THE zebra

2018

# Your Digital Footprint and Its Impact on Insurance

INSIGHTS BASED ON ORIGINAL RATE DATA & SURVEY OF 1,013 CONSUMERS

**Companies are tracking everything from your email address to your typing errors to your online shopping habits. The Zebra explores how this digital footprint data might be used to determine what you pay for insurance and how explosively consumers might react.**

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# About

All day long we navigate the vast world of the internet in order to work, communicate with family and friends, pay bills, buy stuff, and entertain ourselves, and all along the way we leave a trail of clicks, taps, and swipes that collectively say something about us. Or at least that's how companies worldwide are explaining why they track and use these digital trails to learn about consumer behavior.

- Health insurance companies in the U.S. are tracking everything from your TV streaming habits to the size of the clothing you purchase online to your social media posts in order to predict your future medical expenses.
- European banks monitor loan applicants' social media profiles, searching for indicators that people are responsible and able to prioritize paying the loan back on time.
- American fintechs use customer data including details of your email address, type of device or web browser used, and even typing errors to determine interest rates for small personal loans.

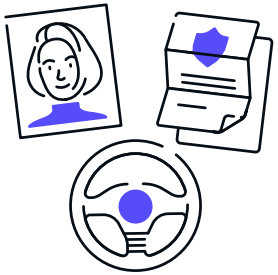
At The Zebra, we sought to explore whether the American auto insurance industry — which serves 250 million U.S. drivers — is collecting and using data about consumers' online behaviors and preferences (their "digital footprints"), and what impact the use of that data could have on consumers. This report explores:

- How insurance companies are monitoring consumers' digital footprint behavior *today* – and what that could theoretically cost consumers in real dollars
- What information consumers consider fair to use in pricing insurance rates – and what information they consider discriminatory
- How Big Data could revolutionize the very underwriting groundwork of auto insurance, and who the winners and losers would be

# Definitions:

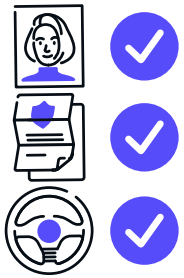
## Digital footprint:

your online activities, or data generated based on where, when, and how you interact with a website or internet-connected device



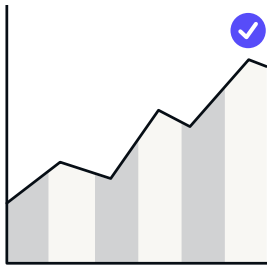
## Rating factor:

a specific category of information an insurer uses to assess your risk and determine what you pay for car insurance (ie. your age, type of vehicle, or driving record)



## Underwriting

the process of insurance companies evaluating a set of rating factors in order to calculate risk and appropriate pricing



## Predictive modeling/ analytics

the use of big data in identifying trends to forecast future events

# Key Findings

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## KEY FINDING 1

# Key Findings Your Online Behavior Could Cost You $197 a Year on Car Insurance (If Insurance Companies Were Using that Data)

**Any company can use its website to track actions you take or products or services you use and then map them to valuable insights, from understanding your purchasing habits to determining what interest rate you should get on a loan.**

**Here at The Zebra, we wanted to project how this ability to leverage digital footprint insights might manifest in the auto insurance industry *if* insurers were able to use various digital footprint factors in their pricing.**

We calculated what it could cost the average consumer based on assumed risk groupings. The figures are **speculative rate changes** and **not actual, known premium changes** based on listed digital footprint behavior. But they do illustrate just how impactful this new way of evaluating consumers *could* be if it comes into common use.

| Digital Footprint Variable | Percent Impact on Premium | Dollar Impact on Premium |
|---|---|---|
| **Device Type** | | |
| Desktop | -5.49% | -$78.30 |
| Mobile / Tablet | +3.34% | +$47.71 |
| | | |
| **Operating System** | | |
| Windows | -9.46% | -$134.96 |
| iOS | +4.93% | +$70.37 |
| Android | +2.25% | +$32.07 |
| Macintosh | -6.46% | -$92.15 |
| Other | +0.12% | +$1.65 |

| Digital Footprint Variable | Percent Impact on Premium | Dollar Impact on Premium |
|---|---|---|
| **Time of Day Site Used** | | |
| Morning (6:00 a.m. - Noon) | -1.22% | -$17.37 |
| Afternoon (Noon - 6:00 p.m.) | -0.71% | -$10.16 |
| Evening (6:00 p.m. - 12 midnight) | +1.33% | +18.92 |
| Night (12 midnight - 6:00 a.m.) | +4.04% | +$57.70 |

| Digital Footprint Variable | Percent Impact on Premium | Dollar Impact on Premium |
|---|---|---|
| **Email Contains Individual's Name** | | |
| Yes | +1.26% | +$17.93 |
| No | -2.01% | -$28.70 |
| **Email Contains Numerals** | | |
| Yes | +2.40% | +$34.24 |
| No | -3.18% | -$45.40 |
| **Email Entered in Lowercase Characters** | | |
| Yes | -0.14% | -$2.07 |
| No | +2.14% | +$30.57 |
| **Email Host** | | |
| Gmail.com | +7.44% | +$106.17 |
| AOL.com | -7.26% | -$103.65 |
| Comcast.net | -15.75% | -$224.75 |
| Hotmail.com | -3.72% | -$53.14 |
| Yahoo.com | +2.19% | +$31.20 |
| Other | -1.08% | $15.38 |

| Digital Footprint Variable | Percent Impact on Premium | Dollar Impact on Premium |
|---|---|---|
| **Channel Tier** | | |
| Retargeting | +9.88% | +$140.94 |
| Owned Social | +13.78% | +$196.63 |
| Affiliate | -4.08% | -$58.24 |
| Display | -5.45% | -$77.71 |
| Click Exchange | +7.39% | +$105.51 |
| Organic | +1.00% | +$14.33 |
| Partnership | +2.82% | +$40.26 |
| Native | -23.89% | -$340.94 |
| SEM | +3.21% | +$45.78 |
| Internal Email | -3.69% | -$52.66 |
| Paid Social | +6.45% | +$92.05 |
| Programmatic | -19.17% | -$273.56 |

# How Not to "Fall Outside the Math"

Like any existing rating factor (age, driving record, vehicle, etc.), some consumers would be at an advantage — and others at a disadvantage — based on their online behaviors and preferences. Insurers align rating factors with risk, but people will inevitably "fall outside the math."

What do we mean by that?

Consider Alex, who has never had a traffic ticket or driven over the speed limit, lives in an area with little traffic congestion, and has maintained consistent insurance coverage for 20 years. One day Alex's credit score drops. (People with lower credit scores are statistically more likely to file a car insurance claim, so insurers charge them higher rates to account for that increased risk.) Even though Alex is still a safe driver, his insurance rates increase because of his credit score.

With any new rating factors, the math changes. There are now new variables to consider, so if your characteristics and behavior happen to align with the beneficial variables, great. If not — for example, you shop online for insurance at 1 a.m. or you have a Gmail address — you might fall outside the math.

If you shop online for insurance at 1 a.m. or you have a Gmail address, you might fall outside the math.

Within a single *digital footprint factor,* the impact of a certain behavior on your premium — whether positive or negative — can range up to 38%. For example, depending on what channel a consumer uses to search online for auto insurance, someone could receive nearly 24% in savings or incur 14% in added premium. There are winners and there are losers — the unlucky ones who fall outside the math.

## Digital footprint SAVERS include:

Accessing the site through a paid content source (native advertising)
**–$341 (24%)**

Having a Comcast email address
**–$225 (16%)**

Using a Windows operating system
**–$135 (9%)**

## Digital footprint COSTS include:

Accessing the site by clicking through from a social media page
**+$197 (14%)**

Using an iOS operating system
**+$70 (5%)**

Accessing the website from 12:00-6:00 a.m.
**+$58 (4%)**

# How'd we get here?

An April 2018 study by the National Bureau of Economic Research (NBER) explored the impact of consumers' digital footprints, examining the above used variables to assess their association with creditworthiness. They found that "simple, easily accessible variables from the digital footprint equal or exceed the information content of credit bureau (FICO) scores." In short, their study revealed how useful digital footprint data is to lenders for predicting the likelihood that a borrower will default on a loan.

