USING DIGITAL PLATFORMS AND ARTIFICIAL INTELLIGENCE TO OUTPACE RIVALS

The idea of artificial intelligence is not new. Characters like Terminator (from the movie *Terminator*), C-3PO and R2-D2 (*Star Wars*), WALL-E (*WALL-E*), Ava (*Ex Machina*), Data (*Star Trek*), Agent Smith (*The Matrix*), and others have given different faces to AI. But whereas the robot butler Jarvis *(Iron Man)* seemed so fantastical before, a hotel chain has now actually introduced robotic butlers to drive front-desk and back-house tasks to deliver personalized experiences to hotel guests.

So, what is new is how AI is now more available, more accessible, and more usable for users and organizations today. Oracle partnered with Harvard Business Review Analytic Services to examine what thought leaders think of artificial intelligence and how organizations are making the most of it. It is clear that this new wave of digital disruption has opened up opportunities that didn't exist before.

Organizations are looking at self-learning chatbots to deliver personalized, 24/7, multilingual, multichannel customer support. The UK-based national health and social care provider Turning Point is a great example of how digital technologies like chatbots and sites management can actually change, even save, lives. Automation guided by self-learning systems is bringing speed and agility to businesses. Thanks to digital content management and automation, Australian Finance Group is now spending its budget and resources on innovation rather than "keeping the lights on" operations. Connected data, devices, and information are delivering insights and best-next-steps recommendations like never before, thereby enabling companies to drive intelligent, memorable experiences. Pernod Ricard has embraced this digital strategy head-on. Low-code or no-code technologies for tasks, such as the mobile app development that The Factory is doing, are empowering business users to make changes as demands evolve. And self-driving technologies are providing performance that manually run platforms simply cannot deliver.

The workplace is quickly evolving. Critical but mundane and repetitive tasks are being taken over by self-learning, self-driving technology, allowing human resources to instead focus on higher-value jobs. Next-gen autonomous systems will be self-run and self-repairing, whereas human intelligence drives innovation. That's the possibility with, and the promise of, AI in the enterprise world. And it is a reality today.

The pace of innovation will never slow down. Organizations should prepare their IT and their workforce to adapt to continuous change so they will be well-poised to make the most of AI and machine learning and be prepared for whatever the next wave of digital disruption brings.

Tanu Sood
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EXECUTIVE SUMMARY

Over the past eight years, Domino's Pizza Inc., an American pizza restaurant chain founded in 1960, delivered a stock price increase that, in percentage terms, beat tech industry darlings such as Google and Facebook.[1] How? The company executed a sorely needed product makeover.

But another key ingredient was a digital transformation of the food-ordering process. Being able to order a pizza using a smartphone app, tweet, voice-activated personal assistant, or smart TV captured the hearts of young pizza lovers who conduct their lives online. More than 60% of Domino's orders are now received via digital channels rather than by phone, and Domino's often refers to itself as a technology company.

Domino's would not have been able to execute this transformation without a digital platform that connects all its ecosystem participants. Domino's also uses artificial intelligence (AI) and its offshoot, machine learning (ML), to learn continually how to improve product quality and enhance the customer experience.

Today, transformation of this kind is imperative for companies in every industry— from retail and entertainment to health care and finance. As R "Ray" Wang, principal analyst and founder of Constellation Research says, "You must disrupt or be disrupted."[2]

Those organizations that appreciate the power of digital transformation are already pulling ahead of rivals. A study by MIT professors Erik Brynjolfsson and Andrew McAfee found that companies in the top third of their industry in the use of data-driven decision making (with predictive analytics, AI, ML, or other innovations serving as data sources) were, on average, 5% more productive and 6% more profitable than their competitors.[3]

More CEOs are focusing on how to develop business growth strategies, with AI serving as a force multiplier. But digital business transformation comes with many challenges. AI is only as good as the data that feeds its underlying algorithms. Equally, AI can be powerful only if the processes and people that engage with it are tightly connected and share a uniform view of marketplace pulses.

HIGHLIGHTS

- Organizations that appreciate the power of digital transformation are already pulling ahead of rivals.

- Companies in the top third of their industry in the use of data-driven decision making were, on average, 5% more productive and 6% more profitable than their competitors.

