

Innovation at Speed and Scale: Competing in the Digital Era with the Flywheel Operating Model

**CHARLES GILDEHAUS, DAVID ALLRED,
ALLISON BAILEY, AMANDA LUTHER, AND
SESH IYER**

1

Digital technologies are driving a rapid and irreversible shift in the basis of business competition—continuous customer-centric innovation, at speed and at scale, is now the name of the game. Market-leading incumbents are now confronting the limitations of their conventional top-down, control-centric operating model. Digital leaders, on the other hand, have embraced this sea change; and are pioneering a new operating model—the flywheel—powered by innovative product teams and an accompanying shift in culture and governance to support them.

Digital Is Shifting the Basis of Business Competition

Digital is shifting the basis of business competition. Customer and employee expectations continue to rise. Competitive pressure from new entrants and new forms of competition are intensifying. Globalization continues to amplify the volatility, complexity, and uncertainty of the interconnected global economy. To compete and win in this new environment companies must learn, adapt, and innovate faster than their competition. Innovation at speed, and at scale, is the new name of the game.

Digital leaders have embraced this new reality. They are systematically harnessing digital technologies to drive innovation velocity in every part of their business. They are deploying artificial intelligence (AI) and digital solutions to create user-centric learning loops to gather data, generate insights, and continuously reshape and reinvent customer experiences, as well as core operations. They understand, at a very intuitive level, the power of digital to augment and accelerate the basic loop of human learning.

Digital leaders have pioneered a new product-centric, digital-first operating model, built around this foundational premise, which we call the flywheel. This operating model prioritizes product teams and empowers them to drive continuous value delivery along every element of the business's value chain. These multidisciplinary teams leverage AI- and digital-powered solutions to create powerful self-reinforcing loops for continuous data-driven innovation. Once spinning, these virtuous cycles act like flywheels, creating their own momentum for always-on reinvention and growth. This flywheel effect also creates transformative energy for the entire organization, enabling the test-and-learn mindset and ways of working to permeate the culture and take root across the organization.

A Boston Consulting Group (BCG) study of 1,200 global companies vividly illustrates the power of this model. From 2018 to 2021, the companies that pioneered and scaled this digital-first operating model delivered 2.5 times higher total shareholder value overall (Forth et al., 2022).

Limitations of the Conventional Operating Model

Since the early days of the industrial age, operating models have been continuously refined and optimized to enable business leaders to drive scale while maintaining tight operational control and minimizing risk. Functional hierarchies, top-down planning, restricted decision-making abilities, and multilayered approval mechanisms are all logical components of this model. This system was ideal for competing in the scale-oriented marketplaces of the 20th century, when operating at lower cost across broader markets was the primary determinant of market share and profitability.

The inherent limitation of this model is that it actively restricts broad-based experimentation and test-and-learn innovation. In fact, as these systems are built out over time, becoming ever more sprawling and intricate, they trigger a set of dynamics that severely handicap a company's ability to keep pace and compete in the digital era.

The first dynamic is a disconnection from the customer. As functional hierarchies grow larger, they tend to become more rigid, pushing decision-making authority up the hierarchy and away from where customer interactions take place. In this system, no single team or leader owns the full end-to-end product and customer experience, making it exceedingly difficult to implement customer-centric innovations quickly and effectively. As a result, frontline employees, who have the insights and inspiration to drive innovations where they are needed most, grow disillusioned and disempowered over time. Each time a team member comes up with a new idea, they are forced to push through a brutal gauntlet of approvals to get anything done. As this pattern repeats itself, teams and individuals eventually lose their will to innovate; the pain isn't worth the gain.

The second dynamic is diminished velocity—the speed at which decisions are made and then translated into action and business outcomes. Scaling a business drives exponential growth in its organizational and technical dependencies. In an attempt to control and manage this complexity, organizations add layer upon layer of mechanisms for prioritization, approval, and coordination. As senior managers sink more and more of their energy into navigating this path—seeking alignment and sitting on committees—they inevitably hit a tipping point, spending more time on these activities than on driving value for the business.