We then put our insurance lens on the findings. In order to receive accurate rates on car insurance search engine TheZebra.com, users provide information about their driving record, mileage, and past insurance coverage, among other rating factors. Using select risk-related information, The Zebra calculates an Insurability Score, like a "credit score for insurance," which represents a driver's individual level of risk. We aligned Insurability Scores with select characteristics or online actions ("digital footprint" variables) used in the NBER study to estimate how much those variables would impact a driver's risk profile according to rate data auto insurers use. We used that impact in context of the average auto insurance premium ($1,427) in the U.S. to determine the costs or savings associated with each digital footprint variable.

*For more details, see Methodology.*

TheZebra.com users provide information about their driving record, mileage, and past insurance coverage, among other rating factors.

# *So, is this happening now?*

Insurers *outside* the U.S. have already started experimenting with the use of digital footprint factors in car insurance pricing.

For example, Admiral Insurance in the U.K. admitted in January 2018 that it factored drivers' email domains into premium pricing after a newspaper investigation revealed that drivers who use Gmail were offered quotes for up to £31 less per year than those who use Hotmail.

**In the U.S. insurance industry, however, government regulators say that using online behavior for auto insurance underwriting has not been proven as a method for assessing risk, and they have no knowledge it is being done.**

The U.S. auto insurance industry is complicated, and large insurance companies operating across state lines must adhere to each state's different laws and insurance regulations.

State regulators require insurance companies to provide actuarially sound justification for use of different rating factors in their pricing models. That is, insurance companies have to prove how the data they want to use helps them accurately underwrite insurance policies without being unfairly discriminatory to consumers.

# All regulators require that rates are:

## Adequate:

The insurer has to remain financially solvent and be able pay out claims to its customers.

## Not excessive:

The insurer has to have enough money to pay for claims and its business operations, but it can't make excessive profits off consumers (who are legally required to have car insurance).

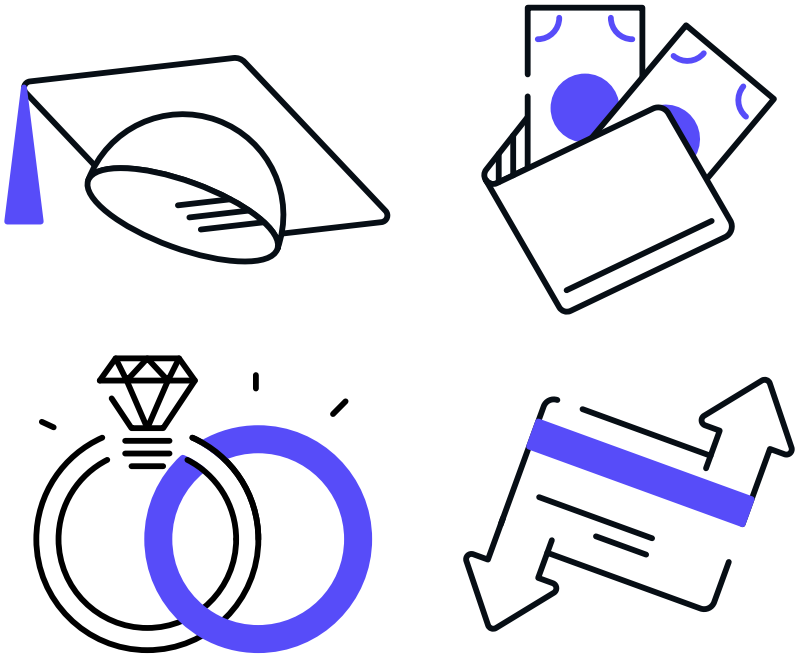
## Not unfairly discriminatory:

Insurers' rates must reflect expected claims and expenses.

The National Association of Insurance Commissioners (NAIC), the regulatory support organization formed by the chief insurance regulators in each U.S. state and territory, says it is not aware of digital footprint factors being used in U.S. car insurance underwriting. According to NAIC, if an insurer wanted to use digital footprint factors in its underwriting calculations, it would have to "prove the risk differential and adequately explain how those rating factors do not produce unfairly discriminatory rates." In other words, it would have to show the math.

Within those guidelines, though, insurers have found justification for using a broad variety of factors about you that may or may not have anything to do with the car you drive or how you drive it. Insurers weigh these factors as part of considering how likely you are to file a claim, helping them determine what price you should pay. They include your level of education, occupation, marital status, and credit score. These non-driving factors have been controversial and are even banned in a few states, but most state regulators accept them as valid indicators of risk.

It's not a stretch to think that U.S. insurers could similarly justify the use of digital footprint factors in their underwriting models.



## KEY FINDING 2

# Insurers Have the Will and the Way to Track Consumers' Digital Footprints — In Fact, They're Already Doing It

Our research shows no proof that insurance companies are currently using your online behavior to determine your rates (or what you pay for car insurance).

However, our research does show that insurance companies:

### 1. Have the need.

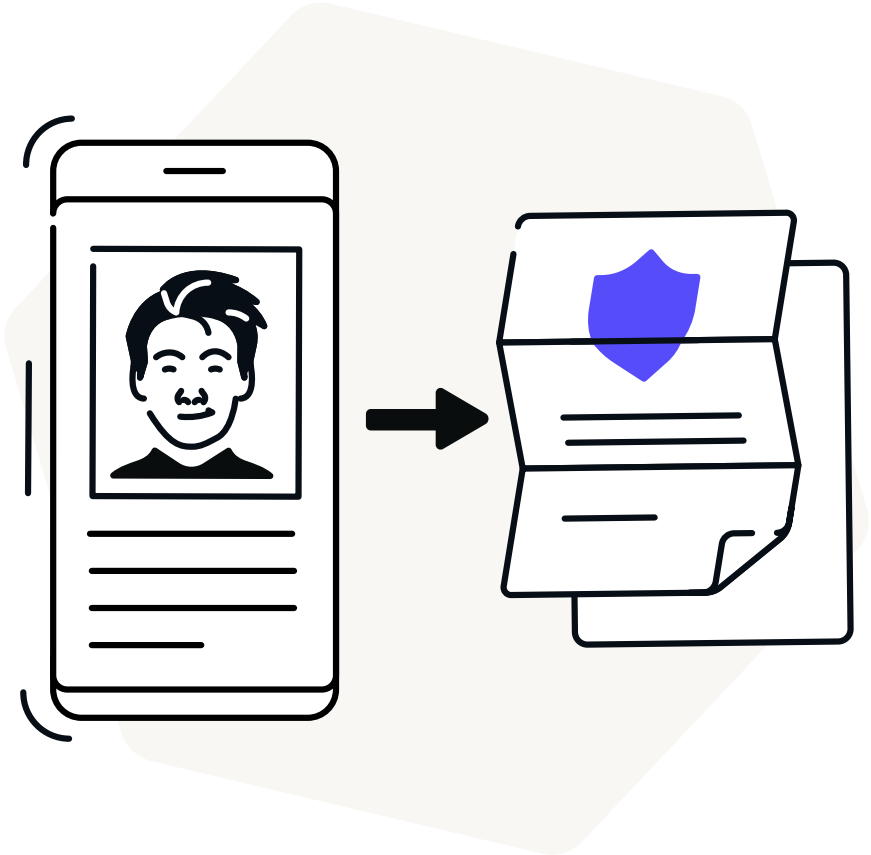
Insurers could benefit from using data about your online behavior to better evaluate risk and determine your rates.

### 2. Have the ability.

Insurers have the technical ability to track your online activity and are investing in new technologies.

### 3. Are already doing it.

Insurers are already tracking your online activity for purposes other than setting rates.



# Let's break it down.

**FACT.** Insurance companies could benefit from using data about your online behavior to better evaluate risk and determine your rates.

