

Market Briefing

2017 Issue 10 News from the month of September 2017



BOSCH
Invented for life

Bosch

Dremel

RotoZip

Vermont American

CST/berger

freud

Sia

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Consumer Confidence Falls Slightly

Consumer Spending Rises 0.1%

Consumer Prices Rise 0.4%

Unemployment Falls to 4.2%

Durable Goods Orders Rise 1.7%

Chicago PMI Rises to 65.2

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Housing Starts Fall 0.8%

- NE -8.7%, MW 22.0%, W 4.0%, S -7.9%

- Single-family starts 1.6%

Building Permits Rise 5.7%

- NE -13.0%, MW 8.8%, W 15.3%, S 3.7%

- Single-family permits -1.5%

New-Home Sales Fall 3.4%

- NE -2.6%, MW Unchanged, W -2.7%, S -4.7%

Existing Home Sales Fall 1.7%

- NE 10.8%, MW 2.4%, W -4.8%, S -5.7%

- Single-family sales -2.1%

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Prefab and Offsite Construction Housing

Affordability Drops

Robots and Drones Revolutionize Industry

Artificial Intelligence Patents

Hijacking Voice Assistants

Smartphones Instore

Smart Glasses

Understanding Customer Barriers

Robert Bosch Tool
Corporation
1800 W Central Rd
Mount Prospect, IL
60056 USA
www.boschtools.com

U.S. ECONOMY

EXCHANGE RATES SEPTEMBER 29, 2017

Euro	1 Euro = \$1.181	\$1.00 = 0.846 Euros
Canadian Dollar	1 CAD = \$0.799	\$1.00 = 1.250 CAD
Japanese Yen	1 Yen = \$0.009	\$1.00 = 112.588 Yen
Chinese Yuan	1 Yuan = \$0.150	\$1.00 = 6.648 Yuan
Mexican Peso	1 Peso = \$0.055	\$1.00 = 18.175 Pesos

MARKET WATCH SEPTEMBER 29, 2017

DOW	22,405	2.1%
NASDAQ	6,496	1.0%
S&P 500	2,519	1.9%

All three indexes posted gains for both the month of September and the third quarter, with the DOW recording eight consecutive positive quarters, the longest winning streak since 1997. The NASDAQ has also posted eight winning quarters. The DOW rose 2.1% in September and was up 4.9% for the quarter, the tech-heavy NASDAQ rose 1.0% for the month and 5.8% for the quarter and the S&P, the index most closely followed by economists, gained 1.9% for the month and was up 3.9% for the quarter. It was also the least volatile September for the markets in many years.

CONSUMER CONFIDENCE FALLS SLIGHTLY

The New York-based Conference Board's Consumer Confidence Index fell 0.6 points in September to 119.8 from a downwardly revised reading of 120.4 in August. The Present Situation Index dropped to 146.1 from a downwardly revised 148.4. The Expectations Index rose slightly to 102.2 from a downwardly revised 101.7 in August. The Expectations Index is typically the most volatile of all the components. The Conference Board said that the overall index was affected by big drops in confidence in Texas and Florida, the two states most severely impacted by Hurricanes Harvey and Irma. Economists say a level of 90 indicates that the economy is on solid footing and a level of 100 or more indicates growth. Analysts caution that the real driver behind consumer spending is income

growth and that labor market trends are a more accurate predictor of consumer behavior.

CONSUMER SPENDING RISES 0.1%

Consumer spending inched up 0.1% in August after rising 0.3% in July. The core personal consumption expenditures index (PCE) rose 0.1% in August and 1.3% year over year after rising 1.4% in July. Incomes grew 0.2% in August after increasing a downwardly revised 0.3% in July. Consumer spending in August was depressed by a 1.1% drop in spending on durable goods, led by a big decline in spending on new motor vehicles. Auto manufacturers reported that Hurricane Harvey impacted sales during the last week in August. Consumer spending is closely watched by economists because it accounts for 70% of U.S. economic activity.

CONSUMER PRICES RISE 0.4%

The Consumer Price Index (CPI) rose 0.4% in August after rising 0.1% in July. The CPI was up 1.9% from August 2016. Core inflation, which excludes food and energy, rose 0.2% and was up 1.7% year over year. Core inflation has consistently been below the Fed's target of 2%. Most of the rise in prices came from increases in the cost of housing and gasoline. Analysts believe that the Fed will hold off increasing interest rates for now, and will want to see what impact Hurricanes Harvey and Irma have on the overall economy before considering raising rates.

