



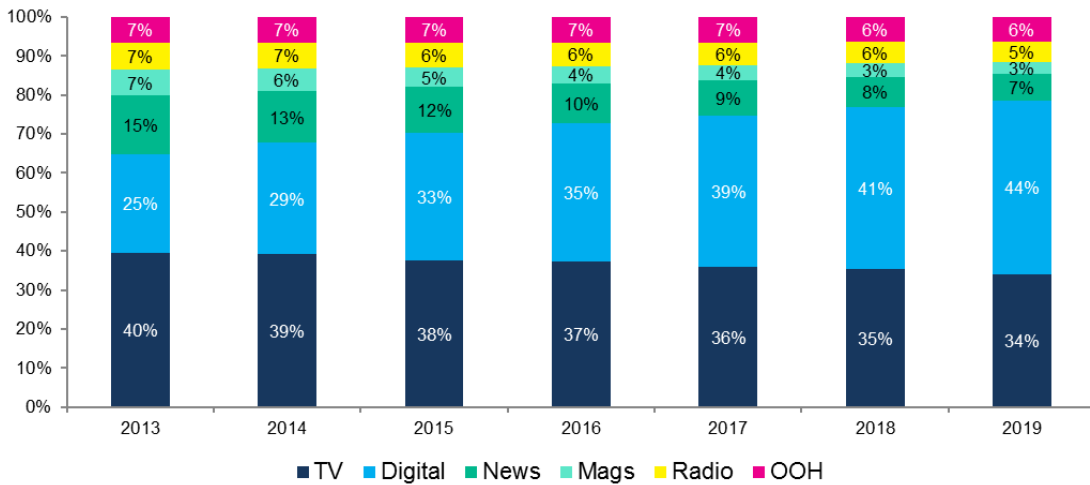
2018: OOH Trends

Out of home (OOH) advertising is a dynamic communication platform and the only 'traditional' medium expected to grow in the US this year. OOH continues to thrive because it is anything *but* traditional. Today's digital technology is making OOH messaging more dynamic. Linking OOH to mobile is making OOH more relevant. OOH will always be where consumers and advertisers are headed. Fueled by unrivaled creativity, OOH will always continue to innovate.



Global Economics

Global Ad Market Share

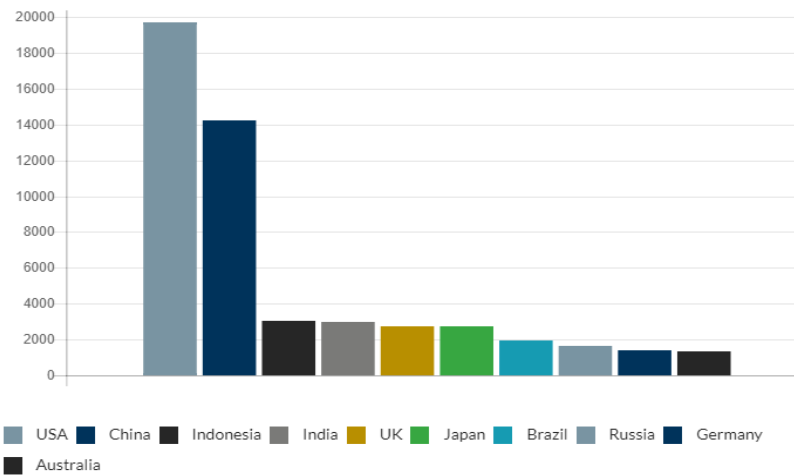


Source: MAGNA



The global ad market is reacting to an increased demand for digital media. By next year, total global spend on digital media will reach 44 percent, a 76 percent increase since 2013. All traditional media channels have declined, with modest decline in OOH.

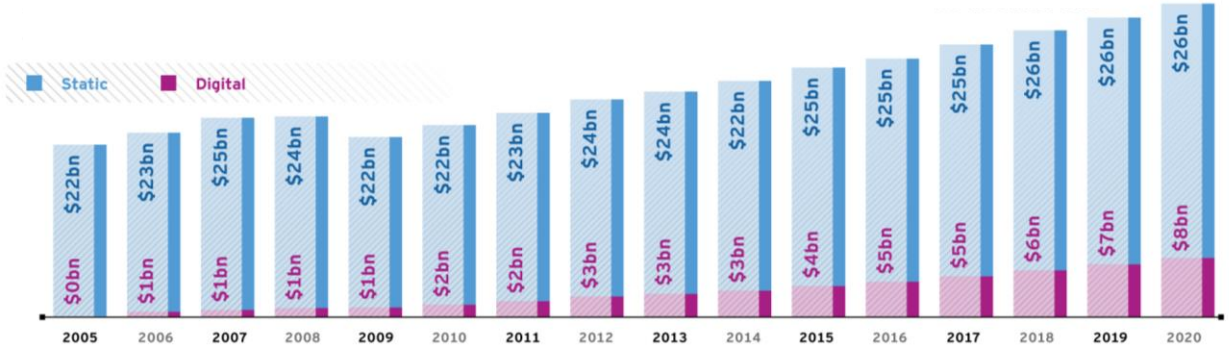
Top Contributor Countries to Ad Spend



Source: ZenithOptimedia

The US market is the largest contributor, by far, to global ad spend with contributions expected to reach \$200 billion.

Global OOH is Growing



Source: MAGNA

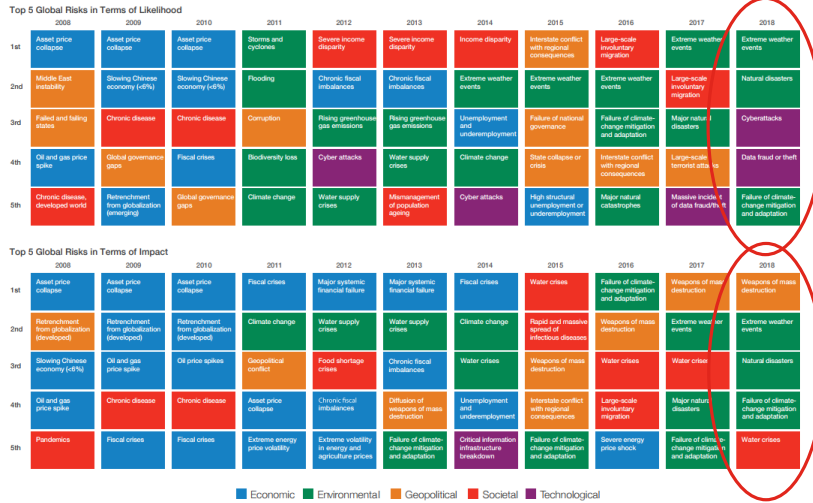


5

The US OOH industry continues to follow global growth trends. According to MAGNA, global OOH ad spend reached \$30 billion last year and is expected to grow by \$2 billion this year. Both static and digital OOH are growing.

It is estimated, more than 25 million digital OOH units have been deployed to date, comprised of formats ranging from large-scale roadside bulletins to place-based digital screen networks.

Global Risks



Source: World Economic Forum, Zurich



For more than a decade, the World Economic Forum has published a list of global risks ranging from economic to technological threats. While not directly related to the ad business or OOH industry, the overarching global concerns could impact worldwide economics.

Each year, the top five global risks in terms of *likelihood* and *impact* are identified. The risks have evolved over time with dominant concerns now focused on the environment.

2018 Environmental concerns:

- Extreme weather events
- Natural Disasters
- Failure of climate change mitigation

2018 Technology Concerns:

- Cyberattacks
- Data fraud and theft

2018 Geopolitical Concerns:

- Weapons of mass destruction

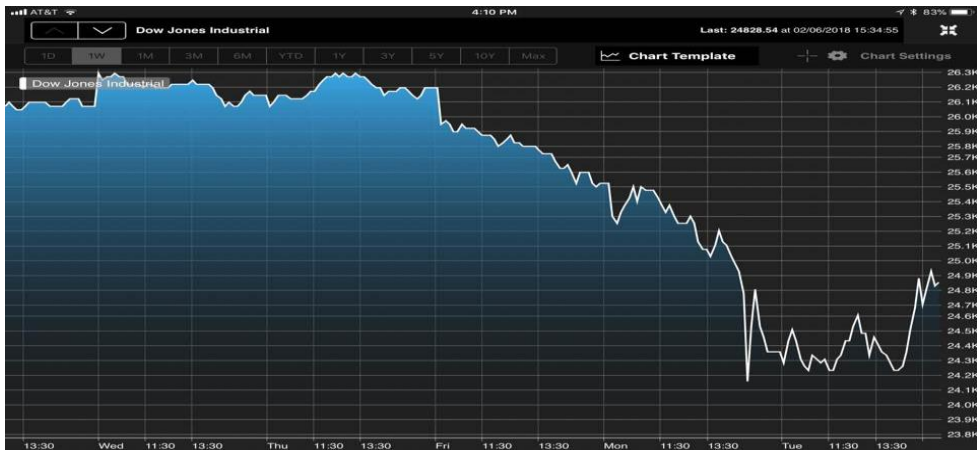
2018 Societal Concerns:

- Water crisis



US Economics

Dow Jones Hits 26,000 Points on January 16, 2018...Then

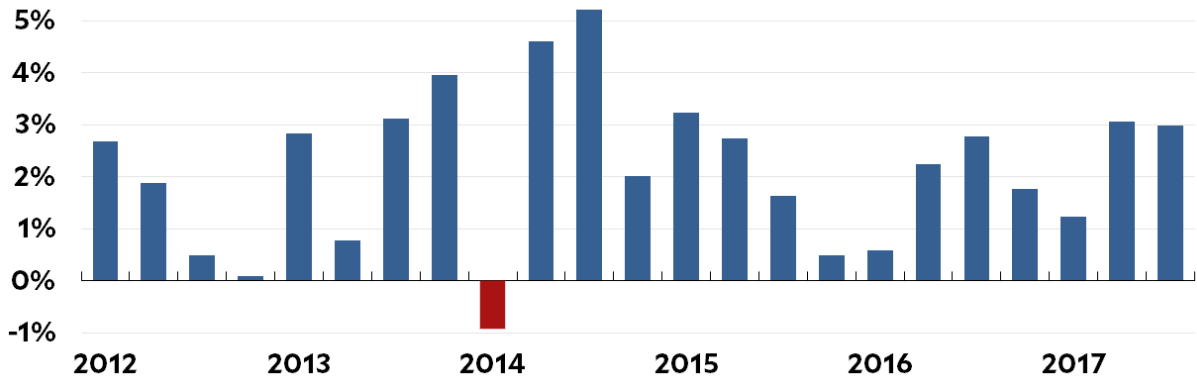


Source: NY Stock Exchange



On January 16, 2018 the Dow Jones hit 26,000 points, up 8,000 points since President Trump took office, continuing a steady climb that transpired throughout the Obama administration. While there have been recent stock market corrections, the overall trajectory has been upward which is good for large and small business interests. In recent days, corrections to the market have caused volatile swings.

