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An Analysis of Millennial Attitudes Towards Car Servicing

Colwell S. Shupe

The University of Akron, css71@zips.uakron.edu

Jill M. Synek

The University of Akron, jms573@zips.uakron.edu

Erin M. Chips

The University of Akron, emc79@zips.uakron.edu

Eric A. Van Meter

The University of Akron, eav18@zips.uakron.edu

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An Analysis of the US Tire Market

Team 3 (Fab5)

Erin Chips
Colwell Shupe
Jill Synek
Eric Van Meter

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Introduction

Goodyear is one of the largest tire manufacturers in the world. Founded in 1898 by Frank Seiberling in Akron, Ohio, the company sells tires to consumers and businesses across the globe. The company offers consumer tires, racing tires, aviation tires, RV tires, off-road tires, and commercial truck tires. Goodyear also owns a number of other brands including Fulda, Dunlop, and Kelly Tires. However, Goodyear also has many other other assets including US Government Sales, Goodyear Service Centers, Goodyear Chemical, and perhaps the company's most well-known icon - the Goodyear Blimp.

Project Scope

For this project, our team was given two briefs from Goodyear to choose from. The first is titled "Dealer 2.0" and poses the question of re-imagining the Goodyear network given the future of mobility. The second is titled "'aaS' - as a Service" and poses the question of how Goodyear could compete in the as-a-service area. Our team choose to focus primarily on the Dealer 2.0 brief, while only considering the aaS concept as a possible future recommendation for the Dealer 2.0 brief. To solve the Dealer 2.0 brief, we focused our research on current trends in the automotive industry and the nature of brick-and-mortar stores in general, including the in-store layout design. These areas include topics such as Uber and Lyft, electric cars, e-commerce, retail store trends, and physical store design optimization. In addition, we researched the tire industry in general, as well as Goodyear's role in it to better understand how our future recommendations will affect the industry as a whole. Finally, we researched potential target markets for the Dealer 2.0 brief to better understand to who our future recommendations should be targeted.

Industry Background

Before the invention of rubber tires like the ones we have today, horse and buggies had wooden, circular rims that were used more so for ease of movement rather than tread and traction (Abrams, 2013). The first rubber tire was invented by Charles Goodyear in the late 1830's and was used for a one cylinder, $\frac{2}{3}$ horsepower car. Although the combination of materials including rubber and sulphur created a tire that was rubbery enough to be flexible and solid enough to hold its shape, the tire was made of solid chunks of rubber and was poorly designed to conform to any road irregularities. Shortly after realizing this was an inefficient and unsafe way of manufacturing tires, a man by the name of John Dunlop engineered a new type of tire that consisted of a rubber exterior and was filled with air to cushion the ride from the pavement, to the vehicle, up to the person riding inside (Automotive Hall of Fame, 2019). This new idea of a tire was similar to a modern-day bike tire, but as automobiles continued to evolve, so did the tire, until eventually becoming what we know as the typical car rubber tire (Abrams, 2013).

After the revolutionary tire design by Dunlop, a few major tire companies started to emerge as automobiles gained popularity. The first company, Michelin, was established in 1889 originating in France and founded by two brothers, Andre and Edouard Michelin. Shortly after, Frank Seiberling, formed The Goodyear Tire Company in 1898 to honor the late Charles Goodyear and his contribution in paving the way to the modern-day tire (Rader, 2017). Years later, the last two big tire companies came into existence, Continental in 1915 and Bridgestone in 1931. In 2017, these four companies combined to sell a total of 76.8 billion dollars' worth of tires ("The World's Largest Tire Manufacturers," 2019) and the industry expected to continue to grow based on the five year trends established in the IBIS World's 2019 U.S. Industry and Market Report ("NAICS 32621: Tire Manufacturing Industry," 2019).

This expected future growth is going to be caused by numerous different aspects that will need to be taken into consideration for all tire companies. As autonomous and electric cars are on the rise, these tire manufactures are faced with more challenges. A wider range of types of tires is one of those challenges. Autonomous cars, being nearly one thousand pounds heavier than a normal car, tires will need to be sturdier and more prepared for quick acceleration and added weight. Whereas electric cars are more designed for efficiency and ecofriendly purposes (Brown, 2018). Of course, the basic shape of a tire will always hold true with the hollowed inside filled with air. Beyond that, the tire designs have endless possibilities, new materials to match the designs of specific cars, even how tires are manufactured (Davis, 2018).

Firm Background

The Goodyear Tire and Rubber Company was founded in 1898 by Frank Seiberling in Akron, Ohio. After several years in business, Goodyear expanded internationally in 1910, making its first appearance in Ontario, Canada, and eventually expanding to its first overseas location in London, England (Ohio History Central, 2019). Today, Goodyear operates throughout the globe. The company is now segmented into three regional perspectives, the Americas including North, Central and South America, EMEA made up of Europe, the Middle East and Africa, and the Asia Pacific region composed of China, India, Indonesia, Japan Malaysia, Singapore and Thailand (Goodyear Corporate, 2019).

Since the start of the business, Goodyear became one of the leading innovators of the tire manufacturing industry. The first revolutionary invention was the tubeless tire - the company introduced two types of tubeless tires that were made out of synthetic rubber and nylon in the early 1900s. In 1912, Goodyear introduced its first iconic blimp. Goodyear was the first tire company to advertise its product on television in 1949. Goodyear was also a part of one of the

biggest achievements in history when their tires were used on the Apollo 14 spacecraft, becoming the first to land on the moon (Goodyear Corporate, 2019). As one of the most cutting-edge tire companies in the world, Goodyear has been able to stand out among hundreds of competitors in the industry.

Brick-and-mortar Stores Versus Online Shopping

Non-store retail, defined as when firms use a nontraditional store platform as their distribution channel to customers, is a thriving retail sector. Revenue is projected to swell at a 7% annually compounding rate between 2018 and 2022 (Nonstore, 2018). In the non-store retail industry, the top 50 retailers hold 60% of the revenue (Nonstore, 2018). Larger firms succeed in this industry through their economies of scale in inventory control and procurement efficiencies, client services, and telecommunications (Nonstore, 2018).

In the United States, online retailers are required to collect sales taxes in all states where they have a physical presence and comply with each state's sales tax regulations. In the US, the top five states which host online retailers are California, Florida, New York, Texas, and Illinois (Nonstore, 2018). The Western and Northeastern regions of the United States have higher rates of broadband internet use, so it would be beneficial for a company utilizing online retail to target these areas more heavily when promoting their online presence due to the larger use of internet in these areas (Nonstore, 2018).

While non-store retail is an expanding industry, there is evidence to suggest that brick-and-mortar stores still have a strong place in the retail market. Research shows that 65 percent of online shoppers still prefer physical, in store purchasing over online shopping. A separate study found that 90 percent of Kohl's sales come from in store sales, proving that although online is becoming more popular, physical brick and mortar stores are still very much relevant in today's

time (Mowrey, Gue and Parikh, 2018). To further prove this, the National Retail Federation (NRF) has found that only 20% of US consumers shop primarily online despite the growth in online markets (Brick-And-Mortar, 2017). As such in 2017, 80% of consumers were making their purchases at brick-and-mortar stores just as often or more than they were in 2016 (Brick-And-Mortar, 2017). Of the survey respondents, 79% expressed buying 50% or fewer of their items online and of millenials, our intended target market, only 34% are primarily online shoppers (Brick-And-Mortar, 2017).

Primarily online shoppers are typically younger, wealthier and more likely to live in a larger city (Brick-And-Mortar, 2017). The NRF found that 49% of online shoppers are aged 18 to 34, compared with 72 percent of in-store shoppers aged 35 or older, while 53% of the online shoppers make \$75,000 a year or more and 71% of in-store shoppers make less (Brick-And-Mortar, 2017). Fifty-three percent of online shoppers live in a city of 50,000 people or more while 63 percent of store shoppers live in a smaller community (Brick-And-Mortar, 2017). This data provides insight to consumer profiles of both online and brick-and-mortar store consumers. To summarize, younger generations in larger cities are more likely to shop online while consumers aged 35 and up in more suburban and rural areas are more like to shop in traditional brick-and-mortar stores.

With the rise of online shopping, consumers are developing new styles to research products before making their purchases. Retailers need to be aware of “showrooming” where customers come to a store to view a product before purchasing online from a less expensive competitor (Barmak, 2012). This shopping style should not worry retailers too greatly where millennials are concerned because one survey found that 50% of millennial respondents prefer researching online and buying in store or “webrooming” compared to just 11% who prefer

showrooming (Tuttle, 2013). Customers enjoy exhilarating, interactive, and informational in-store shopping experiences (United Parcel Service of America, Inc., 2017). Additionally, shoppers indicated the top reasons to shop in store are to touch and feel a product, better return policies, and in store discounts (Nesar & Sabir, 2016). The highest ranked reasons to shop online were convenience, continuous availability, and saving valuable time (Nesar & Sabir, 2016). While some consumers are shopping primarily online, many consumers still see value in visiting a brick-and-mortar store either to examine the product before buying online or to directly make a purchase.