COMPANIES THAT WANT A PRACTICAL PATH TO AI ADOPTION HAVE BEEN TURNING TO A TECHNOLOGY PLATFORM CALLED PLATFORM AS A SERVICE.

Companies that want a practical path to AI adoption have been turning to a technology platform called Platform as a Service (PaaS). PaaS allows a company to transform organizational structures, cultures, and knowledge building by securing connections among data, information, employees, customers, and other ecosystem participants. With digitized and automated processes, PaaS connects decision makers and systems to all pertinent information and drives interactions across channels, including to and from customers.

With those connections firmly in place, a company can tap the power of AI and discover new ways to grow its revenue sources. An enterprise can leverage information channels that range from Twitter, the internet of things (IOT), and intelligent bots to websites and mobile devices.

This report explores new ways of thinking about competitive strategy that spring from digitized connections across commercial ecosystems. Readers will find examples of companies using platforms to enable AI and ML, reinvent their business models, and create winning relationships with their customers.

Using Digital Platforms and Artificial Intelligence to Outpace Rivals

Many companies are exploring the use of digital platforms, big data, predictive analytics, AI, and ML to create new forms of value for customers. The core goal is to create a value proposition that competitors are hard-pressed to imitate. One important aspect involves collecting very large amounts of data and using advanced techniques to analyze them and inform product/service development. Marketing and sales directors are also using this modus operandi to discern and respond quickly to marketplace trends in their infancy.

The Enabling Technology: Definitions

A digital platform is a group of technologies upon which other applications, processes, or technologies are developed. PaaS is a computing platform that can be rented or delivered as a solution or integrated solutions through an internet connection. PaaS can be delivered in several ways: (1) as a public cloud service wherein the organization controls software development and the platform service provider offers the networks, servers, storage, operating system, middleware,

database, and other services such as built-in AI capabilities; (2) as a private service (software or application) that can be downloaded and installed in an on-premises data center; and (3) an option called "cloud at customer," which enables a company to have a cloud service vendor manage the platform services at the company's site. This last option appeals to organizations that must adhere to regulatory requirements that prohibit them from moving data out of their sites.

AI is an area of computer science that depends on high-speed, intelligent machines that work and react like humans. Activities may include speech or pattern recognition, learning, planning, and problem solving.[4] For example, AI is now being used to assist oncologists in recognizing different kinds of cancer.

ML involves statistical techniques that enable machines to learn and improve at tasks as they gain experience. Computers analyze vast amounts of data at high speed. Insights are automatically derived and used to build layers upon layers of fresh knowledge that loop back around and push AI further up the maturity curve.

AI was first defined in the 1950s, but it did not find a practical footing until

the past decade, when technological advances such as neural networks became large, powerful, and cheap enough to be affordable to many researchers. Cloud technology also provides an important aspect. PaaS and the computing power needed to make AI and ML practical can be rented from a cloud service provider. The embrace of big data and sophisticated statistical analysis by commercial organizations—involving digital text, pictures, sound, videos, sensor readings, and so on—has also been key.[5]

Step Up or Exit

Central in all this is the act of generating data that can be turned into business intelligence that can then be used as a competitive weapon. PaaS makes it easy to collect data about customer behaviors, extrapolate unmet customer needs, and then seize opportunities to create authentic value for the customer—a new experience, a new outcome.

According to Dr. Marshall W. Van Alstyne, the Everett Lord Distinguished Professor and chair of the information systems department at Boston University Questrom School of Business, the nature of industry in the internet era is undergoing "as big and momentous a shift as the transition [from cottage industries] to giant industrial firms 120 years ago in the emerging industrial era."

Professor Van Alstyne warns that "the failure to transition to this new approach explains the precarious situation that traditional businesses—from hotels to taxis—find themselves in. Learn the new rules of strategy for a platform world or begin planning your exit."[6]

The concept of a platform is not new, says Professor Van Alstyne. "Malls link consumers and merchants; newspapers connect subscribers and advertisers. What's changed is that innovations in information technology have profoundly reduced the need to own physical infrastructure and assets. Cloud-based information technology makes building and scaling up platforms vastly simpler and cheaper,

allows nearly frictionless participation that strengthens network effects, and enhances the ability to capture, analyze, and exchange huge amounts of data that increase the platform's value to all."