US Real GDP 2012 - 2017



Source: Bureau of Economic Analysis



2

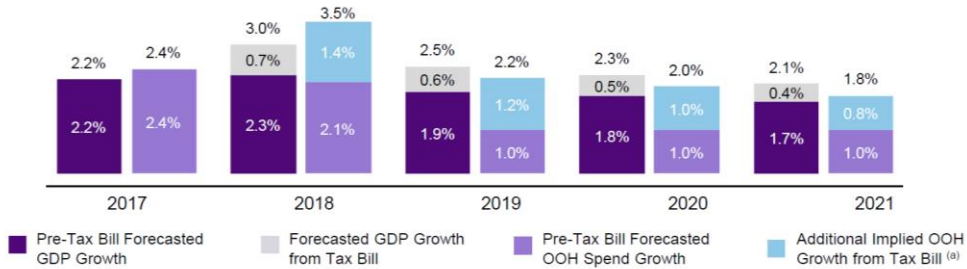
The US Real Gross Domestic Product is an inflation-adjusted measure that reflects the value of all goods and services produced by the US in a specified year. The US Real GDP has stabilized since the last recession with a protracted average of 2.1 percent growth between 2009 and 2016.

The 2017 year-end Real GDP figure has not been release but, The Bureau of Economic Analysis is projecting growth of 2.3 percent.

Tax Bill Expected to Fuel Additional OOH Growth

PROJECTED BOOSTED OOH SPEND AND GDP GROWTH

- Bill is expected to boost real GDP growth during the 2018 – 2021 period



Source: IMF, TPC, eMarketer, Peter J Solomon Company

According to a recent analysis conducted by Peter J Solomon Company, both the OOH segment and US GDP will increase resulting from the recent tax cuts. This benefit is derived from a reduction in the corporate tax rate from 35 to 21 percent. This year, OOH spend is projected to increase 3.5 percent with 1.4 percent of the growth coming as a result of tax bill provisions.



OOH Economics

Total US Ad Revenue is Growing

US Advertising Revenues by Media (millions)

	2013	2014	2015	2016	2017	2018
Total TV (inc CE)	63,642	66,082	63,872	67,060	61,861	63,988
Total TV (exc CE)	63,337	62,797	63,402	63,437	61,488	60,275
Digital Media	42,781	49,553	59,930	72,437	84,700	95,213
Newspapers	18,200	16,062	14,014	12,312	10,320	8,542
Magazines	12,004	10,651	9,290	8,481	7,356	6,204
Radio	15,265	14,806	14,439	14,022	13,685	13,105
OOH	7,021	7,071	7,466	7,728	7,852	8,051
Total Core Media (inc CE)	158,913	164,225	169,012	182,039	185,773	195,103
Total Core Media (exc CE)	158,608	160,940	168,542	178,417	185,400	191,390
Directories	3,223	2,457	1,864	1,176	1,176	556
Direct Mail	20,594	20,594	20,364	20,026	20,026	17,687
Grand Total (inc DM inc CE)	182,731	187,277	191,240	203,241	206,975	213,346

Source: MAGNA



It appears OOH revenue will once again hit an all time high mark once final 2017 revenue figures are calculated later this spring. MAGNA estimates OOH revenue will break \$8 billion although early indications suggest the industry may end the year slightly under that level.

OOH will have significantly surpassed magazine spend in 2017 and will continue to close-the-gap with newspaper spend.

OOH Remains the Second Fastest Growth Medium (After Digital)

OOH - Second to Digital for Media Growth 2016 - 2018

Media Format	Growth Rate 2016	Projected Growth Rate 2017	Projected Growth Rate 2018
OOH	3.1%	1.6%	2.5%
Total TV *	0.1%	-3.1%	-2.0%
Radio	-2.9%	-2.4%	-4.2%
Newspaper	-12.1%	-16.2%	-17.2%
Magazine	-8.7%	-13.3%	-15.7%
Total Traditional Media	-2.4%	-5.0%	-4.5%
<i>OOH Variance to Total Traditional Media</i>	<i>+5.5%</i>	<i>+6.6%</i>	<i>+7.0%</i>
Digital Media (search, display, video, social, mobile)	20.9%	16.9%	12.4%
Total Core Media	5.9%	3.9%	3.2%

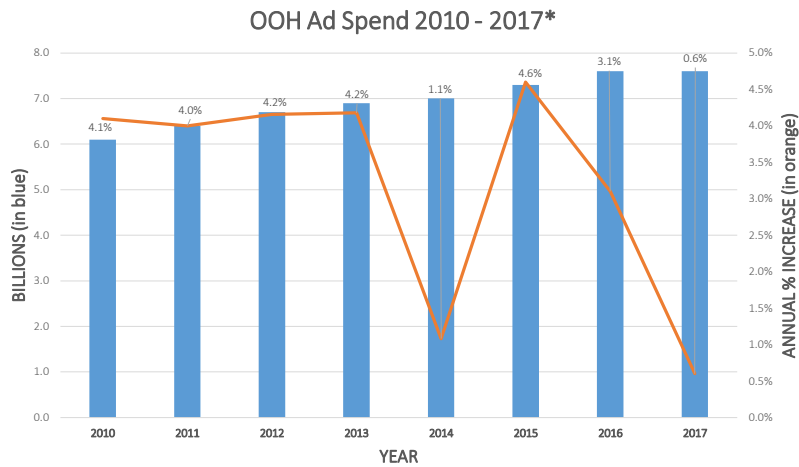
Source: MAGNA, *excluding cyclical events such as Political, Olympics



13

This year, OOH is projected to grow faster than all other media, except digital. MAGNA expects OOH to increase by 2.5 percent in 2018 as the traditional media category decreases 4.5 percent. This variance represents an OOH performance increase of 7.0 percent compared to overall traditional media spend.

Total OOH Ad Revenue is Growing



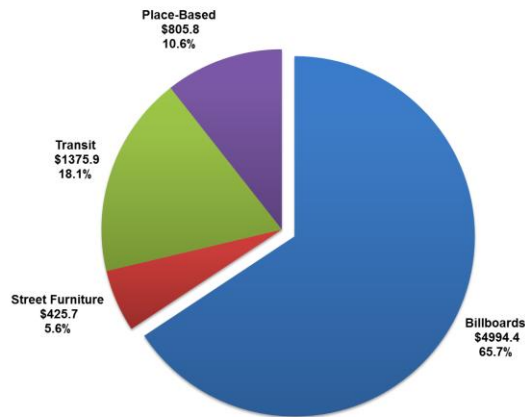
Source: Kantar Media, MAGNA, OAAA; * projected 2017 revenue



OOH ad spend has growing for the past seven years, although growth trends in 2014 and 2017 were not as strong as the other years tracked. The figures for 2017 are estimated.

Total OOH Ad Revenue is Consistent by Format Channel

2017 YE Projection – Total OOH Revenue \$7.6 Billion



Source: Kantar Media, MAGNA, OAAA. OOH format figures in millions.



18

The Billboard segment, including both printed and digital assets, is the largest OOH segment with 66 percent market share. Transit now represents over 18 percent share. Place-based OOH, that includes digital place-based screen networks and cinema, has 10.6 percent share. Street furniture, which is comprised mainly of bus shelters, has 5.6 percent share.

Top OOH Growth Categories



Computers, Software, Internet
+24.4%



Financial
+11.6%



Media & Advertising
+7.8%



Local Service Businesses
& Amusements
+5.0%



Insurance & Real Estate
+2.7%



Restaurants
+1.0%

Source: Kantar



As of November 2017, the largest year over year OOH growth category was Computers, Software and Internet, which grew almost 25 percent, followed by the Financial category with an 11.6 percent growth. Media & Advertising was next with a 7.8 percent increase.

The next three largest growth categories were Local Service Businesses & Amusements, Insurance & Real Estate, and Restaurants.

Top OOH Spending Brands



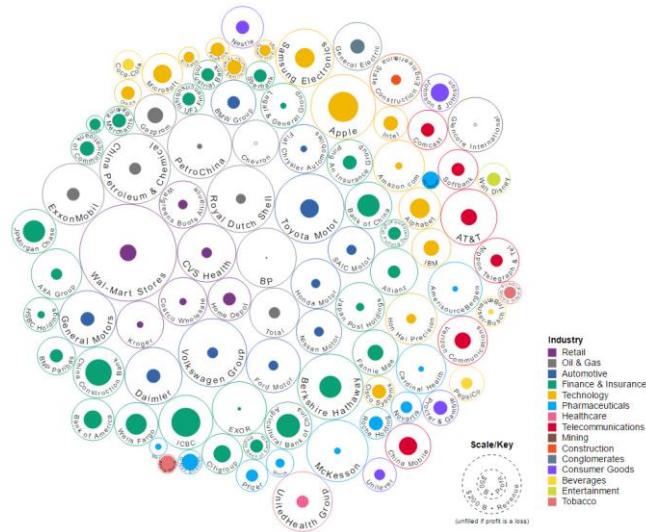
Source: Kantar



As of November 2017, the top 10 OOH spenders included a variety of product categories, but most heavily populated by technology companies.

McDonald's and Apple repeat as the two largest spenders, respectively, for the fifth consecutive year.

The Top 100 Companies: Revenue vs. Profit

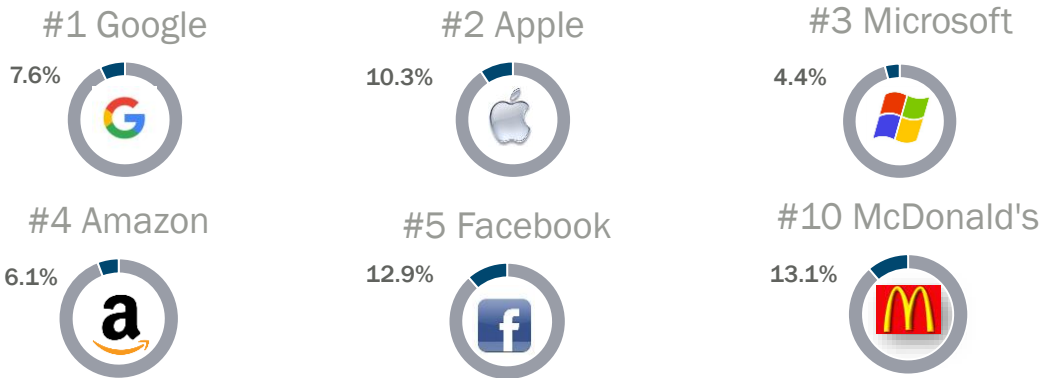


Source: Forbes Global 2000

Among the top performing companies, the revenue to profit ratio is substantial. In the graphic, the outer circle for each company represents total revenue and the colored inner circle is the profit margin. Many tech companies (noted in yellow like Apple) have high profit ratios. Many of these companies are allocating more ad spend to OOH campaigns .

All US Top Ten Valued Global Brands Invest in OOH

Six of the world's top ten most valuable brands invest more than OOH's average market share



Source: BrandZ, Kantar January - November 2017



Every top ten US brand uses OOH as part of the media mix.

Six of the top ten brands over index by investing more than OOH's average market share of 4.2 percent.

Top technology brands are heavy users of OOH. Google is the top global brand and allocates 7.6 percent of ad spend to OOH. Apple is ranked #2 and allocates 10.3 percent of ad spend to OOH.