The third dynamic is the set of encumbrances and barriers that develop around the technology organization, isolating it as a standalone functional empire. Business leaders now recognize that bridging this historical divide—completely rethinking and reinventing the way technology teams integrate

and interface with the core business—is an absolute strategic imperative. This requires driving a transformational shift in how technology is deployed, from an IT-driven approach to a business-driven one. It entails moving beyond a multiyear big bang IT-project orientation to a continuous-value-delivery orientation centered on products. Senior leaders in the technology organization—those most often tasked with tackling this transformation—face a complex tripartite challenge:

1. Modernizing their technology infrastructure to drive new efficiencies and create new levels of flexibility and modularity; while
2. Building new human capabilities within their organization, such as new digital ways of working, improved culture, and updated skills; and
3. Meeting the business leaders where they are and facilitating changes on their side.

Successfully meeting these challenges is no small feat.

Countless companies have turned to the agile movement as a panacea for these problems. There is no doubt that the vast majority of these implementations have laid a critical foundation for executing iterative, sprint-based software development. Agile has successfully delivered substantial gains in engineering velocity, yet many of these transformations fail to address the underlying structures at the root of the traditional command-and-control operating model. Many of these efforts have thus fallen short of the original aspiration to build a new set of capabilities to deliver continuous customer-centric innovation. In short, agile initiatives have proven highly effective in teaching teams *how* to build but not nearly as effective in teaching teams *what* to build.

The Flywheel Operating Model

The flywheel is an evolution of the conventional operating model—embraced by those who recognize that today’s companies can’t win with yesterday’s assumptions. The flywheel enables organizations to systematically harness digital technologies to drive rapid, iterative, and continuous learning and innovation across the business value chain, with equal priority on cost efficiencies and new revenue growth. This evolution retains the cost, efficiency, and control elements of the conventional model but pushes them down to a foundational level. The flywheel has four interconnected components that empower frontline teams to drive innovation at speed and at scale as described in the following subsections.

Product Primacy

Digital leaders deploy teams to capture high-value opportunities and invent new end-to-end solutions or products. (See the sidebar, “Defining *Product*.”) These teams are empowered to drive iterative, user-centric innovation of those solutions in order to continuously deliver value to the business. Digital leaders recognize that each of these products is a nexus, or interaction point, between the business and the customer or end user where value is continually created. For this reason, they elevate *product* as the primary axis, around which all resources, processes, capabilities, assets, and technologies are organized.

The resulting management philosophy is called *product primacy*. Product teams at the center of this model are multidisciplinary—armed with product, design, data science, engineering skills and talent—and have full responsibility for the end-to-end life cycle of the product and the value stream associated with that product. The product manager leading the team is responsible for driving the dynamic evolution of a product roadmap and for enabling their team to deliver specific outcomes that culminate in the key results the business has committed to its investors.

These teams are bolstered by the tight integration of other critical functions that are needed to support the product such as marketing, legal and compliance, and manufacturing. In addition, the organization’s planning, governance, and funding processes are reoriented to embrace product-platform orientation and provide decision-making autonomy to the business, product, and technology leaders responsible for these teams.

Defining Product

Digital leaders embrace a broad and encompassing definition of product. A product is a tool, a solution, or an experience that solves a problem for the end user and thereby creates utility and value. This definition includes the primary good or service the company sells to its customers but it stretches beyond this to embrace digital experiences (e.g., digital on-boarding journey for a new customer), digital platforms (e.g., a video service platform), and internal digital solutions (e.g., a workforce management application). What all of these have in common is that they are the interaction point between the business and the customer/end user, and thus the nexus of value creation. Digital leaders also embrace the fact that all physical products will eventually incorporate or integrate a digital element (e.g., digital twins being used to drive product innovation for an automotive parts manufacturer or a sensor-driven AI-model to predict failure in a transformer on an energy grid).