PaaS is foundational because it can easily connect an organization to rich sources of information such as customer data that can then feed AI and ML. Cloud-based computing paradigms such as PaaS are key execution tools for today's marketplace disrupters who appreciate fast and cost-efficient access to computing power, data storage, and assorted software services on demand.

Businesses that succeed, whether it's Airbnb or Alibaba, appreciate the role of these technological developments. But there is more to it than being an early adopter. The enterprises that gain a competitive edge discern customer needs quickly and continuously—that's how they surprise competitors.

Many organizations that pull ahead of competitors:

- Build an AI strategy tightly tied to strategic imperatives

- Connect corners of the enterprise with PaaS

- Use AI and ML to unearth opportunities to create unique customer experiences

Innovation in Action

The four narratives below illustrate how enterprises on the move use PaaS to thrive. AI strategies are unfolding at all four.

THE FACTORY LLC GIVES CUSTOMERS A LEG UP

The Factory A New Dimension LLC is a digitally powered startup that offers a network marketing system designed specifically for one of the world's largest B2B arenas: the automotive auctions that move approximately 22 million vehicles in the U.S. annually. The Factory is disrupting its industry's norms with self-developed software that is accessed by its customers (auto dealers) via a PaaS mobile cloud service.

Business-to-customer auto sales have evolved significantly with online technology, but wholesale car auctions and trade have remained mired in tradition. In that classic model, a car being auctioned is spotlighted for four minutes or so, and then the attention shifts to another car. The Factory is revolutionizing the industry with its mobile app (built on a mobile cloud solution that is part of PaaS). This advance makes wholesale auto trading a 24/7, 365-days-a-year experience rather than a brick-and-mortar, event-centric business. The Factory's mobile app and web-based appraisal tool offer an online marketplace for wholesale auto trading, along with real-time reporting to track appraisal stats and pre-owned inventory information. The Factory's offerings transform the way dealers buy, sell, and appraise wholesale autos.

The Factory argues that its appraisal tool standardized the appraisal of pre-owned vehicles in a way never done before. "The tool provides more-accurate assessments of vehicles' worth than the traditional manually driven approaches. There are other tools on the market, but they still require a person to walk around a vehicle with a clipboard," says Jerry Clark, director of technology and development at The Factory. His tool allows dealers who are in a buying position to optimize their trade-in offers and allows selling dealers to make more deals. The Factory's real-time reporting dashboard gives dealers instant statistics on appraisals that have been completed. The dashboard offers dealers a view of both historical data and sales opportunities. All in all, The Factory helps its customers boost their profitability, and that is a powerful differentiator.

SCALE WITH EASE AND MEET CUSTOMER EXPECTATIONS

Australian Financial Group (AFG) started as a mortgage aggregator in 1994, bringing mortgage brokers together to create bulk loan volume and provide them with attractive commission terms. Thanks to a PaaS-supported digital transformation—launched, incidentally, because of the slow pace and relatively high costs of internal IT operations and encroaching competition—AFG now wards off interlopers.

AFG's ecosystem includes all the major financial institutions in Australia that bring mortgage products to the market. The brokers work with the individual borrowers to identify the right solutions, and then the brokers go through AFG to submit the borrowing application to the right financial institution. AFG now delivers and records digital documents that are easily and securely available and connected to automated workflow processes. Beyond satisfying customers, AFG's changeover gives it the agility and visibility it needs to manage efficient operations and scale with ease.

AFG customers can now access vital data the firm collects in an omnichannel fashion from mobile

devices, desktops, iPads, and smartphones. "Mortgage brokers today are demanding more from us as a technology provider, including the use of omnichannel options," says Andrew McGee, IT manager for business services. A part of the motivation for adopting a cloud-based platform "was to deliver a better customer experience, and part of that has involved removing the burden of maintaining, managing, and sharing paper records." This was cumbersome, costly, and prone to error. "We have restructured our IT operations to shift the focus from keeping the proverbial lights on to adding value," says McGee. In the process, AFG has reduced its annual operating costs by 27%.

AFG recently earned the distinction known as the "Technology Platform of the Year, 2017," which is bestowed by the Adviser Australian Broker Awards program. Looking ahead, AFG plans to use data analytics as part of its journey, according to McGee. AFG aims to capture data about customer behavior and generate insights that can drive innovations in product development and marketing. "We now have the foundation in place to keep up with the speed of change," says McGee.