Goodyear has found a solution to cater to allow customers to do just this. Roll, by Goodyear, is a new shopping experience catering towards millennial women (Taylor, 2018). This new store style is focused on the online shopper and offers scheduled a tire installation delivery option where Goodyear vans drive to meet the customer on their terms (Taylor, 2018). The first Roll showrooms are designed to be much trendier than the traditional tire store. Basically, Roll is the culmination of encouraging consumers to showroom the product before making their purchases online. Customers can also elect to purchase tires on the showroom floor, but the main focus of Roll is to create a more convenient tire buying process for consumers with its tire delivery service and online shopping focus (Taylor, 2018). Of customers who purchased a product online and picked up in store, 68% felt their experience was elevated and 65% of shoppers utilizing mobile payment reported a beneficial effect (Brick-And-Mortar, 2017). Roll is making use of these transforming technologies which will enhance the customer experience for many.

Mobile Phones in Shopping

According to a 2018 study done by the Pew Research Center, 95% of consumers in the United States own a mobile phone with approximately 77% owning a smartphone (Grewal, Ahlbom, Beitelspacher, Noble, & Nordfält, 2018). For younger consumers, these rates were even higher. On average, adults spend nearly three hours per day consuming digital media on their mobile devices (Grewal et al, 2018).

Mobile phones, as part of the decision-making process during shopping, are most likely to be used during pre-purchase activities including searching for information and evaluating alternatives (Fuentes & Svingstedt, 2017). For expensive and more complex products, mobile device use during this process is increased (Fuentes & Svingstedt, 2017).

While many people believed mobile phones would drive a wedge between online and in-store shopping, they are actually creating a hybrid shopping experience. Using mobile phones in-store benefits consumers by offering increased information, greater evaluation of alternatives, and increased redemption of coupons sent to mobile devices (Grewal et al, 2018). Up to 92% of mobile phone owners are using their smartphones while going shopping (Shopping, 2017). Because of this, many retailers, including Target and Walmart, are adapting their websites to be more compatible with mobile devices. These retailers are also implementing mobile phone apps and some, particularly Walmart, are even offering customers early access to deals through these apps (Shopping, 2017). While mobile apps may attract some consumers, many mobile users do not want overloaded with shopping apps crowding up space on their phones. Only 11% of respondents to a survey about mobile shopping, reported noticing any meaningful difference between mobile sites and apps (Check, 2015). In fact, respondents indicated they would be twice as likely to use the mobile site (Check, 2015).

Target market

In terms of Goodyear's potential market, the US has approximately 222 million licensed drivers ("Number of Licensed Drivers," 2017). Each of these people represents a potential future customer, even if they don't currently own a car or regularly drive one. The fact that these people have a driver's license shows that they have some sort of interest in automotive transportation.

Out of all the licensed drivers in the US, we chose licensed millennials as our target market. Because millennials tend to adapt new technology first (Jiang, 2018) and are widely regarded as the driver of modern trends, our target market should be millennials with a driver's license - in other words, millennials who have the means to drive a car and have a potential interest in buying tires. Using a top-down approach to market sizing, we came up with the following size of the target market. A top-down approach is where the entire audience is counted and various percentage factors of the target market are applied, one after the other, until the desired target market number is acquired. The total US population is roughly 330 million people ("US World and Population Clock." 2019). The two factors our team is interested in - the percentage of millennials and the percentage of those millennials with those driver's licenses - are then multiplied by 330 million, resulting in the size of our target market. The percentage of millennial population in the US is 22.06% (US Census Bureau, 2018), and the percentage of millennials with a driver's license is 76.7% (Bomey, 2016). When all these factors are multiplied together, the entire market size of millennials with a driver's license is approximately 56 million, which still represents a massive potential market for Goodyear to invest in.

Sizing of Target Market	
Total US Population	330,000,000
Percentage of millennial population	0.2206
Millennials with a driver's license	0.767
Total number of Millennials with a driver's license	55,836,066

Millennial Trends and Automobiles

Despite the recent trends towards ride sharing and the common stereotype of millennials not buying cars, the reality is that millennials still want to buy cars. However, instead of buying them at the expected age, most of them are pushing off the purchase to the future. (Etehad, 2016) The general US trend across all age groups has been going up since 2010, and millennial purchasing is mirroring the trend of the larger market as a whole (*see Figure in Appendix A*) (Etehad, 2016). That being said, millennials are still buying cars at a lower rate of all other age groups in the industry, showing that the recent trends have indeed affected their purchasing decisions - even if on a much smaller scale than stereotypes suggest. (Etehad, 2016)

More specifically, the number of registered vehicles has overall been trending up in the last 25 years. The most current number of registered vehicles in the US is 269 million (“Number of Motor Vehicles Registered,” 2017). Interestingly enough, the average number of vehicles per household has been holding relatively steady since 2006 at approximately two vehicles per household throughout the increase of registered cars in the US. (“Number of Vehicles per Household,” 2018)

Although more research on millennial trends and automobiles is important to paint a fuller picture of the issue, little scholarly research exists in this area. As demonstrated in this section, the previous research done simply establishes the fact that trends exist instead of digging deeper into understanding why these trends exist. Much more scholarly research is

needed to understand the drivers behind these trends and how this affects the tire industry at large.

Millennial Marketing

Because millennials are Goodyear's key target market, it is important to know how to market effectively to millennial consumers. Making the younger audience aware of dealer network re-designs and converting them into loyal Goodyear customers is an important goal that will require a strategic marketing strategy specifically tailored to millennials.

It is no secret that millennials are heavy adapters of digital technology. According to the Pew Research Center, 92% of millennials own a smartphone (Jiang, 2018). In addition, 54% of millennials also own tablet computers, and 85% of millennials are active on social media. (Jiang, 2018). Millennials are also consuming digital content at astonishing rates. As previously discussed, millennials spend an average of three hours per day on their mobile devices consuming digital media (Grewal et al, 2018). Millennials also spend over 90% of their time watching TV multitasking on other devices, and 68% of millennials *binge watch* - defined as watching more than three episodes of a show in one sitting. ("Millennials and the Mainstreaming of Digital", 2015).

Due to the volume of millennial digital consumption, it is generally considered best practice to focus millennial marketing efforts on various digital platforms and mediums. However, the sheer amount of digital marketing options available makes it difficult to know which options will be the most effective. Marketing with micro-influencers is one of the most effective ways to reach millennials. Doing so "brings a credibility and authenticity deriving from their extroversion and relatability" and "have been reported as having a 400% higher rate of engagement due to their topical specificity and authority" (Sinha & Fung, 2018). Other effective

ways to reach millennials are through online coupons, side-panel ads, YouTube ads, and email updates - in fact, over half of millennials preferred each of these forms of advertising (Smith, 2011).

However, knowing what digital marketing tactics to avoid is equally important. According to the Journal of Strategic Marketing, millennials had significantly negative attitudes towards pop-up windows, unclosable windows, mandatory downloads, flashing items, and links to sponsors (Smith, 2011). Engaging in these marketing tactics is both frustrating to the user and promotes a negative image of a company, and it is highly advised to avoid these tactics at all costs.

Store design

Although millennials do prefer online marketing and many believe retailing is moving towards a more online based selling atmosphere, retail stores still have one huge advantage over web-based selling, which is the customer's ability to inspect the physical products. This shift to online revenue can have a major impact on in store selling and is therefore more crucial than ever to have a systematic and buyer friendly layout within the physical stores. Even though web-based selling is on the rise, as stated early in the paper, many people still believe that in store purchases are much safer than buying online. This further proves that retail stores still hold an important role in the shopper buying experience. With this, it is important to maximize a store's square footage with the layout of the store's floor plan and shelving to ensure maximum customer satisfaction (Mowrey et al, 2018).