UNEMPLOYMENT FALLS TO 4.2%

The unemployment rate fell to 4.2% in September after rising to 4.4% in August. Two destructive hurricanes had an impact on job growth, with the economy losing 33,000 jobs, the first decline since September 2010. Analysts had been expecting job growth to slump, but still expected the economy to add about 75,000 jobs. Foodservice and drinking establishments lost more than 100,000 jobs in September, most likely as a result of storm-caused closings. The number of Americans filing for unemployment benefits hit a two-year high in the first week of September. The average number of hours worked remained about the same and earnings rose 0.3%. Earnings are up 2.6% from September 2016. Consulting firm RSM reports that in storm-hit areas construction companies are struggling

gling to find skilled and qualified workers. The economy needs to create just under 100,000 jobs each month to keep up with growth in the working-age population, according to Fed Chair Janet Yellen.

DURABLE GOODS ORDERS RISE 1.7%

Durable goods orders rose 1.7% in August after falling 6.8% in July. The unexpected increase was primarily due to a 45% surge in orders for commercial aircraft. Excluding the volatile transportation category durable goods orders increased by 0.2% in August after rising 0.5% in July. Orders for non-defense capital goods excluding aircraft, a closely watched indicator of business spending, rose by 0.9% in August after rising 0.4% in July. Shipments in the same category, which factor into GDP, rose 0.7% in August after rising 1.1% in July. Orders for machinery, primary metals, computers, electronic products and transportation equipment all increased. The durable goods report is often both volatile and subject to sharp revisions.

CHICAGO PMI RISES TO 65.2

The Chicago Purchasing Managers' Index (PMI) rose to 65.2 in September from 58.9 in August, reaching the highest level in three months. All of the index's components rose in September, boosting the three-month average for the index to 61.1, virtually unchanged from the 3-month average for the second quarter. Elevated commodities prices and hurricane-induced shortages pushed Prices Paid to a level last seen in July 2011. Some firms stockpiled goods, leading to an 8.4 point jump in inventory levels. Firms expect a busy fourth quarter and surprisingly few anticipate major delivery delays due to hurricane-caused disruptions in the supply chain.

WHOLESALE PRICES RISE 0.2%

The Producer Price Index (PPI) rose 0.2% in August after falling 0.1% in July and was up 2.4% over the past twelve months. Core inflation, which excludes volatile food, energy and trade services prices, rose 0.1% in August after falling 0.1% in July and was up 2.0% from August 2016. **The PPI for inputs to construction was up 0.3% in August and 3.2% year over year.** For the past five years of the recovery inflation has been below the

Federal Reserve's target for annual price gains of around 2%. The PPI survey data was gathered before Hurricanes Harvey and Irma inflicted billions of dollars in losses, which will most likely cause further, and possibly sharper, increases in prices in the coming months as demand for materials needed to rebuild and restore infrastructure climbs.

Q2 GDP RISES 3.1%

GDP grew an upwardly revised 3.1% in the second quarter, up from the 2.6% growth initially reported and the previous upward revision to 3.0% growth. It was the best growth in two years. Stronger business spending led to the upward revision. Nonresidential fixed investment, a measure of business spending on equipment, software and commercial space, grew 6.7%, slightly lower than previously reported but still solid. Many private-sector economists estimate economic output fell to between 1% and 2% in the third quarter, but expect growth to rebound in the fourth quarter and early next year as hurricane-impacted communities rebuild, consumers and businesses step up spending and the global economy gains traction. Consumer spending was unrevised at 3.3% for the quarter, up from the initial reading of 2.8% and a big improvement from 1.9% in the first quarter.

JOB OPENINGS LITTLE CHANGED

The number of job openings was little changed at 6.2 million in July, according to the latest Jobs Openings and Labor Turnover Survey (JOLTS). Hires and separations were also little changed, at 5.5 million and 5.3 million, respectively. Within separations, the quits rate was little changed at 2.2% and the layoffs and discharges rate also held steady at 1.2%. The job openings rate remained at 4%. The ratio of available workers per available job remained low, with managers now having about 1.1 candidates per job opening, making competition fierce for talent. Economists warn that the record level of job openings could negatively impact economic growth. The JOLTS report is one of Fed Chair Janet Yellen's preferred economic indicators.