**Insurance companies want as much data as they can get their hands on to remain competitive.**

## A BRIEF HISTORY OF UNDERWRITING

**(TL;DR – Insurers' love of data is not new)**

1 Insurers have for centuries tracked detailed information about their policyholders to make predictions about their level of risk. Lloyd's of London, for example, has records going back to 1851 that detail the educations, nationalities, and career histories of merchant ship captains insured by Lloyd's members. Such record keeping makes sense from the insurer's perspective: A young, untested captain is more risky than a seasoned one with a successful track record.

2 Today, insurance companies set a consumer's rates based on how likely they believe the consumer is to file a claim (thus costing the company money). They can consider both the consumer's driving record as well as personal details like their education and credit history, factors that are correlated with likelihood of filing a claim. Insurers employ hundreds or thousands of actuaries to calculate those risks.

It's a complicated balancing act: Insurers have to determine the level of risk each driver presents and the cost of covering that risk, all while keeping rates in line with competitors in an often aggressive insurance marketplace.

3 Enter Big Data. A report by global consulting firm McKinsey & Company illustrates just how much pressure insurers are under to innovate and put data to use.

"Data and analytics are changing the basis of competition. Leading companies use both not only to improve their core operations but to launch entirely new business models. Insurers have valuable historic data...Knowledge about how fast someone drives, how hard they brake, or even (more controversially) what they get up to as displayed on social media is arguably more revealing data on which to assess risk than simply age, zip code, and past accident record."

Internet-connected technology can supply tons of information about consumers that the insurance industry never before had access to.

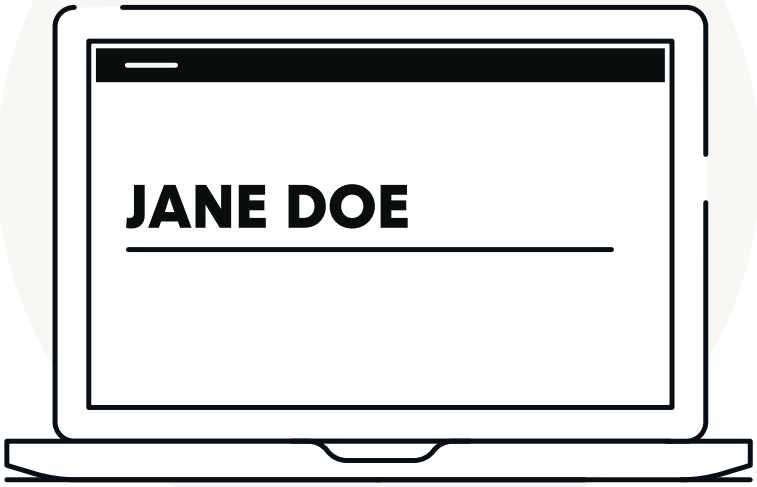
**Access to massive amounts of data allows insurance companies to get the most accurate picture of who their customers are, eliminate unknowns, and best understand that risk.**

## Many financial services companies are already using your online data to tell if you're a good customer (without you even realizing it).

A number of internet-based lending startups have learned that they don't need a traditional credit score to evaluate borrowers for creditworthiness when they have vast amounts of other data. For example:

1. Swedish fintech Klarna, which has expanded its operations in the U.S., offers a "buy now, pay later" type of financing to shoppers at sites like Overstock.com. Customers provide just a zip code and email address before being approved or denied for the loan. Behind the scenes, however, Klarna's algorithm crunches more than 180 data points in less than a second to make the financing decision — info such as what device you're using (tablet, laptop, mobile) and how fast you type.
2. ZestFinance, based in Los Angeles, uses AI and more than 70,000 data points to evaluate personal loans for near-prime borrowers who have limited access to traditional loans due to having "thin" or no credit records. One such data point they say indicates high risk? Typing your name in all caps.
3. Affirm, a San Francisco-based company led by a founder of PayPal, offers personal loans to consumers that are evaluated by the company's data-packed "smart" AI-integrated underwriting system, which reportedly uses thousands of data points and allows up to 126% more approvals, giving people with "thin" or no credit files access to financing.

ZestFinance says that typing your name in all caps indicates risk.



# How does it work?

Fintechs have been factoring digital footprint and social behavior data into these experimental underwriting algorithms for years, but the April 2018 NBER study gives new evidence in support of their predictive value.

Researchers examined transactions by a German e-commerce company (similar to Wayfair in the U.S.) to see if certain digital footprint data could be as useful as a traditional German equivalent of a FICO score in determining creditworthiness.

They looked at 10 variables: device type, operating system, channel through which a customer arrived at the site (search engine, price comparison, etc.), whether the customer used Do Not Track software, time of day of the purchase, email service provider, whether the email address contains a number, whether the email address contains a first or last name, whether the customer consistently types in lowercase, and whether the customer made an error when typing their email address.

Why these variables? They're easily traceable by any site you're doing business with, and each can be mathematically linked to the likelihood you'll repay or default on your loan.

## 10 credit risk variables:

- **Device type**
- **Operating system**
- **Channel through which a customer arrived at the site (search engine, price comparison, etc.)**
- **Whether the customer used Do Not Track software**
- **Time of day of the purchase**
- **Email service provider**
- **Whether the email address contains a number**
- **Whether the email address contains a first or last name**
- **Whether the customer consistently types in lowercase**
- **Whether the customer made an error when typing their email address**

For example, the researchers found that customers with their names in their email addresses were 30% less likely to default. Those on iOS (Apple) devices were less likely to default than those on Android.

The researchers notably did not suggest digital footprint factors could replace traditional credit scores. Instead, they emphasized the power of combining FICO score information *with* easily accessible digital footprint factors to more accurately evaluate potential borrowers.

Because we know insurers already consider creditworthiness valuable to insurance pricing, it seems logical they would benefit from this type of in-depth data analysis and predictive modeling.

The study revealed that the combination of the 10 digitally collected factors, taken together, were as good at predicting default as a credit score.

**FACT.** Insurance companies have the technical ability to track your online activity.

**We know insurance companies can gain powerful insights from massive amounts of data. But do they have the necessary tools and systems in place to acquire and manipulate that data? Indeed they do, and through more avenues than you might think.**

# If you search for insurance online

More and more consumers are engaging with the insurance industry online, as illustrated by a 2016 J.D. Power survey that showed 74% of car insurance shoppers used the internet for quotes or research before buying.

# If you allow your insurer to track your vehicle

Usage-Based Insurance (UBI) or Pay-per-mile Insurance: Insurers have in the past decade introduced new tracking technology that has given them a real-time window into driver behavior. They use plug-in devices — and now smartphone apps — to record how often drivers slam their brakes, take sharp turns, or engage in other risky driving behavior. There are even newer "insurtech" startups like Metromile and Root that have built their underwriting models around digitally collected driving data.

Good drivers are told they can save up to 30% (*if* they drive safely) for allowing insurers this exclusive ride-along, which obviously incentivizes drivers to allow this sort of tracking.

# If your current insurer has an online presence (hint: most do)

If you use your insurer's app, if they have your email address, if you quoted your policy on their website, or if you otherwise engage with your insurance company online… your insurer has the ability to collect digital footprint data about you.

Insurtechs like Lemonade, an online renters and homeowners insurance company, have openly talked about using data from "digital interactions" to improve underwriting and risk assessment.

**"The 90 percent of the iceberg of the value that's being created, of the revolution or the transformation that is afoot, is the data that is being created as a result of those delightful digital interactions.**

**And what that means is that, whereas traditional underwriting and traditional broker-based businesses will look at a group of maybe a million people and see them as a monolithic group because they've onboarded them using 20 data points and at 20 data points N equals a million or 10 million, when you get to digital interaction with consumers and you get orders of magnitude more insight into them, you start getting to N equals 1. You start being able to look at risks with a far, far, far higher degree of resolution and ultimately become best in class in terms of underwriting and pricing risk."**

**— Lemonade CEO Daniel Schreiber**

# And if you do nothing at all.

Insurers have access to even more data about consumers through third-party data brokers like LexisNexis Risk Solutions, Experian, and TransUnion, which they can purchase to learn more about consumer behaviors and assess risk.

According to McKinsey & Company, “The proliferation of third-party data sources is reducing insurers’ dependence on internal data ... With much better access to third-party data from a wide variety of sources, insurers can pose new questions and better understand many different types of risks.”