Digital's Growing Importance

MAGNA reports the following growth, and forecasted growth, in digital OOH share from 2015 – 2020:

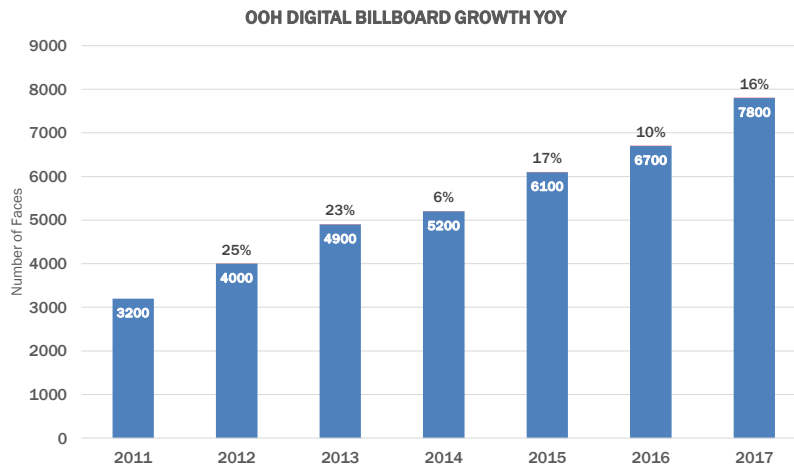
<u>YEAR</u>	<u>OOH Share</u>	<u>OOH Share</u>	<u>OOH Share</u>
	<u>Printed</u>	<u>Digital</u>	<u>Cinema</u>
2015	78.7	11.7	9.6
2016	77.8	12.9	9.3
2017	77.1	14.1	9.3
2018	75.6	15.6	8.8
2019	73.8	17.4	8.8
2020	72.1	19.0	8.8



Source: MAGNA

There has been a steady increase in digital OOH share and the trend is expected to continue. According to MAGNA, digital OOH share will increase to 15.6 percent of total OOH revenue this year with 75.6 percent represented by printed formats. The digital OOH share is expected to reach 19 percent in 2020.

Digital Billboard Unit Growth



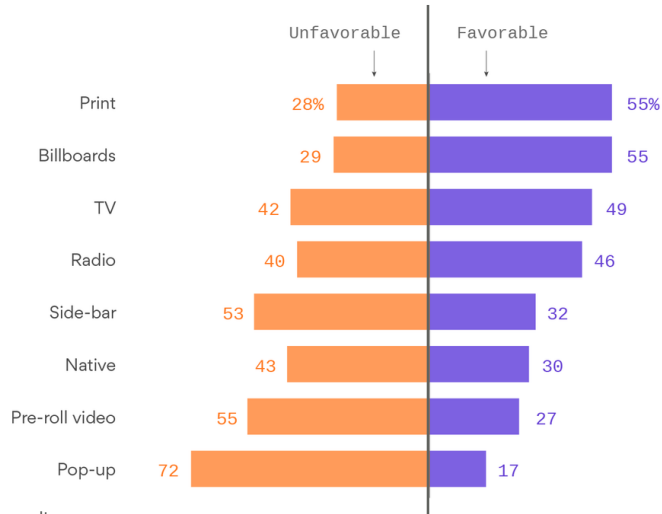
Source: OAAA

The growth trend of digital billboards has been steady and consistent for a last decade and will remain constant into the foreseeable future with 7,800 units currently installed along roadways.



OOH Insights

US Adults Favorability Among Different Ad Types



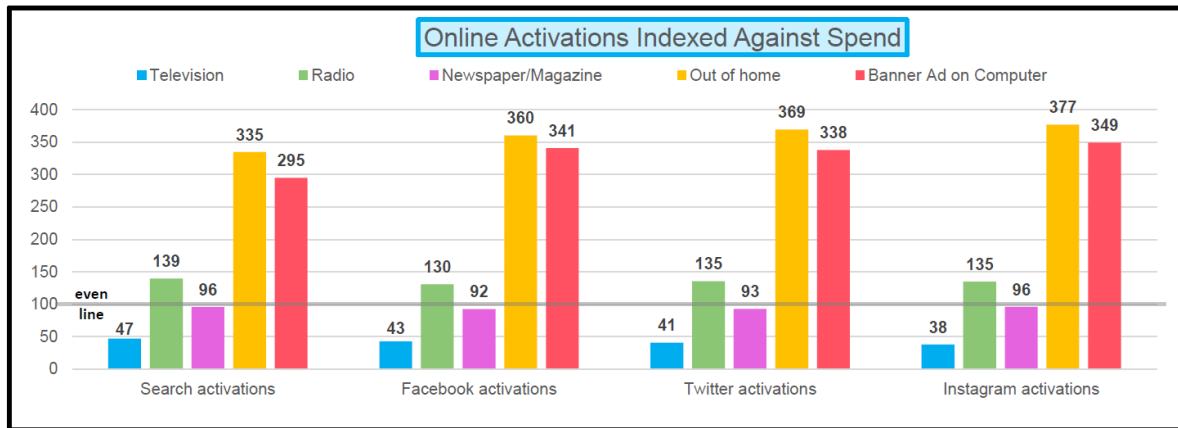
Source: Morning Consult



A recent study found OOH and print were the two media channels receiving high favorability marks from US consumers. Both achieved a 55 percent favorability score.

Digital options scored lowest with pop-up ads only receiving a favorability score of 17 percent.

OOH is Most Effective in Driving Online Activation



Source: Nielsen

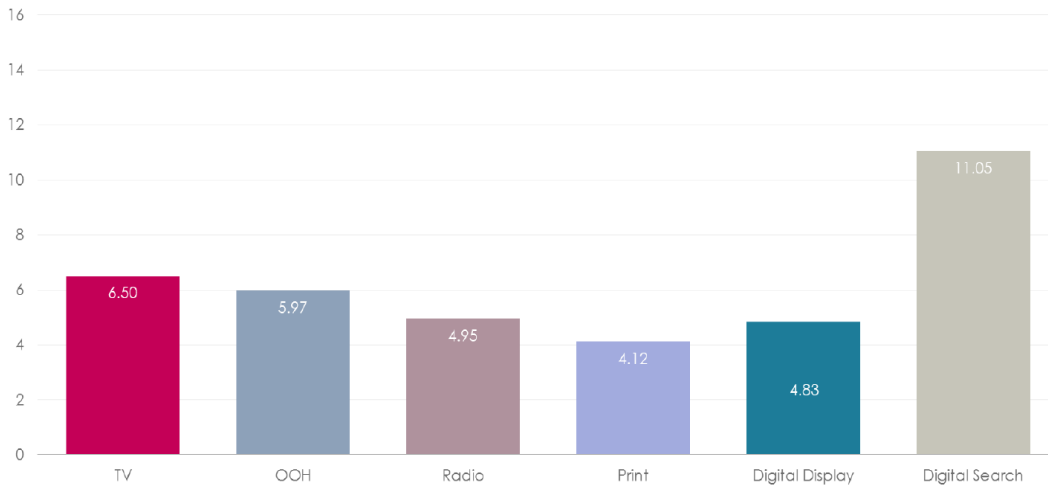


24

OOH is more effective at driving online activation than TV, radio, print or banner ads. This is true for search overall, indexing at 335, and Facebook, Twitter, and Instagram specifically.

OOH messages that support online activation strategies can drive consumer interaction immediately when people are actively engaged outside the home.

OOH Produces Strong ROI



Source: Benchmarking



25

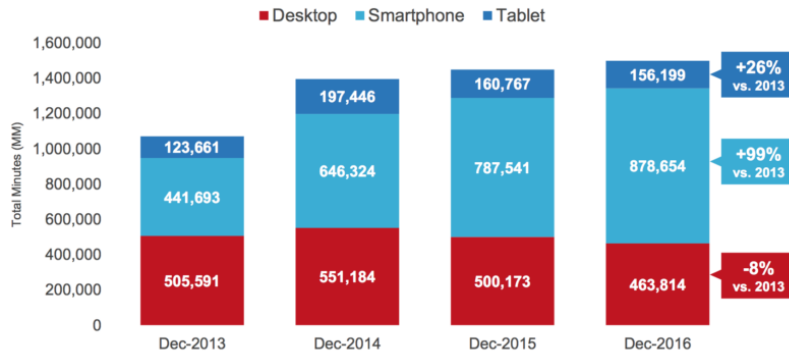
In a recent study commissioned by OAAA, Benchmarking found for each dollar spent on OOH advertising, an average of \$5.97 was returned in sales, outperforming all forms of traditional advertising other than TV.

The study included 100 case studies from the Omnicom US sales vault. A second phase of the study will be released later this spring.



Growing Influence of Digital

Growth in Digital Media Time Spent (in Minutes)

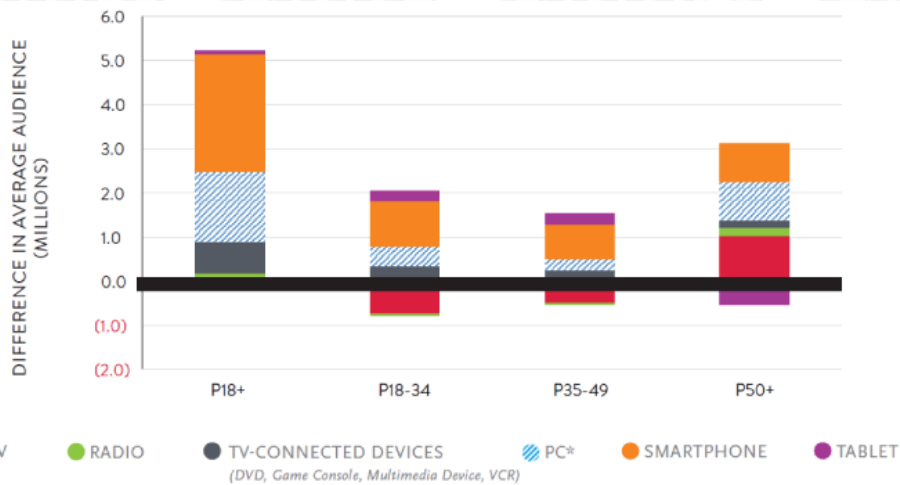


Source: comScore



The profound impact of digital media cannot be overstated. More time spent with online media translates to increased digital ad spend. Since 2013, time spent online using mobile devices and tablets has increased while desktop usage has decreased.

Mobile Viewing is Increasing While Traditional TV Viewing Decreases



Source: Nielsen



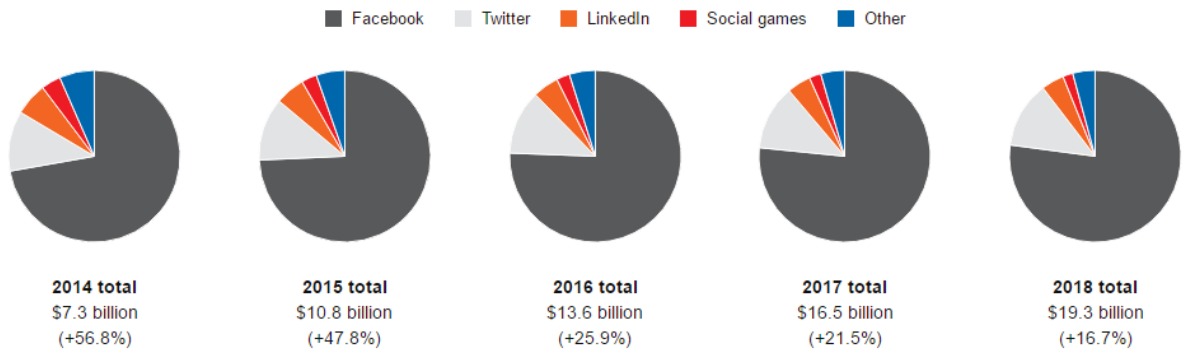
28

It's no surprise, usage of connected devices is increasing each year, with mobile viewing on the rise. In both young and middle aged demos, usage of TV-connected devices, PCs, smartphones, and tablets are increasing.