INSPIRED BY POSSIBILITY

Turning Point is a national health and social care provider in the United Kingdom with 260 brick-and-mortar clinics and offices. Until Turning Point adopted a cloud-based PaaS solution, some patients in crisis could not access help when offices and clinics were closed. The London-based CIO, Amarjit Dhillon, explains the urgency and the remedial steps taken. "We were inspired by our mission: to provide the personalized care and support that patients need to make positive changes in their lives. We support people with substance misuse issues (drugs and alcohol), mental health issues, and learning disabilities."

A competitive necessity: Turning Point had to find a way to give its service users round-the-clock access as well as the ability to set up appointments with health care providers using smartphones, tablets,

or other devices. Before Turning Point's change effort, patients had no option when clinics were closed. With the implementation of PaaS, 30% of patients now receive therapy when clinics are closed. "This is made possible by accessing content that has been digitized and by telemedicine," says Dhillon. The firm also wanted patients in crisis to converse with intelligent chatbots in real time using any device for help at any time and to have access to service providers and up-to-date information on treatment options and materials.

The go-ahead strategy is to create relevance in how patients want to consume health care in the 21st century. "We also want to make sure our employees and staff feel they have the right tools and the right support to do the excellent job they do day in and day out for patients," adds Dhillon. To that end, Turning Point uses a cloud delivery approach for the management of content, customer support, process, and site management. Chatbots use AI and ML to offer patients advice between conversations with a health care provider. In addition, Turning Point caregivers now have immediate access to a patient's family medical history, prescription drug usage, and past treatments—information that's often critical to a correct diagnosis. Another benefit: patient wait times for medical care appointments dropped dramatically.

The Traditional Patient Referral Process: Typically, in the days before Turning Point crafted its technology transformation, a letter would arrive at a Turning Point clinic saying, "'Such and such a person requires an appointment,' and the physician or the primary care doctor would describe the circumstances. We would

TURNING POINT USES A CLOUD DELIVERY APPROACH FOR THE MANAGEMENT OF CONTENT, CUSTOMER SUPPORT, PROCESS, AND SITE MANAGEMENT.

then reach out to that patient. We would find a slot for him or her in a number of weeks," explains Dhillon. "We would send the patient a letter. Hopefully, [the selected slot] was acceptable, and hopefully they would show up for that slot. If not, it was kind of a wasted slot that we could have used somewhere else." That has gone by the wayside.

Coming up next for Turning Point: more AI and ML to better understand variations in similar services. Turning Point wants to study the best ways to group various skill sets and activities—whether undertaken by a nurse or a doctor. The objective is to automatically organize the right resources to meet patient needs. Multilingual chatbots are also on Dhillon's to-do list.

CONNECTING AND SHARING INTELLIGENCE TO CEMENT MARKET LEADERSHIP

wIn that part of the world, Pernod Ricard has been operating in a highly competitive arena in which an emerging middle class in countries such as China has more discretionary spending power. One move made to gain leverage was adoption of cloud-based PaaS. This investment lets the company tie together information drawn from multiple applications across multiple systems operating in the theater.

The overarching goal: improve the experience for the B2B and B2C customers. PaaS is now helping the company coordinate and turbocharge its brand-awareness marketing campaigns and consistently build demand among customers from retailing groups to individual consumers shopping in large outlets. Another goal: generate contextual

data and use predictive business analytics to feed marketplace intelligence and tactical advice to sales and marketing directors.

As for more-sophisticated AI and ML, "we are exploring these areas," says Alice Yip, business solutions director, IT. She manages Pernod Ricard's numerous technology development projects annually across Asia. For example, local personnel will be using digital devices to recognize the company's products on shelves in retail outlets.

The company's current PaaS setup involves both integration and mobile cloud solutions. From a practical perspective, Yip says, Pernod Ricard sales personnel can use a mobile device to enter orders instantly on-site, view order history, and help a wholesaler or retailer in real time make the right decision for them. Beyond that, she says, "we plan to collect data so local sales and marketing directors can better understand customer behaviors."

PAAS IS NOW HELPING PERNOD RICARD SA COORDINATE AND TURBOCHARGE ITS BRAND-AWARENESS MARKETING CAMPAIGNS.

