

Walmart: Where Digital Meets Physical



Walmart: Traditional Retail Giant to a Rising Digital Star

From Bricks to a Foundation of Clicks

It wouldn't be an overstatement to term 2011 as a breakthrough year for Walmart's digital transformation. In early 2011, Walmart was struggling to break new ground with its online business. Its e-commerce site was basic, lacking in intuitive search and unable to connect seamlessly with stores or supply chain¹. Its e-commerce revenue was rising linearly, in tandem with other retail players like Sears and Macy's, way behind Amazon and Staples (see Figure 1)².

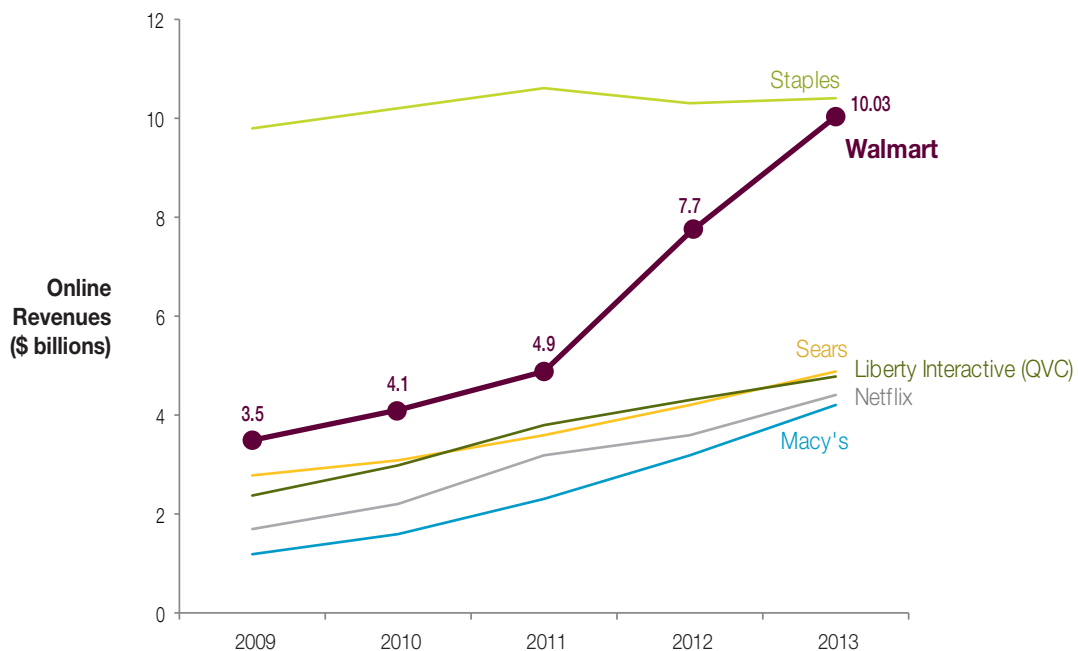
Fast-forward to today, and Walmart is accelerating its digital transformation, capitalizing on several early wins. Between 2011 and 2014, Walmart's e-commerce sales grew nearly 150% from \$4.9 billion to \$12.2 billion³. In 2014, it surpassed Staples' \$10.9 billion in FY 2014 online sales, becoming the largest online retailer after Amazon and Apple⁴.

In 2014, Walmart also succeeded in growing its global internet sales faster than Amazon, its key competitor in the online retail space⁵ (Walmart's 30% exceeding Amazon's 20%). By September 2014, monthly unique visitors to Walmart.com had climbed to more than 72 million, outpacing the visitor growth of some of its key online rivals between 2011 and 2014 (see Figure 2)⁶.

