

Brief

Technology in Retail: Escaping the Complexity Trap

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Simplifying and modernizing tech is getting even harder, but industry leaders show a path forward.

By Marc-André Kamel, Will Poindexter, Bharat Bansal, Bala Parameshwaran, and Donna Enverga

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BRIEF

At a Glance

- Facing a shrinking window to modernize and future-proof systems, retailers need to do more than just keep their current technology working, but many still feel trapped by complexity.

- Executive teams can break free by emulating today’s most successful retailers, whose deep understanding of the strategic importance of technology stands out in our latest research.
- That means giving tech expertise a seat at the top table, embracing flexible architecture, understanding and committing to the required investment, and building the capability to realize value at speed.

Technology modernization is one of the hardest items on the executive to-do list in retail. The average retailer’s legacy systems are notoriously complex and costly to maintain, for a start. Tech teams at each level of the stack also tend to work in a fragmented way, with different reporting lines. That’s a major constraint when new use cases require coordination across all systems.

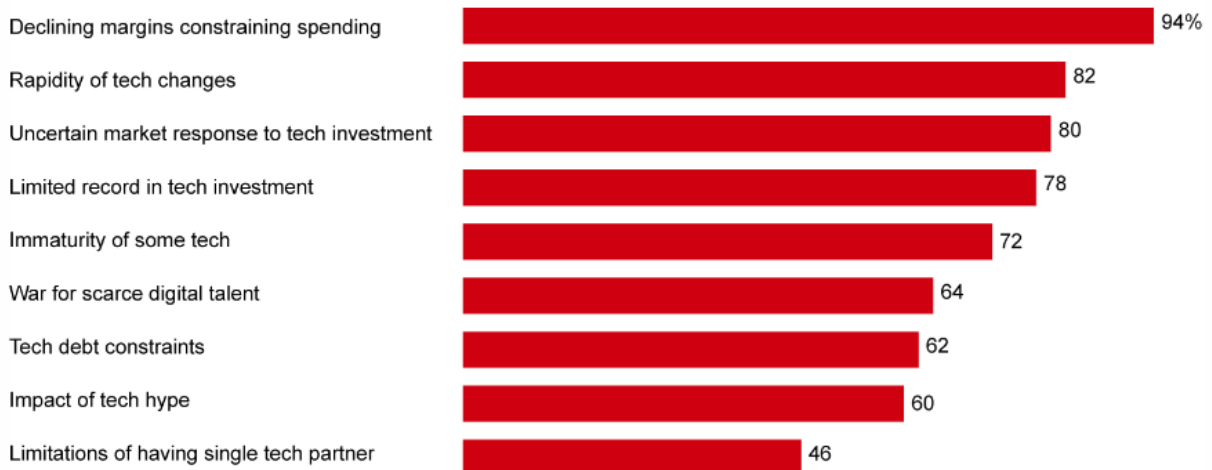
Too often, retailers lack the capabilities needed to modernize and expand their tech and are pessimistic about the payoff from bold moves. When we surveyed retail CEOs on the issue, 9 out of 10 said their company lacked at least some of the capabilities needed to build on its tech strategy. Furthermore, a quarter said returns on technology investment didn’t meet their expectations, while 80% felt the unpredictability of the market’s response to tech initiatives was an obstacle to achieving tech goals (see Figure 1).

Figure 1

Technology modernization presents numerous challenges for retailers, feeding pessimism about their capacity to change

Perceived obstacles to achieving technology goals in retail

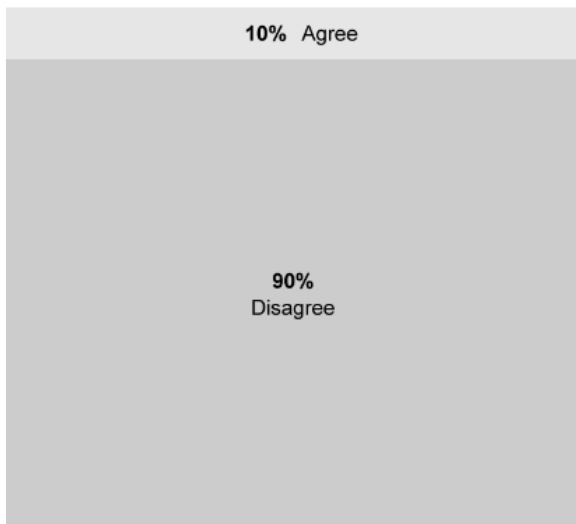
Share of retail CEOs citing as a constraint