Early floor plan models initially tried to optimize a floor plan by simply minimizing space between related products, but this was found to be overall ineffective. It is actually much more complex than that. Companies have to consider not only the floor plan on the ground of the

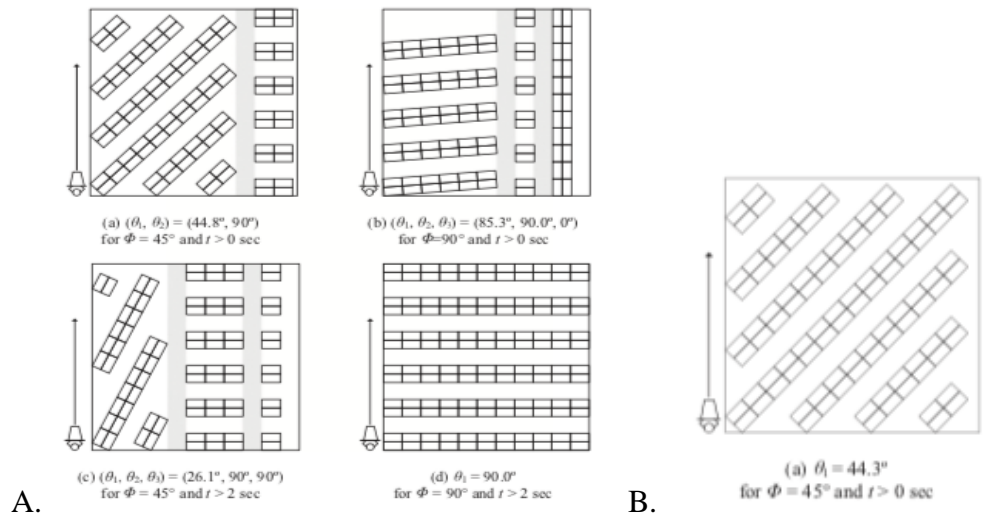
store, but also the shelving on each of those aisle racks that allocates certain products to specific sections (Mowrey et al, 2018). The floor layout is a crucial element for the success of a retail store like Goodyear because it can affect a customer's perception of the store and likelihood of buying a product from that store.

Prior research stated that the best method to a store layout design was to focus on departments of products within an aisle as well as impulse buys that could happen in those higher traffic areas. Segregating based on product allows customers to spend more time in one area, examining the various brands, styles, etcetera. This type of layout can further increasing sales. Behera and Mishra concluded that the connection between decisions to make a purchase and the amount of time a customer spends in a store are directly proportional. This means if a customer spends more time examining the aisles, the more likely they are to purchase at least one item from the store (Behera & Mishra, 2017). Therefore, improving the layout of the store could potentially increase Goodyear's sales revenue.

The most recent method of implementing a retail floor plan is the Particle Swarm Optimization, or PSO. This approach can help a company determine the maximum number of columns a store can fit, the appropriate width between them and the number of racks per aisle by using a variety of mathematical equations relative to the specific stores' square footage and structure. After assessing the various options of outcomes, an experiment was put into place and studied to determine the best possible combination of flooring and racks, with respect to customer shopping habits and satisfaction (Mowrey et al, 2018).

Based on the findings from Mowrey, Parikh and Gue (2018), aisles within a retail store have an optimal layout for the satisfaction of a customer's experience within the store. Although the researchers recommend specific layouts, it is important to keep in mind that the suggestion

may not be the best options based on the specific store and industry (Mowrey et al, 2018). Displayed in the figure below, A represents all the various layouts that were tested during the experiment. Figure B shows the most effective shelving layout amount all varieties. The Dealer 2.0 brief connects back to store layout and will be dependent on primary research that can be conducted for retail layout and the importance of physical store experiences.

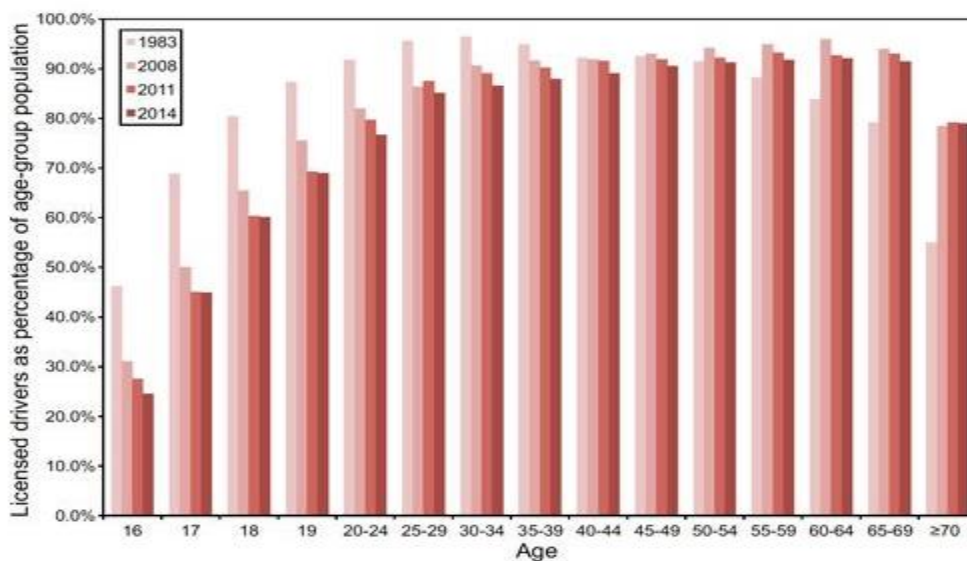


Source: Mowrey, C. H., Parikh, P. J., & Gue, K. R. (2018). A model to optimize rack layout in a retail store. *European Journal of Operational Research*, 271(3), 1100–1112.

Future Trends and Transportation

Many industry experts agree that the trends and innovation in transportation focus around the future of ridesharing and electric cars. According to Goodyear’s own Richard Kramer chairman, president and CEO, the one thing that will bring together the vehicles of today and the vehicles of tomorrow, is tires (Detore, 2018). It is being called the mobility revolution. Many experts say that the number of miles traveled by car in the past 100 years, or other vehicle with wheels for that matter, will double in just the next 15 years. Whether it be by ridesharing or electric cars, all of these vehicles will need maintenance and tires.

The cars-of-tomorrow could solve a real problem today. There are less and less young people getting licensed to drive today than in the past, all the while there is a general trend of people driving farther. The chart below shows percentages of American people in each age group who are licensed drivers compared to those of past generations. It shows that the millennial population, and even those younger, are not in a rush to get their license. One reason for this may be younger people are more driven to technology today than they are cars like in the past. (Shankland, 2016). It is inevitable that the technology and vehicle industries will continue to be prevalent to American consumers of all ages, the question is just about reaching this changing market.



Source: Shankland, S. (2016). *A future of self-driving cars? We're ready now.* Retrieved Jan. 23, 2019

"What we're seeing is a group of millennials who don't want to be behind the wheel," said Richard Wallace, director of transportation systems analysis at the Center for Automotive Research (Shankland, 2016). These trends point us towards a culture with less driving and more ridesharing and autonomous transportation. The days of nearly everyone wanting and needing to

drive are over. Urbanization and technological advancements have made driving, and therefore individual car ownership, less prevalent in today's society.

Not only are people putting off getting their driver's license, but they are also reconsidering owning and cars like many people have traditionally done in the past. Today, there are more car subscription services that are popping up that allow subscribers to trade in the car that they drive for a new one multiple times a year for a monthly fee. Some allow trades back to the dealership in just a few weeks. This would allow people to always have the vehicle that is most convenient to them at that time. If a family vacation is approaching, maybe make sure you have an SUV during that time. If it is summertime, trade in your car for a cool convertible. This is solving not only the problem of wanting and needing different types of vehicles, but it is also getting rid of all of the worries and problems surrounding car ownership. Car manufacturers like BMW, Mercedes-Benz, Volvo, and Toyota are trying this model in some of their world markets. While expensive and not yet a realistic alternative for many, it is very convenient for ownership to stay in the hands of the dealer because many agree to take care of all problems and maintenance except for putting gas in the car. Some even include car insurance with the subscription lease. If Goodyear were to partner with car dealers to become a hub or exclusive servicing provider for these vehicles, the company would thrive (Howard, 2018).

"Autonomous electric fleets, (Kramer) said, combine low cost with reliability. As they become more prevalent, vehicle miles are going to increase dramatically, and the need to service those fleets, like we do today in many other areas, is going to increase as demand increases," Kramer said (Detore, 2018). Kramer and other industry professionals agree, the fully autonomous fleets of vehicles that the futuristic automakers like to talk about are still years away from being deployed to roadways and service shops. It is vital to stay ahead of this curve as an

industry leader. These vehicles will look different, have more technical parts, and have even more potential for tire and car service companies.