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To a large extent, the foundation for this transformation was laid during the tenure of CEO Mike Duke, which began in 2009. Mike Duke wanted to transform Walmart from a company known for its unyielding yet effective business processes into one that was “entrepreneurial, experimental and flexible”⁷. In a June 2011 address to shareholders, he said, “With our stores and low prices, we can really take advantage of mobile technology and this era of price transparency. We can combine our stores, our systems and our logistics expertise into one continuous channel to drive growth and serve the Next Generation Customer around the world. So let me be very clear -- in global e-commerce, we will not just be competing; we will play to win.”⁸ So, how did Walmart really play to win? The answer lies in Walmart's aggressive foray into digital.

Figure 1: Leading Online Retailers (By Revenue) 2009-2013, Excluding Amazon and Apple



Source: Wall Street Journal, “Wal-Mart Notches Web Win Against Rival Amazon”, May 2014

Figure 2: Leading Online Retailers' Growth in Average Monthly Unique Visitors, 2011-2014 (%)



Source: Capgemini Consulting Analysis; comScore, "State of the U. S. Online Retail Economy Q2 2011", August 2011; comScore, "comScore Ranks the Top 50 U.S. Digital Media Properties for August 2014", September 2014

Walmart Global eCommerce: The Cornerstone of Walmart's Digital Transformation

In 2010, Walmart established its Global eCommerce Division by consolidating its eCommerce activities around the world, setting the stage for an organization-wide effort to build a digital footprint and integrate it with physical shopping experience⁹. Based in San Bruno in Silicon Valley, Walmart Global eCommerce was tasked with overseeing all e-commerce for Walmart. Its key responsibilities included: running Walmart's ten websites worldwide, building and testing cutting-edge technology at @WalmartLabs, and building Walmart's eCommerce capabilities (see Figure 3)¹⁰.

Making swift progress on its goals, the division revamped Walmart.com's search engine in its first year, improving conversion of online visitors to buyers by 10 to 15%¹¹. In the next few years, Walmart scaled up Global eCommerce to more than 3600 associates worldwide, with more than 2200 of them in Silicon Valley. A thousand Silicon Valley associates were hired in 2014 alone. The division also made 14 acquisitions in the last three years¹².

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Fostering Digital Innovation with @WalmartLabs

Walmart's Global eCommerce division holds a key constituent - @WalmartLabs, which has played a crucial role in furthering digital innovation. @WalmartLabs came into being in May 2011 as part of Global eCommerce, gaining momentum from Walmart's acquisition of social media firm Kosmix¹³. @WalmartLabs was designed to be an idea incubator, with a mission "to build products that seamlessly integrate the online and in-store shopping experiences for millions of customers"¹⁴.

Referring to @WalmartLabs in 2012, Neil Ashe, Walmart's e-commerce chief said: "We're going to find ways to live at the edge. Every three or six months, you'll see something come out from us that will make you say 'WOW'." True to his words, @WalmartLabs has been instrumental in churning out a series of innovative digital products. Among @WalmartLabs' innovations are: Walmart's mobile apps with features that deliver a personalized experience, a next-generation search engine, Shopycat (a Facebook app that recommends gifts for friends based on their Facebook activity), Goodies (a subscription service that delivers a gourmet food box to customers for seven dollars a month) and a multitude of other projects that engage and reward customers.

@WalmartLabs' ability to consistently churn out innovative products can be traced in a large degree to the unique digital skills of its people and its startup culture. As Venky Harinayaran, co-founder of Kosmix and then SVP at Walmart, puts it: "We organize teams as

mini-startups with six to eight people. One person acts as CEO, and they have a clear business goal. We step out of the way and let these guys run it.¹⁵" A setup like this ensures that idea generation and execution happens rapidly, similar to a startup.

Walmart is set to make further strides in e-commerce and digital as it plans to step up its investment in these areas from \$1 billion in FY 2015 to between \$1.2 and \$1.5 billion for FY 2016¹⁶. In the following pages, we explore how Walmart is working towards ushering in the next generation of retail.