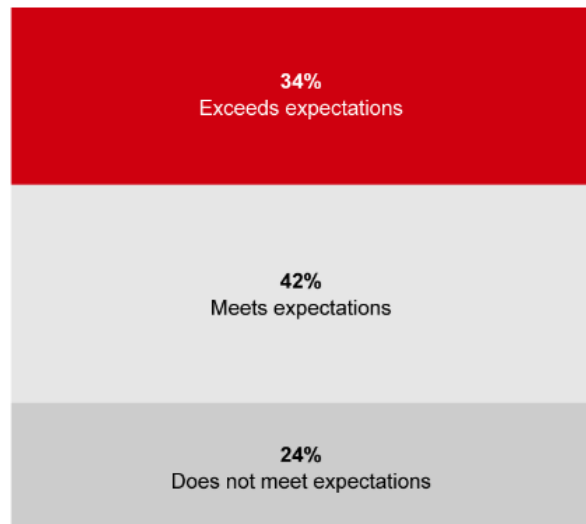
Source: Bain Retail Technology Modernization Global CEO Survey 2023 (n=50)

Technology modernization presents numerous challenges for retailers, feeding pessimism about their capacity to change

Share of retail CEOs who believe company has capabilities required for its tech strategy



How retail CEOs view their company's return on tech investment



Source: Bain Retail Technology Modernization Global CEO Survey 2023 (n=50)

As if this weren't challenging enough, tech modernization is only likely to become more daunting over the short to medium term. Margin erosion is already limiting funds available to invest in transformation projects. That may exacerbate the tendency to spread the technology investment budget too thinly across competing initiatives. Further complications also loom large, such as the accelerating deployment of generative AI and the need to harness cutting-edge tech to meet rising sustainability demands in areas such as traceability. And there's always the "urgency of now" to contend with—meaning the tendency to allocate funds to pressing new initiatives and postpone deeper rebuilds.

For retailers that are good but not yet great at technology, this all adds up to a pivotal moment. Can they grasp a shrinking opportunity to update and future-proof their technology systems, so that they reap the full opportunity offered by omnichannel retail, personalization of customer experience, and automation by generative artificial intelligence? Or will the demanding task of just keeping the lights on swamp their efforts to grow, optimize, and transform their capabilities?

Drawing on our work with top retail and technology businesses around the world, we see a path for many retailers to make that progression to excellence by emulating the industry's current tech leaders.

Consider Home Depot. In 2017, it began overhauling decades of accrued technical debt as part of a \$11.1 billion, three-year strategic investment plan. It focused its tech modernization on a cloud-first consolidation of common services—such as payments—used across channels, while refactoring or retiring applications. In a

discussion with the *Wall Street Journal*, Fahim Siddiqui, Home Depot's chief information officer, memorably described the challenge of blending old legacy systems with newer tech investments to meet the heavy demands of today's retail; he likened it to melding a biplane with a fighter jet—all with the aim of creating the huge carrying power of a C-130 Hercules military transport aircraft. Yet the digital overhaul succeeded. Among many other benefits, it helped Home Depot rapidly institute curbside pickup during the Covid-19 pandemic.

Walmart is another tech leader to emulate in retail. It transformed the tech that underpinned its vast physical store network into an agile platform for its market-leading omnichannel evolution. Spain's Inditex offers a third example to follow. By turbocharging its tech approach more than a decade ago, it found a way to further condense product development and maintain its fast-fashion edge amid rising competition.

It's no coincidence that these standout companies possess sector-leading scale: Companies with many billions of dollars in revenue can certainly better afford the heavy investment that technology frequently demands. Yet scale is no guarantor of success, either—and the right moves today can free retailers of all sizes from their respective complexity traps and start turning tech into a competitive advantage.

How tech leaders stand out in retail

Above all, what differentiates tech leaders in retail is their understanding of the strategic importance of technology, which pervades their businesses. We found plenty of evidence of that when we analyzed 45 of the world's biggest retailers.