GOVERNMENT SHUTDOWN AVOIDED

President Donald Trump ignored his own party's leaders and sided with Democrats on a deal to bundle Hurricane Harvey relief funds, a three-month increase on the debt limit and a three-month continuing resolution to keep the government funded. Republicans would have preferred a longer extension to avoid another fight when the three months run out December 15. Both sides agreed they would work diligently to pass something longer term and avoid a holiday government shut down. S&P warned that failing to raise the debt limit would have been more catastrophic to the economy than the 2008 failure of Lehman Brothers and would have erased many of the gains of the recovery. They noted that in the event of a default the plunge in government spending would put the economy back into a recession.

ECONOMIC GROWTH PROJECTIONS

The economy will grow 2.2% this year and 2.4% in 2018, according to the latest survey of nearly four dozen economists by the National Association for Business Economics (NABE). The odds of recession this year and next year remain very low. The Trump administration has forecast that GDP will increase gradually to 3% by 2020.

HOUSING & CONSTRUCTION

HOUSING STARTS FALL 0.8%

Housing starts fell 0.8% in August to a seasonally adjusted annual rate of 1.18 million units after falling to an upwardly revised number in July. Hurricane Harvey, which hit the last week in August, may have cut into starts in Houston, which has long been the number one market for single-family starts and a top market for apartment construction. **Single-family starts rose 1.6%** to a seasonally adjusted annual rate of 851,000 from a downwardly revised reading in July. Single-family starts are up 8.9% year to date. Multifamily starts fell 6.5% to 329,000 from an upwardly revised number of starts in July, but are 9.9% below the same time period in 2016. **Regional starts were mixed.** Starts rose 22.0% in the Midwest and 4.0%

in the West. Starts fell 7.9% in the South and 8.7% in the Northeast.

BUILDING PERMITS RISE 5.7%

Building permits rose 5.7% in August to a seasonally adjusted annual rate of 1.30 million units after falling to 1.22 million units in July. **Single-family permits fell 1.5%** to 800,000 units after being steady in July. Multifamily permits rose 19.6% to 500,000 units after falling to 412,000 units in July. **Regional permit issuance was mixed.** Permits rose 15.3% in the West, 8.8% in the Midwest and 3.7% in the South. Permits fell 13.0% in the Northeast.

NEW-HOME SALES FALL 3.4%

Sales of newly built, single-family homes fell 3.4% in August to a seasonally adjusted annual rate of 560,000 units from an upwardly revised reading in July. However, revisions to past months' data subtracted 28,000 sales from June and May, with most of the corrections in the South. New home sales were up 7.5% from August 2016. The inventory of new homes for sale rose slightly to 284,000 in August, a 6.1-month supply at the current sales pace, up from a 5.8-month supply in July. **Regional sales were mixed.** New home sales were unchanged in the Midwest. Sales fell 2.6% in the Northeast, 2.7% in the West and 4.7% in the South. Sales of new homes are tabulated when contracts are signed and are considered a more timely barometer of the housing market than purchases of previously-owned homes, which are calculated when a contract closes.

EXISTING HOME SALES FALL 1.7%

Existing home sales fell 1.7% in August to a seasonally adjusted annual rate of 4.74 million units after falling to an unrevised 5.44 million units in July. **Single-family home sales dropped 2.1% in August** to a seasonally adjusted annual rate of 4.74 million units from 4.84 million in July but are still 0.4% above the pace of August 2016. Total housing inventory at the end of August fell 2.1% and is now 6.5% lower than last year, marking the 27th consecutive month of year-over-year declines. Unsold inventory was at a 4.2-month supply at the current sales pace, down from 4.5 months a year ago. **Regional sales were mixed.**

Sales rose 10.8% in the Northeast and 2.4% in the Midwest. Sales fell 5.7% in the South and 4.8% in the West. Some of the decline in sales in the South was due to the impact of Hurricanes Harvey and Irma, which likely delayed closings. Demand is still strong, but low inventory, price appreciation and tight credit are depressing sales.