The **chief digital officer** is going to have to **foster cross-functional collaboration** and make sure that customer experience innovation can be leveraged and **won't be killed off by traditional culture**.

Smart Change Management a Must

Using a digital platform to connect ecosystem participants and extend the value of one's brands across multiple channels is imperative for many firms. AI is also part of that picture for many. However, every source for this report reminds us that change of this magnitude does not start and stop with business technology. Change cannot take place or be sustained without effective CEO/C-suite leadership and board-level support.

As Professor Van Alstyne says, "You need to undercut traditional strategy with the inimitable asset, where owning the relationship is important, not owning the asset." Beyond that, the trick is to have ecosystem partners, when necessary, bring in the assets that can help you knock competitors out of the ring.

What Can Go Wrong?

CEOs may get advice from their human capital management leaders that says the answer is to boost employee engagement and reduce workforce turnover so the organization can direct talent development resources effectively and make digital transformation a practical reality.

The idea of using workforce analytics has been gaining strong appeal. But beware, says Greta Roberts, CEO and cofounder of Talent Analytics Corp., a recognized leader in predicting an individual's prehire and posthire business performance.

"Engagement is not a great prediction metric" to identify who is and who is not poised to be part of the transformation effort. "You are going to have to identify the right ways to use analytics in this regard," says Roberts. "Don't leave it up to a data scientist. Your leaders will have to formulate the real problems" and work in concert with internal data scientists, she says.

What Must Go Right?

"Organizational maturity is about adapting to compete successfully in an increasingly digital environment," says Elissa Tucker, principal research lead for the human capital management team at APQC, a business benchmarking and research firm. "Organizational maturity goes beyond implementing new technology. It's all about aligning the company's strategy, workforce, culture, technology, and structure to meet the evolving expectations of customers, employees, and partners."

There are growing calls for large organizations to have a chief digital officer. And that is not an IT position—it's a culture leadership position, Tucker points out. "One of the things your chief digital officer is going to have to do is foster cross-functional collaboration—make sure that product innovation, customer experience innovation, or whatever innovation can be leveraged in the digital business era won't be killed off by traditional culture."

The workforce composition is going to change over time, says Tucker. "Whether it's training, hiring, or incentivizing, the key will be managing change within the workforce. The employee experience is going to change along with the customer experience. Whether employees in certain roles are directly interfacing with the customer, designing the technologies that are going to interface with the customer, or interpreting

THE MODERN PLATFORM-BASED BUSINESS MODEL IS SHAKING LONG-HELD RULES OF COMPETITION.

the customer data that technologies are collecting, it's all changing." The leaders of the organization will have to be on alert for the changes coming and roll out effective change management programs to drive a successful business transformation.

Conclusion: Evolve or Die

In the era of digital disruption, enterprises on the move take the following steps:

- Develop business growth strategies, with AI playing a central role to gain insights and knowledge

- Create hard-to-replicate experiences that cement the customer's loyalty to the brand

- Use PaaS to connect corners of the enterprise with customers and other ecosystem participants and thus facilitate the fast flow of reliable, actionable information from a wide range of channels

- Use best practices in change management to train talent to innovate and come up with strategies for disrupting the status quo

The modern platform-based business model is shaking long-held rules of competition. The sharpest competitive edges emerge when a firm uses PaaS to connect data, information, employees, customers, and other members of the value chain. Such a platform deploys automated and digitized processes that reach across business divisions. Advantage is also gained by using PaaS to reach into novel channels and discern new opportunities to create value for customers. Conversational AI or chatbots, for example, can be a huge differentiator.

Perhaps most important, the organization using PaaS will be rooted in a continuous learning loop. Each of the PaaS components can feed information back in so that this connected, constantly growing pool of information helps advance the efficacy of AI with every iteration. The core concept is that cloud technologies run autonomously. Critical but mundane tasks are performed by ML and AI, while human resources are leveraged to drive innovation on behalf of customers and uncover new monetization opportunities. With this approach, a company can accelerate innovation and leave competitors wondering how they missed the turn in customer preferences.

1 Quartz Media, qz.com, a news website owned by Atlantic Media. March 2017.

2 R "Ray" Wang, *Disrupting Digital Business*, Harvard Business Review Press, 2015.

3 *Harvard Business Review*, July 2017.

