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Fidelity Labs and the Digital Transformation of Fidelity Investments

I'm here because I love this stuff...all that the future might hold.[1]
Abigail Johnson, CEO, Fidelity

Abigail Johnson, Fidelity's CEO, surprised the audience during the digital-currency news service CoinDesk's Consensus conference in 2017 when she made it clear that she loved digital currency, blockchain, and other digital technologies. Unlike many financial services company CEOs who viewed digital technologies with skepticism, Johnson embraced digital technologies as key drivers to Fidelity's continued growth and profitability.

Fidelity's Growth and Digitalization

Fidelity Investments (aka Fidelity) was a privately owned investment management company that was founded by Edward C. Johnson II in 1946 as a mutual fund company. By 2019, the Boston-based investment management firm had over 26 million customers with $6.5 trillion in total customer assets and over $2.4 trillion in global assets under management, the second-largest U.S.-based company behind Vanguard.

Edward C. Johnson II, a Boston-based attorney, acquired the Fidelity Fund in 1943. The Fidelity Fund had been established in 1930. At the time of acquisition, the Fund had approximately $3 million in managed assets. In 1946, Johnson founded Fidelity Management and Research Company, now Fidelity Investments, to serve as an investment advisory service to the Fidelity Fund. Johnson focused primarily on non-blue-chip stocks that had high growth potential.

In the early 1950s, Johnson II hired Gerry Tsai as a stock analyst. Tsai, from Shanghai, China, established a successful track record by buying speculative stocks, including Xerox and Polaroid. Over 10 years of Tsai's stewardship, Fidelity Fund's assets under management grew to over $1 billion. Continuing the growth focus, Johnson's son, Ned Johnson III, began managing the firm's newly established Trend Fund. The Trend Fund became one of the best growth funds in the United States by 1965, the same year that the firm purchased its first computer that occupied nearly an entire building floor.

Johnson III was appointed President of Fidelity Investments in 1972 during a time of significant market turbulence. Over the subsequent two years, the company's investment assets declined by 30% to $3 billion. Despite his rocky start and upon his father's retirement in 1977, Johnson III became President and CEO of Fidelity Investments. He shared his father's belief that it's better to "take intelligent risks rather than follow the crowd."[2] That belief manifested itself in significant technology investments. Robert C. Pozen, who served as vice chairman of Fidelity Investments and president of Fidelity Management & Research Company, described Johnson III as someone who embraced technology. "He was always fascinated by technology, and I remember when IBM came to sell us on new computers, Ned knew almost as much about it as they did. He invested heavily in technology

way before others."[3] Fidelity became the first mutual fund firm to host a website providing access to the firm's products and services, in 1995, followed by the first mutual fund firm mobile app, in 1998.

Abigail Johnson, daughter of Edward Johnson III, worked at Fidelity during the summers while she completed her art history undergraduate education. Upon graduation, she worked briefly in the strategy practice at Booz Allen Hamilton before pursuing an MBA at Harvard Business School. In 1988, she returned to Fidelity to work as an analyst and portfolio manager. Other assignments included President of Fidelity Asset Management and Head of Retail, Workplace, and Institutional Business. She was named Fidelity's president in 2012, and CEO in 2014. Since her appointment as CEO, Johnson pushed relentlessly for more innovation from an investment firm that was in many respects already leading the industry's innovation.