BUILDER CONFIDENCE FALLS TO 64

Builder confidence fell three points to 64 in September after rising a downwardly revised one point in August, according to the HMI (National Association of Home Builders/Wells Fargo Housing Market Index). Hurricanes Harvey and Irma impacted the two largest states for new single-family homebuilding, which may interrupt activity in both states. Texas and Florida account for 25% of the nation's single-family permits. NAHB expects builder confidence to rebound once the rebuilding process gets underway. All three HMI components posted losses in September but remained at healthy levels. The component gauging current sales conditions fell four points to 70, the index charting sales expectations for the next six months dropped four points to 74 and the component measuring buyer traffic slipped one point to 47. The three-month moving averages for regional HMI scores were mixed. The West increased three points to 77 and the Northeast rose one point to 49. The South dropped one point to 66 and the Midwest fell three points to 63.

MORTGAGE RATES HOLD STEADY

A 30-year fixed-rate mortgage (FRM) held virtually steady at the end of September at 3.83% after falling to 3.86% at the end of August. In September last year 30-year rates averaged 3.42%.

POWER TOOL INDUSTRY

STANLEY BLACK & DECKER

From the Morgan Stanley Laguna Conference, where SB&D was represented by CEO James Loree:

Both CEO James Loree and CFO Don Allen joined Stanley Works in 1999, as did the current head of the Tools business and their Chief Human Resources Officer.

One of their goals is to become known as one of the world's most innovative companies.

They return about half of their excess capital to their shareholders through dividends and stock repurchases and reinvest the rest in their businesses.

Their FlexVolt 60-volt system operates tools that in the past have been corded, such as angle grinders and miter saws, but is compatible with all their 20-volt tools.

They are expecting a gross sales benefit of \$300 million from FlexVolt this year, which includes about \$100 million of cannibalization of corded tools, so a total of about \$200 million in incremental revenue.

They currently have 10 to 12 serious projects in the innovation pipeline that each have more than \$100 million in annual revenue potential. They are learning that some of the skills required to commercialize them and the business models and types of people that are required in other areas demand a different approach. Loree predicted that by the next analysts meeting there would be a major move by SB&D to liberate some of these innovations and put them in what he called more of an exponential organization as opposed to a traditional organization with a traditional P&L. Or, as he later explained, more like an incubator that would have a different culture than SB&D corporate.

Their goal of reaching \$22 billion in revenue by 2022 will mean doubling the size of the company in six years, which will require a significant increase in mergers and acquisitions (M&A). However, they are very disciplined in their approach to acquisitions, and in the past three months have walked away from three they were seriously considering. They also want to produce significant organic growth.

When they acquired Craftsman they only got about \$100 million of revenue, as they did not take any Sears

revenue, which would have been more than \$1 billion. They didn't want it, and could not have taken it anyway because of antitrust issues.

They view the Craftsman acquisition as an offensive weapon because there is such high customer interest in Craftsman being available outside of the Sears channels. **They have completely redesigned the entire Craftsman line** to incorporate the best value elements of all their different products from around the world. They will be rolling out the new Craftsman line in mid-fall of next year.

They would not discuss which customers would be getting Craftsman and which would not, but did indicate that the big box store not getting the line would be getting something of their own which will impact them in a very positive way.

Loree talked about the impact of the storms, and said that at first disasters affect the big box stores in a negative way, as they have to close stores, but then when they open again, the effect is very positive. The first traffic allowed on I-95 after Hurricane Irma was a convoy of Home Depot trucks. Both Home Depot and Lowes have hurricane response centers that mobilize before the storm strikes. Texas and Florida are big enough to have an impact on the entire country's construction market. All in all they think the impact will be neutral over the short term and slightly positive over the mid-term.

Other News:

SB&D is dealing with an anti-dumping investigation by the Department of Commerce for supposedly selling certain steel nails with shaft lengths up to 12 inches at prices below value between August 1, 2015 and July 31, 2016. If they are found guilty, Customs will assess them anti-dumping duties.

Stanley Ventures, a division of SB&D, is the lead investor for FreeWire Technologies Series A financing bonds. FreeWire is a tech company specializing in mobile and networked energy storage and offers solutions for electric vehicle charging and mobile distributed power through the Mobi product line. FreeWire commented that

the mobile energy market is rapidly evolving and SB&D is not only a leader but a pioneer of innovation and development.

TRIMBLE

Trimble acquired privately-held 10-4 Systems for an undisclosed amount. 10-4 Systems is a provider of advanced multimodal shipment visibility solutions and related technologies for shippers and transportation providers. The acquisition expands Trimble's portfolio of transportation management systems (TMS) to include an established cloud-based solution for small carriers as well as a shipper RFP platform. 10-4 Systems helps Global 500 companies understand, embrace and benefit from a comprehensive supply chain technology experience.