The proliferation of third-party data sources is reducing insurers’ dependence on internal data.

# FACT. Insurance companies are already tracking your online activity for purposes other than setting rates.

Insurers are already putting big data and tracking technologies to use for pretty much everything except underwriting.

And why shouldn't they?

A company that doesn't leverage clear and direct consumer insights at its disposal to make educated business decisions will likely be trampled in a competitive marketplace. So could you blame insurance companies for doing what every other industry is doing and using data about their customers (and prospective customers) to optimize their business practices? Let's take a look at some of those practices on the following pages.

# Fraud Detection

Insurers traditionally detected fraud through systems like internal audits (random sample checks), “red flag” indicators (for claims that need more investigation), and scoring models (rule-based techniques that “score” indicators for fraud propensity). These traditional models often resulted in a high number of false positives which take time to investigate and delay claims resolution for consumers.

Insurers are looking for indicators for everything from drivers misrepresenting facts on auto insurance applications to the blatant staging of car accidents.

According to the survey, “Insurers using a robust mix of technologies and those using several sources of data seem to experience a lower level of false positives,” an incentive for them to obtain lots of data.

And they’re doubling down.

Nearly a third of insurers say they are budgeting to expand their technology. (And most insurers said their tech budgets will rise even as overall budgets decline.) And how will insurers spend the new tech dollars? Most say they will invest in predictive modeling, followed by link analysis and social-media software, and text mining.

**Insurers say digital footprint monitoring technology has improved their fraud detection capabilities by identifying more cases for review and creating efficiencies for investigators.**

**In a 2016 Coalition Against Insurance Fraud survey* conducted with SAS Institute, 86 major Property and Casualty insurers weighed in on their fraud detection activities:**

- **More than 60% said they track social media and perform link analysis**
- **Nearly 50% said they purchase data from third-party sources and aggregators**
- **Nearly 40% said they perform text mining**

# Customer Service and Claims Processing

Insurers understand that modern consumers want instant results and relevant information and offerings. They're sweeping up data to be able to offer better and more customized consumer experiences.

- Insurers can partner with major credit bureaus to get alerts when a consumer applies for a new car loan, allowing the insurer to reach out to set up a new auto insurance policy for that vehicle.
- Newer or tech-minded insurance companies often feature apps with AI chatbots, the ability to upload photos of vehicle damage, and easy-access policy data to inform the user of their coverage and other details. They simplify the claims process by applying machine learning algorithms to outcomes to achieve faster resolution.

# Marketing

A June 2018 examination of Big Data by the American Academy of Actuaries identified a few ways insurers are using data tracking and collection in marketing and customer engagement.
Auto insurance is a very competitive market, with more than $6.6 billion spent in advertising in 2017 alone. Insurers want to make sure they're reaching consumers they can convert into customers.

- They build models to help them identify people who are more likely to buy policies.
- They use cookies and other internet tracking mechanisms to build targeted advertisements.
- They use analytics systems to spot customers more likely to cancel or not renew by detecting a higher volume of calls they make to the customer service center.

Further, there are already technologies in place on most websites which provide data about your location or even your name and email address. These technologies help automate the process of getting rates from insurers online, and they may help improve accuracy, but the simplification of information aggregation is not directly affecting underwriting (how rates are determined).

# Price Optimization

One significant controversy arising from the auto insurance industry's use of Big Data is price optimization.

## What is price optimization?

Price optimization occurs when a company (in this case, an insurer) uses online behavior monitoring to search for indicators that a customer will accept a price increase or not, with the goal to charge consumers the highest rate they're willing to pay.

Anyone who has booked a flight on the internet will be familiar with how it works: Prices change constantly based on demand and other factors, making it likely you'll pay a different price for your seat than the person sitting next to you. Some insurers decided to experiment with this idea around their customer retention efforts. They offered lower rates to some customers based on data-fed predictions about how likely the customer was to change insurance companies. The unfortunate result was that loyal customers — those unlikely to shop around — were offered more expensive rates.

While price optimization is perfectly legal in industries where you have the choice whether to buy a product or not, the practice raised a red flag within the U.S. auto insurance industry, **where** the product is not optional. Because liability insurance (the coverage that pays for the other driver's injuries or damages in an accident you cause) is a legally required product in every state in the U.S. (except New Hampshire), insurers have to follow specific restrictions when setting prices.

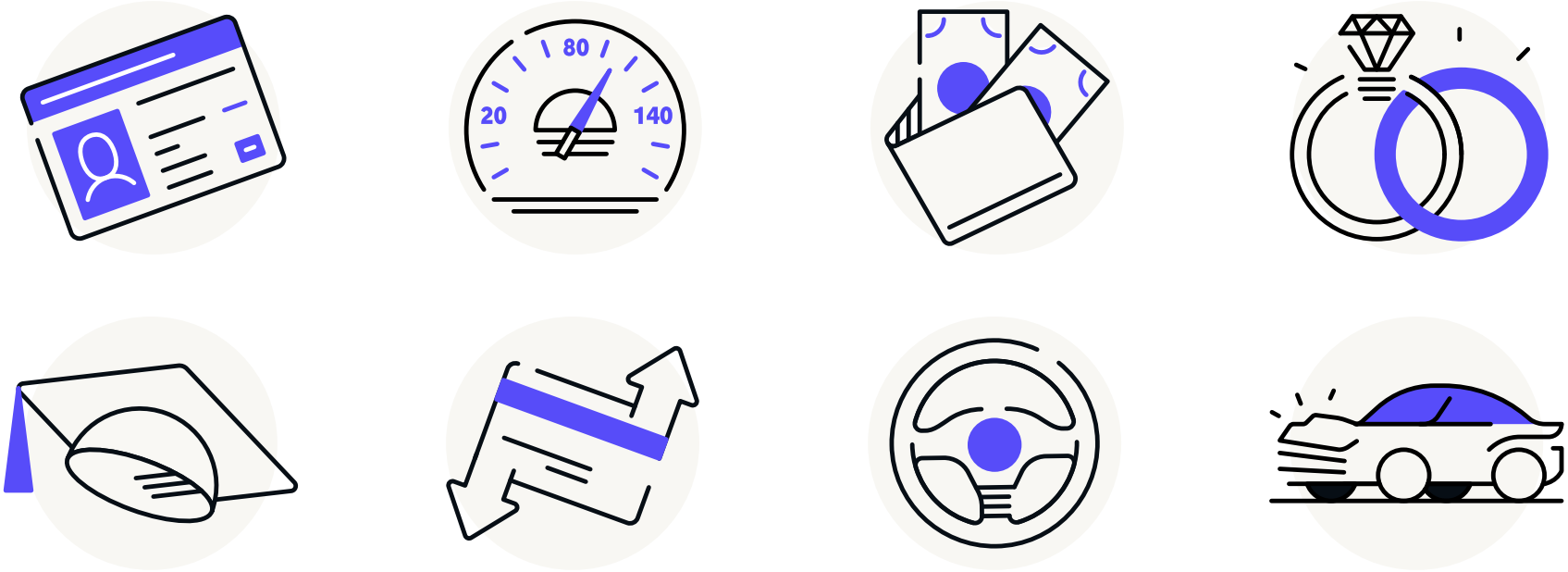
Insurance regulators quickly became concerned that the use of price optimization was unfair, because it could result in consumers with the same risk level paying two different prices for insurance. A task force commissioned by the NAIC to look into the practice issued a report in November 2015 recommending additional transparency and warning that price changes based on demand and retention at an individual level could violate rating laws. Price optimization is now restricted or prohibited in 20 states.

### STATES OUTLAWING PRICE OPTIMIZATION

1. Maryland
2. California
3. Ohio
4. Florida
5. Vermont
6. Washington
7. Indiana
8. Pennsylvania
9. Maine
10. Washington, D.C.
11. Rhode Island
12. Montana
13. Delaware
14. Minnesota
15. Colorado
16. Connecticut
17. Alaska
18. Missouri
19. Virginia
20. Nevada

## KEY FINDING 3

# Survey: Consumers See Value of Big Data in Insurance — But Not in Underwriting




## In the U.S. auto insurance industry, there are already a number of controversial rating factors.

For example, while it makes perfect sense to most consumers that your driving record and mileage indicate the risk (ie. potential cost) you pose to insurers, many rating factors such as your marital status, occupation, or credit score seem irrelevant — if not outright discriminatory.