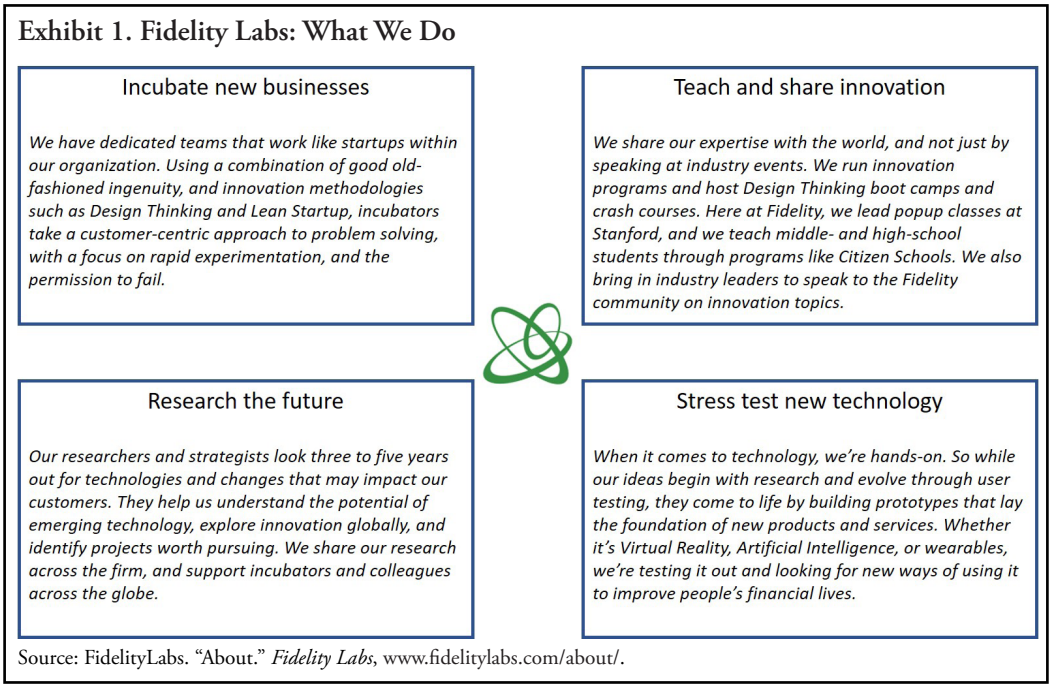
Fidelity Center for Applied Technology

In 1999, Johnson III decided to form a separate group, Fidelity Center for Applied Technology (FCAT), tasked with researching cutting-edge technology. The primary purpose of FCAT was to serve as an innovation catalyst. The unit focused on helping Fidelity's clients and businesses enhance the customer experience by exploring applications of new ideas and emerging technologies. Some initial development work targeted back-office operations. By enhancing back-office capabilities, Fidelity was able to create new service solutions, including clearing services for other brokerage firms and custodial services for the rapidly growing registered investment advisory market. Another tech-enabled service was the introduction of money market funds with check-writing capabilities, a service that revolutionized cash management for millions of retail investors. These technology-backed investments also fueled Fidelity's ability to become a leader in low-commission trading for retail investors.

Fidelity Labs

Fidelity Labs was created in 2005 to serve as an in-house, new-business incubator. It was charged with rapidly developing new products and businesses to revolutionize the financial well-being of Fidelity's current and future customers. Internal incubators, made up of product managers, designers, developers, and growth hackers, worked together to identify emerging opportunities adjacent to Fidelity's core business.[4] Growth hackers were individuals who were adept at using low-cost, innovative strategies to help Fidelity acquire and retain customers. Fidelity Labs transformed the way the company developed new customer-focused technology solutions by introducing design thinking, agile development, and lean startup approaches. Fidelity Labs worked hand-in-hand with FCAT to exploit natural synergies, given their unifying mission to usher change in the business by using technology.

Exhibit 1. Fidelity Labs: What We Do



Source: FidelityLabs. "About." *Fidelity Labs*, www.fidelitylabs.com/about/.

Fidelity Labs adopted a set of standard practices that defined a streamlined approach to innovation that represented cutting-edge thinking. It was believed that a methodical approach to new product development was much better suited to the world of consistent and constant change rather than practices that relied on huge R&D outlays followed by eureka moments that were episodic. Three techniques or approaches collectively established the framework that Fidelity Labs would use to power its search for new products and processes.

Design Thinking

Design thinking was a human-centered approach with the first step being building empathy for users. Designers interviewed users and looked for even small emotional expressions to obtain insights about the problem to be solved. These user interviews helped to define the real problem in sufficient detail. Ideation sessions were then conducted with the team to generate solutions. The team used selected solutions to develop prototypes that were tested with real users. By having users evaluate the prototypes, designers could ensure that they were solving the right problem with the right solution.[5] The intent was to channel the customer voice right from the first step all through the creative, iterative process. This helped designers develop much deeper insights that would be impossible using alternative approaches.

Agile Development

Fidelity Labs applied agile methods to software development to take the design concepts from design thinking though the complete development process. Agile development teams aimed to create viable and value-added products and services quickly (usually in single-week sprints). This process generated frequent feedback on both the product or service being developed (or process being improved), as well as the teams' approaches to getting work done.