RETAIL

RETAIL SALES FALL 0.2%

Retail sales fell 0.2% in August after rising 0.6% in July.

It was the biggest decline in retail sales in six months. Hurricane Harvey weighed on sales in August, data for July was revised down to a 0.3% gain from the 0.6% first reported and the damage inflicted by Hurricane Irma has not yet been factored in. Core retail sales, which exclude auto sales, gas and building materials, and factor into GDP, fell 0.2% in August after rising 0.5% in July. Auto sales took a big hit in August, falling 1.6% after being flat in July. The big decline trimmed 0.3% off total retail sales. Sales at gas stations jumped 2.5%, due both to stocking up in areas affected by the hurricanes and a surge in gasoline prices due to constricted supplies after the storms. Nonstore retail sales, which include internet and catalog sales, dropped 1.1% in August after jumping in July but were up 8% from August 2016. Amazon's Prime Day sales factored into the increase in July. Building materials and garden equipment sales fell 0.5% in August after rising 1.2% in July but were up 8.2% from August 2016. Sales in this category will probably jump in September due to extensive preparations for Hurricane Irma in Florida. Retail sales account for one-third of all consumer spending, with services making up the other two-thirds.

TOP RETAILERS

The top ten retailers on this year's list of the nation's top 100 (based on retail sales) from the National Retail Federation include Walmart (1), The Home Depot (4), Amazon (8) and Lowe's (10).

RETAILERS PREPARED FOR HURRICANES

THD and Lowe's were both busy before Hurricanes Harvey and Irma. THD shipped more than 100 truckloads of plywood into South Florida every day before Hurricane Irma struck. THD has two bulk distribution centers in the state, one on the east coast in Pompano Beach and one on the west coast in Tampa. In addition to factoring in how much they need to get into the area, they factor in the safety of their associates and drivers and make sure they can get out. Before Hurricane Harvey hit Texas, THD activated their disaster response plan, asking managers to freeze prices in stores around the region and move storm related merchandise to the front of the store. Lowe's had sent 400 truckloads of hurricane prep materials by September 6, including flashlights, batteries and weather radios.

HOLIDAY HIRING JUMPS

Major retailers are putting on more temporary help for the coming holiday season as they work at improving customer service on their sales floors and better handling the rapidly growing use of stores to fulfill online orders. Some retail analysts noted that the push to compete with Amazon and other online retailers may have caused some retailers to pay less attention to their stores. Jobs site Indeed.com reported a 34% increase in seasonal job postings compared to last year from retailers such as Amazon, Target, Best Buy and Macy's. ChargeItSpot, which provides cell phone charging stations at retailers such as Nordstrom, Neiman Marcus and Under Armour, found in a survey that 63% of consumers thought store associates were "extremely important" when they shop and not being able to find help when you wanted it was a huge problem. Speeding up check out and minimizing the time spent waiting in line in the store to pick up online orders was also very important to respondents.

TARGET RAISES THE BAR FOR MINIMUM WAGE

Target will increase the minimum hourly wage paid by a dollar to \$11 before the busy holiday season, and vowed to raise it to \$15 an hour, the so-called "living wage" labor advocates across the U.S. are campaigning for, by 2020. The movement, dubbed the "Fight for Fifteen," has been gaining traction and attention across the country. Target's decision comes less than three months after the Minneapolis City Council approved a measure requiring large companies to pay workers at least \$15 an hour by 2022. Walmart, the nation's largest retailer and private sector employer, last raised their minimum wage for store employees to \$10 in 2016.

THE HOME DEPOT

THD will join Google Express this fall, adding the ability for THD's customers to shop through the voice assistant on Google Home or the Google Express website or app.

LOWE'S

Michael West joined Lowe's as senior vice president of supply chain field operations on September 25. He was most recently the head of distribution, transportation and fulfillment for all Neiman Marcus brands. At Lowe's, West will lead operations for the company's regional and flat-bed distribution centers, millwork facilities and bulk distribution centers. His professional experience also includes 12 years at Target where his roles included vice president of global logistics. He'll report to Chief Supply Chain Officer Brent Kirby.