Conversely, regular TV consumption and radio listening is declining. In fact, conventional TV viewership peaked in 2010 and has decreased every year since. Digital ad spend has surpassed TV spend.

In today's marketplace, consumers are on-the-go more than ever before and rarely leave home without their mobile devices. OOH's reach, interactive capabilities, and captivating messages move consumers to reach for their mobile devices to learn more about a brand.

US Social Networks Ad Revenue



Source: eMarketer



29

Advertisers recognize the influence of Facebook and accordingly, invest heavily with ad dollars. This year, the social network segment is expected to generate ad revenue nearing \$15 billion.

The migration of ad revenue to social networks suggests further declines in traditional media channels.

Revenue of Five Tech Giants

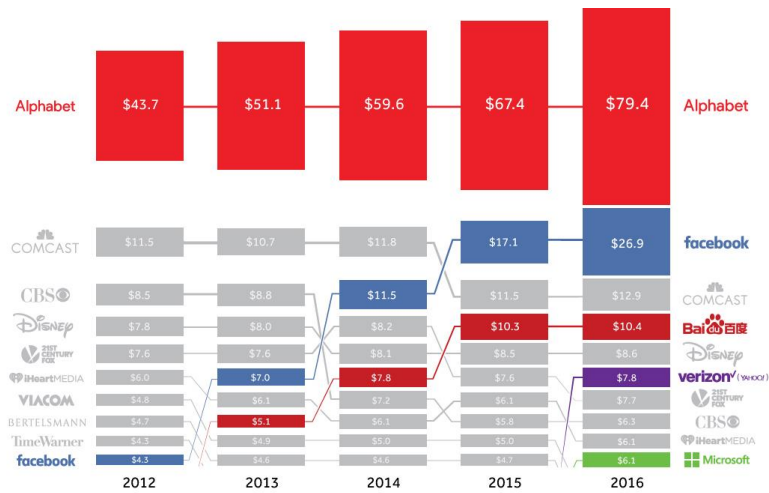


Source: Related annual reports



When considering the five tech giants, Facebook ranks fifth. Google parent, Alphabet generates, 80 percent of company revenue from advertising sales, while Amazon captures 18 percent from advertising and this percentage is expected to grow significantly over the next few years, and 7 percent of Microsoft revenue comes from Bing ad sales. A staggering 97 percent of Facebook revenue comes from ad sales.

Ad Revenue for the Top 10 Global Brands



Source: Bloomberg, Zenith Media

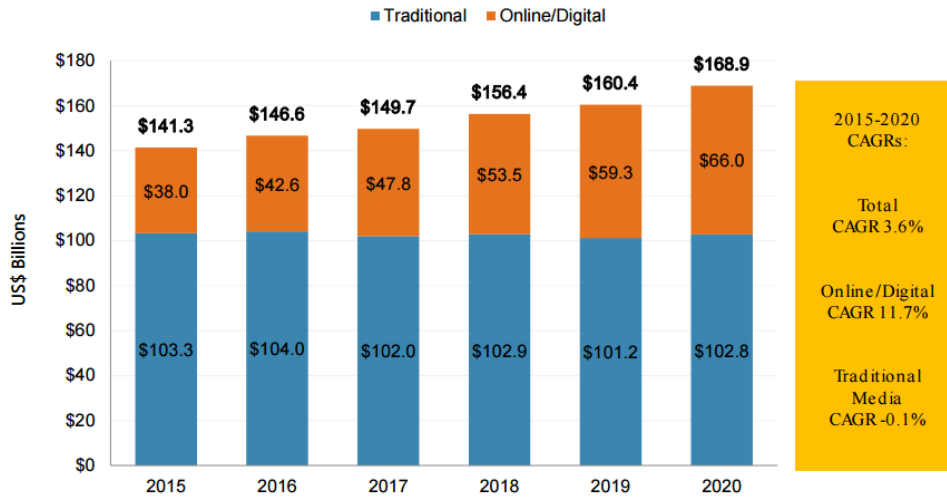
As ad sales increase for top tech brands, some legacy companies are recording declines in ad sales. Google ad sales significantly outpaces all other companies today.

The shift of ad dollars to a few large social platforms is having a profound impact on the ad business. According to the Bureau of Labor Statistics, for the first time on record, the number of advertising-specific jobs in the US is declining in the middle of an economic expansion.

This outcome is happening for two reasons:

1. Technology's invasion of the ad sector
2. The phenomenon of more corporations trying to emulate outside media companies in-house

Local Ad Spend is Growing



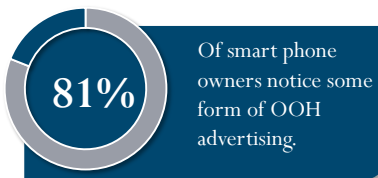
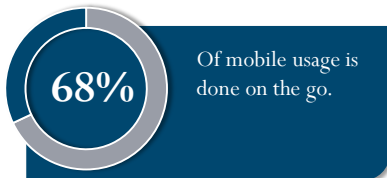
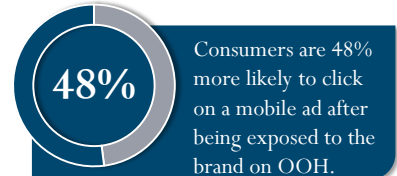
Source: BIA Kelsey



Local ad spend will consistently increase through 2020 with traditional media performing generally flat. The growth in local ad spend will result from increased digital ad spend, including mobile.

OOH complements and enhances digital advertising. Aligning OOH with digital media improves local sales opportunities for the OOH industry.

OOH and Mobile Media



Source: EMC Outdoor

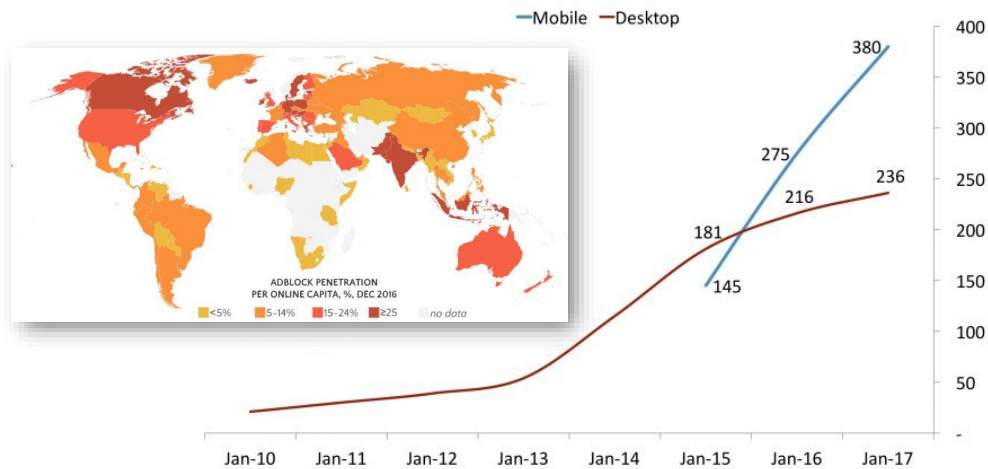


Money is flowing to mobile and OOH amplifies mobile. Today, there are over 224 million smart phone users in the US.

OOH and mobile are an ideal media mix because consumers are actively engaged with mobile devices when they are away from home where they spend 70 percent of their waking hours, which is the same time they see OOH ads.

Research demonstrates consumers are 48 percent more likely to click on a mobile ad after being exposed to an OOH ad. Furthermore, 81 percent of smart phone owners said they notice OOH ads. Seventy-eight percent of mobile search of local business information results in a purchase.

Global Ad Blocking is Rising Fast (in Millions)



Source: BI Intelligence



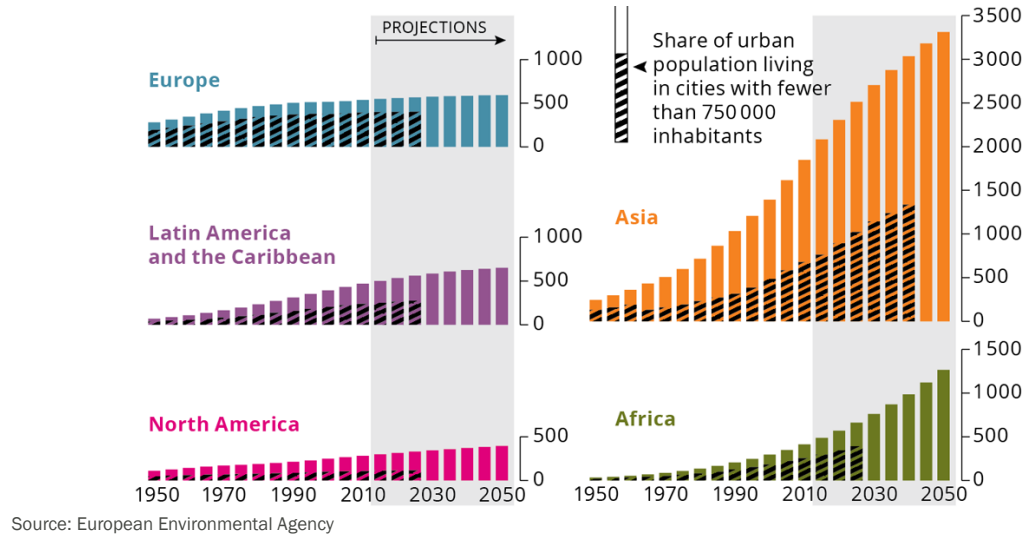
34

An indirect trend that could have a favorable impact on the OOH industry is the rise of ad blocking technology. The use of desktop ad blocking technology has risen steadily since 2013. In 2015, the use of mobile ad blocking technology began to increase dramatically. North America is one of the regions with the highest penetration of ad blocking software usage.

Advertiser concerns about digital ad blocking, fraud, and viewability are increasing. OOH is real. OOH reaches real people in the real world.

Demographics

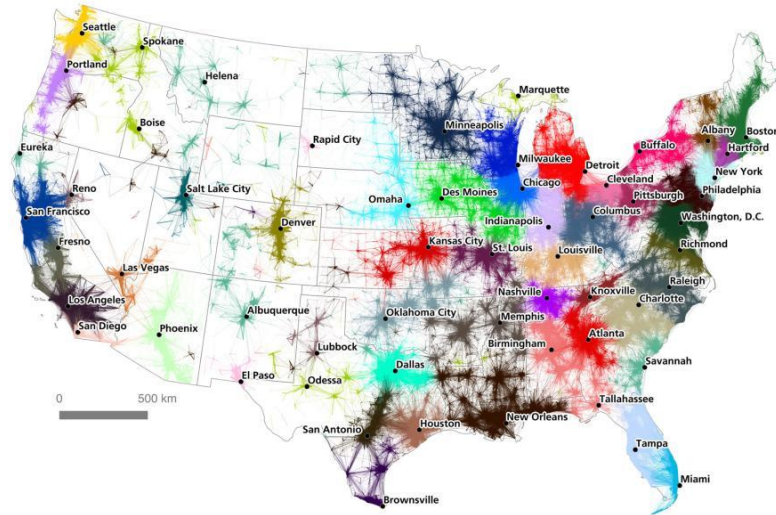
Urban Population Growth



Urbanization is a global trend as younger generations continue to move into city centers. This trend is evident across all continents with 55 percent of the world population living in cities. By 2050, two thirds of the population is expected to live in cities.