While the trend is still upward in the consumer acceptance of electric cars, the price is still a major factor that stops consumers from making the shift from gas to electric. Many people, especially in the millennial population, put a high value on environmental sustainability, however, still need more incentives to jump on the inevitable electric car shift. Many countries including the United States are incentivizing the adoption of electronic vehicles by providing things from tax benefits, toll and carpool lane privileges, free parking or discounts to even setting up charging infrastructure for drivers. “Electric vehicles are partially reliant on the development of recharging infrastructure, though they can be recharged from standard electrical outlets. Infrastructure development is not a direct way of incentivizing consumers to adopt a PEV. However, increasing the number of PEV charging stations may serve as an incentive to encourage consumers to adopt the vehicles,” (Hardman, 2019). In a fast-paced world like we live in people need to be efficient when recharging their car, just like filling up on a tank of gas. When this is coupled with potential popularity in fleet cars, there is a large scale need for charging stations in convenient locations.

Throughout history, businesses that innovate and stay ahead of the curve in their respective industries tend to do better. This is as prevalent in the automotive and tire industry as it is in any other industry. If you look at many of the major car manufacturers like Ford and Chevy, they have been around for decades and have innovated and changed many times over the years. From the first cars to the electric cars of tomorrow, tires and automotive services have had to innovate just as quickly. As mentioned before incentives are important for starting trends, however true innovation like the creation of an infrastructure to allow fast and convenient

charging of electric vehicles is what really sets up companies for long term success. (Hardman, 2019).

It is well known that electric vehicles will require more highly technical maintenance. The shift from internal combustion engine to an electromotive powertrain will be sure to revolutionize the car services world. Companies like Lincoln Tech are already moving toward training technicians on electromotive vehicles. Investment in this new innovation is important to staying on top of the industry and keep the market for the future.

Volvo, Ford, GM, and even vacuum cleaner giant Dyson have all made large investments in the electric car space pledging to have cars on the market and begin to stop the production of internal combustion vehicles starting from 2019 to 2022. Cummins, Kenworth, Tesla, Daimler, MAN, and newcomers WrightSpeed, Nikola, Thor, and E-Force One have all announced concrete plans to bring all-electric semi tractors to market within the next 24 months (Stanton, 2018).

There is a huge shortage in the technicians that can work on the electric vehicles that are growing more and more complex. Due to their emissions benefits and the fact that more and more people are adopting the idea of moving to an electric car world, companies should be putting resources in this field. The early adoption of this technology will advance the field as well as the firms that get involved. The opportunity seems to show a gap in knowledge between these highly technical new cars and everyday auto mechanics.

Companies and certain government sectors with large fleets will surely be early adopters to this technology. That will make for even more possibilities to be the maintenance and tire provider for these new and innovative cars (Stanton, 2018). A mix of regulations being made to

help control emissions to protect a worsening climate and the continued advancements in the technology field will lead to more people adopting the vehicles.

An interesting point about the autonomous aspect of driving is what will happen if the vehicle malfunctions and someone gets hurt. While many say that personal car insurance will be a thing of the past once self-driving cars can communicate with each other and be accident free, there will certainly be some liability that must fall to someone for things that go wrong until we get to that point. The legal implications that are sure to come with these vehicles are addressed in the University of Illinois Journal of Law. Would it be possible that if an auto service provider, like Goodyear, performs maintenance on a car and then that tire or part becomes faulty, could Goodyear be liable? While the legal decisions may be unclear and in the distant future, there are still new types of risk to this type of transportation shift (Siddiqui, 2018).

The car service and driving industry as a whole are in the midst of seeing major changes. There are less people entering the roads as drivers, but there are more people that are interested in traveling and commuting with ride sharing. Future transportation might come in the form of electric cars, fleet cars, and maybe even fully autonomous ones. The one thing that all of these have in common is ease of use and convenience. That means that the owners of these new vehicles, whether individuals or companies, will look for more ways to ensure that the servicing the car will be a more easy, convenient and enjoyable experience.

Secondary Research Summary

Our secondary research analysis brought many different opportunities to our attention that we could focus on for our primary research report. However, one major topic appeared to stand out above the rest and repeat itself over the course of our team's secondary research. This topic is the millennial attitude towards driving and car ownership.

The area of primary research our team will explore is millennials' attitudes towards car ownership and driving. We believe that understanding the underlying issues behind the statistics we found in our secondary research analysis can be used to help the redesign of the dealer network be more effective and appealing to millennials. To achieve this, we would conduct a survey probing deeper into why millennials are pushing off car ownership, their attitudes towards obtaining a driver's license, and how the current trends in the automotive industry are affecting their perception of car ownership. In addition, we could talk to current Goodyear dealership owners and try to understand their perspective on the issue. Doing so could provide valuable insight into how the current dealer network operates and how it could be changed in light of the information that we gather.

In addition, doing primary research on millennial attitudes towards automobiles in general will help us understand why the current trends exist. Because there is little research on the drivers of the trends, focusing our primary research in this area is not only beneficial for our project but also to grow the current body of knowledge on the issue.

Primary Research Introduction

Our secondary research brought out some new findings that helped us develop an idea for primary research. We established that millennials and college aged individuals are still interested in purchasing cars, but tend to push off car ownership and obtaining a license. The auto industry is inevitably changing, moving to more technological and electric vehicles. From this, we want to better understand real millennial consumer perspectives on marketing tires and in-store automotive services. We found that millennials do in fact respond better to technological marketing, but we wanted to ask them ourselves what they would prefer when it comes to the tire buying experience.

In order to test our scholarly research findings above, we conducted primary research to verify the trends and how millennials and college aged students feel and react to the industry changes. With these changes, we also wanted to dive into what millennials are looking for in future trends and how to market to their interests. The findings will help us better understand the truths behind the general trends that were found.

Methods of Primary Research

To conduct primary research on the feelings millennials have towards trends in car ownership and driving, and tire and automotive servicing experience, we have decided to use three methods to gather information: in-person interviews, online surveys, and a site visit to Goodyear. The interviews are used to gauge an individual's personal feelings and general sentiment. The interviews have been conducted throughout the semester, primarily on our millennial peers at The University of Akron. The surveys were utilized to sample a larger set of the millennial population to further expand on what we had learned during our interviews. Our survey was carefully thought out to efficiently collect as much data on millennial car ownership and driving, as well as automotive and servicing experience. The survey has been distributed to peers through email. Finally, the site visit to Goodyear provides us with some first-hand experience and insight into the topics we are researching. The site visit to Goodyear consisted of a trip to Goodyear's world headquarters to talk with innovators working for goodyear and inquire about some of the projects they are working on currently.

Throughout our research, our team wanted to keep in mind the Goodyear design thinking tools that were given to us last semester. The main areas that we focused on were human values, asking why, and making a customer persona. Although data is a big buzzword today in the business world, data is also impersonal and cannot always convey human thoughts and emotions.

While a large amount of our primary research was based on statistics, we also wanted to conduct personal interviews and gauge people's reaction to see what they were thinking and feeling. The second thing we focused on was asking why. While treating symptom issues can be helpful in the short term, ignoring the underlying consumer issue can make the problem worse in the long term. In our interviews and our survey, we made sure to include why questions to really understand the root issue for the participant. Finally, we focused on making a consumer persona. While personas are not difficult to make, creating one helped us put all of our information into one area for us to look at. Doing this made the entire body of research seem personal and like we were creating recommendations that would solve another person's problems.

Results of Primary Research

In-person interviews

The first phase of conducting our primary research was to interview various individuals in-person to get a better understanding of their initial thoughts and feelings surrounding the issue. In addition, the responses to our interviews helped guide our team in making an appropriate survey that was not hindered by fallacious thinking or poor questions. In total, our team interviewed 20 individuals and asked them a set of open-ended questions on car ownership and maintenance. We asked specific questions about their feelings including, "What are the first 2 feelings that come to mind when you think of going to a tire dealership/car service center? Why?" and "What are your opinions and feelings towards car ownership?" However, we also asked future based questions and what they thought about the future trends of automobiles such as electric and autonomous cars, as well as the potential of car subscriptions. All of these questions were simply base questions for our team members to branch off from depending on which direction the interview was heading.

Contrary to the stereotype that millennials dislike driving and think that it is unimportant, our interviews suggested the opposite. Responses included that driving cars are “imperative to exist in society,” “generally [enjoyable]...especially if I have music” and that “I enjoy driving cars...it [is] a necessary aspect of life.” We also asked the interviewees about their feelings towards car ownership. Although millennials know car driving is necessary, stress was the top issues that interviewees mentioned when asked about their specific feelings towards car ownership. One person stated, “I feel anxious because I don’t know what my car really needs and how much it will cost.” Even worse, another said, “I feel stressed because I know nothing about tires and I don't want them to take advantage of my ignorance and I feel overwhelmed because there are so many different brands and I don't know what's best for my needs.” These types of feelings helped us direct some of our survey questions towards why millennials feel this way and we used the responses to later help us develop a recommendation for Goodyear to remedy these feelings.