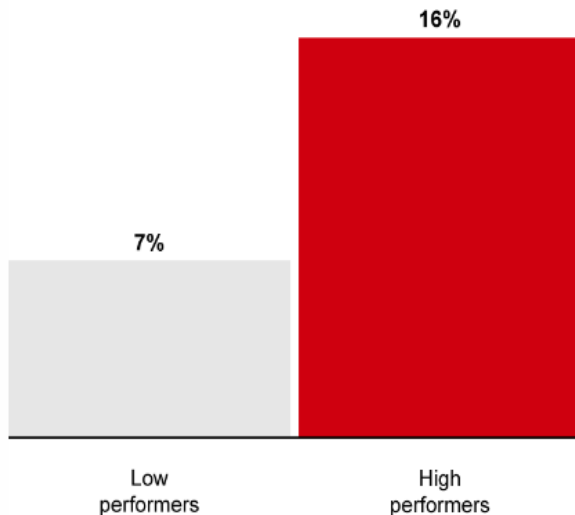
The people steering high-performing companies within this group had a much stronger tech background than those at the cohort's weaker competitors. On average, 16% of board members and executives at the high-performing retailers we analyzed had tech experience, vs. 7% at low performers (see Figure 2). Commitment to tech permeated their overheads, too. At high performers, the proportion of selling, general, and administrative spending allocated to technology—a potential indicator of automation gains—was double that at low performers.

Figure 2

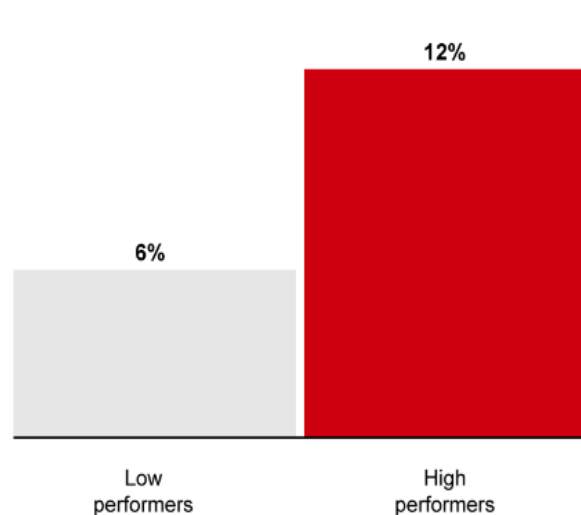
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High-performing retailers have more technology expertise in their top team and focus more of their operational spending on tech, including automation

Share of board members and executives with technology experience, October 2023



Share of selling, general, and administrative spending allocated to technology in 2022



Notes: Based on analysis of 24 high-performing large retailers and 21 low performers; performance assessment based on sales, total shareholder return, and earnings before interest and taxes margin; technology experience defined as a relevant technical education (e.g., IT, software engineering), having worked for a technology company, or having explicitly mentioned tech experience in background description
Sources: Company websites and filings; Bain analysis

In our experience, tech leadership in retail goes hand in hand with strategic clarity. Technology can only turbocharge businesses that know exactly where they want to differentiate themselves—whether that be through unbeatable value, ultra-convenience, or another dimension. For instance, a value leader’s tech priorities might well center on automation and other digitally enabled operational efficiencies. That’s very different from the investments in data-driven traceability and seamless customer experience that are likely to count as priority areas for a retailer that wants to be known for its purpose, above all.

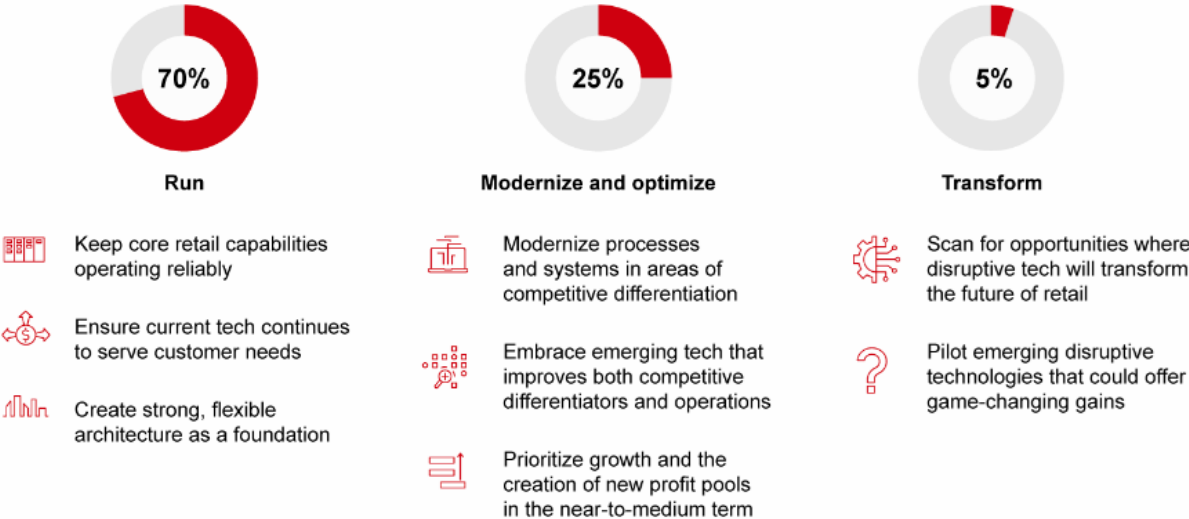
Aside from fully appreciating the strategic importance of technology and tightly focusing their tech spending on areas of competitive differentiation, leaders tend to do three things:

