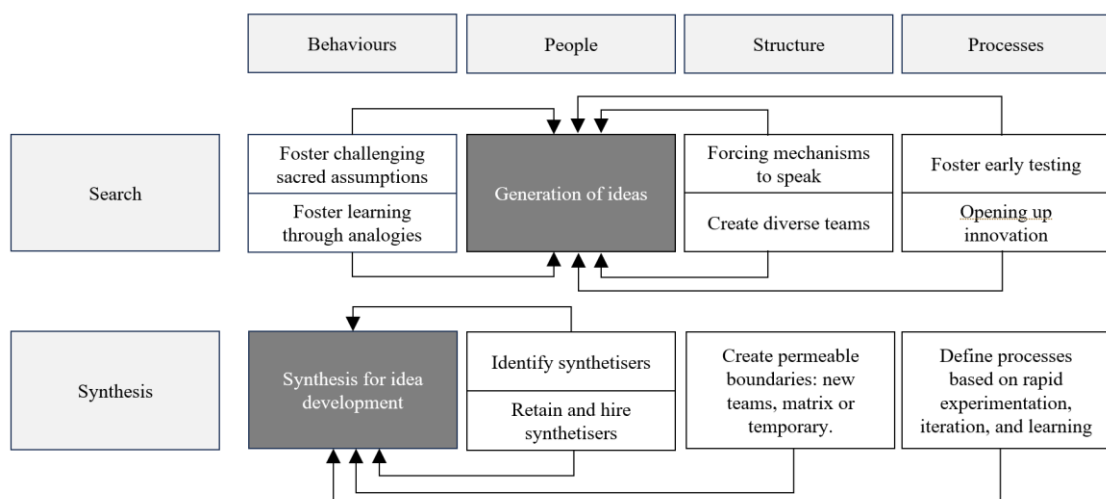


Figure 6 – Initiatives for fostering search and synthesis.

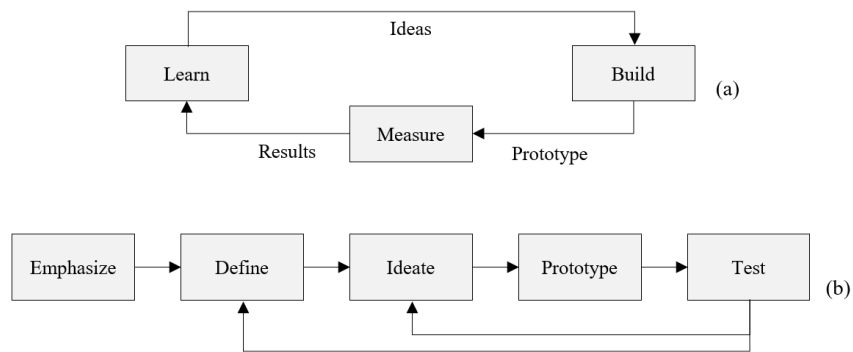


Figure 7 – Examples of fast iteration idea development frameworks: (a) lean startup approach, (b) design thinking.