Another big concern that arose when asked about the tire buying experience was cost. In fact, cost was also most frequently responded as the most important factor in tire buying and car maintenance scenarios in general. Secondary to cost, however, is the quality of goods and services. This suggested to us that while cost is very important to millennials, they are willing to pay a higher price to receive a higher quality product and experience.

Online Survey

Based on the information we gathered from the in-person interviews, we constructed an electronic survey to dive deeper into millennial attitudes towards car driving and ownership. We distributed the survey electronically and had it open for 19 days, gathering 136 completed responses in that timeframe. The entire survey had 18 questions broken down into four sections:

qualifying questions, attitudes towards car driving, attitudes towards car ownership, and attitudes towards car maintenance. As incentives to take the survey, two \$50 gift cards were given to two random respondents and all responses were made anonymous. We distributed the survey publicly on social media channels as well as to our team’s classmates. The following are graphical representations from our survey that we believe provide the most insight into the millennial generation and the various aspects of cars ownership. These results were influential in our ultimate recommendations.

The vast majority of our respondents were people ages 18-24. Figure A below displays the breakdown of participant ages.

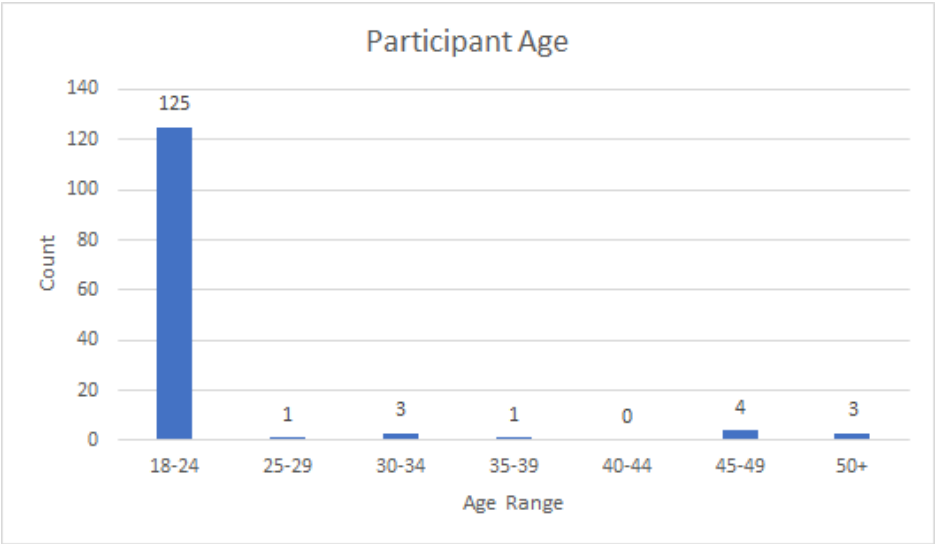


Figure A

While the current stereotype is that millennials do not want to own cars, 136 of 137 respondents said that they either own a car or plan to own a car within five years. Also, 99.2% of respondents said that they have a driver’s license. Below, in Figure B, shows the breakdown of participant responses for owning a car. This is great news for Goodyear and the potential for its target market. This further proves that contrary to the popular belief, millennials do want to own cars in the future.

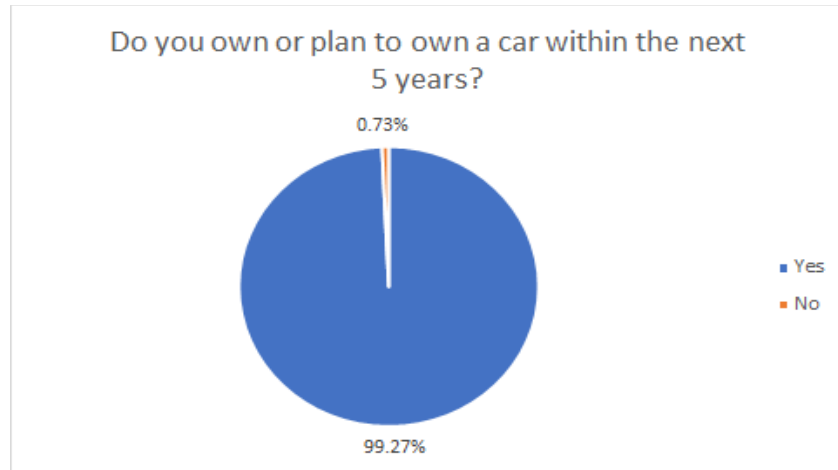


Figure B

Owning a car for millennials, however, is more than just the design and body of the car. Millennials seem to be focused on environmentally friendly cars and are greatly conscious about this, making them more open to new technology and trends for driving. 78.5% of respondents said that they would consider owning a completely electric vehicle.

Along with being concerned with the environmental impact of cars, one of the most common concerns about tires and cars in general when it comes to the millennial generation is the ability to keep up with maintenance. Referring back to a quote from one of the individuals we surveyed, they stated, "I feel stressed because I know nothing about tires and I don't want them to take advantage of my ignorance." Based off of this statement, we composed a question relating to the potential of the car subscription option we discovered in our secondary research. We found that 46.0% (Figure C) would either consider, or definitely subscribe to a service where you use cars but are not responsible for maintaining them. We found this to be extremely intriguing as a team. Millennials would much rather have access to a car and not have the responsibility of various car maintenance than have no car at all. This can be a key factor for Goodyear in future years.

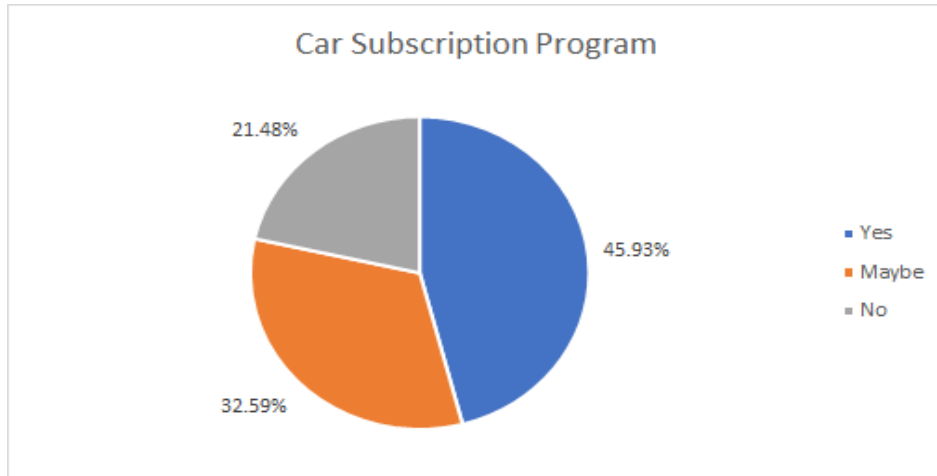


Figure C

Although we all intuitively know that tires are not an exciting product, our survey statistically determined that 77.8% of respondents have either neutral or negative feelings towards tire shopping (Figure D). Furthermore, 54.1% of respondents do not know what brand of tires are currently on their car. With this information from the millennial population, we could help Goodyear improve upon their current product and implement more new and exciting ways to draw in younger customers.

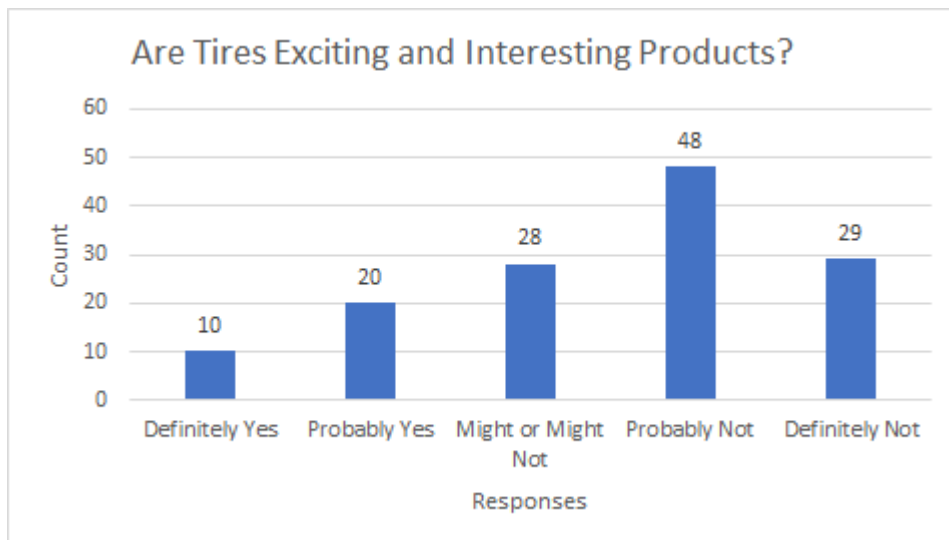


Figure D

We also asked respondents what new store features they would prefer most in a Goodyear store. The choices provided were a comfortable, relaxing lounge, an interactive product

education center, an electric car charging station, a car racing video game machine, and other. The respondents then ranked these five choices from most to least favorable, shown in Figure E below. The results showed a comfortable, relaxing lounge to be the most preferred, followed by an interactive product education center. An electric car charging station was the third most preferred while the car racing game was only preferred over other which was the least preferred option. This insight is helpful information when composing recommendations.