- **They embrace modular and flexible architecture**, allowing them to innovate in domains that are critical to competitive differentiation, while standardizing solutions and services across channels and business units to capture scale benefits.
- **They understand and commit to the required investment**, aided by their transparent approach to spending and a clear-eyed knowledge of both their tech debt and their capacity to spend more.
- **They build the capability to realize value at speed** by adopting Agile methodologies early, focusing on products rather than projects, deploying internal engineering squads at scale, and actively managing the failure risks involved in complex change.

What’s more, winners continually focus on managing their run costs so that keeping the lights on doesn’t crowd out investments in growth and innovation. In our experience, the right balance can often be achieved by limiting the cost of maintaining core retail capabilities to about 70% of spending, allowing 25% to flow through to modernizing and optimizing current processes and systems, and 5% to transformational innovations with long-term returns (Figure 3).

Figure 3
Retailers should go beyond just keeping the lights on by devoting a significant chunk of their tech budget to modernizing and transforming capabilities

What balanced technology investment often looks like



Source: Bain & Company

Going from good to great

As we mentioned earlier, retail leaders tend to have more technology expertise in their senior ranks. This is not by chance, and we can’t stress enough how important it is for technology to have a seat at the top table. That means appointing both enterprise technology and technology industry experts to the board and executive team to get the right blend of buy-side and sell-side expertise. But retailers must also inject that deep knowledge into other senior roles. While priorities are set by the C-suite, the implications and trade-offs are often resolved a level or two below. Technology expertise must be on tap in those key meetings, too.

We’ve highlighted how leaders differentiate themselves through their architecture, their investment posture, and their delivery capabilities. Below, we focus on specific actions that can help retailers raise their game in these three crucial areas.

Embrace modular and flexible architecture. Develop a modular and loosely coupled architecture, which guides ongoing choices on solution selection and upgrades. Establish clear build vs. buy guidelines based on strategic differentiation, investment posture, and speed to market. Consider maximizing scale efficiencies through the development and reuse of common services across channels and platforms, in the manner of Home Depot. Build a data architecture that enables easy access to critical data assets, to enable both analytical and AI-powered use cases (e.g., personalization, inventory management, pricing, and promotions). Continually measure developer productivity and streamline engineering processes.

Understand and commit to the required investment. Align company leaders and engage the board on the required investment, informed by the scale of technical debt and capacity to increase technology investment. Figure out whether investment will follow “a pig through a python” template, as one retail CEO puts it—meaning a three- to five-year bulge in investment to fund modernization, as opposed to a more gradual and prolonged increase in spending in line with revenue. Get granular visibility of technology spending and ruthlessly manage down run costs to reinvest in change and innovation. For example, a large European retailer is generating savings by insourcing and nearshoring tech development.

Build the capability to realize value at speed. Strengthen the technology delivery model via adoption of agile, product-oriented teams. Be mindful of which product teams should operate horizontally to deliver cross-functional experiences, vs. those operating vertically to deliver function-specific priorities. Streamline managerial structures where necessary to free delivery teams from unnecessary oversight and bureaucracy. Adopt DevOps principles of end-to-end, “development-to-run” ownership, along with automation to improve the reliability and quality of releases. Insource engineering and UX leadership talent to accelerate strategic progress in architecture and user experience. Foster greater accountability for outcomes by defining and implementing metrics based on objectives and key results (OKR).

While all of these areas are vital, the sequencing will vary a lot between companies, depending on their needs and priorities. Similarly, executive teams will need to gauge the right balance between building completely new systems and upgrading existing ones.

Questions to start the journey

A series of questions can help executive teams reinvigorate their tech modernization efforts. These include:

- Does our current technology support our strategic and competitive differentiation?
- Do we have disparate tech solutions powering different business units?
- Are we able to leverage our tech platforms across multiple revenue streams?
- Do we consistently achieve the return on investment that we expect from our tech investments?
- Do we have a comprehensive overview of ways to free up spending from maintaining core capabilities to more transformative investment?
- Is our tech cost base and investment portfolio transparent?

- Are we missing capabilities that can accelerate our tech transformation?

The answers can be a first step to breaking free from the tech complexity trap—and then reaping the benefits of greater speed, efficiency, focus, and flexibility.