As many of the data points referenced in this study are not real (or not ***yet*** real) rating factors, however, we sought to understand how consumers would feel about incorporating these new data into auto insurance underwriting and other business practices.

# Consumers: "ALL Digital Footprint Monitoring in Auto Insurance is Unfair!"

We surveyed 1,013 people across the U.S. who currently have car insurance to understand which information they consider fair and acceptable or unfair and unacceptable for insurance companies to use in underwriting and/or other business practices. (See Methodology for more details.)

The majority of consumers are against insurers monitoring their digital footprint behavior for use in setting rates, though some say they could be swayed if they were guaranteed lower rates.

Still, nearly 40% said they are not OK with insurance companies tracking their personal data under any circumstances, and nearly 80% agreed that their car insurance companies should only consider driving-related information when pricing their insurance policies.

We asked whether respondents considered these 30 data points fair to be used by insurance companies both for pricing their policies (underwriting) and for any business use.

Consumers are against insurers monitoring their digital footprint behavior for setting rates, but some could be swayed for lower rates.

| Rating/Risk Factor: Ranked by Most-to-Least Fair | Fair for Pricing Auto Insurance? | | | Fair for Any Business Use? | | |
|---|---|---|---|---|---|---|
| | Fair | Neutral | Unfair | Fair | Neutral | Unfair |
| Your driving record (past speeding tickets, at-fault accidents, etc.) | 76.1% | 18.2% | 5.7% | 66.1% | 20.7% | 13.1% |
| How many miles you drive annually | 64.6% | 23.4% | 12.0% | 57.0% | 26.0% | 17.1% |
| What kind of car you drive | 60.4% | 26.5% | 13.1% | 53.7% | 27.8% | 18.5% |
| Your age | 55.5% | 27.9% | 16.6% | 48.4% | 28.5% | 23.1% |
| Whether you drive for personal or business use | 53.9% | 31.9% | 14.2% | 49.4% | 29.3% | 21.3% |
| ● Your abilities/disabilities (vision, mobility, etc.) | 52.2% | 27.1% | 20.6% | 47.1% | 27.0% | 25.9% |
| Whether you've ever had car insurance coverage before | 51.3% | 31.3% | 17.4% | 44.4% | 32.0% | 23.6% |
| Your zip code (where you live) | 44.6% | 29.4% | 26.0% | 41.4% | 28.3% | 30.3% |
| Whether you've frequently switched car insurance companies | 39.0% | 35.0% | 26.0% | 37.2% | 32.3% | 30.5% |
| How you choose to pay for your insurance policy (ie. online or by check, in full or in installments, etc.) | 34.0% | 28.9% | 37.1% | 30.4% | 27.2% | 42.3% |
| Your credit score | 30.9% | 28.7% | 40.4% | 32.2% | 28.1% | 39.7% |
| Your marital status | 30.0% | 27.7% | 42.3% | 29.0% | 25.8% | 45.2% |
| Your gender | 29.1% | 25.8% | 45.1% | 29.6% | 22.9% | 47.5% |
| Your job | 28.7% | 30.4% | 40.9% | 30.7% | 30.4% | 38.9% |

● Data point is not currently used in auto insurance underwriting.

● Data point characterized as a digital footprint factor.

| Rating/Risk Factor: Ranked by Most-to-Least Fair | Fair for Pricing Auto Insurance? | | | Fair for Any Business Use? | | |
|---|---|---|---|---|---|---|
| | Fair | Neutral | Unfair | Fair | Neutral | Unfair |
| ● Your income | 28.4% | 27.4% | 44.1% | 28.7% | 28.0% | 43.2% |
| Your level of education | 26.7% | 27.1% | 46.2% | 26.3% | 27.3% | 46.4% |
| Whether you own or rent your home | 25.9% | 27.9% | 46.2% | 25.5% | 27.4% | 47.1% |
| ● Your email address (whether it includes your name, whether it includes numbers, whether you use capital or lowercase letters, etc.) | 21.7% | 21.0% | 57.3% | 20.2% | 21.8% | 57.9% |
| ● Your race | 21.4% | 18.3% | 60.3% | 19.2% | 20.1% | 60.6% |
| ● Your public social media activity (public posts likes, shares, comments, photos, groups you're in, etc.) | 21.1% | 21.8% | 57.1% | 18.8% | 22.6% | 58.6% |
| ● Whether you navigate to an insurance website from a search engine, social media site, or different place | 20.5% | 23.6% | 55.9% | 20.0% | 24.5% | 55.5% |
| ● Your device brand (iPhone, Android, etc.) | 19.9% | 18.9% | 61.2% | 18.5% | 21.3% | 60.2% |
| Your email provider (Gmail, Hotmail, Yahoo, etc.) | 19.8% | 20.8% | 59.3% | 20.4% | 20.9% | 58.6% |
| Your typing and navigational skills (whether you mistype or misspell words, whether swipe a certain way on your mobile phone, etc.) | 19.7% | 21.4% | 58.8% | 20.7% | 22.3% | 57.0% |
| Your browser type (Explorer, Chome, Firefox, etc.) | 19.6% | 20.1% | 60.2% | 17.9% | 21.7% | 60.4% |
| The time of day you use the internet to shop for insurance (morning, afternoon, night) | 19.2% | 21.9% | 58.9% | 18.8% | 23.6% | 57.7% |
| Your personal device type (phone, tablet, laptop, or desktop computer) | 19.0% | 21.8% | 59.2% | 19.1% | 22.9% | 58.0% |

● Data point is not currently used in auto insurance underwriting.

● Data point characterized as a digital footprint factor.

| Rating/Risk Factor: Ranked by Most-to-Least Fair | Fair for Pricing Auto Insurance? | | | Fair for Any Business Use? | | |
|---|---|---|---|---|---|---|
| | Fair | Neutral | Unfair | Fair | Neutral | Unfair |
| ● Your typing and navigational skills (whether you mistype or misspell words, whether swipe a certain way on your mobile phone, etc.) | 19.7% | 21.4% | 58.8% | 20.7% | 22.3% | 57.0% |
| ● Your browser type (Explorer, Chome, Firefox, etc.) | 19.6% | 20.1% | 60.2% | 17.9% | 21.7% | 60.4% |
| ● The time of day you use the internet to shop for insurance (morning, afternoon, night) | 19.2% | 21.9% | 58.9% | 18.8% | 23.6% | 57.7% |
| ● Your personal device type (phone, tablet, laptop, or desktop computer) | 19.0% | 21.8% | 59.2% | 19.1% | 22.9% | 58.0% |
| ● Your private social media activity (content of private messages, posts in private groups, personal contact information, etc.) | 18.3% | 20.5% | 61.2% | 17.6% | 21.8% | 60.6% |
| ● Your operating system (Windows, Mac, etc.) | 17.9% | 22.4% | 59.7% | 18.4% | 22.4% | 59.2% |
| ● Your religion | 16.8% | 18.7% | 64.6% | 14.8% | 20.5% | 64.7% |

● Data point is not currently used in auto insurance underwriting.

● Data point characterized as a digital footprint factor.

# What we found:

- More than half of the respondents listed every digital footprint behavior as “Unfair,” ranking “Your device brand (iPhone, Android, etc.)” as most unfair and “Whether you navigate to an insurance website from a search engine, social media site, or different place” as least unfair.
- The majority of respondents said the rating factors that are currently used by insurance companies to price rates (like your driving record) are fairer than the speculative new data points (such as digital footprint behaviors), but of 15 real factors listed, only 6 were considered fair for use in underwriting by more than half the respondents.
- More people said it was fair to use race in underwriting than any of the digital footprint factors.

More than half of the respondents listed every digital footprint behavior as “Unfair” in underwriting.