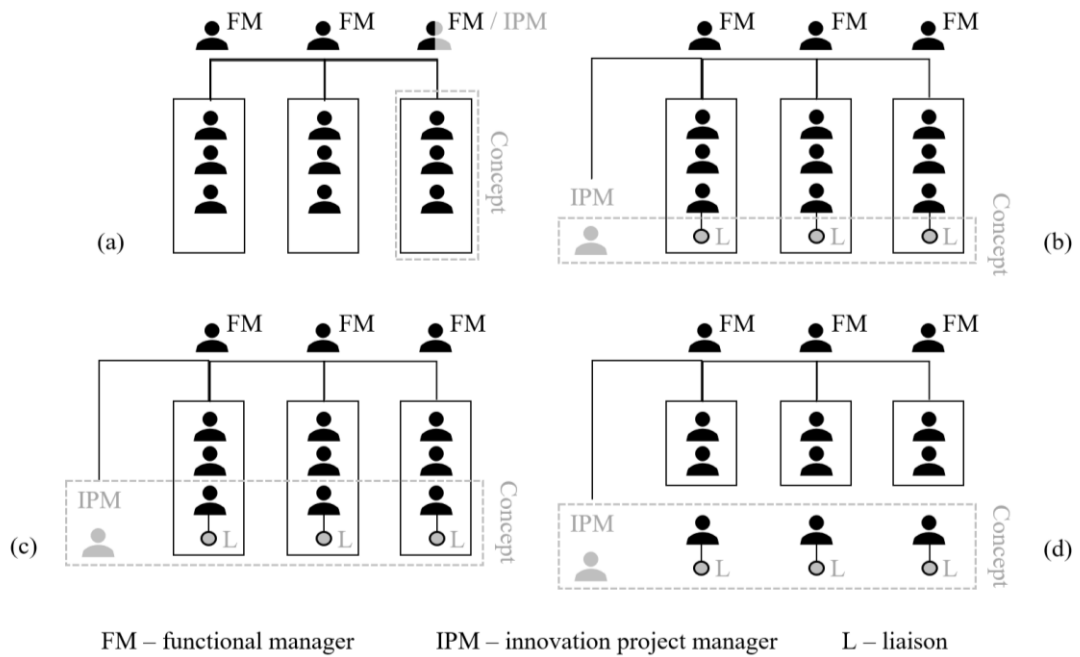
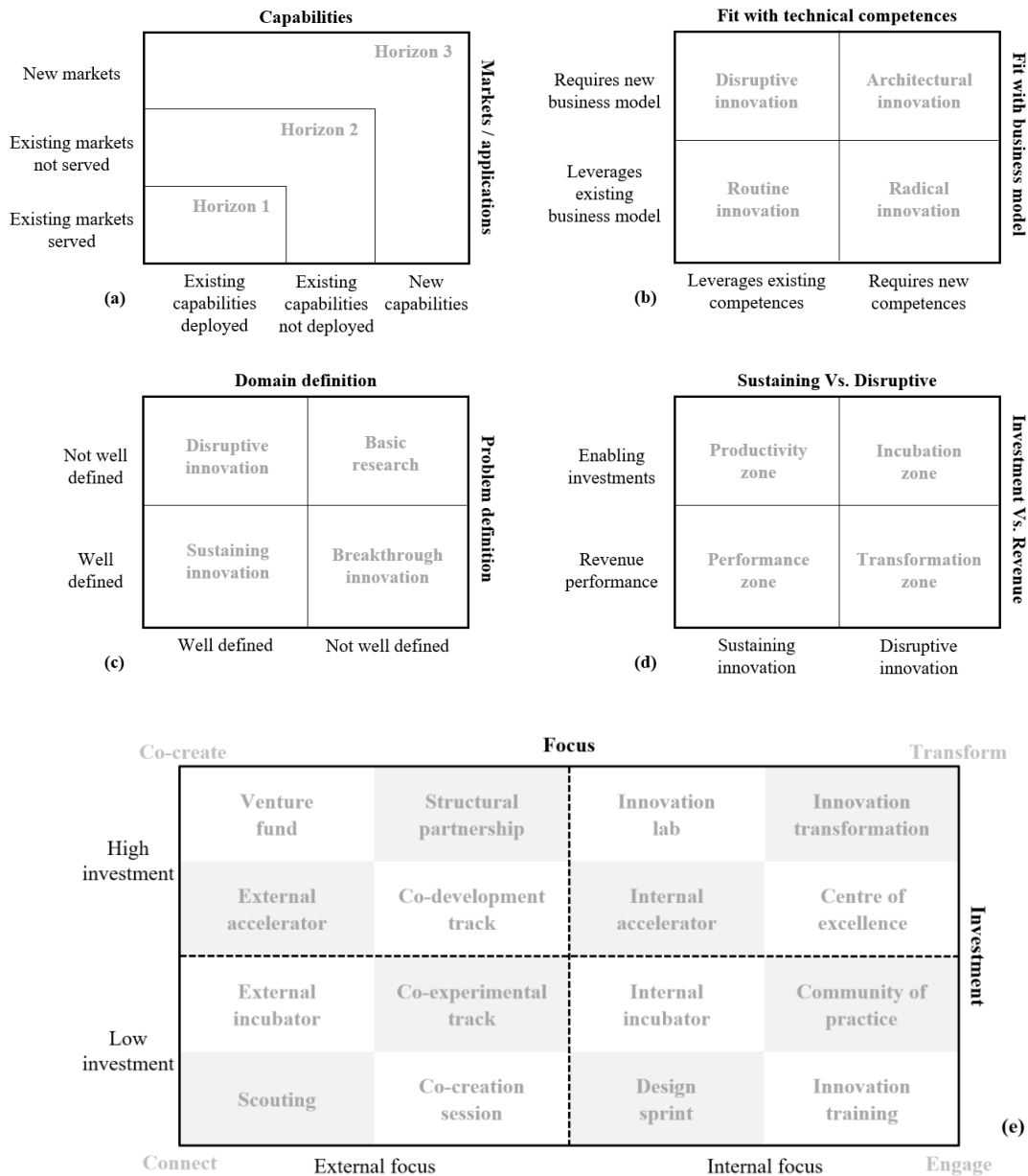