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Figure 3: Key Responsibilities and Initiatives of Walmart Global eCommerce

	Running Walmart's Ten Websites Worldwide	Building and Testing Cutting-Edge Technology at @WalmartLabs	Building Walmart's eCommerce Capabilities
Responsibilities	<ul style="list-style-type: none"> Running Walmart's websites for its operations in: US, UK, China, Brazil, Canada, Japan, Mexico, Argentina, Chile and South Africa 	<ul style="list-style-type: none"> @WalmartLabs is an idea incubator to build products that seamlessly integrate shoppers' online and in-store shopping experience 	<ul style="list-style-type: none"> Creating online fulfillment centers across the U.S. Building a new operating system for commerce – Pangaea
Actions	<ul style="list-style-type: none"> Walmart websites offer more than 7 million stock keeping units (SKUs) Seamlessly connects with stores and warehouses to offer customers a host of shipping options 	<ul style="list-style-type: none"> Consistently updating website and mobile apps with new features Leverages customer data and social insights to predict customer behavior 	<ul style="list-style-type: none"> Pangaea will be Walmart's new foundation for serving customers digitally Online fulfillment centers will help propel the next level of growth

Source: Company website; Walmart Global eCommerce Overview

Leading the Next Generation of Retail by Converging Digital and Physical

In a 2013 announcement, Bill Simon, Walmart US President and CEO, clearly laid out Walmart's commitment to play a lead role in the next generation of retail. He said: "We believe our multi-format portfolio will fuel the next generation of retail, enable the convergence of digital and physical store locations through e-commerce and unlock value, giving our customers anytime, anywhere access to Walmart.¹⁷" Essentially, the aim of this integration of physical and digital is to combine Walmart's traditional strengths in stores and distribution networks with its online and mobile experience. The end result for customers will be a faster, easier shopping experience with the promise of further savings. To realize this vision, Walmart has embarked on a number of initiatives (see Figure 4).

Reaching Customers Faster with Online Fulfillment Centers

Walmart has been heavily investing in building Online Fulfillment Centers (OFCs) or warehouses dedicated to serve online orders. These fulfillment centers will play a key role in Walmart's plans to scale up online sales close to threefold, reaching \$35 billion by 2018¹⁸. Until late in 2013, Walmart had only one distribution center dedicated to serving Internet orders. However, it opened a new, 800,000 square feet OFC in Texas in October 2013 and announced a new, one million square feet facility¹⁹. Walmart also recently announced plans to open four such facilities, each more than one million square feet in area²⁰.

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OFCs differ from traditional storehouses by making it easier and faster to assemble individual online orders through the use of robots and computer-controlled chutes. Faster assembly and shipment cut down the overall time required to fulfill orders, enabling Walmart to offer flexible shipping options to customers. For example, same-day delivery, expedited delivery and site-to-store (free shipping on online orders that customers can pick up from a Walmart store). In 2013, an algorithm developed by WalmartLabs helped Walmart speed up delivery by 15% and reduce delivery costs by 10% in two years²¹.

Fulfilling the Core Brand Promise with Intuitive Mobile Apps

Today, more than 50 percent of Walmart.com traffic in the US comes from mobile devices²². Realizing the potential of mobile for Walmart's business, Neil Ashe, President and CEO of Walmart Global eCommerce, said: "In the UK, one-third of online sales for Asda are coming from smart phones. And customers who shop the combination of Walmart's stores, website and mobile apps happen to be great customers. In fact, they spend twice as much inside our stores as customers who aren't using our website and apps.²³" Over the years, mobile has become a key channel reinforcing Walmart's core promise of 'Save Money. Live Better'.

Figure 4: Initiatives Aimed at Realizing Walmart's Vision of the Next Generation of Retail



Source: Capgemini Consulting Analysis

In 2012, Walmart added geo-fencing to its app, a feature that senses when a customer enters a Walmart store and allows him/her to browse the store's local ads, offers and item locations²⁴. The app allows customers to scan product bar codes and QR codes to access product information, ratings, reviews and additional content. Walmart further updated the app in 2014 to help customers pinpoint the exact aisle location of a product in its stores²⁵. The app also allows customers to create shopping lists by speaking into their phones, use digital coupons and even tally the total price of their cart in real-time as they add items. To further strengthen its core promise of offering competitive prices, Walmart launched another app feature called "Savings Catcher". It matches prices from other stores and upon finding a difference, issues a gift coupon worth the difference (see Figure 5)²⁶. Walmart estimates that nearly 50% of Walmart smartphone users in Q1 2014 used the device to assist with their shopping decision²⁷.