## Then we asked respondents to state whether they thought the same 30 data points were acceptable to be used by insurance companies for pricing their policies if they were guaranteed to save money.

| Rating/Risk Factor: Ranked by Most-to-Least Fair | Fair for Pricing Auto Insurance? | | | Acceptable for Pricing if Guaranteed to Save Money? | | |
|---|---|---|---|---|---|---|
| | Fair | Neutral | Unfair | Acceptable | Neutral | Unacceptable |
| Your driving record (past speeding tickets, at-fault accidents, etc.) | 76.1% | 18.2% | 5.7% | 82.2% | 11.5% | 6.4% |
| How many miles you drive annually | 64.6% | 23.4% | 12.0% | 72.2% | 16.9% | 10.9% |
| What kind of car you drive | 60.4% | 26.5% | 13.1% | 72.9% | 14.0% | 13.1% |
| Your age | 55.5% | 27.9% | 16.6% | 64.8% | 19.0% | 16.2% |
| Whether you drive for personal or business use | 53.9% | 31.9% | 14.2% | 67.3% | 19.4% | 13.3% |
| ● Your abilities/disabilities (vision, mobility, etc.) | 52.2% | 27.1% | 20.6% | 60.6% | 18.6% | 20.9% |
| Whether you've ever had car insurance coverage before | 51.3% | 31.3% | 17.4% | 61.2% | 22.5% | 16.3% |
| Your zip code (where you live) | 44.6% | 29.4% | 26.0% | 58.9% | 18.4% | 22.7% |
| Whether you've frequently switched car insurance companies | 39.0% | 35.0% | 26.0% | 52.7% | 23.7% | 23.6% |
| How you choose to pay for your insurance policy (ie. online or by check, in full or in installments, etc.) | 34.0% | 28.9% | 37.1% | 48.8% | 19.3% | 31.9% |
| Your credit score | 30.9% | 28.7% | 40.4% | 45.9% | 21.1% | 33.0% |
| Your marital status | 30.0% | 27.7% | 42.3% | 46.3% | 17.6% | 36.2% |

● Data point is not currently used in auto insurance underwriting.

● Data point characterized as a digital footprint factor.

| Rating/Risk Factor: Ranked by Most-to-Least Fair | Fair for Pricing Auto Insurance? | | | Acceptable for Pricing if Guaranteed to Save Money? | | |
|---|---|---|---|---|---|---|
| | Fair | Neutral | Unfair | Acceptable | Neutral | Unacceptable |
| Your gender | 29.1% | 25.8% | 45.1% | 42.2% | 16.4% | 41.4% |
| Your job | 28.7% | 30.4% | 40.9% | 43.8% | 24.2% | 32.0% |
| Your income | 28.4% | 27.4% | 44.1% | 44.1% | 20.2% | 35.7% |
| Your level of education | 26.7% | 27.1% | 46.2% | 40.6% | 18.8% | 40.5% |
| Whether you own or rent your home | 25.9% | 27.9% | 46.2% | 41.9% | 19.7% | 38.3% |
| Your email address (whether it includes your name, whether it includes numbers, whether you use capital or lowercase letters, etc.) | 21.7% | 21.0% | 57.3% | 32.9% | 15.9% | 51.3% |
| Your race | 21.4% | 18.3% | 60.3% | 32.7% | 9.9% | 57.5% |
| Your public social media activity (public posts likes, shares, comments, photos, groups you're in, etc.) | 21.1% | 21.8% | 57.1% | 30.0% | 15.3% | 54.7% |
| Whether you navigate to an insurance website from a search engine, social media site, or different place | 20.5% | 23.6% | 55.9% | 33.2% | 18.8% | 48.1% |
| Your device brand (iPhone, Android, etc.) | 19.9% | 18.9% | 61.2% | 32.9% | 15.6% | 51.5% |
| Your email provider (Gmail, Hotmail, Yahoo, etc.) | 19.8% | 20.8% | 59.3% | 33.3% | 15.0% | 51.8% |
| Your typing and navigational skills (whether you mistype or misspell words, whether swipe a certain way on your mobile phone, etc.) | 19.7% | 21.4% | 58.8% | 31.6% | 16.3% | 52.1% |
| Your browser type (Explorer, Chome, Firefox, etc.) | 19.6% | 20.1% | 60.2% | 32.7% | 15.7% | 51.6% |
| The time of day you use the internet to shop for insurance (morning, afternoon, night) | 19.2% | 21.9% | 58.9% | 33.3% | 15.7% | 51.0% |

● Data point is not currently used in auto insurance underwriting.

● Data point characterized as a digital footprint factor.

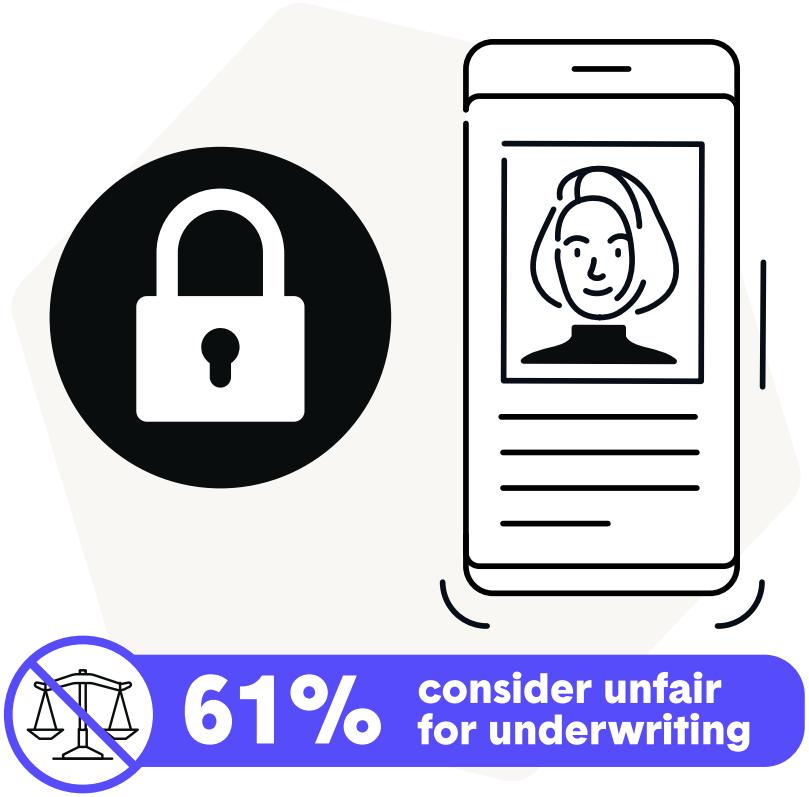
| Rating/Risk Factor: Ranked by Most-to-Least Fair | Fair for Pricing Auto Insurance? | | | Acceptable for Pricing if Guaranteed to Save Money? | | |
|---|---|---|---|---|---|---|
| | Fair | Neutral | Unfair | Acceptable | Neutral | Unacceptable |
| Your personal device type (phone, tablet, laptop, or desktop computer) | 19.0% | 21.8% | 59.2% | 32.9% | 16.5% | 50.6% |
| Your typing and navigational skills (whether you mistype or misspell words, whether swipe a certain way on your mobile phone, etc.) | 19.7% | 21.4% | 58.8% | 31.6% | 16.3% | 52.1% |
| Your browser type (Explorer, Chome, Firefox, etc.) | 19.6% | 20.1% | 60.2% | 32.7% | 15.7% | 51.6% |
| The time of day you use the internet to shop for insurance (morning, afternoon, night) | 19.2% | 21.9% | 58.9% | 33.3% | 15.7% | 51.0% |
| Your personal device type (phone, tablet, laptop, or desktop computer) | 19.0% | 21.8% | 59.2% | 32.9% | 16.5% | 50.6% |
| Your private social media activity (content of private messages, posts in private groups, personal contact information, etc.) | 18.3% | 20.5% | 61.2% | 28.9% | 14.3% | 56.7% |
| Your operating system (Windows, Mac, etc.) | 17.9% | 22.4% | 59.7% | 30.5% | 17.4% | 52.1% |
| Your religion | 16.8% | 18.7% | 64.6% | 27.6% | 11.9% | 60.4% |

● Data point is not currently used in auto insurance underwriting.