Lowe's is rolling out two new iPhone apps, Measured by Lowe's and Envisioned by The Mine. Both apps are part of Lowe's efforts to create augmented, virtual and mixed-reality platforms. Both will be available for iPhone users with the 6S or newer models. Measured uses the iPhone's camera to allow shoppers to instantly measure a range of items and save the measurements. Envisioned by The Mine will launch in early October. It will let consumers use scale images of furnishings available on The Mine's online product catalog to envision them in their home or commercial space. Lowe's owns The Mine, which is an online-only retailer of luxury home furnishings. Gihad

Jawhar, Lowe's vice president of digital development, said that they intend to harness technology to solve everyday problems.

WALMART

Walmart plans to replace their aging headquarters campus in Bentonville, Arkansas with a brand new home office on 350 acres a few blocks away. Walmart made the announcement a week after Amazon announced, with great fanfare, that they plan to build a second headquarters in whichever city offers them the best perks. Walmart says that the new campus will house up to 17,000 employees and be "more suited to a digitally native workforce." Construction will take place over the next five to seven years. A company spokesperson said they never considered moving out of Bentonville.

Walmart is restructuring their U.S. business in order to continue to improve the efficiency of operations.

Walmart is trimming the number of regions from 44 to 36 and the number of divisions from six to four. A source said the reorganization is expected to be completed in October. Walmart realigned their ecommerce and technology leadership teams in January and laid off about 1,000 workers across multiple divisions before the fiscal year ended January 31. They streamlined buying operations in February, enabling one buyer from the store buying team to purchase products for both in-store and online. They restructured their food and merchandising leadership teams in July.

Imagine doing your grocery shopping online and coming home to discover that your groceries have been delivered and all your refrigerated and frozen items have been safely put away. Walmart is partnering with August Home, a provider of smart locks and smart home accessories, to test an online grocery shopping and delivery service. A handful of August Home customers in Silicon Valley have opted in to participate in the test. The homeowner will be in control of the entire experience. They'll be notified that the delivery is in progress and be able to watch the delivery in real time on their smartphone. A driver delivers the order; if no one answers, the driver is given a one-time passcode to the

smart lock so they can leave the items wherever the customer would like, even in the frig.

SEARS

Sears is considering expanding their partnership with Amazon. They partnered with Amazon over the summer to sell Alexa-enabled Kenmore air conditioning units. Now they will use Southern California as the first market to test the expansion of the line to other large appliances, including washers, dryers and refrigerators. They plan a nationwide expansion in early 2018.

MENARDS

Menards stores held a three-day Local Contractor Connection event in mid-September at several stores in Michigan. Local contractors were available to consult with customers on projects.

TRUE VALUE

True Value's Fall Reunion took place in Chicago during the last week of September. True Value recently added 15 new stores in hurricane-impacted Texas, Florida and Puerto Rico. Chairman Brent Burger told attendees how the co-op distributed 20,000 5-gallon gas cans and 30,000 cases of bottled water. More than 3,000 generators moved out of the company's Corsicana and Atlanta DCs, and the transportation team made more than 300 emergency deliveries.

Senior VP of marketing David Elliott described a big change in the marketing arena and a shift to a more digital and more local approach. Elliott said that after reviewing customer profiles, the co-op intends to broaden their marketing efforts to target not only millennials, but all generations, an announcement that drew lots of applause from the audience of dealers. True Value is also ending its National Promo Fee, about 1.4% of each retailer's wholesale purchases that supported national advertising. Elliott says their 2018 marketing plan, "Tools for Transformation" will be locally focused and digitally driven, and will include broadsheets, paid search, social media, email, online advertising, point-of-purchase displays, direct mail and mobile push. Elliott is a New Zealander who worked

with True Value CEO John Hartmann at Kiwi hardware co-op Mitre 10.

AMAZON

Amazon is scouting North American cities looking for the ideal spot for a second company headquarters, where it plans to hire as many as 50,000 full-time workers. Amazon plans to invest \$5 billion in construction and operation of the location, which it is calling Amazon HQ2. Amazon CEO Jeff Bezos says they expect it to be fully equal to their Seattle headquarters. Amazon is seeking proposals from local, state and provincial government leaders, and says they are focused on metropolitan areas with more than 1 million people. They are also looking for areas that can attract and retain technical workers and offer a stable and business-friendly environment. They're not necessarily looking for an urban or downtown location. They've stated they will go with the city that offers them the best perks and incentives. Among the reported contenders are Atlanta, Detroit, Dallas, Phoenix, Chicago, Boston, Philadelphia, Washington, New Jersey, Denver, Miami and Cincinnati as well Ottawa and Toronto in Canada. City applications are due October 19.