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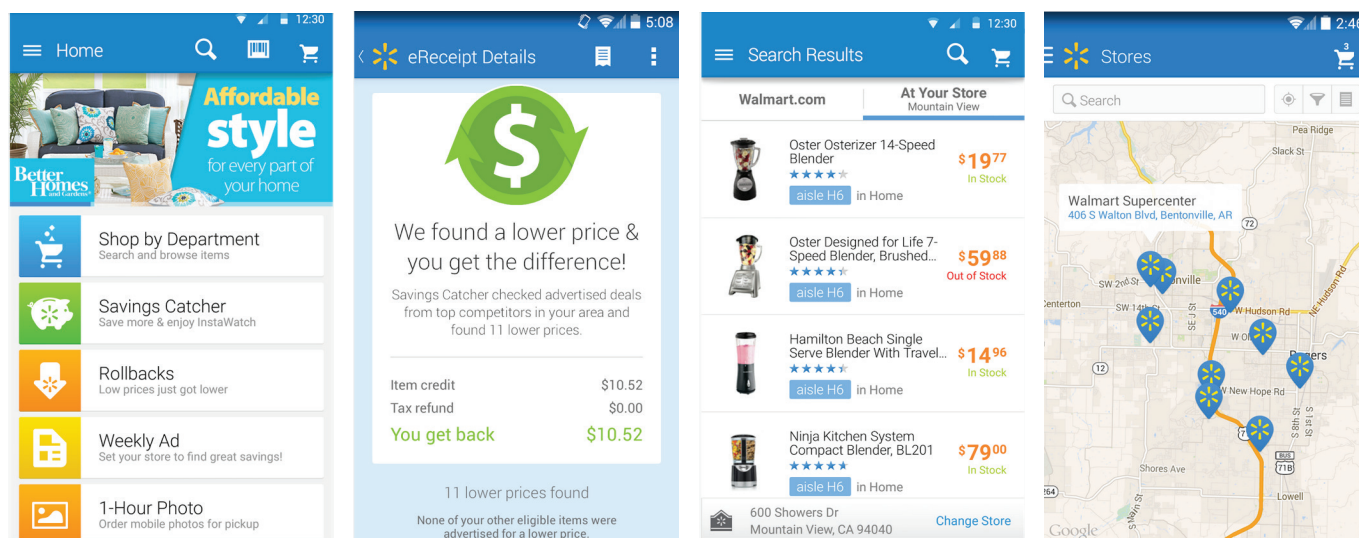
Combining Social Media and Big Data Analytics to Offer a Personalized Shopping Experience

Walmart CEO Douglas McMillon's expressed the importance of data when he said: "Walmart now has about 30 petabyte of shopping information. For years, our data has helped us run our stores around the world. Now, it is helping us personalize the shopping experience in ways that let us serve customers even better."²⁸ Utilizing the treasure trove of data that it has gathered, Walmart is able to suggest more relevant bundle values, coupons, customized product recommendations, simplified payments, and information on nearest stores²⁹. Walmart does this by analyzing individual purchasing behavior, search histories and other web interactions as well as social media footprints.

An example of Walmart's use of Big Data and social media is 'Shopycat', a Facebook app developed by @WalmartLabs that helps customers discover suitable gifts for their friends and family³⁰. The app analyzes behavior on social media to build a picture of the hobbies and interests of the friends of customers and arrives at gift recommendations for them. Another example of Walmart's intelligent use of data is its 'Polaris' search engine, which powers its website and mobile apps. 'Polaris' uses semantic search technology³¹ that understands the contextual meaning of shopper's search and generates more meaningful results³². For instance, when a customer who regularly searches for movies tweets that they "love Salt", the search engine recognizes that the customer is referring to the Hollywood movie Salt and not table salt³³. The use of Polaris helped Walmart improve conversion of online visitors to customers by 10% - 15%.