Figure 8 – Innovation project team structures: (a) single-function team, (b) lightweight multi-functional soft team, (c) heavyweight multi-functional soft team, (d) autonomous multi-functional team.



VENTURE FUND: invests in external opportunities that could create growth outside of the core of the organization.

STRUCTURAL PARTNERSHIP: formal collaboration between 2 companies with the aim to launch multiple joint ventures.

EXTERNAL ACCELERATOR: (physical) environment to support the growth and evaluate the value of external start-ups.

CO-DEVELOPMENT: aims to validate the market fit of ventures created by 2 or more organizations.

EXTERNAL INCUBATOR: program to support the validation of early-stage external startups.

CO-EXPERIMENT TRACK: joint test between 2 or more organizations to validate the solution fit of an idea.

SCOUTING: process to identify relevant startups in your field, validate their potential and engage with their founding members.

CO-CREATION SESSION: short ideation with customers or partners to turn mutual problems into ideas.

INNOVATION LAB: separate entity that hosts internal ventures with high potential before they are profitable

INNOVATION TRANSFORMATION: central group of innovation leaders responsible for knowledge development.

INTERNAL ACCELERATOR: virtual or physical space to grow internal startups outside of the core organization.

CENTER OF EXCELLENCE: group of experts coordinating innovation initiatives to embed innovation in the organization.

INNOVATION TRAINING: A short learning track to grow the knowledge and interest of employees.

DESIGN SPRINT: short track to answer business questions through designing, prototyping, and testing with customers.

INTERNAL INCUBATOR: separates intrapreneurs inside of the organization to validate the solution fit of ideas.

COMMUNITY OF PRACTICE: cross-functional group of innovation ambassadors.

Figure 9 – Strategic framework: (a) Three-horizon, adapted from (Satell 2017a), (b) Competences Vs. business, adapted from (G. Pisano 2015), (c) Problem Vs. domain, adapted from (Satell 2017a), (d) Zones, adapted from (Moore 2015), (e) archetypes, adapted from (BOI 2024).