● Data point characterized as a digital footprint factor.

# What we found:

- For all 30 data points, more respondents considered their use in pricing rates “Acceptable” if they were guaranteed to save money than said they were “Fair” for use in underwriting with no guarantee of savings.
- Still, more than half of the respondents listed every digital footprint behavior as “Unacceptable,” ranking “Your private social media activity (content of private messages, posts in private groups, personal contact information, etc.)” as most unacceptable and “Whether you navigate to an insurance website from a search engine, social media site, or different place” as least unacceptable.



# Additional Findings

**Despite consumers having some level of trust in insurance companies...**

63% trust their insurers to keep the information about them secure

62% trust their insurers to tell them what information is collected about them and why

55% trust their insurers to use their personal information only in ways that are beneficial to them

57% trust that regulators will prevent car insurance companies from using information about them in ways that are discriminatory

**... and seeing the value in leveraging new technology and data to optimize underwriting...**

61% of respondents support insurers' use of information and technology to determine more accurate pricing

**... consumers are NOT OK with the source of that data being their own online behavior:**

60% are NOT OK with insurers tracking their behavior even when they are aware of what information is being tracked

62% are NOT OK with insurers tracking their behavior even when they are aware of why insurers need this information

71% are NOT OK with insurers tracking their behavior even when they are aware of the way(s) insurers plan to use and store the information

80% are NOT OK with insurers tracking their behavior even when they know they will personally benefit through improved products and services

71% are NOT OK with insurers tracking their behavior even when they know they will personally benefit through lower prices

# More from the Survey: Editor's Picks

- More than half of the respondents said a driver's abilities or disabilities (vision, mobility, etc.) were fair to consider in pricing auto insurance. A driver's abilities or disabilities might impact whether or how they drive, but not what they have to pay for insurance coverage. More people thought this false rating factor was fair to use in underwriting than 10 real rating factors and all (false) digital footprint factors.

- For the three questions we asked about all real/false/projected rating factors, consumers were more sensitive to religion than race, both of which — to be perfectly clear — are entirely illegal and discriminatory data points to be used in, well, just about anything. Roughly one in five people considered those factors fair to be used by insurance companies, with race considered fairer than religion by almost five points. Note: we did not ask respondents their race or religion.

- Nearly 30% of respondents (28.9%) said the use of their private social media was acceptable for use in underwriting if they received savings. Perhaps these people didn't pause to consider how the privacy of others (friends, family, etc.) would be involved in those personal communications…

- More than half of the respondents said the time of day they went online was completely unacceptable information for use in underwriting – even when guaranteed to save money. This rejection of a purely transactional data point seems to point to a trend of resistance to digital footprint monitoring on a categorical level.

- Nearly 6% of drivers said it's unfair for insurers to use a person's driving record in underwriting. ~~Okay, Ron Swanson.~~ What are insurance companies supposed to use to determine your likelihood of a crash or claim if not by seeing your driving record?

# Consumers Are Skeptical, but Keeping an Open Mind

Consumers might be willing to be convinced about how digital footprint rating factors could benefit them. While there are hardliners, a substantial portion of consumer sentiment still appears to be forming. The amount of neutral responses in the survey suggests that people may be “undecided” about the benefits and drawbacks of digital behavior tracking, and many said they wanted more information to guide their stance.

The hesitation isn’t only about money. Though cost savings move the needle for some people, fewer than half said they understood what information their car insurance companies have collected about them and how that information is used, suggesting consumers are largely in the dark and need more information.

Consumers are largely in the dark and need more information.

# Rating Factor Fairness: Write-in Responses

More than 1,000 respondents shared their feelings about the use of digital footprint data in auto insurance pricing.

I don't think it's fair that your rates are based on non driving issues

If it has anything to do with race or religion, I don't agree.

Anything that will help lower rates I support.

I am against then collecting any other information unless I specifically OPT IN

Don't. Do. It.

I agree because somehow they have to get the rates

It's a bit creepy honestly. I thinks it's unfair to assume or raise a price on someone based on what's going on in their life. I'm in a tight spot at on right now and I would drop my insurance if they did that to me.

Slippery Slope

Great if customer agrees to it

You have to assume that every time you do anything at all online, you are voluntarily giving up information about yourself. You accept the benefits, you have to deal with the other side of the coin and realize the information could be used against you, often in largely unfair ways. But is it "fair" the way some of your info is used? Oh hell no!

PROS AND CONS

# Pros and Cons of Digital Footprint Monitoring in Auto Insurance: Who are the Winners and Losers?

**Like almost every other industry, insurance is being reshaped by and around technology, and the stakes are significant for insurance companies, regulators, and of course, consumers.**

We've speculated how common digital footprint data might impact consumers in real dollars, showing both advantages and disadvantages to consumer premiums, depending on where they "fall in the math."

Though regulators will ultimately decide if new rating factors will be acceptable, there are benefits and drawbacks of digital footprint monitoring for all sides to consider.

# Pros: What are the opportunities and benefits of using digital footprint data in auto insurance underwriting?

## 1. More accuracy and stability in underwriting and risk assessment

Insurance is a competitive industry, so insurers want to be able to offer consumers the best product at the best rates to gain their business, but they also want to foster the lowest likelihood of their policyholders filing claims. Accurate underwriting helps insurers predict the likelihood of prospective policyholders filing claims so they can set the lowest reasonable rates for the appropriate coverage (which helps consumers) and hopefully earn more business (which helps the insurers).

More — and more current — data means more predictable risk and more accurate pricing. Today, insurers use a set of rating factors, but they are still making assumptions based on previous experiences for a consumer's future likelihood of filing a claim. If they had more proof that those factors indicated a likelihood of filing a claim, they could more accurately determine risk.

More data means more predictable risk and more accurate pricing.

## 2. Increased industry innovation and efficiency for reduced consumer costs

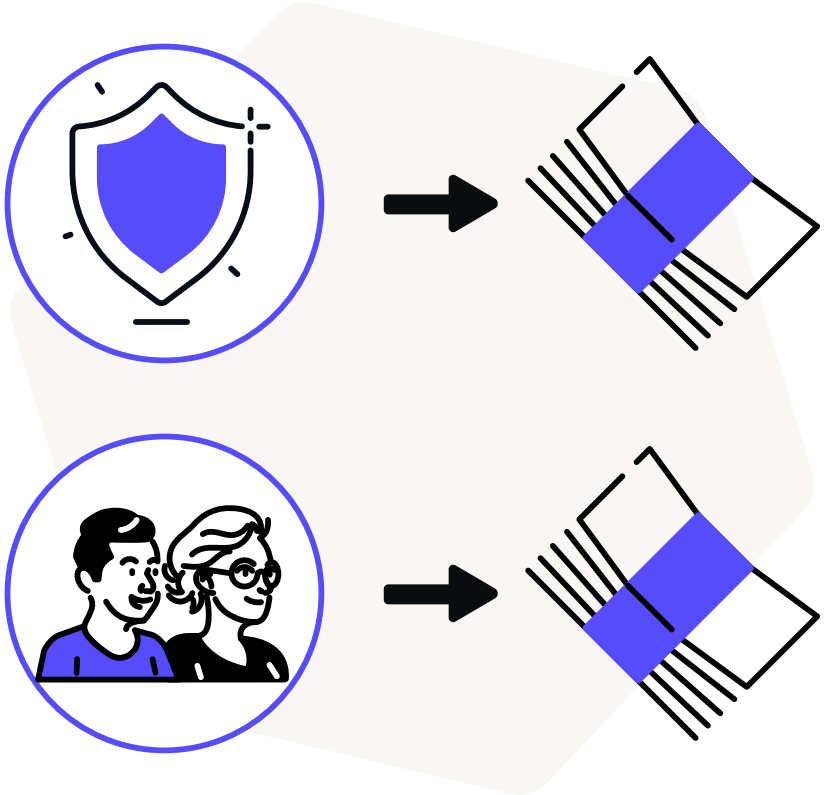
More digital footprint data also creates more operational efficiencies, which could ultimately reduce consumer premiums:

- Predictive modeling helps insurers detect fraud, which costs each American family $400 or more every year.
- Artificial intelligence, supported by access to big data, could contribute to more than $1 billion in savings across multiple insurance lines by 2023.
- More real-time data about accidents at certain intersections, approaching weather events, and more can help insurers mitigate risks to consumers, preventing claims.