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Figure 5: Snapshots of Some of Walmart Mobile App's Key Features



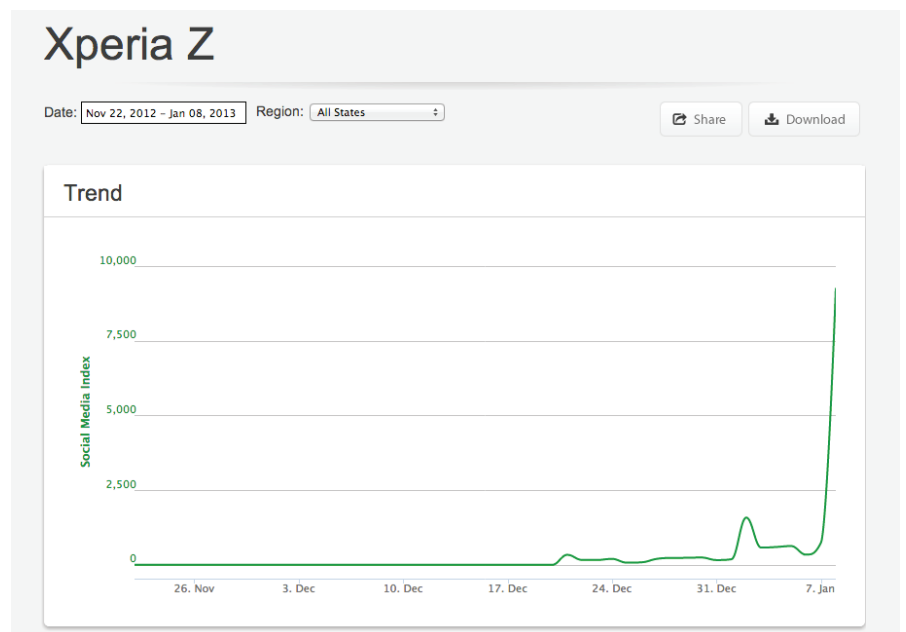
Source: App Stores on iTunes and Google Play Store

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Tapping the Power of Analytics to Optimize Inventory Management

Walmart is employing analytics not just to enhance the customer experience but also to make better decisions in managing swathes of inventory. Teams at WalmartLabs use visualization techniques to analyze social activity to capture insights that may indicate changes in product demand. Walmart can then use these insights to stock extra inventory at locations where it expects higher demand and reduce it from locations with lower demand. Arun Prasath, Principal Engineer at WalmartLabs, outlines the use case: “Social buzz typically precedes retail buzz. Our goal is to tap into this social buzz and help Walmart with decision-making on aspects like inventory and assortment. As an example, a reasonable spike in social activity about Sony's new Android phone Xperia Z, few days ahead of its actual launch, can help our merchants make smarter decisions ahead of time” (see Figure 6)³⁴.

Figure 6: Using Social Media Analytics to Forecast Product Demand



Source: WalmartLabs Blog

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Walmart has been able to predict demand patterns for some uncommon products, such as cake-pop makers and electric juicers, by uncovering their associations with other products that have a bearing on their demand.
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Research estimates that Walmart has been able to reduce its out-of-stock inventory by up to 16% by introducing technologies like RFID into its supply chain³⁵. Walmart has even been able to predict demand patterns for some uncommon products, such as cake-pop makers and electric juicers, by uncovering their associations with other products that have a bearing on their demand³⁶.

How Does Walmart Stay Ahead in Digital Innovation?