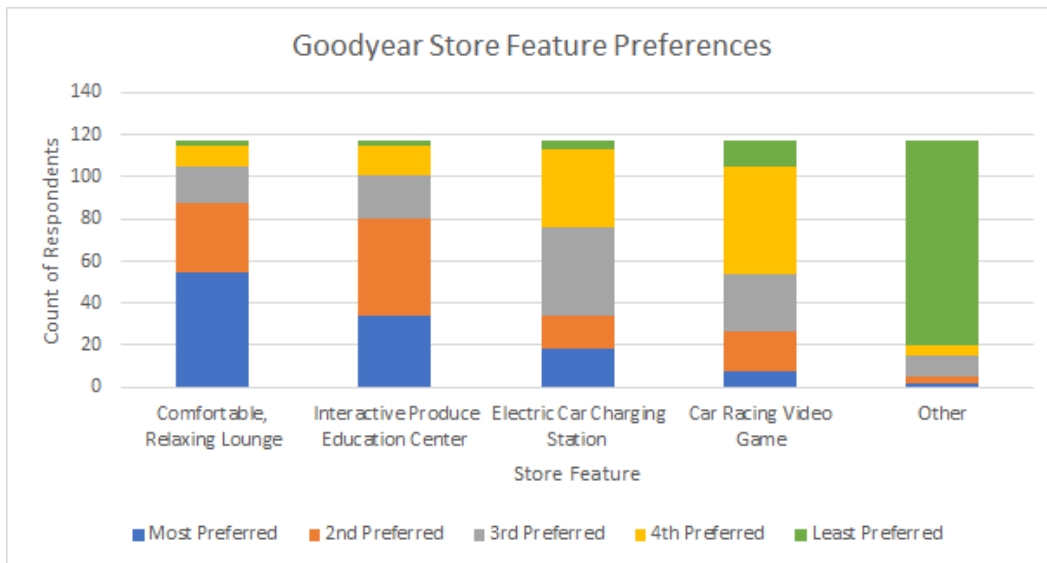


Figure E

The responses are not too surprising considering the feelings we collected from our personal interviews and survey. Having a comfortable lounge will help ease any tension that arises when shopping for a product that millennials do not know much about. Having an interactive education center is another big component that can help with this, considering the target market feels as though they would be taken advantage of while shopping. Implementing an education center can help inform the customers and be fun at the same time. With this, we found that 51.9% (Figure F) of respondents indicated that they did stay at the store while they wait for their car to be serviced, providing Goodyear with a respectable number of customers to market to and provide an even better in-store customer experience.



Figure F

Goodyear Headquarter Visit

The visit to Goodyear allowed us to have a current look directly into the work and innovation being done by the company. We were able to see the new storefront innovations that include Roll by Goodyear as well as mobile vans that bring the possibility for tire changes to wherever the consumer is.

Roll by Goodyear is the new storefront innovation that Goodyear is using to appeal to people on the go. The concept is to have a small storefront in busy areas such as cities, malls, or strip malls. The goal would be to have a small modern store with all of the product options, for customers to choose from in a wall of tires and on electronic devices in store. This idea is being tested in two locations on the east coast, to test the consumer reaction. Once the customer selects a product, there would be a valet that would take the car to a garage in a different location while the customer could spend time at the neighboring locations of the Roll storefront. Ideally the customers will see the value of being able to spend time in a location where they can get other errands done while the Roll employee takes the car to the garage.

The other perk to a Roll store other than the ease of use for the customer is the cost savings for operating a tire store. Rather than obtaining a large amount of high cost real estate to build a garage and storefront, a Roll store will only take up a small amount of space and save cost. The larger garage part of the tire shop will be in a close, but lower cost real estate location. Staffing costs would also be lowered in this model because only one employee is needed to staff this small storefront. Most of the sales and marketing is done by the tire wall and electronic devices stations so besides the one person overseeing the store, the only other staffing cost would be the driver and mechanic who transport and change the tires on the car.

The visit to Goodyear's headquarters and the Roll store model, have shown us the steps that Goodyear is taking to innovate their stores. When determining the best way to redesign Goodyear's current dealer network, this design and model should be taken into consideration. While Roll is more of a new store design innovation rather than a current dealer redesign, we think that there are ideal design takeaways to implement into the current stores. Our research has pointed to a consumer need for a more convenient, stress free, and educational experience. Having a simply designed store that utilizes technology for marketing and education, as Roll does, is something that should be put into current stores, in a comprehensive dealer redesign.

Limitations

One major limitation of our primary research is the potential for not reflecting the entire millennial generation due to our respondents. Our interview participants were all students at the University of Akron so it is possible their views do not reflect the entire millennial population. For example, one reason cost may be an important factor to these individuals is due to the high costs of schooling which may cause financial strains and therefore all costs to be important. Additionally, our survey respondents were mainly students at the University of Akron. The

majority of students at the University of Akron are commuters which suggests they are likely to own a car. Due to this, it is possible our results do not accurately reflect the entire millennial population but only the students at the University.

Recommendations

Updated Customer Lounge

Based on the results of our primary research, we found that about 50 percent of those getting their car serviced stay at the store until the completion of the service. This is a huge advantage for Goodyear. This allows Goodyear to provide a superior tire shopping experience for the customers that stay at their stores. We believe that the best way to do this is to partner with another top trending brand, like Starbucks. Implementing a comfortable, relaxing lounge paired with a coffee Starbucks store with coffee and snacks will help ease these tensions that are felt by millennials. This will also provide the opportunity for more face to face interaction between customers and employees of Goodyear.

Starbucks is a well-recognized, highly thought of brand that will bring a sense of luxury and relaxation to the Goodyear storefronts. Our research has shown that the car service and tire-buying experience is stressful for consumers. The research also points to having a relaxing and refreshing environment over a potentially highly complicated simulation system that would only be suitable for certain types of customers.

By utilizing a partnership with a well-recognized company like Starbucks, Goodyear will not only be adding a strong brand presence into their storefronts but also be outsourcing the refreshment providing duties to Starbucks. This will allow Goodyear employees to focus on their core competencies of selling tires and services and not have to worry about maintaining a space

for the refreshments in the new store lounges. Goodyear retail employees can continue to do what they do best.

Goodyear App

Our second recommendation would digitally integrate a consumer facing app that will lead to a hybrid shopping experience that the millennial consumer is looking for (*see Appendix B for visual images of the app*). The app would utilize a few key features to supplement a consumers in-store experience. Taking a look at Figure 1 in Appendix B, the first aspect of the app is a service tracker. This provides a useful way to allow customers to be informed of where their car is in the process of being serviced can help ease any built up anxiety as they wait for their car. Whether waiting in-store or waiting for service to be completed elsewhere, consumers like to be in the know and be able to see exactly where in the process their car is. The service tracker would tell the customers when their car service gets started, what services are being done through the process, and give them a better estimate of when the entire service will be finished. This will not only provide better customer expectations, but also be another tool to create a less stressful experience.

Another feature of the app could be a vehicle tire finder. This is something that Goodyear has already created on their website and implementing this into the app is a simple addition that can be right at the fingertips of tech savvy consumers looking for the perfect tire. Implementing a virtual display into the app that allows the customer to see how their make and model will look different tires that work best with their vehicles can help consumers with a better and quicker hybrid shopping experience.

The final feature that would be vital to a roll out of a consumer facing app is an in-store augmented and virtual reality lenses. Augmented reality (AR) is a new technology that is used to

overlay a digital projection onto physical objects. One application of this is turning still objects into moving and informative displays on a phone screen using a phone camera and AR software. The Goodyear app will use this technology and be directed specifically towards customers to use the camera on different objects around the store to create a digital marketing experience, highlighting the history of Goodyear and all the phases of the company's products. As shown in Figure 2 of Appendix B, one example of this augmented reality could be the iconic Goodyear Blimp. Having an image of the blimp on the wall in the stores can allow customers to interact with the history of Goodyear. How it would work is displayed in the Figure. A customer would hold their phone up to the image and before they know it, a virtual video will appear and the blimp will start flying around on their phone and the history of Goodyear's iconic symbol will be provided to the customers.