In North America, nearly all inhabitants are expected to live in cities with populations greater than 750,000. With most inventory located in urban areas, OOH's ability to influence consumers will increase over the next 30-years as populations centers expand.

Mega Regions



Source: US Census Bureau



Today, most major urban centers have expanded well beyond standard Nielsen DMAs. Cities and communities continue to expand outward connecting multiple markets and forming mega regions. These new regions often match the migration of existing OOH inventory distribution.

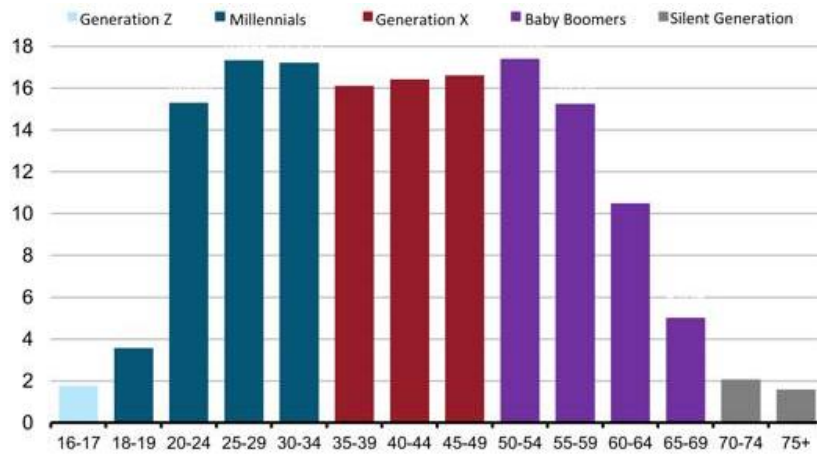
Unemployment Continues to Shrink Beating Expectations



Source: US Bureau of Labor Statistics

According to US Bureau of Labor statistics, unemployment levels have continued to fall, currently at 4.1 percent. This is the lowest unemployment level since 2006 which was 4.4 percent. The last time the unemployment rates was lower than 4.1 percent was in 1965 (at 4.0 percent).

Labor Force by Generation

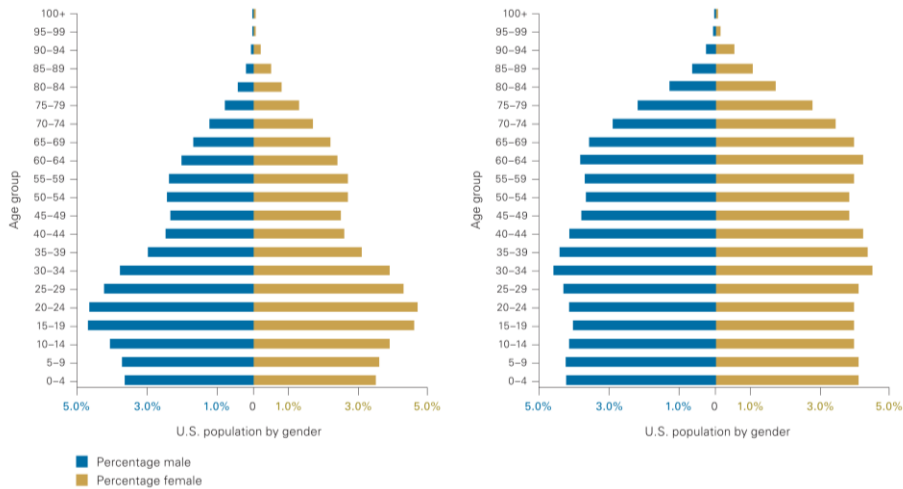


Source: US Department of Labor, WSJ

The distribution of the US labor force is across all generational segments with Gen Z just now entering the job market. Millennials (also called Gen Y) and Gen X workers now comprise the largest parts of the US labor force with Baby Boomers quickly transition into retirement. The drop-off of Baby Boomers will accelerate over the next few years as the Silent Generation (also referred to as the Greatest Generation) have nearly cycled out of the labor force completely.

This trend suggests brands will refocus advertising and marketing budgets to better influencing Gen X, Y, and especially Z consumers.

Aging of the US Population 1980 vs. 2025

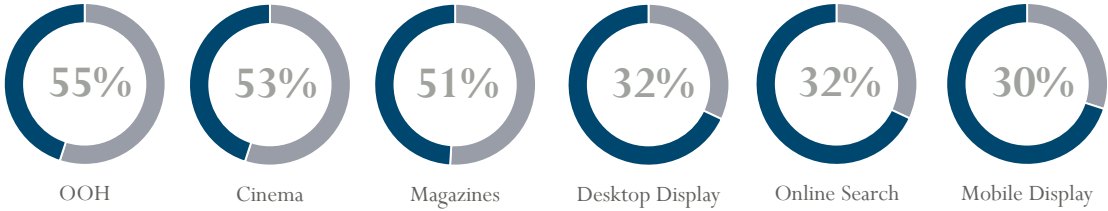


Source: US Census Bureau

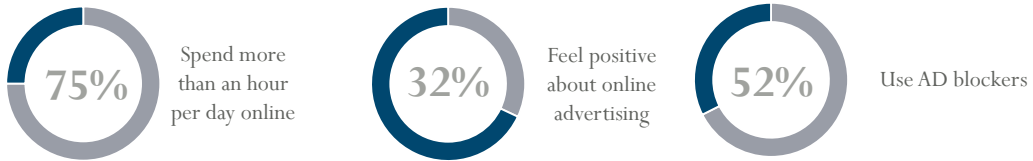
While the US population is age diversified, by 2025 the population will skew older. Discrete age segments will become more uniform across generations.

Marketing to Gen Z

Marketing penetration with Gen Z



Gen Z like online but dislike online ads



Source: Kantar, Millward Brown

In research among Gen Z consumers, 55 percent of the group is effectively reached by OOH ads, the largest media channel impacting Gen Z.

While Gen Z consumers spend a significant amount of time online each day, only 32 percent have positive feelings about online advertising and over have use ad blockers.



Political

Political (Turnover)



A large number of incumbents are leaving Congress, and trend expected to continue.

Factors include:

- General dysfunction
- Moderates feel out of place
- Term limits for chairmen
- Complaints about sexual harassment
- Tough political odds at home

Political (Turnover)



Here are examples: moderate Republican Frank LoBiondo from New Jersey will not seek re-election in 2018. And, on the right, House Transportation Committee Chairman Bill Shuster of Pennsylvania is term-limited as chairman (six years), and will leave Congress after the election.

Political (Sales)



Turnover creates opportunity to sell out of home products to candidates and causes. In Alabama, Senator Jeff Sessions joined President Trump's Cabinet as Attorney General. The resulting special election was competitive and expensive. The winner in that election – Doug Jones, the new senator from Alabama – used billboards with powerful messages, and included the date of the special election, December 12. Let us know if you want OAAA materials on selling political advertising.



Focus on the Right-of-Way

Focus on Right of Way

- Texas-DOT
- California Proposal
- Trump Plan/Rest Areas

At a broad level, many states have trouble making ends meet. One trend to watch: pressure to develop the highway right of way as a means to help pay for transportation. These proposals include on-road signage.

Focus on Right of Way



The FHWA is unable to approve your request at this time based on the applicable statutes and regulations. We appreciate your interest in exploring innovative concepts and your understanding in this decision.

Sincerely yours,

Mark R. Kehrl
Director, Office of Transportation
Operations

For example, Texas proposed selling corporate sponsorships of official traffic signs that overhang the highway. Under the plan, sponsors could display their corporate logos on one-third of LED changeable-message signs. Last year, with President's Trump's new transportation secretary in place, the Federal Highway Administration (FHWA) said "no" to Texas.

Focus on Right of Way



Another proposal to develop the right of way is to allow more full-service plazas on the highway, to generate concession fees. When the Interstate system was built – in the Fifties – existing full-service plazas were grandfathered. Congress decided to stop further development of on-road food/fuel service, as a way to protect small towns and businesses located near highways. The Trump Administration wants states to have flexibility to add full-service plazas, by further commercializing existing rest stops that now have vending machines and restrooms. This idea is opposed by key OOH advertisers: restaurants, truck stops, convenience stores, and petroleum marketers. They say on-road service plazas would hurt their businesses located outside the public right of way.

Focus on the Right of Way (Rest Areas)

NATSO President and CEO Lisa Mullings:

“Although the truck stop and travel plaza industry is encouraged that the President continues to push forward on infrastructure and the need to increase infrastructure revenues, we are **extremely disappointed** at the prospect that the Administration might renew its call for liberalizing tolling policy and **commercializing rest areas**.

As an example, here is a statement from the Truck Stop Operators, saying more full-service plazas is a bad idea.

Jobs Lost, Businesses Closed

"If they were to commercialize just that one rest stop, it would be devastating to us and to all the other businesses on the exits," said Steve Loehr, vice president of operations support for Kwik Trip Inc., which has 350 locations in Wisconsin, Iowa and Minnesota.

To drill down further, a regional chain of convenience stores in the Midwest says commercializing rest stops would hurt its business.



Legal

- **Constitutional challenge** to billboard regulations
- Can cities **tax** billboards but not other media?
- **Transit controls** on ad content

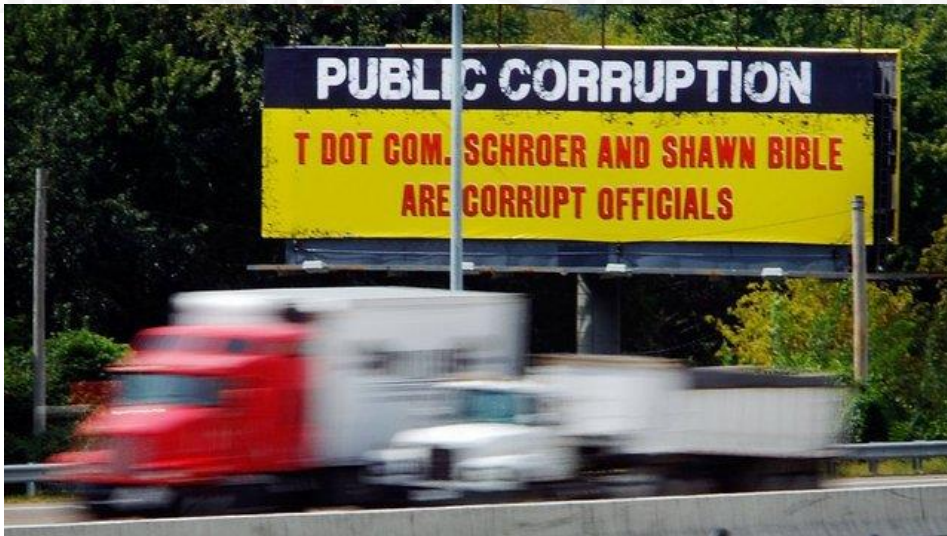
Another important trend is litigation.

Legal (Constitutional Challenge)



In 2015, the unanimous US Supreme Court struck down a local sign ordinance in Gilbert, AZ, on grounds that the regulation was based on the content of the signs. Here we see the plaintiff, Pastor Clyde Reed of Gilbert, who convinced the Supreme Court that the sign regulation treated his temporary church sign differently than other signs; therefore the regulation was unconstitutional on free speech grounds.