Specifically, they used a scrum methodology with product owners, scrum masters, and developers. Product owners represented the voice of the customer. These product owners were tightly coupled with the design-thinking process. Scrum masters ensured that the team followed the agile methodology. Developers performed the actual coding and made decisions about how much work would be done in each weekly sprint. By the end of each weekly sprint, some working model could be put in front of customers to receive feedback that would be taken into the next sprint.

Weekly sprint planning sessions were conducted with the development team to decide which user stories would be carried into the next sprint. To stay focused on the customer, a user story would always be phrased as, "As a user, I should be able to..." This would focus the development team and what the user wanted to be able to do instead of what they thought would be interesting. The product owner was intimately involved in creation of the user stories.

At the end of the sprint, a sprint review meeting was conducted to test new functionality and get feedback from customers. Additionally, a sprint retrospective meeting was conducted to focus on how the team was working together. This allowed for weekly improvements, not only to the product but also to team processes.

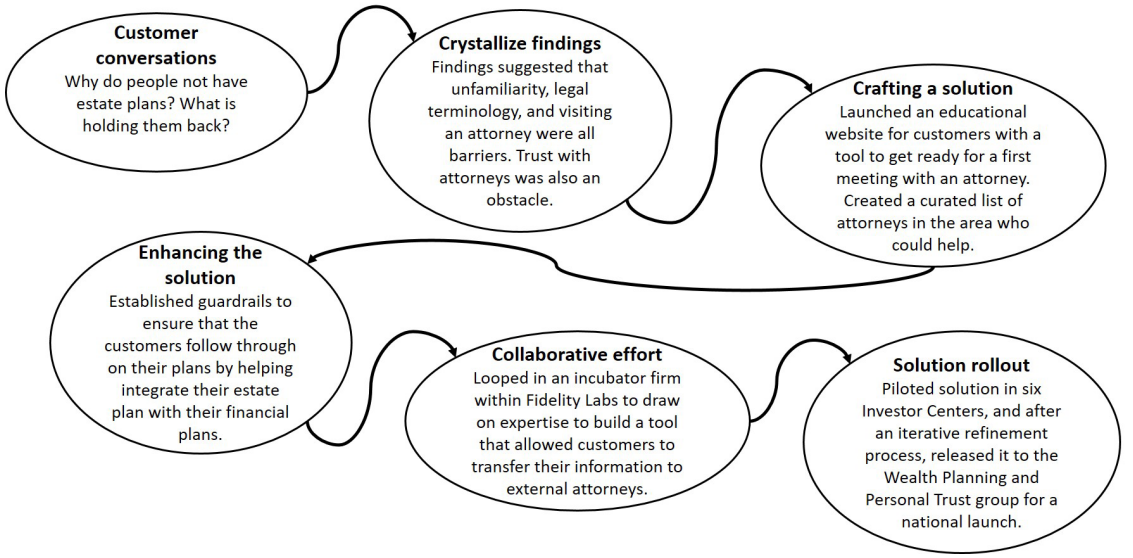
Daily standup meetings were facilitated by the scrum master. During these brief meetings, each developer would review progress over the past day, any barriers that might be getting in the way, and what he or she planned to complete by the next day.

Lean Startup

Similar to design thinking and agile development, the lean startup methodology aimed to achieve rapid innovation by quickly creating a minimum viable product (MVP) that could be used to obtain customer feedback to assess viability and to iteratively refine the product or service using agile development methods. The goal was to assess and meet the demands of particular customers with minimum resources and expense. The approach would give an organization a better chance of success without requiring massive funding, highly detailed business plans, and perfected products and services.

These three approaches to innovation supported a new philosophy for innovating at Fidelity Labs. To succeed in the highly competitive industry, Fidelity Labs needed to think big, move quickly, fail fast, and create innovation that could ship. They adopted a view that only the innovations they could get out the door would have true impact on their customers.[6] Having great ideas was not enough. Any solution had to satisfy real customer needs, and it was only valuable when it was in the hands of Fidelity customers. Exhibit 2 provides a snapshot of an example of the way in which their innovations process was used to create a new product solution in the area of estate planning.

Exhibit 2.



Source: Adapted by authors from https://www.fidelitylabs.com/2016/08/31/planning-for-the-ever-after/.

By 2008, Fidelity Labs leveraged advancements in web portal technologies sufficient to offer Fidelity WealthCentral,* the industry's first web-based wealth management platform that combined portfolio management, customer relationship management (CRM), financial planning, portfolio rebalancing, and trading.[7] In 2010, Fidelity Labs launched one of the first investing apps for the iPhone, and in 2013, it launched the first investing apps for Google Glass and smart watches.