Data-Driven, Continuous, Customer-Centric Innovation

If job number one for a product team is to invent a breakthrough product, then job number two is to drive ongoing user-centric innovation around that new product to ensure it continuously delivers value. Digital leaders have created a playbook for doing this. In a recent study of digital native companies, we interviewed more than 50 product officers and digital

product managers at leading digital native companies, identifying the common operating blueprint these leaders deploy to drive successive rounds of data-driven innovation on their teams. This playbook integrates the foundational approaches of design thinking, lean, and agile into a process aimed at driving a virtuous cycle of end-user engagement, learning, and innovation. It has four steps:

Build knowledge of the end user through feedback. Integrate quantitative and qualitative data so that the flywheel team can easily access it in real time. Leadership must set clear guardrails and protocols for personal data and privacy as these are essential elements for guiding actions and decision-making.

Generate insights using an analytical toolkit and set of routines. Uncover new value by identifying where the biggest opportunities lie.

Run experiments. Generate innovative solutions by structuring rigorous, rapid tests that monitor impact, drive key performance indicators (KPIs), and eliminate waste and dead ends.

Build and deploy. Build and deploy agile software development routines and full production support processes to enable rapid and continuous delivery of enhancements to products, services, and platforms.

Digital leaders have developed and refined a set of subprocesses and tools that enable their product teams to execute each of these steps as part of a rigorous and efficient routine, operating on a weekly, monthly, and quarterly cadence. The playbook is specifically designed to empower each of the product team's disciplines—business, product, design, engineering, data science—to lead, drive, and contribute to each of the four steps. In these ways, the playbook represents a revolutionary way of working—integrating the principles of multidisciplinary teamwork and data-driven discipline into a single cohesive model.

Platform Technology Orientation

Digital technology is the foundational enabler of this four-step playbook. Interacting with end users through the digital medium means massively accelerating the speed at which product teams communicate, run test-and-learn experiments, capture data, and build knowledge about the end user. AI means massively accelerating the speed at which product teams learn, generate new insights, and apply them to create value for the end user. For this reason, to be successful, product teams need a fluid, modular, and flexible technology environment in which to operate, where access to data, microservices, and expertise enables them to move quickly and creatively to drive continuous test-and-learn innovation.

The challenge for many market-leading incumbents is how to transform their technology organization to deliver this environment—how to overcome the inherent limitations and encumbrances, described earlier, around legacy infrastructure, ways of working, governance, culture, and talent. Digital leaders who have successfully made this transition have deployed a three-part formula:

Business-platform teams. Reorganize enterprise technologies into business platforms, which represent a collection of applications working in concert to achieve key outcomes. Business platforms are typically aligned with a company's core operations and may include many complementary applications and cloud services. Creating such a tight linkage between the way a company operates and its supporting technologies dramatically improves visibility into technology potential and return on investment. Technology delivery must be executed by dedicated end-to-end business and technology teams responsible for defining requirements and executing development. Success is defined not by delivering on time and on budget, but by raising team expectations to achieving the targeted business KPIs.

Technology-platform teams. Create teams that are responsible for empowering product teams to become more autonomous (and requiring far greater IT support) by leveraging configurable technology and data services. Technology-platform teams are focused on anticipating and creating the tools and application programming interfaces (APIs) that will be in high demand from product teams, and modernizing the necessary underlying systems and tools without compromising security, cost, or scalability. Success of the technology-platform team is determined by its ability to ensure that business-platform teams have greater innovation latitude and can operate with greater speed and agility. They do this by delivering a powerful library of reusable APIs and microservices that can be used in digital product development; highly usable data that is systematic, centralized, integrated, cleaned, and broadly available; and a centralized and standardized infrastructure that is secure and can maximize the overall return on technology investment.

With these resources at their disposal, product teams are free to focus on high-value objectives such as creating exceptional customer experiences or leveraging AI to automate business processes. Ideally, this feels more like compiling preexisting technology services made available by the platform teams than having each team creating its own base technologies.