4 Technopedia.

5 Andrew McAffe and Eric Brynjolfsson, *Machine, Platform, Crowd: Harnessing Our Digital Future*, W.W. Norton & Co., 2017.

6 Marshall W. Van Alstyne, Geoffrey G. Parker, Sangeet Paul Choudary, "Pipelines, Platforms, and the New Rules of Strategy," *Ha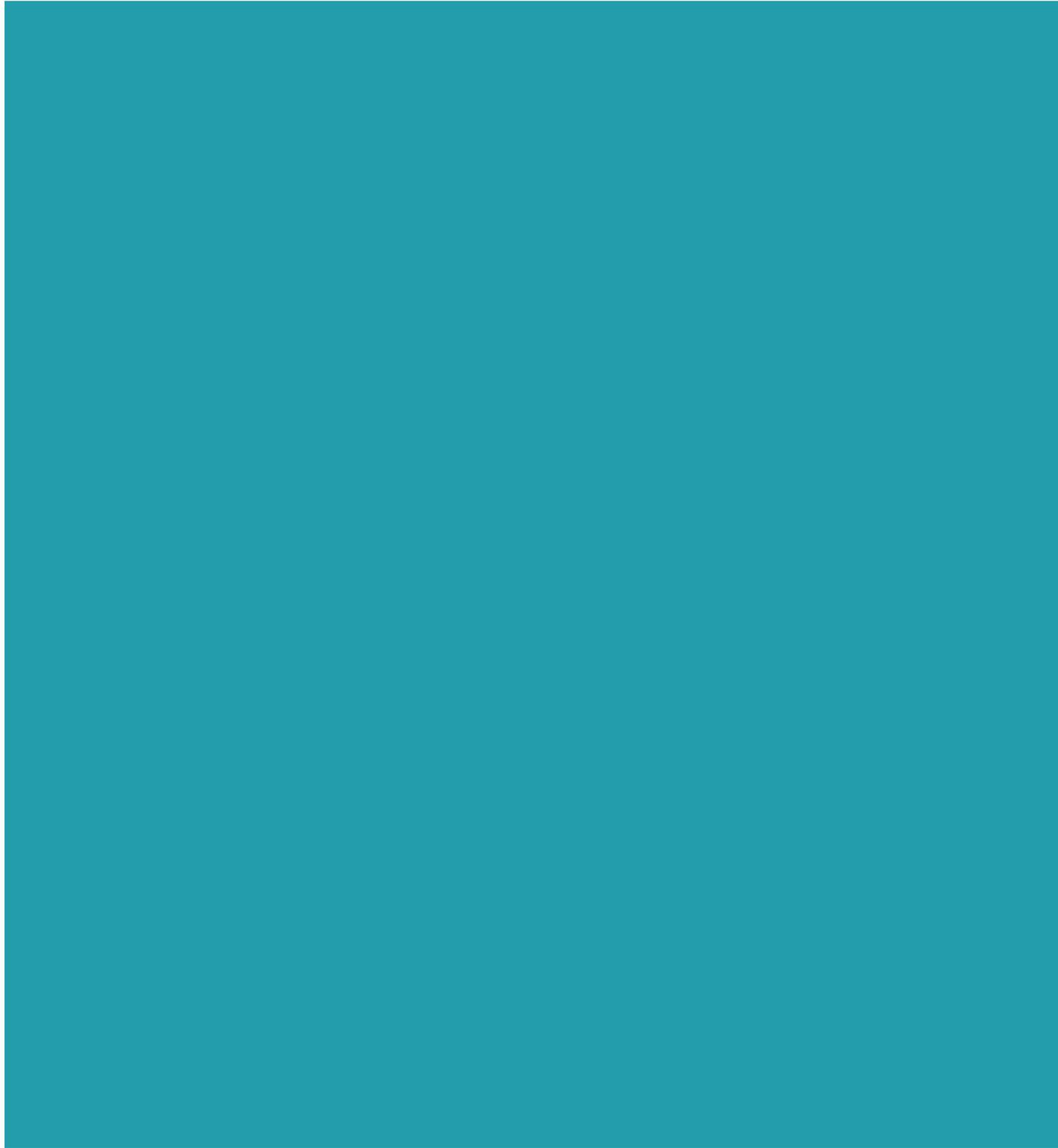rvard Business Review*, April 2016.