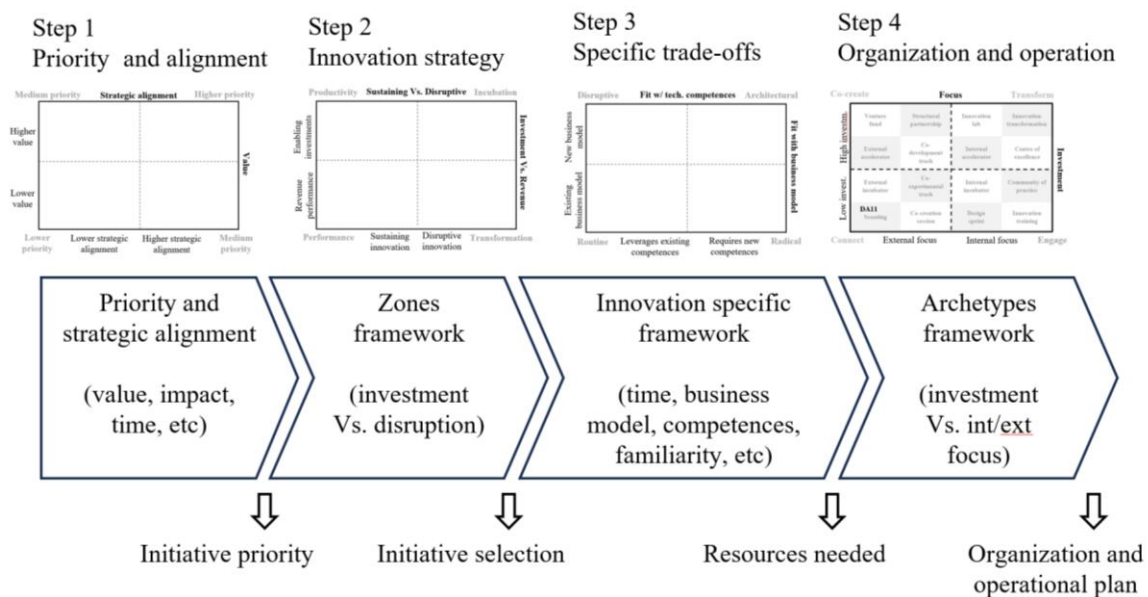
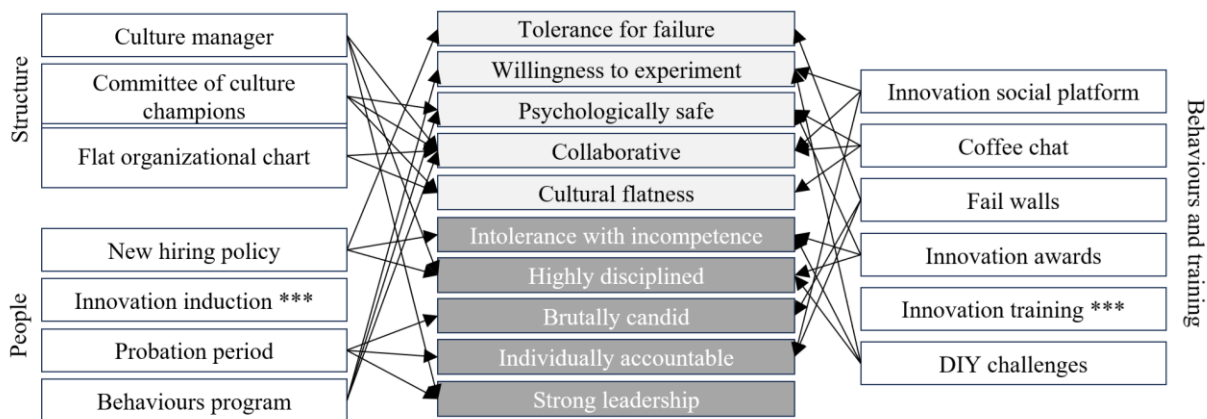


Figure 10 – High-level proposed procedure for selection, prioritization, organization and operational planning of innovation initiatives.



*** Designed to address the ten cultural features

Figure 11 – Cultural initiatives defined to build the innovation culture at RenewCorp. For simplicity, for each initiative, only the top three dependencies with cultural attributes are shown, yet during class any number can be drawn. Suggestions from students based on in-class Q&A can be included in the schematic.

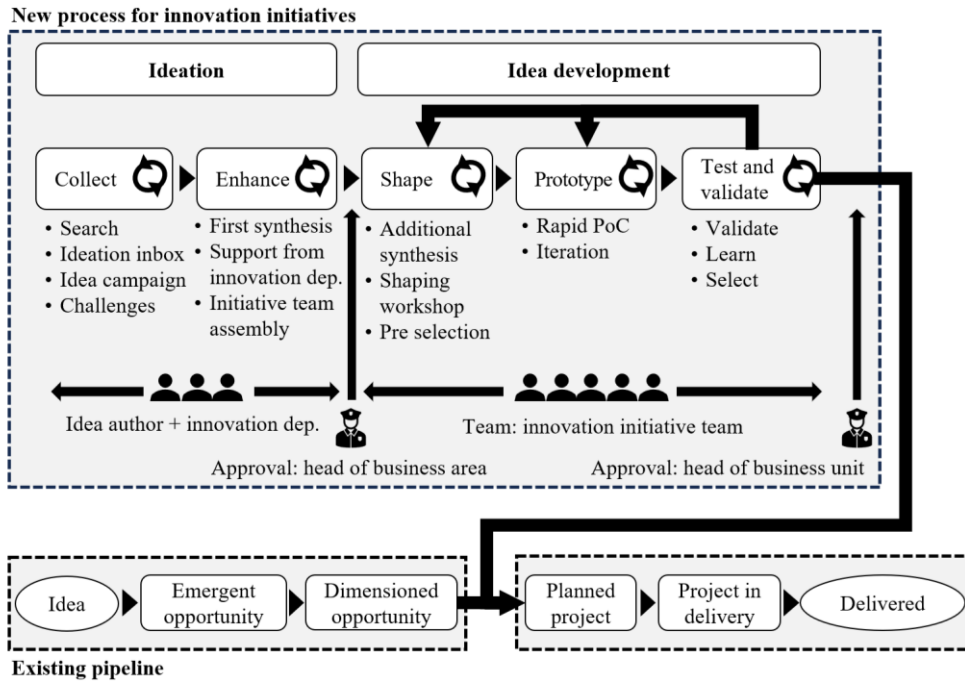


Figure 12 – RenewCorp’s strategy stage gate pipeline adapted to account for innovative initiatives carrying uncertainty and requiring idea development, rapid testing, prototyping and validation.