Modular data and digital platform architecture. Build a tiered, modular data and digital platform (DDP) architecture designed to liberate data

from inflexible legacy systems and empower business users to create new use case solutions. The DDP architecture decouples technology into the layers outlined below as a way to separate responsibilities and minimize complex dependencies:

- **Multichannel front-end and product modules.** Enable reusability of components and shared features to optimize app development across a variety of user interfaces.
- **Integration and interoperability.** Ensure the integration of third parties, products, and core systems via APIs and standardized middleware.
- **Infrastructure.** Provide an optimized hybrid infrastructure that combines the best of cloud and on-premise capabilities.
- **Data and analytics.** Build a modern, centralized data-storage solution and enable data sharing across systems and products.
- **Security.** Protect sensitive data and information and ensure high standards for privacy and compliance.

Empowerment Leadership and Governance Model

The final component of the flywheel model is empowering product teams by pushing decision-making authority downward and outward to encourage experimentation, learning, and continuous innovation.

Single-threaded leadership (STL) is an organizational approach designed to maximize ownership, empowerment, and accountability by providing more autonomy to teams. Amazon pioneered and scaled the STL model in the 2010s, when its leadership recognized that exponential growth had put the company on the path of death-spiral bureaucracy. Senior managers were seeing yellow flags: leaders whose attention was fragmented, stalled initiatives, and frustrated and disempowered teams. Most alarming was the realization that Amazon's innovation velocity—the competitive weapon it had used so effectively to disrupt and upend the retail giants—was beginning to dwindle (Bryar et al., 2021).

The retail giant set out on a multiyear journey to completely reinvent its management system, starting with the idea that business leaders would be assigned a single initiative or business problem. Leaders were given end-to-end ownership to deliver on their primary objectives and would spend all of their time, energy, and talent finding a way to make it happen. Amazon called these individuals “single-threaded leaders” (a reference to a single-threaded program, which executes one stream of commands at a time). Amazon then instituted single-threaded teams (STTs). Senior management empowered these autonomous, multidisciplinary teams to decide the best way to fulfill their mission and gave them the skills, roles, and resources to deliver on it.

The flywheel teams described here are the natural evolution of STTs.

The most critical element of this new structure is designing teams that are truly separable: eliminating, or at least massively reducing, the organizational and technical dependencies required to execute their plans, so they no longer needed to align, coordinate, wait on, or block other teams. In this way, the single-threaded model targets the root structural issue—a complex web of interdependencies—which underlies most of the challenges facing traditional governance models.

Amazon's implementation is the purest and most complete manifestation of an empowerment-oriented leadership and governance model. While it isn't appropriate for every company, its guiding principles—increased autonomy, reduced dependencies, refocused leaders, and empowered teams—serve as useful guideposts for an incumbent organization looking to evolve. How best to apply these elements will depend on unique contextual circumstances, including leadership, culture, talent, and the technological orientation of the business.

Getting Started

Over the past decade, thousands of companies have launched full-scale, end-to-end digital transformation initiatives that have proven notoriously difficult to navigate. A BCG study of more than 800 companies found that nearly 76% of digital transformation initiatives fail to achieve their stated objectives (Forth et al., 2020).

The pitfalls are well-known—long time lines, fatigue, failure to demonstrate a return, resistance from middle management, employee skepticism, senior leadership transitions, and, perhaps most common, collapse under the overwhelming complexity and scope of the transformation. Yet they all remain stubbornly difficult to avoid. Even the label *transformation* can be problematic. When it comes to digital, there is no real beginning, no real end, and certainly no straight lines.

The flywheel offers an alternative, evolutionary approach to navigating the change effort—one that is iterative and ongoing, where learning is the currency, and adaptation the norm. To get started, companies should consider three practical guidelines:

Start small (but think big). Transformation efforts typically kick off big, bold programs with fanfare and a heavy investment. Start instead by picking one tangible problem—a point of customer friction or operational inefficiency, perhaps—with obvious potential to unlock value, then task a single team to solve it in a novel way. Assemble a multidisciplinary

flywheel team, empower its members to follow playbook principles, and challenge them to invent a new solution. Clear the runway for the team to build and launch their product and create business impact as fast as possible.