This kind of feature can provide customers with educational background on Goodyear and allow them to gain a better understanding of the company and its products. Educating customers could not only ease stress due to lack of knowledge, but also develop loyalty to the Goodyear brand from learning about its history and all the amazing things it has done for the industry and its environments. In addition, doing this will help boost Goodyear's brand image. Since AR is still a new technology, consumers will perceive Goodyear as a technology leader and a trendsetter in the automotive industry.

Car Subscription

Our last recommendation for Goodyear is to partner with BMW in their car subscription program, Access by BMW, to provide Goodyear customers with a car subscription option. Our secondary research found that several car brands have started to implement a program similar to renting a car. The subscriptions typically include car maintenance, insurance, roadside assistance

and monthly options to swap out your car with a different model. In this partnership, Goodyear would be responsible for servicing and providing tires for these subscription cars. We feel as though this is an up and coming trend that Goodyear needs to be apart of for future success. Forming this partnership will allow Goodyear to take full advantage of name recognition with modern trends and quality brands.

When partnering with BMW, Goodyear can be either the sole tire provider for all subscription car options or the service provider for all vehicles that are rented through the program. BMW is currently one of the only car subscription providers available in the United States and if Goodyear could secure a partnership, it would allow Goodyear to become the first tire and service company to have its foot in the door in the car subscription market. Additionally, BMW is a luxury brand and Goodyear is a top tire and service provider and an association between these two quality brands will be mutually beneficial. However, Goodyear may also choose to partner with a different subscription provider once they are move available in the US such as Ford's Canvas currently only operating in San Francisco and Los Angeles or Jeep's Jeep Wave program which launched at the beginning of this year. Utilizing a partnership like this could boost the profitability of Goodyear stores all over.

While we are recommending BMW as the primary choice for Goodyear to partner with, Goodyear can more accurately evaluate which subscription most closely aligns with their objectives and select that service provider to partner with. As popularity of these subscriptions programs grow, personal car ownership rates will likely decline and consequently, the number of individuals who need their cars serviced will decline. With this in mind, the importance for Goodyear to partner with at least one subscription program is apparent.

Budget and finances

Based on Goodyear's latest financial statements from April of 2019, the company is holding about \$860 million in cash and cash equivalents, (Goodyear, 2019). With the company's long history and strong brand with both geographic and product diversity, Goodyear can project positive future cash flows and assume that they will have enough cash to pay for future investments.

Our recommendations will require up-front capital and ongoing investment to allow for proper implementation. A comfortable redesign of the in-store lounges is vital to the plan and will require renovations to Goodyear's current network of stores. The cost will vary based on size and geographic locations but will pay off in customer experience and retention.

A digitally integrated, hybrid shopping experience through a consumer-facing app will need to be funded and developed. Based on Goodyear's current apps, the company already has experience in either in-house development or strategic outsourcing to make for a smooth and cost-efficient launch of a customer facing mobile application. The augmented reality side of the app will take additional work on the back-end development side but should be rather low cost for the stores to set up new digitally active marketing pieces.

The strategic partnerships with companies such as Starbucks and BMW are vital to the recommendations that we have shared. Partnerships will allow Goodyear to share in the cost of updates but also allow outsourcing of tasks that are not within the core competencies of Goodyear. For example, Goodyear would have the cost of integrating a Starbucks in their stores but would then no longer have to worry about providing employees to work with the customer refreshments in the lounge. The partnership with car subscription services like BMW will not need as much up-front capital to implement. This partnership will be more of a long-term

investment to gain market share. The partnership will allow for Goodyear to gain a foothold in a growing industry of car subscription, all while sticking with the core competencies of providing tires and car maintenance. A partnership with a car subscription service may cost Goodyear the space in their shops to dedicate to that service, but it will provide a guaranteed base of cars to service.

Conclusion

When our team originally began our project, we initially held the assumption that millennials do not care about car ownership or driving. As our secondary research progressed, we found that millennials do indeed care about automobiles, but limited research existed as to any underlying issues regarding car maintenance and service. We addressed this issue in our primary research and found that millennials experience anxiety as they do not know much about car maintenance. Our recommendations were targeted towards easing both the surface anxiety and addressing the underlying issues as well as helping prepare Goodyear for future trends that may arise.

A research project like this cannot be completed without much time, dedication, and learning experience on the part of the team members. Doing this project helped our team learn how to collaborate with others as well as prepare each member to be a competent business professional. In addition, the project encouraged our team to challenge assumptions in our secondary research and think creatively when forming our recommendations. We hope our efforts have provided value to Goodyear and can increase their standing as the leading brand in the tire industry.

Appendix A

Vehicles purchased per 100 people per year

By age group

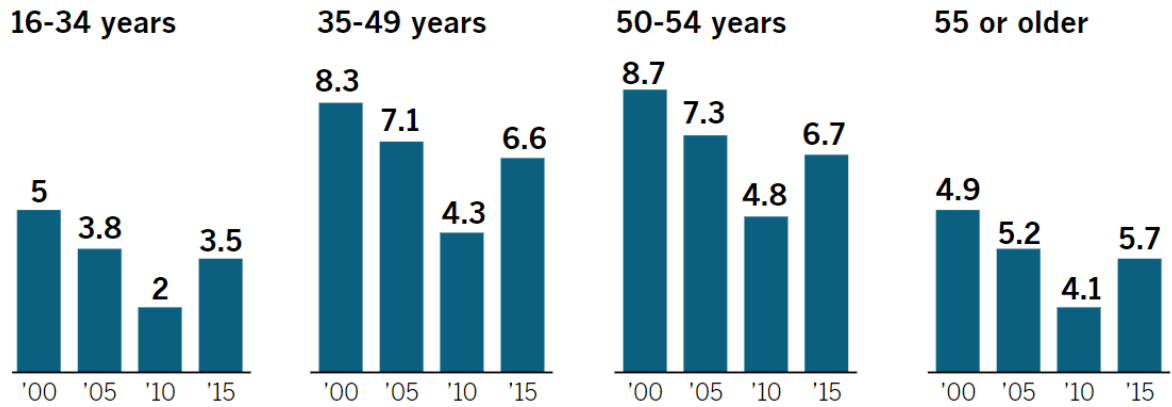


Figure 1: Vehicles purchased per 100 people per year

Source: Etehad, M. (2016). Millennials and car ownership? It's complicated. Retrieved from <http://www.latimes.com/business/autos/la-fi-hy-millennials-cars-20161223-story.html>