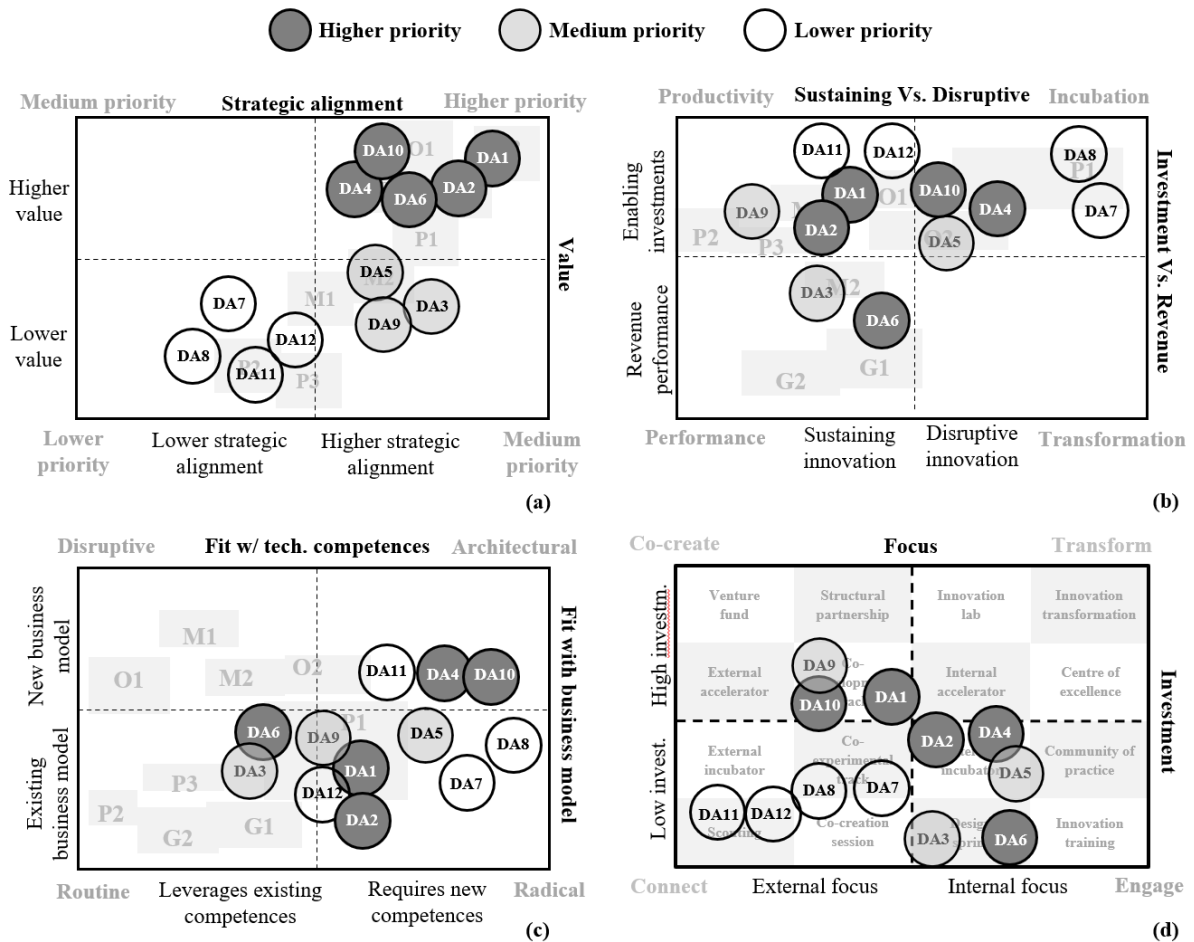


Figure 13 – RenewCorp’s Data&AI initiatives divided according to (a) value and strategic alignment and (b) the zones (Moore 2015), (c) Pisano’s (G. Pisano 2015) and (d) archetypes frameworks (BOI 2024).