Demonstrate value to leadership. Flywheel teams must build something useful quickly and get it into the hands of users so the team can get feedback, adjust, and make iterative improvements. Leadership must therefore provide flywheel teams with the license to start testing their concepts with customers immediately. This creates two sources of momentum: it requires the team to demonstrate business impact and primes executive leadership to view and reinforce the success of the flywheel model.

Build on successes to scale the flywheel across the organization.

The original product team can serve as proof of the flywheel concept. Once this value is realized, management should empower other flywheel teams to build products based on the original team's approach. Build out management systems and reporting mechanisms to encourage flywheel activity across all products and clear away command-and-control obstacles. Encourage and fund the technology-platform team to create the portfolio of bulletproof services that the flywheel teams will need for their technology development. In this way, the first team serves as a Minimum Viable Operating Model—to accelerate the organization learning about what works and better understand the barriers and blockers that will need to be overcome to enable the organization to fully scale the flywheel operating model at the enterprise level.

Operating Model Implications

The flywheel operating model offers companies a new perspective and fresh approach to how they operate, transform, and win in the market. The four core elements describe what digital leaders do exceptionally well and what it takes to drive innovation at speed and at scale across an organization. Because of this, the flywheel serves as a North Star, providing businesses with a consistent direction and a coherent framework for execution.

The transformative potential of the flywheel approach extends across every critical element of the enterprise, spanning culture and talent, organizational design, ways of working, and technology. A full discussion on the implications of the flywheel could fill a good-sized book, but by customizing this approach to the specific needs of a company, an executive can begin to tap into the momentum offered by the flywheel operating model.

This article is the second in the Innovation Flywheel Series. The first article, *Powering the Innovation Flywheel in the Digital Era*, introduces the concept of the innovation flywheel and presents the four-step playbook used by digital-native product teams to drive continuous customer-centric innovation. This article presents an operating model, pioneered by digital leaders across every industry, as a North Star to guide the digital transformation journey for market-leading incumbents seeking to build the capabilities they need to compete and win in the digital era.

References

Bryar, C., & Carr, B. (2021). *Working backwards: Insights, stories, and secrets from inside Amazon*. St Martin's Press.

Forth, P., de Laubier, R., Chakraborty, S., Charanya, T., & Magagnoli, M. (2022). *The rise of the digital incumbent*. BCG. <https://www.bcg.com/publications/2022/rise-of-digital-incumbents-building-digital-capabilities>

Forth, P., Reichert, T., de Laubier, R., & Chakraborty, S. (2020). *Flipping the odds of digital transformation success*. BCG. <https://www.bcg.com/publications/2020/increasing-odds-of-success-in-digital-transformation>

About the Authors

Charles Gildehaus is a Managing Director and Partner at BCG. He co-founded BCG Digital Ventures (BCG DV), Boston Consulting Group's corporate venture investment and incubation firm. He focuses on advising CEOs and senior executives across the industry on digital innovation, transformation, and new business build.

David Allred is a Managing Director and Senior Partner at BCG. He co-founded BCG Digital Ventures (BCG DV), Boston Consulting Group's corporate venture investment and incubation firm. David has launched over 20 successful ventures with corporate partners across TMT, automotive and mobility, building materials, insurance, energy, and medtech.

Allison Bailey is a Managing Director and Senior Partner at BCG. She is the Global Leader of the firm's People and Organization Practice Area and is an experienced transformation leader, helping companies implement large-scale change, including organization redesign, digital transformation, operational improvement, and post-merger integration.

Amanda Luther is a Managing Director and Partner at BCG. She co-leads Digital Transformation globally and is a member of the Technology and Digital Advantage leadership team. Amanda is an expert on digital, data, and advanced analytics topics, serving clients in industries including retail, restaurants, Consumer Packaged Goods, travel and tourism, and the public sector.

Sesh Iyer is a Managing Director and Senior Partner at BCG and the North American regional cochair for BCG X, Boston Consulting Group's tech build and design unit. He also leads the firm's work in the Americas in lean services and operations in technology and IT, and cloud computing.