Appendix B

Figure 1

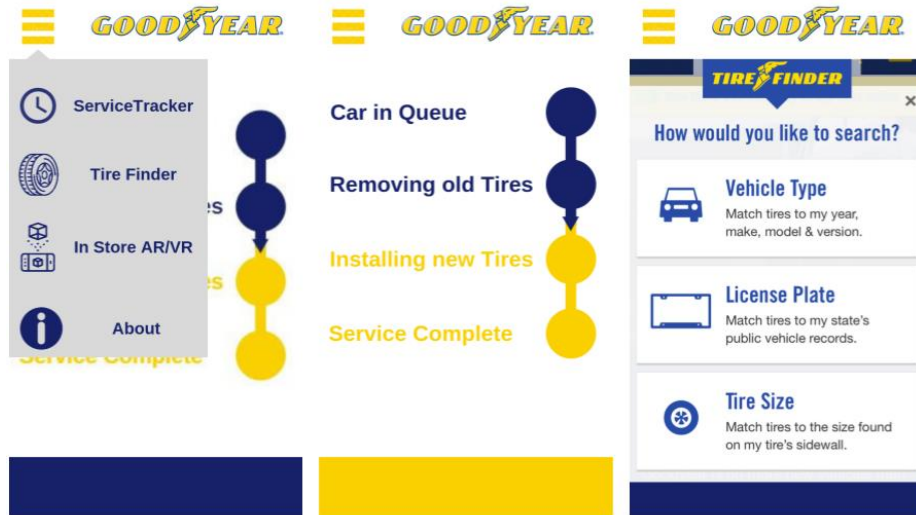
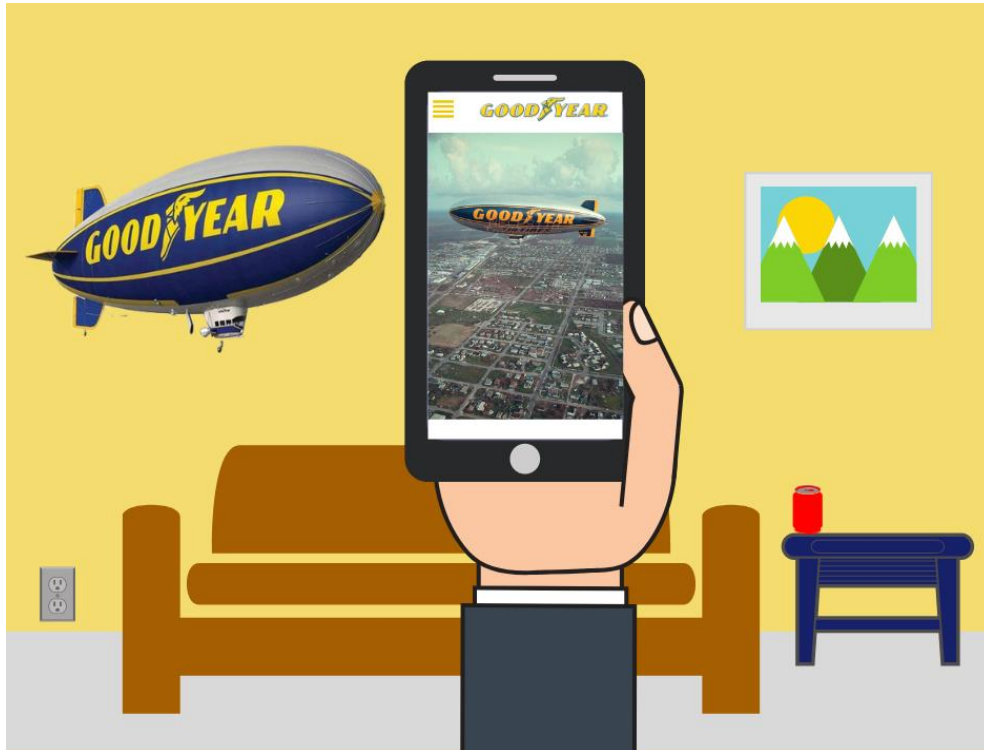


Figure 2



References

- Abrams, S. (2013). Round and Rubber, But Always Evolving.
- “Automotive Hall of Fame.” (2019). John Dunlop. <http://www.automotivehalloffame.org/honoree/john-dunlop/>
- Barmak, S. (2012). A New Strategy to Battle Amazon. *Canadian Business*, 85(20), 12.
- Behera, M. P., & Mishra, V. (2017). Impact of Store Location and Layout on Consumer Purchase Behavior in Organized Retail. *Anvesha*, 10(1), 10–21.
- Bomey, N. (2016). Millennials Spurn Driver's Licenses, Study Finds. <https://www.usatoday.com/story/money/cars/2016/01/19/drivers-licenses-uber-lyft/78994526/>
- “Brick-And-Mortar Shopping Is Alive And Well, Says The NRF.” (2017). *TWICE: This Week in Consumer Electronics*, 32(16), 24.
- Brown, K. (2018). Tire industry should prepare to adapt to automotive trends. *Rubber & Plastics News*.
- “Check out these mobile shopping myths; Monday Morning Manager.” (2015). *Globe & Mail (Toronto, Canada)*.
- Davis, B. (2018). Game Changing Technology: The tires of the future (part1). *Rubber & Plastics News*.
- Detore, D. (2018). Mobility ecosystem could pay big for tire industry. *Rubber & Plastics News*, 47(15), 0004.
- Etehad, M. (2016). Millennials and car ownership? It's complicated. Retrieved from <http://www.latimes.com/business/autos/la-fi-hy-millennials-cars-20161223-story.html>
- Fuentes, C., & Svingstedt, A. (2017). Mobile phones and the practice of shopping: A study of how young adults use smartphones to shop. *Journal of Retailing and Consumer Services*, 38, 137–146.
- Goodyear Corporate. (2019). Global Presence. Retrieved from <https://corporate.goodyear.com/en-US/about/global.html>

Goodyear Tire and Rubber Company. (2019). First Quarter 2019 Report. Retrieved from <https://corporate.goodyear.com/en-US/investors/financial-reports.html>

Grewal, D., Ahlbom, C.-P., Beitelspacher, L., Noble, S. M., & Nordfält, J. (2018). In-Store Mobile Phone Use and Customer Shopping Behavior: Evidence from the Field. *Journal of Marketing*, 82(4), 102–126.

Hardman, S. (2019). Understanding the impact of reoccurring and non-financial incentives on plug-in electric vehicle adoption – A review. Retrieved from *Transportation Research Part A: Policy and Practice*, 119, 1-14.

Howard, B. (2018). Best Car Subscription Services: Multiple New Rides Each Year, but Costs May Soar. Retrieved from <https://www.extremetech.com/extreme/274457-best-car-subscription-services-multiple-new-rides-each-year-but-costs-may-soar>

Jiang, J. (2018). Millennials Stand Out for Their Technology Use. Retrieved from <http://www.pewresearch.org/fact-tank/2018/05/02/millennials-stand-out-for-their-technology-use-but-older-generations-also-embrace-digital-life/>

Millennials and the Mainstreaming of Digital. (2015). Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Technology-Media-Telecommunications/gx-tmt-millennials-and-mainstreaming-of-digital.pdf>

Mowrey, C. H., Parikh, P. J., & Gue, K. R. (2018). A model to optimize rack layout in a retail store. *European Journal of Operational Research*, 271(3), 1100–1112.

NAICS 32621: Tire Manufacturing Industry. (2019). United States Tire Manufacturing Industry Report, 1–196.

Nesar, S., & Sabir, L. B. (2016). Evaluation of Customer Preferences on Showrooming and Webrooming: An Empirical Study. *Al-Barkaat Journal of Finance & Management*, 8(1), 50-67.

Nonstore Retail Industry Profile. (2018). Retrieved from http://mergent.firstresearch-learn.com/industry_full.aspx?pid=576

“Number of Licensed Drivers.” 2017. *Statista*, Statista.

“Number of motor vehicles registered in the United States from 1990 to 2017 (in 1,000s).” 2017. *Statista*, Statista.

Ohio History Central. (2019). Goodyear Tire and Rubber Company. Retrieved from http://www.ohiohistorycentral.org/w/Rubber_Industry

Rader, F. (2017). The History of Tires. Retrieved from <https://www.tirerecappers.com/tire-recappers-news/the-history-of-tires/>

Shankland, S. (2016). A future of self-driving cars? We're ready now. Retrieved from <https://www.cnet.com/news/a-future-of-self-driving-cars-were-ready-now/>

“Shopping becomes a hybrid experience, as stores and smartphones intersect.” (2017, November 24). *Christian Science Monitor*. Retrieved from https://link-galegroup-com.ezproxy.uakron.edu:2443/apps/doc/A515568078/OVIC?u=uakron_main&sid=OVIC&xid=7fac1cf9

Siddiqui, H. (2018). "Gone in Sixty Seconds: Fading Automobile Insurance Costs in a Driverless Future," *University of Illinois Journal of Law, Technology & Policy* vol. 2018, no. 1 (Spring 2018): p. 221-248.

Sinha, J. I., & Fung, T. T. (2018). The Right Way to Market to Millennials. Retrieved from <https://sloanreview.mit.edu/article/the-right-way-to-market-to-millennials/>

Smith, K. T. (2011). Digital marketing strategies that Millennials find appealing, motivating, or just annoying. *Journal of Strategic Marketing*, 19(6), 489–499. <https://doi-org.ezproxy.uakron.edu:2443/10.1080/0965254X.2011.581383>

Stanton, B. (2018). Electric Powertrains Are the Future. Will Fleets Be Ready? Retrieved from <https://www.government-fleet.com/279706/electric-powertrains-are-the-future-will-fleets-be-ready>

Taylor, K. (2018). Goodyear is testing a special tire store for millennial women that looks like a trendy hair salon.

“The World's Largest Tire Manufacturers in 2017, Based on Tire-Related Sales.” *Statista*, Statista. 2019.

Tuttle, B. (2013). Look Out, Amazon: More Shoppers Browse Online, Then Purchase in Stores. *Time.Com*, 1.

United Parcel Service of America, Inc. (2017). UPS Pulse of the Online Shopper. Retrieved from https://solutions.ups.com/rs/935-KKE-240/images/UPS-Pulse-of-the-Online-Shopper-2017-Volume-3_Channel_Dynamics.pdf

US Census Bureau. (2018). Population distribution in the United States in 2017, by generation . In *Statista - The Statistics Portal*.

U.S. and World Population Clock. 2019. Retrieved from <https://www.census.gov/popclock/>