



SCALING AT SCALE: REALIZING BIG VALUE FROM DIGITAL INNOVATIONS

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Most organizations are not realizing enough bottom-line value from digital innovations.

An organization realizes bottom-line value from a digital innovation when the initiative team developing the innovation scales it up to an end-user population. Until an initiative team gets its innovation beyond the minimum viable product (MVP) stage, the innovation is just a promising idea that at best is deemed valuable by a small subset of end-users. An initiative team only starts realizing bottom-line value from its innovation when a significant number of end-users can use it. When the initiative reaches the target value for its innovation, the organization considers the innovation to be scaled.

In scaling at scale, an organization enables multiple digital innovation initiatives to realize bottom-line value from their innovation by leveraging shared resources.

An initiative team faces an array of challenges in getting its innovation to the scale-up stage of development. In many organizations, just a handful of initiatives succeed at navigating such challenges to scale their innovations. But in some organizations, hundreds of initiatives get to the point of scaling their innovation and beyond. These organizations build shared resources and serve them efficiently for use across initiatives, thereby reducing the costs and risks to initiatives of scaling innovations independently. We describe this capability as **scaling at scale**, which we define as *enabling multiple digital innovation initiatives to realize bottom-line value from their innovation by leveraging shared resources*.

In this briefing, we focus on a striking example of scaling at scale: executives at Spanish global multi-energy company Repsol S.A. developed an organizational capability that has enabled the company to cultivate a portfolio of over 450 digital innovation initiatives and helped more than seventy percent of initiatives to scale their innovation. As a result,

over the course of five years, Repsol realized €800 million in cash flow from operations¹ via digital innovations.²

REMOVING BARRIERS TO SCALING AT SCALE

In our research, we have found that digital leaders enable scaling at scale by introducing a variety of new roles, incentives, platforms, and processes at their companies. Combined, these structures form an organizational capability that removes two types of barriers for initiatives:

- **Strategic barriers** that impede executives from committing to realizing value via digital innovations
- **Operational barriers** that impede innovation teams from building and operating digital innovations as they are deployed to the end-user population and evolve

Strategic barriers emerge when business executives don't prioritize digital innovation or even know how to lead an initiative through its stages of development. Business executives must invest many resources—money, people, and time—in a digital initiative before it can realize bottom-line value, with a high risk of failure along the way. Many organizations consider getting business executives to take risks as the greatest challenge they face when competing in a digital

1 At Repsol, cash flow from operations represents incremental CFFO (Cash Flow From Operating Activities) + CapEx savings; CFFO consists of Income before tax + Adjustments to income + Changes in working capital + Other cash flows from operating activities. Repsol achieved the objective it described in its strategic plan to realize €800 million in cash flow from operations between 2018 and 2022; see "Strategic Plan 2021–2025," Repsol S.A. presentation, page 59, on the Repsol S.A. website, November 26, 2020, https://www.repsol.com/content/dam/repsol-corporate/en_gb/conocenos/2025-strategy/1126112020_presentation_on_the_strategic_plan_2021_2025.pdf, accessed November 30, 2022.

2 In 2021 and 2022, the authors conducted and transcribed interviews with twelve Repsol executives spanning a variety of responsibilities; collected public records and internal documents and data; and coded and analyzed all the data. They are developing a full MIT CISR case study on Repsol based on their findings.

environment.³ And business units must actively lead their digital initiatives; most initiatives will be doomed to fail if they are merely delegated to digital or IT units.

Operational barriers emerge when initiative teams lack technologies and skills they need for development. They also manifest when an innovation crosses stages of development, most notably in the hand-off from the team that builds the MVP of an innovation to the one that develops the innovation to be deployed and operated across the target end-user population.

It is difficult for an initiative to overcome both types of barriers on its own. For an organization to help hundreds of initiatives overcome them is significantly more difficult—but the effort offers potentially exponential rewards.

BUILDING A CAPABILITY FOR SCALING AT SCALE AT REPSOL

Prior to 2017, business leaders at Repsol were reluctant to commit significant resources to digital innovation initiatives because they were uncertain about what was feasible with digital technologies, what the company's end-users would find valuable, and what made business sense for their business units. Few at Repsol prioritized investing in digital innovation because it wasn't necessary to succeed at the company. To confront these issues, Repsol implemented approaches to address strategic and operational barriers.

Strategic: Building Businesses' Commitment

In May 2017, Repsol's CEO launched the Digital Program, an effort to invest in digital capabilities for the company. The program's goal was as clear-cut as it was bold: to realize €1,000 million in cash flow from operations via digital innovations by the end of 2022. Each of Repsol's four business units⁴ was tasked to realize a percentage of the total target. In 2020, to compensate for the impacts of the COVID-19 pandemic on many of the company's markets, Repsol adjusted the target downward to €800 million. Although this was still an ambitious goal, the company realized it in December 2022.

To qualify for the program, a digital innovation initiative should aim for "profound transformation" of how a business unit operates or creates value; deliver "measurable economic impact" on the cash flow target; and employ an iterative, customer-centric way of working using "disruptive digital technologies."⁵

To each qualifying digital innovation initiative, the business unit commits a product owner and a business sponsor who are jointly accountable for achieving cash flow targets. A team of comptrollers from the CFO's office that is independent from the Digital Program validates business sponsors' profit contribution claims and confirms the impact of an initiative on Repsol's cash flow metric.