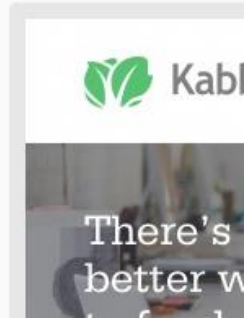
Legal (Constitutional Challenge)



In Tennessee, billboard owner Bill Thomas used the Reed v Town of Gilbert case to invalidate the state's billboard law. Mr. Thomas does not care for the state DOT (here is one of his messages).

Memphis judge throws out state billboard act

Tom Charlier, USA TODAY NETWORK – Tennessee | Published 5:06 p.m. CT April 3, 2017 | Updated 8:53 a.m. CT April 4, 2017



The Thomas case in Tennessee is a constitutional challenge of billboard controls. The State of Tennessee is appealing a ruling by a federal judge in Memphis who struck the state billboard law. The state says billboard regulations are a proper balance, and do not impede free speech. OAAA is assisting the State (legal strategy and amicus brief).

Legal (Constitutional Challenge)

- Federal appeals court
- Industry supports government
- Reasonable regulation better than no regulation

Legal (Tax)



aaa

88

Baltimore taxed billboards but not other media. Clear Channel Outdoor challenged this tax on constitutional grounds.

Legal (Tax)



A trial was held in June of 2017. A tax judge should rule soon on this case (can a locality tax one form of speech without taxing others?).



Evidence entered in this case shows that a variety of speakers use billboards, including speakers critical of the city. Whoever wins this round, an appeal is likely.

Transit as Free Speech Battleground; Sessions' DOJ Joins the Fight

January 19, 2018 12:04 am · 0 comments

Views: 250

Kerry Yoakum, *an attorney, is a vice president of the OAAA*

The US Department of Justice (DOJ) is taking sides in a First Amendment lawsuit challenging transit's ability to restrict religious ads.

In Washington, DC, the Catholic Church has been fighting a losing court battle, which was prompted by the regional transit system's refusal to run the church's Christmas ads.



A third case to keep in mind: the Archdiocese of Washington, DC, is challenging the regional transit authority regarding content controls.



The Catholic Church wanted to place Christmas-related ads in the DC transit system. The transit authority said 'no.' The church filed a First Amendment challenge. Interestingly, the Department of Justice filed a brief on behalf of the church, saying it support religious freedom.

Research (Relocation)



Government has the power to condemn billboards and other real estate for roads and road-widening. Condemnation can be expensive, litigious, and time-consuming. Relocation can be a better option. The federal-state governments – this year – will study relocation of billboards, which can save money and time.



Mobility

Estimated Vehicle Miles Traveled



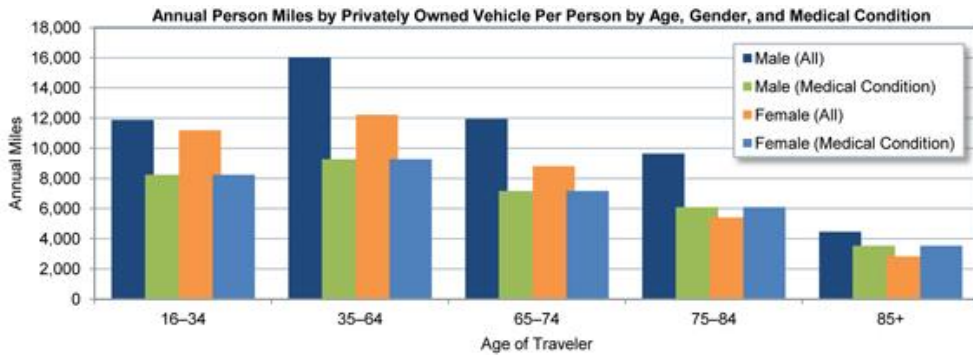
Source: US Department of Transportation



Total of miles driven on US highways and streets has steadily increased over the past 50 years.

While total miles driven decreased during the last recession, mobility continues to rise again and in 2017 commuters set another record with more miles driven than during any other time in history. According to the Federal Highway Administrations (FHWA), total US driving volume grew 1.3 percent last year which was over 3.2 trillion miles. The average American spends almost 300 hours driving each year.

Estimated Vehicle Miles Traveled by Demographic

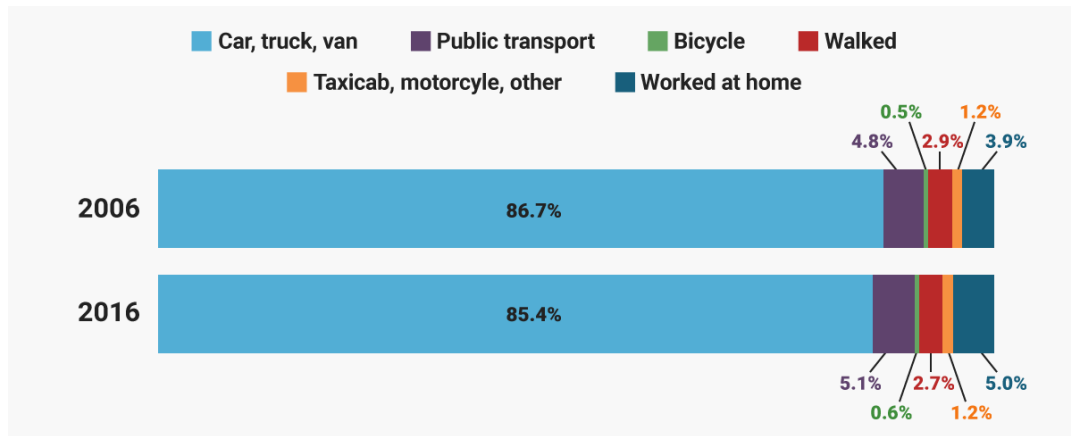


Source: NHTS



Older drivers represent a growing proportion of licensed drivers, according to new FHWA data. Of a record-high 222 million licensed drivers in the U.S., 42 million, or almost 1 in 5, were 65 years or older. "This age group is growing faster than any other, and is far outpacing their teenage counterparts," the agency said in a statement. Drivers between 75-79 years old experienced the largest year-over-year growing by 5 percent over the previous year, with drivers 85 and older the second fastest growing group.

Most People Still Commute Alone

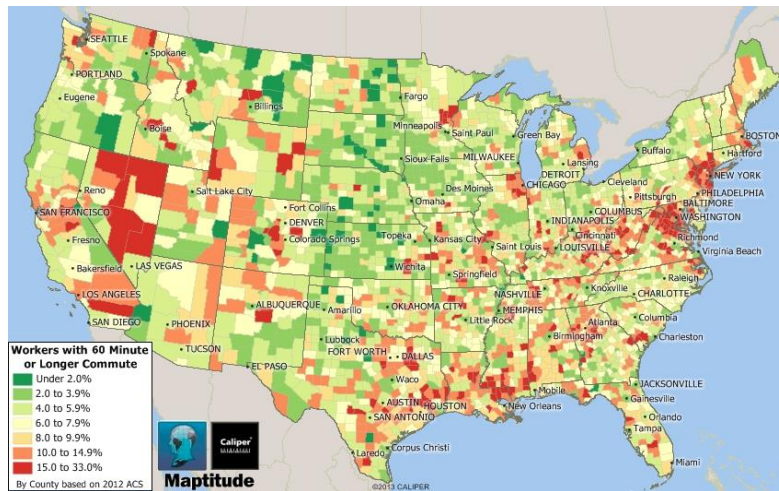


Source: US Census Bureau

Of the 146 million Americans commuting to work daily, over 85 percent travel in a car or truck. Eighty-nine percent of car commuters drive alone.

Since 2006, transit use has increased to 5.1 percent among regular commuters while those people who work at home has risen to 5 percent of the work force.

Commute Time Differs by Region



Source: Caliper, Maptitude



Commute times differ by region. The green areas on the map represent counties where only 2 percent of the commuters spend one hour or longer driving each day. The red areas represent counties where 15 – 33 percent of the commuters spend longer than one hour driving.

US Gasoline Prices

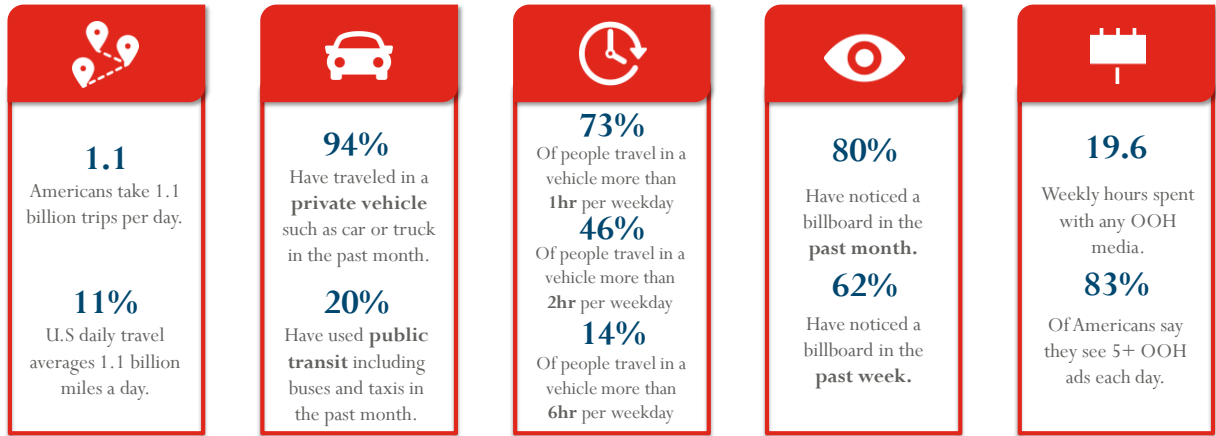


Source: Enercom



Gasoline prices have steadily decline since 2012 with the national average just over \$2.50 per gallon. Lower fuel prices generally encourages more highway travel and longer road trips.

Stats on OOH & Travel



Source: EMC Outdoor, Nielsen, OAAA



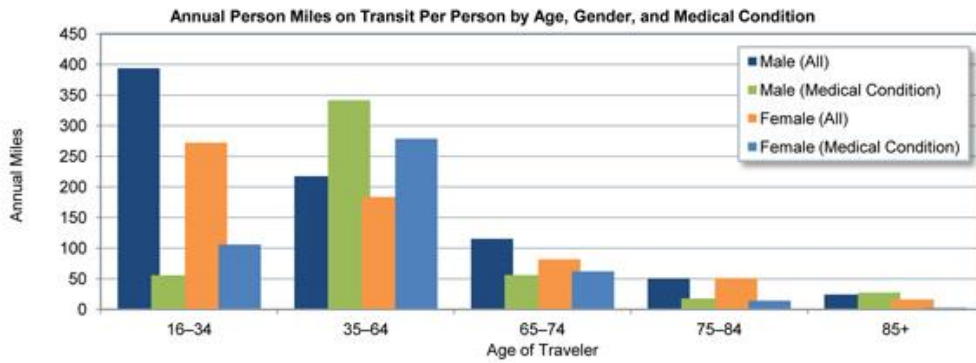
70

People who travel in cars notice OOH ads. The more time people spend in cars, the more they notice OOH ads.

Americans take over 1 billion trips per day. Well over 90 percent of people travel in private vehicles while 20 percent of commuters do use some form of public transit, sometimes.