Amazon's two-day shipping promise met its match during Hurricane Irma. Many Floridians who ordered hurricane supplies through Amazon's Prime program received cancellation notices from Amazon, with no word on when delivery would be possible. Analysts noted one lesson was that there was still definitely a need for local stores.

Amazon Web Services (AWS) recently released Macie, its machine-learning security platform. Macie will deploy machine learning to assist in the prevention of data loss. The software will discover, classify and protect sensitive data within AWS. Amazon Macie automates labor-intensive processes that used to require customers to develop and frequently update data classifications, which were limited to accounting for known risks.

Amazon Web Services (AWS) has introduced per-second billing for some of its services, which AWS says will make them more cost-effective than ever. Amazon says there will be a minimum charge of one minute, with

prices listed on a one-hour basis but charged down to the second.

Amazon Business Now currently has more than one million business customers. Business Now was launched in April of 2015, and offers business-only pricing on millions of products and access to more than 85,000 business sellers. Amazon Business serves businesses of all sizes and in many different industries. The Director of IT Procurement for Siemens Corporation said that depending on the type of business, their teams might need tools delivered in hours, large amounts of office supplies or big pieces of machinery for factories. Amazon Business allows them to automate a lot of orders and get delivery in a very short amount of time. Membership is free, but businesses must be approved. Among the benefits are free two-day shipping on orders over \$49. Multiple users can use the same account and purchase order numbers and integration with popular enterprise purchasing systems is also offered. There are also systems that streamline reordering and offer special business pricing, bulk quantity discounts and other perks.

Kohl's is partnering with Amazon to create Amazon Smart Home Experiences in 10 Kohl's stores in the Los Angeles and Chicago areas beginning in October. The smart home spaces will allow customers to buy Amazon devices, accessories and smart home devices and services directly from Amazon. The Smart Home Experience centers will be about 1,000 square feet and offer Amazon Echo, Echo Dot, Amazon Fire TV, Fire tablets and more. The staff managing the space will be Amazon associates. Customers will be able to schedule an Amazon expert to come to their home, evaluate their needs and install smart home products for a fee.

Kohl's will start accepting Amazon returns at 82 stores in Los Angeles and Chicago beginning in October. There will also be designated parking spots near store entrances for people doing an Amazon return.

MARKET TRENDS

PREFAB AND OFFSITE CONSTRUCTION

One of the industries that enjoyed growth during the last recession was the prefabricated construction business. Many skilled laborers left the construction industry during the recession and did not return, and developers began looking for ways to be more efficient. This combination made prefabricated buildings more appealing. Offsite construction allows various building elements to be built in a factory and transported to a construction site. Prefabrication makes on-site changes more difficult, thus is better suited to some types of industries. There has been increasing interest in prefab from healthcare, commercial retail and institutional buildings such as prisons and police stations. Marriott International recently announced plans to modularly construct 13% of their North American developments.

HOUSING AFFORDABILITY MOVES LOWER

Housing Affordability moved lower in the second quarter of 2017, according to the National Association of Home Builders/Wells Fargo Housing Opportunity Index. The booming job market is boosting housing demand and inventory is very tight, which is helping to inflate prices. Just over 59% of new and existing homes sold between April 1 and June 30 were affordable to families earning the U.S. median income of \$68,000, down from 60.3% of homes sold in the first quarter. The top five most affordable markets are in Ohio, Indiana, Pennsylvania and upstate New York. All five least affordable housing markets are in the California. Housing prices are now higher than their previous peak at the end of the housing boom in 2008, and have risen an average of just over 6% since the market bottom in 2012. Meanwhile, per capita income has increased just 2.4% on average per year. Housing starts bottomed out at 550,000 in 2009, a little more than one-third of the historical average of about 1.5 million starts per year. Just under 1.3 million starts are forecast for this year. Residential construction currently has more than 150,000 open jobs, which is helping suppress starts, along with shortages of buildable lots and rising prices for building materials, particularly lumber.