Walmart's digital transformation offers salutary lessons and insights for other major enterprises looking to innovate in a digital economy. Walmart has driven growth and increased performance through sustained digital innovation owing to its digital-savvy leadership, strategic acquisitions, its ability to attract digital talent, and a culture of innovation.

Digital-Savvy Leadership

A digital transformation, like any significant enterprise-wide change, requires committed and strong top-down leadership. In the past few years, Walmart has been working on building a team of senior leaders with established credentials in leading digital enterprises. Current President and CEO of Global eCommerce division at Walmart, Neil Ashe, is former President of CBS Interactive. Fernando Madeira, current President and CEO of Walmart.com, is former CEO of Terra, the largest internet portal in Latin America. Similarly, Walmart's board includes Marissa Mayer, President and CEO of Yahoo! Inc and Kevin Systrom, CEO and co-founder of Instagram. All of them and other leaders have played a key role in shaping Walmart's digital strategy.

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“WalmartLabs has been particularly focused on acquiring startups that have pioneered the use of mobile, data analytics, search, advertising, social shopping and social media.”

Strategic Acquisitions to Bolster Digital Capabilities

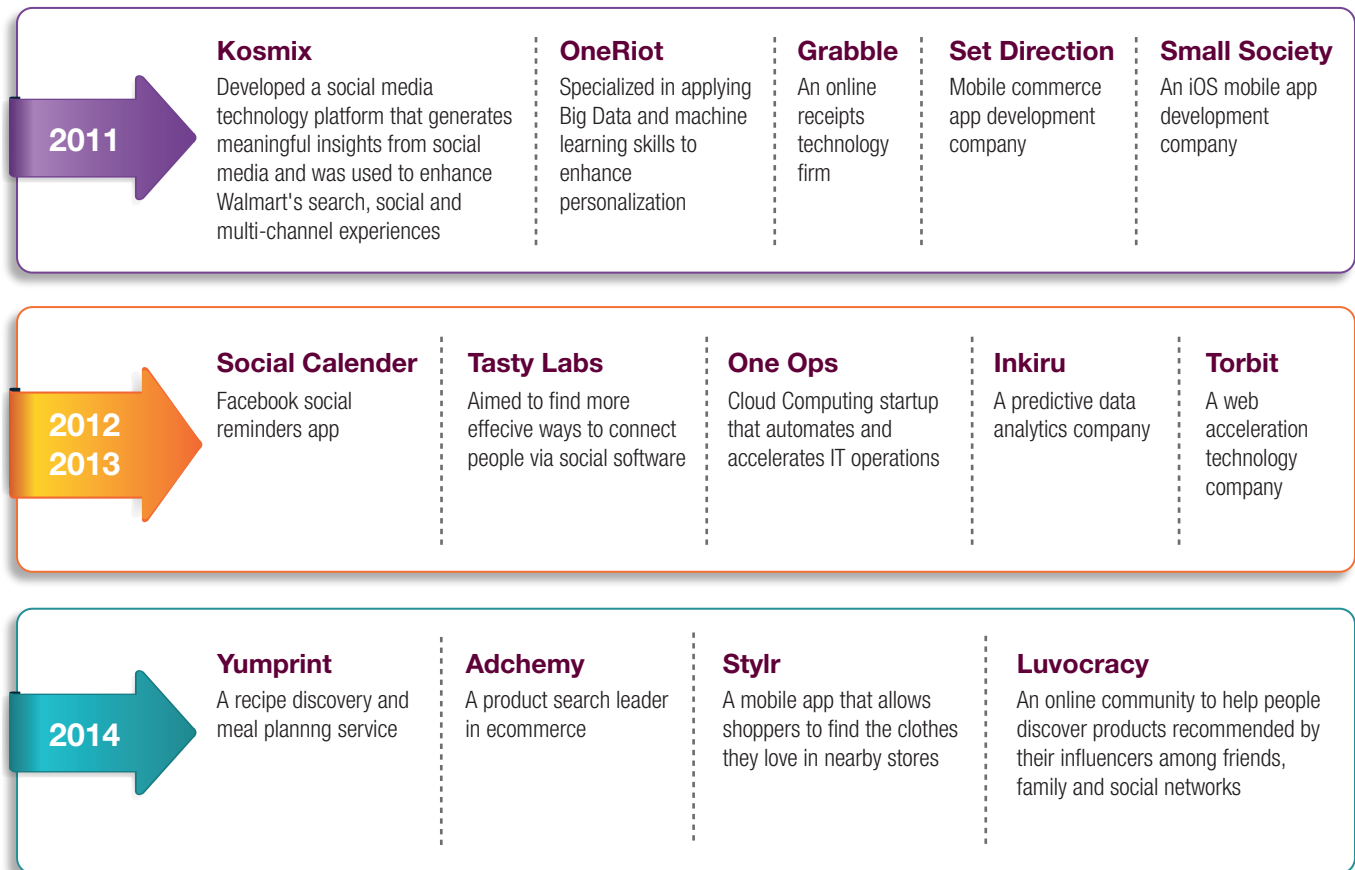
Since 2011, Walmart has acquired and integrated a number of startups to boost its digital capabilities (see Figure 7)³⁷. One of these acquisitions was Kosmix which was instrumental in shaping WalmartLabs in its early days. WalmartLabs has been particularly focused on acquiring startups that have pioneered use of mobile, data analytics, search, advertising, social shopping and social media. Walmart has absorbed most of the talent it gained from these acquisitions into WalmartLabs. The constant infusion of fresh talent has helped Walmart consistently upgrade key features of its digital properties. For instance, Walmart aimed to rope in the talent from Adchemy for product classification and search engine optimization³⁸; while the team acquired from Stylr was expected to be tasked with “developing enhancements to in-store experience.”³⁹ Walmart firmly believes these capabilities hold the key to unlocking more value for existing customers, as well as tapping newer customer segments as consumer preferences evolve.