In 2013, a team identified an opportunity to improve customer service by routing customers to the right representative with the right skills while minimizing transfers. To better define the challenge, a sample of representatives were asked to complete surveys after each customer call. Data scientists used the results of these surveys to develop algorithms to predict why customers were calling. These algorithms were used to refine menus, but it was discovered that the algorithms did not do a good job of predicting why customers called, so the menus were frustrating customers. Since the Fidelity representatives outperformed the algorithms, they were trained in design thinking and lean startup methods and asked to make recommendations to the data scientists. While listening to over 3,000 calls over a six-week period, they mapped out a list of predictors. After the data scientists refined the algorithms, accuracy increased dramatically, but it was still not perfect. Then the representatives had a breakthrough. Rather than trying to predict why customers were calling, why not just ask them? This insight led them to change the approach to an automated prompt that asked customers why they were calling. Natural language processing and artificial intelligence were then applied to route the call to the appropriate representative with a voice recording of the customer's question.

Robo-advising, branded as Fidelity Go, was launched in 2016. The service targeted young or new investors who wanted some advising but did not have the assets to justify fees associated with human wealth management advisors. By answering just a few questions, investors were provided suggested portfolios to meet their investment goal and risk profile. Fidelity Go accounts were designed to provide regular annual reviews in addition to monthly

progress updates. Portfolios were invested solely in proprietary Fidelity mutual funds. Annual reviews were meant to ensure alignment between investment strategy and any potential changes in goals.[8]

Keeping up with Customers' Expectations

Fidelity had approximately 775 million interactions with its customers per year as of 2015. Fidelity Senior Vice President Tom Herrick described the challenge in making customer experiences as seamless as possible:

> *You can have a participant in a 401K plan—we have a seminar on-site at that employer with a training and enrollment, at that point you want the employee to pick up their mobile device and enroll in the plan right at the seminar. You have to integrate with mobile. The reason this is important is that employee might go home that night and sit down with their spouse and say, "Look what we have through my employer plan—are we saving enough?" So then they go on our website and pick up the information that they put into the mobile app and consider how much they should be saving considering where they want to go. The customer might then say, "Hey, I really want to talk to someone about this—and that goes into investment selections." Then they'll pick up the phone and call us and that shows up on the associate's desktop. The agent will know that customer enrolled that day, and then they'll have the conversation on planning; that all needs to be connected. They might be 10 years away from retirement and they'll say, "Do I have enough to save for medical costs? I want an appointment face to face." We have 170 branches through the country and that customer will be able to have a seamless continued experience throughout. The tools on the web, over the phone, account information, authentication verification. We are all about removing stumbling blocks that make it hard to do business with the company. That has been the real hunt—know the customer, make the interaction seamless, and allow them to go where they want to go, how they want to interact with us.*

In addition to striving to make customer interactions as seamless as possible, Fidelity began to understand that customers were no longer just comparing Fidelity's solutions with other brokerage and investment companies. They were also forming expectations based on experience with disruptive innovators in other industries. Ram Subramaniam, head of Fidelity's brokerage and investment solutions for personal investing, put it this way: "For them, the experience they want is the last best experience they had that morning—not the last best experience in financial services. After somebody gets out of an Uber and had a fabulous experience, when they come to a financial company, the expectation is set."[9]