ROBOTS AND DRONES ARE THE NEXT INDUSTRIAL REVOLUTION

Amazon already has more than 100,000 robots shuttling products to human pickers in more than 25 of their highly robotized fulfillment centers. Next will come picking bots and finally delivery drones, according to a recent analysis in *American City Business Journals*. Analysts expect the FAA to drop one of the biggest obstacle to drone development sometime in the next two years and allow some commercial drones to fly beyond the sight of their human pilots. Amazon Prime Air already has coders, engineers and program managers at its headquarters in Seattle and is reportedly looking for new hires, including a flight safety manager who will work on regulatory and compliance matters. Amazon Robotics has hired more than 900 people in two years. Forrester estimates that warehouse robotics could create 15 million jobs in the U.S. over the next decade, helping to offset some of the 25 million jobs expected to be lost to automation over that same time period. According to a recent patent filed by Amazon, the company is investing in video cameras, microphones and sensors for their drone fleet, in order to capture data on customer's homes and make recommendations based on that data. A news story that went into more detail said that Amazon's delivery drones will be able to tell someone it's time to fix the roof or trim the trees.

ARTIFICIAL INTELLIGENCE PATENTS

More than 1,200 patents have been filed globally since 2012 that focus on artificial intelligence in the retail and ecommerce segments, according to global market intelligence and content management firm Netscribes. Firms such as Robert Bosch, Amazon, eBay, IBM, Google, Facebook and Microsoft are big players in this arena. Some of the key application areas Amazon is focused on include customer surveillance and recommendation systems for offline retailers.

BRAND BREAKTHROUGHS FROM UNDERSTANDING BARRIERS

A *Forbes* survey of 15,000 U.S. customers showed that Amazon had jumped into second place when customers were asked to name three brands they could not live without. Apple took the number one spot. Analysts say it

is Amazon's single-minded focus on understanding and meeting customer needs that moved them into second place. MediaPost termed it "empathy-driven brands" that uncover both what customers need and want and what barriers and friction points keep them from buying. An example cited was upstart mattress company Casper, which saw sales grow from \$1 million when they opened their virtual doors in April 2014 to \$200 million by the end of 2016. Casper's success came from a deep understanding of all the friction points that keep people from buying a new mattress: too many confusing choices, how do I get it into my room, what do I do if I don't like it? Casper introduced a mattress in a mini-fridge sized box, and gives the customer 100 days to return it. And they only offer one model, so no decisions are necessary. Shoe brand Toms started carving out a unique and powerful niche in the shoe business by promising to donate a pair of shoes for every pair sold. Toms' charitable goal requires collaborating with over 100 NGOs and other nonprofit partners in more than 70 countries, but has created a powerfully loyal customer base and a unique position in a crowded market.

HIJACKING VOICE ASSISTANTS

Voice assistants connected to smartphones and other devices have been hijacked by a university team using sounds above the range of human hearing. Once hackers gain access, they have been able to make phone calls, post on social media and disconnect wireless services, among other things. The attack works by converting the usual wake-up commands into high-pitch analogues that the voice assistant recognizes as legitimate commands, even though they are imperceptible to human ears. Currently the attacker needs to be close by the target device to hack it. Now that voice assistants are connected to an increasing number of services, including home security, automotive commands and internet banking, security breaches can be serious. To secure voice assistants, the team recommended that patches be developed that block sounds outside the range of the human voice or possibly learning algorithms that would blunt attacks. The hack was created by Guoming Zhang, Chen Yan and colleagues at Zhejiang University in China using ultrasound.

SMARTPHONES INSTORE

Target has adopted several new technologies aimed at making it easier for customers to do business with them. They recently rolled out locator technology on their smartphone app built around in-store Bluetooth links that connect with smartphone receivers and show a user's location on a store map as they move through the aisles. Shoppers make a digital list on the app and then click on the item they are looking for. The app then indicates on a store map the precise aisle where you can find your item. The technology will be live in about half of Target's stores in time for holiday shopping. The app also alerts shoppers to nearby sales. Target also streamlined their savings program, Cartwheel, and incorporated it into their app. Now they are getting ready to debut smartphone payments.

SMART GLASSES

Amazon is working on a pair of smart glasses powered by Alexa. The glasses reportedly feature a bone conduction audio system that would allow the wearer to hear Alexa without wires or earbuds. This would allow Alexa to be summoned from anywhere instead of just the Echo smart speakers or other Alexa-enabled devices. The glasses reportedly look like a real pair of glasses and would connect to the user's smartphone for outside connectivity.