Adopting Non-Traditional Approaches to Building Digital Skills

Acquiring startups has not been the only strategy for building digital skills at Walmart. Walmart is using a number of non-traditional approaches to bridge the digital skills gap that is plaguing many large organizations. Walmart is in the process of building one of the largest private clouds to hold data from its 11,000 stores which, once complete, is expected to make 40 petabyte of data available every day⁴⁰. To execute projects like these, Walmart is on constant look out for data professionals. One of the programs it undertook to attract analytics talent was conducting an analytics competition on Kaggle, an online platform that helps companies crowdsource solutions to analytical problems. The exercise helped Walmart create a buzz around their analytics team as well as hire some strong talent. Walmart also recently ran a recruitment campaign on social media with the hashtag #lovedata to position itself as an employer of choice among the online data science community.

“To attract strong analytics talent, Walmart conducted an analytics competition on Kaggle, an online platform that helps companies crowdsource solutions to analytical problems.”

Figure 7: Key Acquisitions Made By WalmartLabs



Source: WalmartLabs.com

Building A Culture of Innovation

Walmart has focused on building an innovation culture in its workforce, such as organizing "Hack Days". On Hack Days, Walmart associates put their usual work aside for a day and work with people from other teams to learn something new and develop new ideas⁴¹. One idea that emerged from a Hack Day was "Classrooms by Walmart"⁴². This online tool lets teachers from schools across the country create online lists of supplies needed by students and share them with parents. Parents can search for these supply lists online based on their child's school and make purchases online or in store. It made shopping for

classroom supplies online easier and more affordable for parents and teachers, saving precious time and resources. By 2013, Walmart had more than 100,000 classroom lists uploaded to its website.

Since its inception in 1962, Walmart has always been a front-runner in the retail industry. Sam Walton opened the first Walmart store in Arkansas, and within 25 years was opening the first Walmart Supercenter. In a world shaped by digital technologies, it has continued to innovate. Walmart is reinventing itself for a digital age, marrying its traditional strengths to new digital innovations to drive growth and secure the chapter of its success.

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