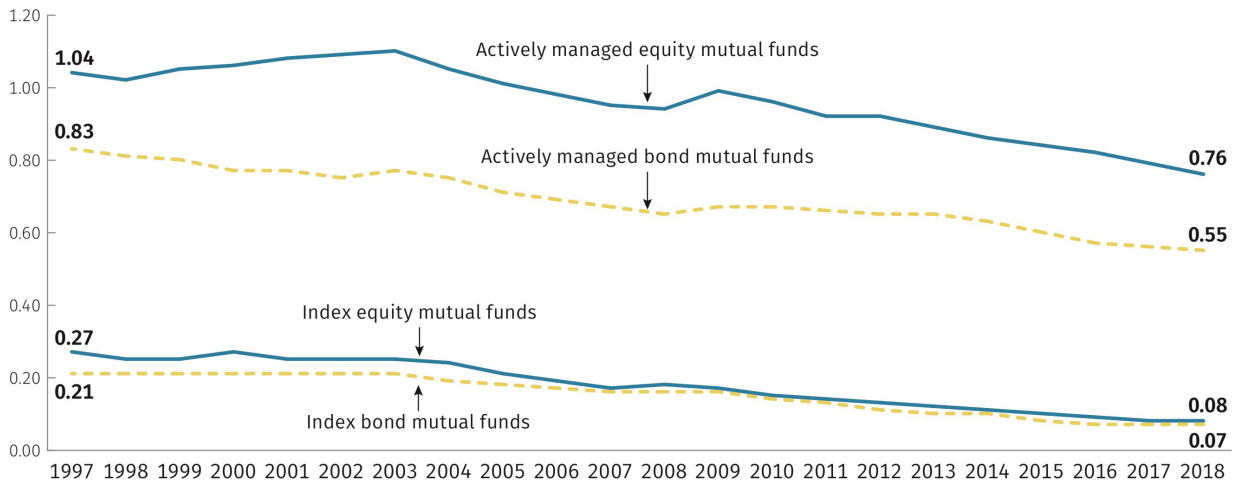
Industry-wide changes in customer preferences were also presenting new challenges. For mutual funds, expense ratios were declining across the industry (see Exhibit 3). Combined with customer pressures to reduce fees for broker trades and the declining interest in actively managed funds, the impact on operating costs was indeed palpable. This suggested that Fidelity would have to use its scale advantages judiciously to deliver cost-effective innovations at a sustained pace that would allow it to stay ahead of the pack. Competitors both in the traditional domain as well as the newly emerging digital domain were responding to innovation quite dramatically. Charles Schwab, a mainstay competitor, was offering the use of its robo-advisor, Intelligent Portfolios, to customers at no cost. Rocketfish, a digital competitor in mobile financial transactions was offering zero cost trades to its users. These were but two examples that illustrated the intensity of competition.

The Promise of Blockchain

Invented in 2008 by Satoshi Nakamoto (the pseudonym used by the actual unknown person or people behind the initial project), blockchain technology originally served as the public transaction ledger for cryptocurrency such as Bitcoin. By design, blockchain was an "open, distributed ledger that could record transactions efficiently and in a verifiable and permanent, or immutable, way." Records on the blockchain could not be secretly manipulated or erased since this would be noticed through lack of blockchain consensus with others' copies of the chain. Blockchain also included smart (self-executing) contracts that could execute when certain transaction-based conditions had been met.

As cryptocurrency bitcoin's popularity grew, so too did curiosity in blockchain as its enabling technology. By 2017, blockchain had become deeply embedded in financial institutions with nearly 15% of banks using the technology in some form.[10] Forward-thinking leaders believed blockchain had the potential to disrupt the banking industry, so it was better to adopt the technology than become displaced as a result of it.

Exhibit 3. Falling Expense Ratios for Mutual Funds



Note: Expense ratios are measured as asset-weighted averages.

Source: *ICI Reserch Perspective*, Vol. 25, No. 1, March 2019, p. 16.

At a Consensus 2017 (blockchain) meeting, Abigail Johnson, Fidelity's CEO, discussed the need to find use cases and develop real solutions when considering technologies such as Bitcoin and blockchain:

> *We need to come up with use cases for this technology that drive clear benefits for this technology that drive clear benefits for individuals and institutions. Too often we see Bitcoin and blockchain technologies as solutions in search of a problem. We don't just need these systems to be technically better. We need them to be more user friendly.*[11]

Fidelity Labs partnered with Coinbase, a well-known digital wallet and digital asset exchange platform, to allow customers to view digital assets such as Bitcoin on their Fidelity portfolio screen. Customers using Fidelity's app, or the secure Fidelity website, authorized Coinbase to provide Fidelity with data on holdings in their Coinbase wallet accounts. This capability was launched in 2017. Additional public and private blockchain projects were underway in 2018 and 2019. Katie Chase, the head of strategy for Fidelity Center for Applied Technology and head of the company's Blockchain Incubator, was somewhat reserved about the company's proprietary blockchain projects: "It's still very nascent. All of the stuff that you're reading about, if you dig under the covers, is still in the proof-of-concept stage. We tried to apply blockchain to some use cases where we learned a lot, but the technology isn't mature enough to solve these problems."[12]