Of the people who travel in vehicles, 73 percent spend more than 1 hour per day commuting. Eighty percent have noticed a billboard in the past month and 62 percent have notice a billboard in the past week. Overall, these commuters spend almost 20 hours per week exposed to OOH ads and 83 percent say the see more than five OOH ads each day.

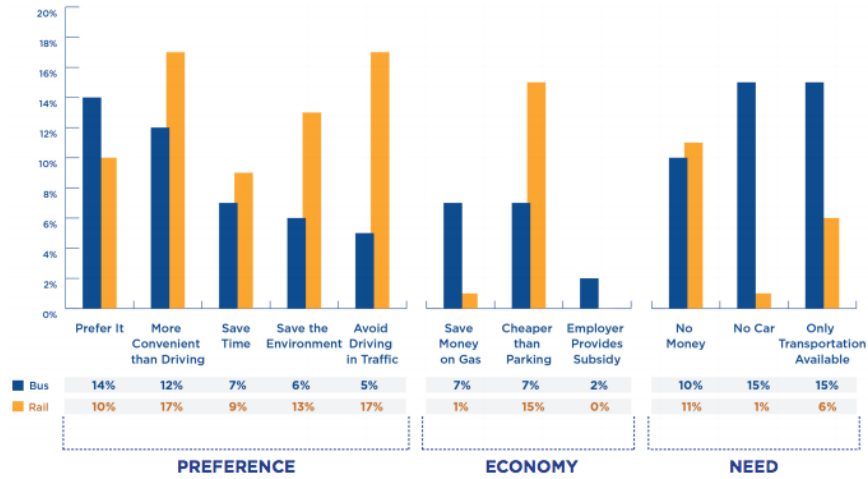
Estimated Transit Miles Traveled by Demographic



Source: NHTS

Transit riders skew younger with males 16 – 34 comprising the largest group of transit users. Seniors as less likely to use public transportation.

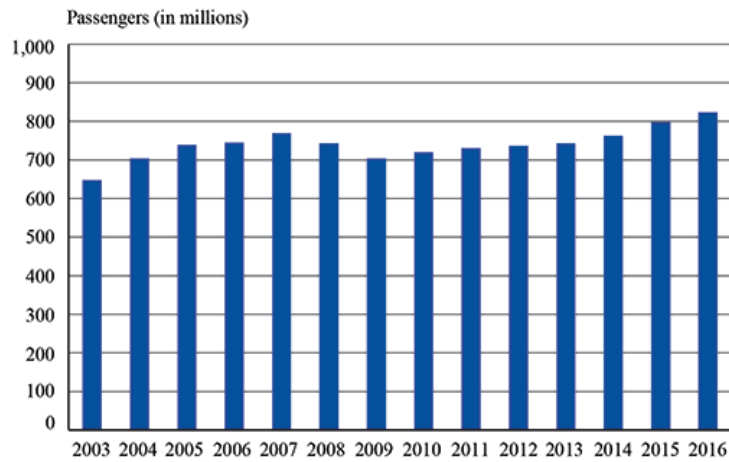
Use of Transit for Many Reasons



Source: US Department of Energy

Commuters use both bus and rail transit for many reasons. Many people prefer public transit while other recognize economic benefits or have specific needs which transit satisfies.

US Air Passengers (Domestic and International Combined)



Source: US Department of Transportation



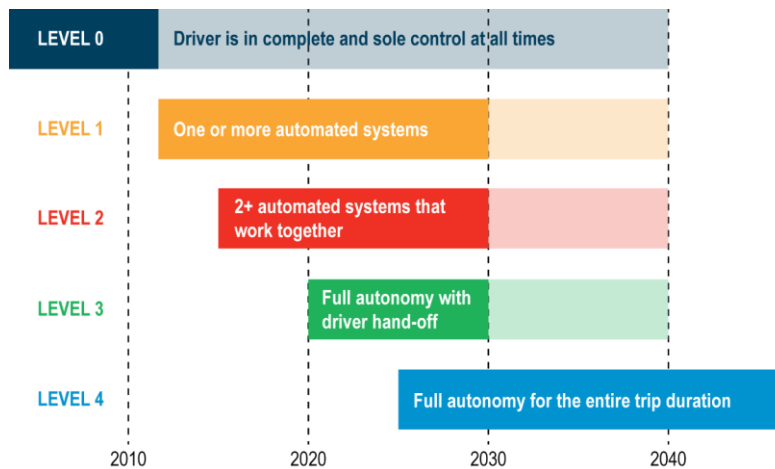
73

Air travel has consistently climbed since the recession ended with predictions that 2017 will be another record year, accounting for more than 800 million US airline travelers.



Autonomous Technology

AUTONOMOUS CARS ADOPTION TIMELINE



Source: Google

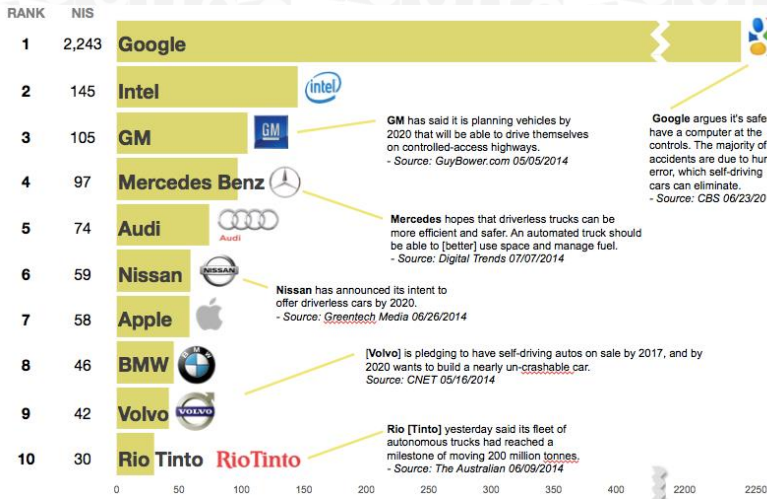


Projections today suggest it will be more than 2 decades before Level 4 autonomy is possible. There are many obstacles associated with Level 4 autonomy but car makers are making headway.

1. There is no consensus on standards. A truly driverless society will require consistent standard, which also link into consistent protocols for the connected city.
2. Highways must be smart, too. Regardless how fast the automakers are developing autonomous technology, the American highways will require a complete overhaul to accommodate driverless vehicles. It's one thing to test drive 100 Uber cabs in Pittsburgh. It something very different to have every vehicle on the road self-driving. In fact, there is a vast disparity in timescales between the advance of autonomous vehicle technology and the development of urban spaces.
3. Smart requires 5G. Highways will require a massive array of sensors. Cars will automatically pay tolls, find parking, and much more. To achieve Omni-knowledge, the highway system will need to be much smarter.
4. The car makers and tech companies won't develop autonomous technology until the consumer asks for it. Sizable investments are already supercharging innovation. But, until there is widespread demand for driverless options, the timeline for deployment remains unknown.

There is little doubt, autonomous vehicles will impact the OOH industry. It is too early to understand the overall implications. Companies must be willing to invest. Government agencies must be willing to change policy. Consumers must be willing to change behaviors.

Ten Most Influential Autonomous Vehicle Companies



Source: Appinions



While most global car makers are developing autonomous technologies at varied paces, Google is leading in the development. Other tech companies including Intel, Apple, and Amazon are also investing heavily in autonomous technology.

Most of these companies predict autonomous technology will be available to consumers in the next decade but market penetration will likely be limited. Most experts assume the initial use case for autonomous vehicles will be ridesharing fleets and delivery services. Farming equipment is already using autonomous technology.

Attitudes on Vehicle Automation

Advanced technology features that consumers say are most and least useful

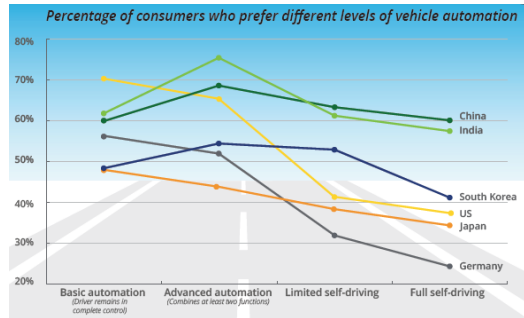
Technology feature	Category	US
Recognizes objects on road and avoids collision	Safety	1
Informs driver of dangerous driving situations	Safety	2
Blocks driver from dangerous driving situations	Safety	3
Takes steps in medical emergency or accident	Safety	4
Diagnoses and sends maintenance notifications	Connectivity	5
Enables remote shutdown of stolen vehicle	Cyber security	6
Helps enhance fuel efficiency	Fuel efficiency	7
Enables vehicles-to-vehicle and road communication	Connectivity	8
Prevents hacking into vehicle systems	Cyber security	9
Prevents theft by restricting unauthorized access	Cyber security	10
Enables use of advanced lightweight materials	Fuel efficiency	11
Enables interactive vehicle operational information	Convenience	12
Enables usage of alternative fuels	Environment	13
Automates tasks for comfort and convenience	Convenience	14
Lowers the impact on the environment	Environment	15

Viewed as most useful Viewed as somewhat useful

Source: Deloitte Global Automotive Consumer Study

Gen Y/Z consumers are generally more interested in fully autonomous vehicles

Consumer interest in fully autonomous vehicles, by generation



Consumer attitudes regarding vehicle automation varies. The advanced technology features than consumers say they most want include:

1. Recognition of objects to avoid collisions
2. Warnings of dangerous driving conditions
3. Mechanisms that block drivers from dangerous situations
4. Automated responses to medical situations

Younger consumers are generally more interested in autonomous technology with 57 percent of Gen Y and Z showing interest.

Overall, in the US less than 40 percent of all consumers are interested in fully autonomous vehicles. In China, 60 percent of consumers are interested in full self-driving.

Eyes Forward for Sometime



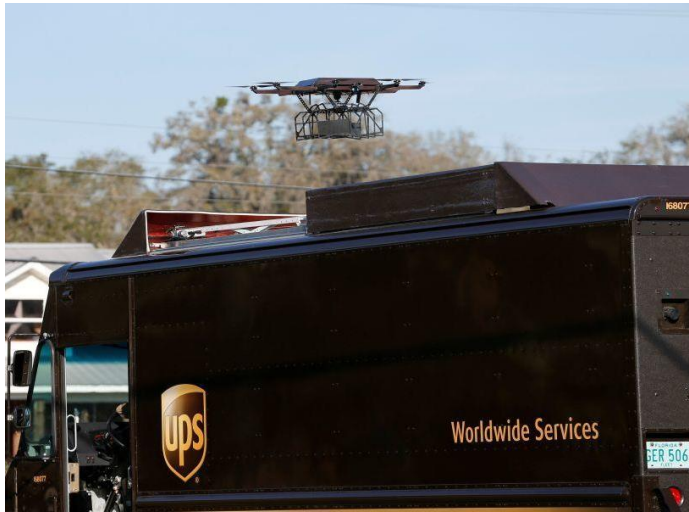
For near future driving, eyes forward will be the rule even when hands-on steering is not required.

Autonomous Delivery Trucks



The delivery sector is expected to convert fully to automated technology before other vehicle segments.