Strategic: Minimizing Risk to Businesses

Repsol's Digital Program enables business leaders to assume and minimize risk with a five-stage funding model. At the start of the program, business leaders were concerned that their units would be held accountable for risky initiatives—even though, in the end, it was Repsol who would be accountable. To overcome such concerns, the company covers the entire cost of a digital innovation initiative for the first three stages of development: envisioning, conceptualizing, and producing an MVP. For key initiatives, the Digital Program assigns user experience experts to help the initiative identify the end-users and problems it will address.

Before an initiative enters the fourth stage—scaling—the business unit decides during a *Shark Tank*⁶-style meeting whether there is sufficient evidence that the initiative could generate significant value. If a business unit decides to stop an initiative, it does not bear any of its cost. If the unit decides to continue into the scaling stage, it bears all costs of the initiative from inception and going forward. Allowing business units to test and learn about whether investments in an initiative would yield value before committing fully to it has helped contain costs: at Repsol, most of the total cost of an innovation—about seventy percent—accrues after the MVP stage.

Besides covering costs for initiatives' early stages, the Digital Program also trains and coaches business executives to become savvier about leading innovations that rely heavily on new digital technologies.

3 Gerald C. Kane, Doug Palmer, Ahn Nyugen Phillips, David Kiron, and Natasha Buckley, "Coming of Age Digitally," *MIT Sloan Management Review and Deloitte Insights*, June 5, 2018, <https://sloanreview.mit.edu/projects/coming-of-age-digitally/>, accessed November 22, 2022.

4 Repsol's four business units consist of Upstream (the company's oil and natural gas exploration and production activities), Industrial (trading, refining, chemicals, maritime terminals, and renewable hydrogen), Customer (sustainable mobility, solutions for homes and businesses, and products and services), and Low-carbon Generation (low-emissions power generation and renewable energy).

5 Internal Repsol documents, provided to the authors on July 28, 2022.

6 *Shark Tank* is an American reality television show on the ABC network in which aspiring entrepreneurs make business presentations to a panel of five "shark" investors; "Shark Tank," ABC, <https://abc.go.com/shows/shark-tank>, accessed November 22, 2022.

Operational: Providing Shared Technology Talent and Platforms

The Digital Program provides ready-to-use technology, platforms, and talent, structured in central hubs and associated platforms, in areas such as cybersecurity, blockchain, data, cloud, robotics, user experience, and omnichannel. Each hub platform offers shared and reusable functionality and has a platform owner who is responsible for ensuring that the platform helps initiatives to generate value.

For example, the Data Analytics and AI Hub provides data lakes, data extractors, and reusable functionality, and data owners are empowered to decide quickly whether permission to access data can be granted to an innovation initiative. This hub trains product owners in the fundamentals of artificial intelligence. It also provides each of the four business units with a data translator, a specialist in both data analytics and the unit's area of the business who helps product owners from the unit work with internal and external specialists who are building and maintaining deliverables.

Operational: Making Deployment Effortless

Soon after the launch of the Digital Program, Repsol introduced the Digital Product Factory (DPF), which employs DevOps techniques to connect development and deployment processes. Before the DPF, the deployment process involved handing an MVP off to an unrelated operational unit. According to the head of the DPF, the unit transformed the hand-off experience from “like pushing a boulder up a mountain” to one where the boulder “slides down the mountain.”

The DPF appoints so-called implants—operational employees who are involved in digital innovation initiatives' early stages and the development of the hub platforms—to ensure easy movement of innovations developed on the platforms into production.

During the deployment stage, the DPF also helps initiatives monitor the health of an innovation in terms of business impact. For example, when one innovation scaled from 100,000 to 400,000 end-users, DPF helped the product owner track the business impact (e.g., estimated revenue lost) of operational incidents.

Operational: Making Change Continuous

At Repsol, both digital innovations and shared resources are living products. Repsol's chief data officer refers to data models as “little babies” because they mature and evolve as the market changes. The AI model underlying an AI-based innovation is likely to require regular recalibration after

deployment. Repsol previously relied on external talent to develop AI-based innovations—but most of such innovations failed after going live, because the external talent left after the MVP stage and Repsol could not recalibrate the AI models. Now, Repsol's data hub has a team of ten internal data scientists that works with development teams for AI-based innovations to interface with external experts and own the AI model if the initiative moves into deployment.

The Digital Program designs initiative teams that are dedicated for the entire life cycle of the initiative's digital innovation. To smooth the transition from development to deployment and continuous change, a product delivery lead from the Digital Program shepherds each digital innovation team within a business unit.

When it removes strategic and operational barriers, an organization becomes more capable of scaling at scale—and more likely to generate significantly more value for both end-users and the organization.

BECOMING READY TO SCALE AT SCALE

If your organization struggles to generate bottom-line value from digital innovations, then assess how capable it is of scaling at scale. To what extent are strategic and operational barriers preventing initiatives from advancing to the scaling stage and beyond?

To remove strategic barriers, set ambitious goals for the organization to realize via digital innovations and hold each of your top leaders accountable for their fair share. Expect executives to lead digital innovation initiatives and contribute to one or more strategic targets, including sustainability goals and financial ones such as cash flow from operations, revenue growth, cost reduction, and profits. In exchange, help executives to lead initiatives. Consider absorbing the cost of early stages of innovation development.

To overcome operational barriers, develop resources at the organizational level that can be shared across multiple initiatives, and support initiatives with process improvements that facilitate hand-offs and transitions from one stage of development to the next. This will reduce cost per initiative and enable more teams to realize value.

As you remove strategic and operational barriers, your organization will be more capable of scaling at scale, and more likely to generate significantly more value for both end-users and the organization.

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