Pushing Forward

Fidelity was spending $2.5 billion per year on technology by 2018 with over 12,000 technologists, about a third of its workforce, spread around the globe. Recruiting top tech talent was a challenge for a traditional company. To counter this perception, the company created the "7th Floor Village" at its Boston headquarters. This open-floor space had no offices or assigned spaces. Technologists worked at communal tables or standing desks. Cold-brew coffee was readily available.[13]

In a 2018 interview, Abigail Johnson shared her biggest challenge:

> *My biggest challenge has been to push Fidelity to increase our pace of innovation and to not be afraid to make the occasional mistake. Since our founding more than 70 years ago, we have always been a leader in the use of technology and in offering new products and services. But being a customer-obsessed company, we are very focused on delivering a great customer experience. And this means that we can sometimes be cautious in introducing new things. To be successful in a rapidly evolving*

> *world, we need to take smart risks and value pace over perfection… another one of Fidelity leadership principles. The risk of competitive disruption in financial services has never been higher than it is today. I would rather disrupt ourselves than let us become complacent and get surprised by new ideas and innovations from a competitor.*[14]

While Johnson fully embraced innovation and feared being disrupted by competitors, she also stressed the importance of avoiding the creation of digital solutions in search of problems: "We are forgetting the humans, while, and I can't emphasize this point enough, we need to come up with use cases that drive clear benefits for customers and institutions. We don't just need the technology to be better, we need it to be user-friendly."[15]

In a business that had traditionally involved direct human contact with financial advisors, Johnson did not want to lose the human touch.

Challenges Ahead

As 2020 dawned, the contours of a new industry landscape were becoming evident. The established old-world order of financial services was being reshaped by a wide range of new entrants who had benefited from the power of technology, access to venture capital, and changing demographics to unleash significant innovation in the marketplace. A study on the financial services industry by the World Economic Forum concluded that "Disruption will not be a one-time event, rather a continuous pressure to innovate that will shape customer behaviours, business models, and the long-term structure of the financial services industry."[16] The unrelenting pressures were bound to test the prowess of even the most well-grounded companies. There appeared to be three key forces that were gaining prominence; namely,

1. A diminishing role for financial intermediaries with the advent of automation of high-value transactions through the use of algorithms and machine learning that allowed for faster, more efficient trading, both at the wholesale and retail levels,
2. Increasing demand for personalization of products and services that was possible through the use of data analytics and predictive modeling tools,
3. Ubiquity of access to financial services using mobile platforms that opens up new channels for companies to design just-in-time services for customers who valued the ability to engage in time-sensitive transactions.

Wealth management was likely to become more automated, and move away from the realm of the trusted advisory experts to the domain of artificial intelligence and data modeling that allowed customers to run simulations of scenarios at the push of a button within the confines of their own homes, at a time of their own choosing. This egalitarian access to decision-making tools was bound to exert a downward pressure on the traditional institutions, such as Fidelity that had relied on expert knowledge and trust to build long-lasting customer relationships. However, this change also represented a remarkable opportunity for the incumbent firms to offer their services to "non-users" who typically stayed away from financial advisory services because of cost considerations. A new breed of competitors, such as FutureAdvisor, Personal Capital, and Wealthfront, were already moving into the wealth management fortress that traditional players such as Fidelity had built. Social trading was also becoming quite popular, and retail investors were sharing trading strategies on social media-like platforms (e.g., Covestor, Estimize, StockTwits), supplanting the need for expert advice. Building crowd-sourced investment strategies was proving to be popular among the digitally savvy millennials. Companies such as Cooltrade, Algofast, Financial Engines, and Quantopian were offering access to a bewildering array of sophisticated quantitative tools that allowed investors to model scenarios using advanced trading algorithms. The technology-led disruption of financial services was well underway.

Abigail Johnson had managed to steer Fidelity towards the new landscape that was emerging, and she had done a remarkable job in transforming the structure and value proposition of Fidelity. However, the more difficult test of transformation was yet to come. How could Fidelity ensure that it stayed ahead of the curve in both technology and products in a way that would graft elements such as customer-centric design thinking, rapid product development, and deployment into its DNA? What approach should it take to address the newly emerging, nimbler, venture-backed startups that had the power to further disrupt the well-laid strategies of

financial giants such as Fidelity? Should Fidelity embark on an acquisitions strategy? Should they focus largely on in-house development? How could Johnson sustain the energy of transformation, especially since the external pressures seemed unrelenting?

Endnotes

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