Drones Become the Last Steps

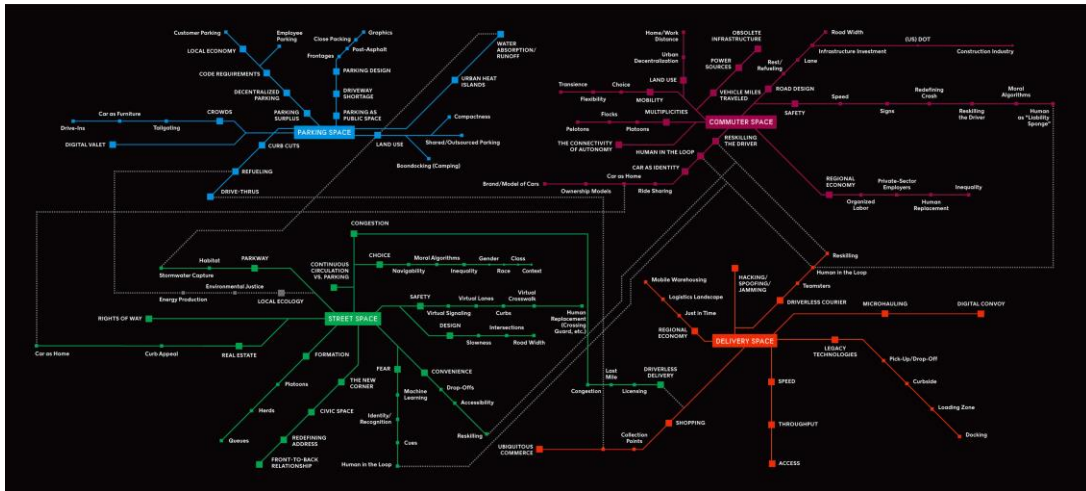


aaa

80

Flying drones are being tested for use as the last steps before delivery. One day soon, drones may carry packages from a delivery truck to the front door of a home or office.

Smart Cities Monitor Services and Functions



Smart cities “are where the Internet of Things and analytics can be applied to public infrastructure, services, and participation in the community.”

Source: Clive Thompson is the author of “Smarter Than You Think: How Technology Is Changing Our Minds for the Better.” Developed by Marshall Brown, Lili Du, Laura Forlano, Jack Guthman, and Ron Henderson. Visual Design by Maryam Heidaripour

Smart Cities Connections



Machine-to-Machine (M2M)

- Data sent / received from one machine (thing) to another
- Often called the “Internet of Things”



Machine-to-Person (M2P)

- Data sent / received from a machine (thing) to a person
- Often called “data and analytics”



Person-to-Person (P2P)

- Data sent / received from one person to another
- Often called “collaboration”

Demonstrated in a new white paper published by OAAA, smart cities can be defined by various type of connections.

It is the new tech-powered connections that matter most. For out of home (OOH) media companies, the vital connections that matter can be divided into three types:

Machine-to-Machine (M2M) Connections: Information transferred from one machine or “thing” to another over a network. Machines include sensors, robots, computers, and mobile devices.

Machine-to-People (M2P) Connections: Information transferred from a machine (such as a computer, mobile device, digital sign) to a person, or vice versa. Whether a person gets information from a database or conducts a complex analysis, this is an M2P connection.

People-to-People (P2P) Connections: Information transferred from one person to another. Increasingly, P2P connections happen virtually, through video, mobile devices, and social networks.

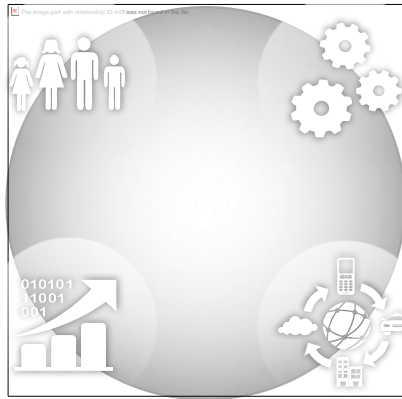
Connections of People, Process, Data, and Things

People

Connecting
People in
More Relevant,
Valuable Ways

Data

Leveraging Data
into More Useful
Information for
Decision Making



Process

Delivering the Right
Information to the Right
Person (or Machine)
at the Right Time

Things

Physical Devices and
Objects Connected to
the Internet and Each
Other for Intelligent
Decision Making

A starting point where the OOH industry can think about smart cities integration is within the four elements of people, process, data, and things. Taken together, they comprise the core of a smart city system:

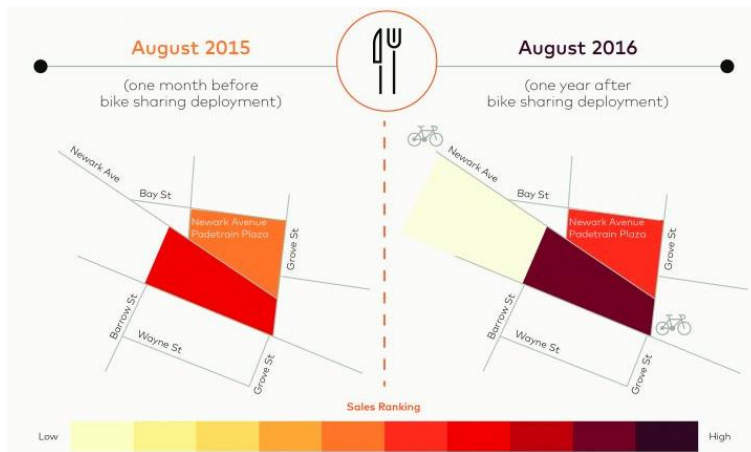
People: *Connecting people in more relevant, valuable ways.*

Process: *Delivering the right information to the right place, person, or machine at the right time.*

Data: *Leveraging data into more useful information for decision making.*

Things: *Physical devices and objects connected to the internet and to each other, in ways that encourage more intelligent day-to-day decision-making.*

Understanding Consumer Behavior



Source: Mastercard

The intersection of data and behavior can be evaluated using smart cities theories. Bike Sharing's impact on restaurants near Grove Street in Jersey City, NJ when data is used to understand consumer behavior.

Smart Highways



aaa

85

International design and innovation firm Carlo Ratti Associati (CRA) is collaborating with ANAS, an Italian government-owned road construction and maintenance company, to design a smart highway system that will stretch across more than 1,500 miles of roads and highways in Italy. The project aims to manage traffic and enhance road safety.

The system will utilize drones and "flying poles"—a series of grounded smart poles that are equipped with sensors and in-motion Wi-Fi connectivity. The drones can take on various tasks, ranging from "monitoring tunnels or other remote pieces of infrastructure, to bringing medicine or other first-aid equipment to drivers, to detecting accidents, fires, or floods happening close to a highway," according to CRA.

Additionally, the poles will be able to detect pollution through air quality sensors as well as sense weather conditions, or act as charging stations for the drones. "Thanks to the data collected by the poles, the system can inform drivers, in real time, of the conditions of the road ahead," says the CRA in the same release. "Direct, customized messages can be sent to each driver's mobile phone or to each vehicle's on-board navigation system, which in turn can give their own feedback back to the system."



Analytics and Tech

Data and Analytics



In a recent blog post, OUTFRONT Media Chief Commercial Officer Andy Sriubas wrote, “Our goal as an industry should be to help our clients turn audiences into customers and to help them achieve the objectives that they have set for themselves (lift, increased basket size, traffic, brand awareness, etc.) using the unique proposition of location-based OOH media.”

Required Principle Elements for Operating in the Ad Ecosystem

1. User Interface
2. APIs
3. Data Management Platform
4. Pricing and Yield Management Engines
5. Dynamic Content Management System
6. Smart Hardware
7. Reporting
8. Standards, Definitions, and Protocols

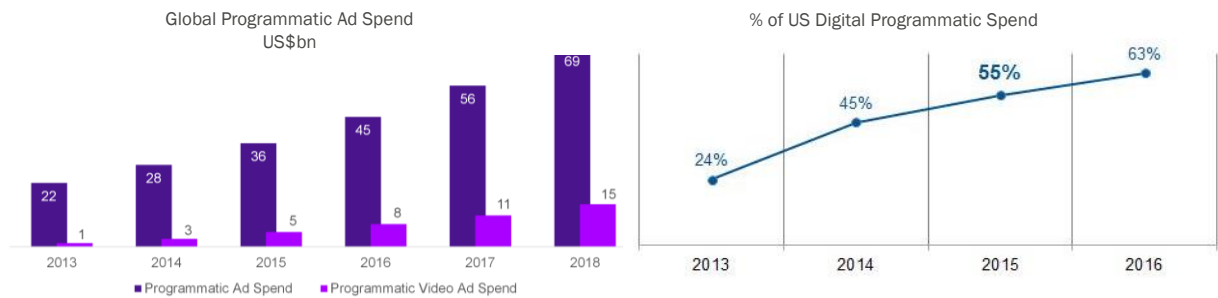


88

There are several principal elements for operating in the ad ecosystem:

- 1. User Interface** — A dynamic way for our sales teams and clients to access our inventory with real-time supply/demand-based pricing.
- 2. APIs:** Sophisticated clients will want to use their own DMPs, combined with data we provide, in order to direct media buys. Many large agencies and clients are data thirsty. They simply need us to provide audience location information in an acceptable format. Providing access to our platforms via an API enables a broader group of buyers to interact with our media and compare it to other alternatives, thus increasing the available pool of dollars available to OOH.
- 3. Data Management Platform:** Geo-spatial data availability has come of age and is now at a point where we can identify audiences at a place and time. This is a three-dimensional measure of audience and a substantial advancement from the typical DMPs for desktop or other linear media.
- 4. Pricing & Yield Management Engines:** Data collected from many buying points can be aggregated to give a company's centralized system a view towards demand trends, thus enabling real-time pricing efficiency. Think of the way an airline sets seat pricing — all in real-time and based on actual demand and projected trends.
- 5. Dynamic Content Management System** — Content intended for static boards and digital displays should be delivered to a central system in a digital format. It will then be distributed either to a cloud-based repository awaiting audience triggers and conditions for digital displays; or to a printer for a static board or transit location when that location is identified as being able to fulfill a campaign's objective.
- 6. Smart Hardware** — Our digital displays must accept content in multiple formats and in real-time.
- 7. Reporting:** Users (sales, management, clients, agencies, landlords, municipal authorities, etc.) must have appropriate and real-time access to campaign data — via API or dashboard.
- 8. Standards, Definitions & Protocols:** A commonly accepted and adhered to set of standards, definitions and protocols is essential to our success with advertisers. We must define impression counts, dwell time, etc. with MRC accreditation and a high sense of moral awareness. Those standards must also relate and allow easy comparisons to all other media. Special OOH-only measurement guidelines are hurtful.

Programmatic Exchanges



Source: Socintel360, eMarketer



There has been a lot said about programmatic analysis and there are many misconceptions. Programmatic ad spend is expected to skyrocket over the next few year, both globally and in the US. While the vast share of ad spend currently goes to digital buys, other media channels are beginning to win business through programmatic exchanges, including OOH.

Programmatic Approaches

Automated Guaranteed – Reserved – Fixed Price – Guaranteed and Premium
Unreserved Fixed Rate – Unreserved – Fixed Price – First right of Refusal
Invitation-Only Auction – Unreserved – Auction – Private Marketplace
Open Auction – Unreserved – Auction – Real-time Bidding (RTB)

Augmented Reality



One of the most innovative enhancements to emerge among OOH offerings is augmented reality. Blending OOH locations with smart screen technology is making some OOH ads dynamic, animated, and interactive.



Outdoor Advertising Association of America



2018: OOH Trends