When insurers save money, consumers generally save money. Because regulators require that insurers' profits not be excessive, any major savings or benefits (consider recent large industry tax cuts which returned substantial cash to the industry) should be returned in part to consumers.

Digital footprint monitoring could also bring costs down for certain high-risk drivers. One such group of consumers who might benefit? Teen drivers, whose rates can cost up to four times more than drivers age 20 and up in the U.S. Admiral, the largest insurer in the U.K., planned to offer discounts up to $500 for drivers ages 17 to 21 for giving the company access to their Facebook posts, which Admiral would use to assess which young drivers might be safer motorists than others. (Facebook pulled out of the deal amid consumer privacy backlash.)

When insurers save money, consumers generally save money.



### 3. Alternative data may support people who are unbanked

Problem: 26 million Americans are "unbanked," according to a 2015 report by the Consumer Financial Protection Bureau. That means about 11% of the adult population has no credit history, potentially preventing them from making major purchases or investments.

The NBER study in particular points out that using a combination of digital footprint factors as a proxy for credit could open up financial resources previously unavailable to those with no credit. In other words, "unbanked" or "credit invisible" people have another way to be evaluated as borrowers.

Fintech products using digital footprint information as a proxy for credit could also help at-risk consumers from being exploited by predatory payday lenders by offering lending alternatives.

11% of the adult population has no credit history, preventing them from making major purchases or investments.

# Cons: What are the risks and drawbacks of using digital footprint data in auto insurance underwriting?

## 1. Use of non-driving factors is considered unfairly discriminatory and irrelevant

Many would say certain digital footprint "rating factors," if adopted, would put various consumers at an unfair, even discriminatory, disadvantage.

For example, people in low-income or disadvantaged populations may be more likely to be deemed risky if they do not own an iPhone or shop online for insurance. The NBER study also warns that digital footprint data can serve as proxy data for certain information such as race or religion, which are discriminatory to use.

Further, digital footprint "rating factors" do not, for the most part, provide insights related to driving risk, but rather indicate a correlation to a risk of consumers filing claims. In other words, good drivers could be lumped into negative risk groups that have nothing to do with driving.

That can also be said, of course, of credit, marital status, gender, and many other existing rating factors. The inclusion of credit score in underwriting today helps reduce rates for 75% of insurance customers, but what about the other 25%? (Once again, what happens to drivers who fall outside the math?)

The potential complexity and volume of data used to generate insights may also present hurdles for smaller-sized insurers.

## 2. Big Data validity and security concerns

Digital footprint technology is new and not proven.

- Though American auto insurers can look to international or other industry applications of the digital footprint monitoring technology, widespread success has not been verified (rather, hardly discussed) in the U.S. to date.
- Further, if proven, the validity could change based on commercial and consumer response. Per the NBER study, customers might change their online behavior if digital footprints become widely used, and "commercial services that offer to manage individual's digital footprints may develop."
- Opponents would also point to the use of highly individualized rates as contradictory to the nature of insurance, as certain consumers would lose the benefit of risk pooling due to certain behavior or abnormal circumstances that put them "outside the math."

A dependency on data can be dangerous.

- Data sets and devices can be hacked and manipulated, a risk possibly multiplied by each additional digital footprint rating factor involved.
- Putting underwriting power into the "hands" of predictive modeling or artificial intelligence tools does not prevent mistakes, and insurers could collect and apply inaccurate insights from that data. One in five participants in a 2014 study by the FTC found a "material error" on one or more of their three major credit reports. Correcting the errors changed the credit scores of 13% of participants.

On the other hand, some would argue math-based algorithms are safer, less biased tools than those with fewer data points and more human involvement.

## 3. Slippery slope of consumer privacy

Even without the use of digital footprint data points in auto insurance underwriting, many consumers are wary of what data insurers collect about them — as well as if and how that data is protected. The more data points insurers collect, and the more sources they collect from, the greater the potential risk of a data breach.

The volume of data alone would create massive challenges for regulators to ensure consumer privacy and protection. They would need to put in place new processes and resources for reviewing the increasingly complex rate filings, not to mention methods for monitoring or auditing insurers.

Finally, making an already complex and little understood process more complicated and opaque would likely increase distrust of the insurance industry and skepticism of regulators' effectiveness. How, for example, could insurers and regulators provide transparency for consumers? Would agents even be able to explain to customers why a rate is different? Even if insurers are able lock in accurate data and can make the case to regulators that digital footprint data is acceptable for use in underwriting, consumers may push back.

The more data insurers collect, the greater the risk of a data breach.

## Regulators Scramble to Keep Up

Every state has its own insurance rules and guidelines, and how amenable regulators are to new underwriting practices varies state to state. In California, for example, regulators have prohibited the use of credit, level of education, and homeowner status in underwriting.

Other states allow insurers to use new rating factors as soon as they're submitted to the state or even before they're filed. (Regulators maintain their power to reject rates after the fact, sometimes requiring insurers to refund policyholders.)

Determining what's "unfairly discriminatory" is where the rubber meets the road when it comes to insurance regulation, and it's far from settled in many states. New York regulators, for example, announced in late 2017 that a multi-year investigation had determined occupational status and education were unfairly discriminatory as rating factors. Next door in New Jersey, those factors are still fair game for insurers, as they are in many other states.

It'll be up to these state regulators to determine if digital footprint factors are fair for insurers to use, and they're scrambling to prepare. The American Academy of Actuaries warned in its June 2018 report on Big Data, "The complexity and evolution of the methods and approaches used by insurers is threatening to outpace the rate at which regulators can educate themselves on these new methods and approaches."

It'll be up to state regulators to determine if digital footprint factors are fair for insurers to use.

**The complexity and evolution of the methods and approaches used by insurers is threatening to outpace the rate at which regulators can educate themselves on these new methods and approaches.**

— The American Academy of Actuaries

THE ZEBRA TAKE

# What will happen next — and what can consumers do about it?

# Is auto insurer adoption of digital footprint data likely?

**Insurers have the ability to use digital footprint data in underwriting, and there are many indicators they have the intention as well.**

Insurers are clearly investing in technology, and incumbents with deep pockets are working to keep an edge on an industry with tech-born newcomers.

We've seen rating factors change over time, so it's certainly possibly they could change again. Credit scores were not used in auto insurance until the mid-1990s, and now they're nearly ubiquitous among insurers and across states. Usage-based insurance (UBI) such as Progressive's Snapshot device has been used for at least 10 years, and now nearly all major insurers have a telematics or UBI offering of some sort.

The precedent has been set in other industries and other countries, so U.S. auto insurers may simply be trying to figure out how to leverage big data both fairly and efficiently in order to appease both consumers and regulators.

Surely all parties will want to make their voices heard in this discussion.

# Methodology

## Rate Calculations

An April 2018 study by the National Bureau of Economic Research (NBER) explored the impact of consumers' digital footprints, examining the above used variables to assess their association with creditworthiness. They found that "simple, easily accessible variables from the digital footprint equal or exceed the information content of credit bureau (FICO) scores." In short, their study revealed how useful digital footprint data is to lenders for predicting the likelihood that a borrower will default on a loan.

Researchers looked at the following variables to assess their impact on creditworthiness: device type, operating system, channel through which a customer arrived at the site (search engine, price comparison, etc.), whether the customer used Do Not Track software, time of day of the purchase, email service provider, whether the email address contains a number, whether the email address contains a first or last name, whether the customer consistently types in lowercase, whether the customer made an error when typing their email address.

Any website can track those behaviors and map them to valuable data, such as revenue actions.

The Zebra is a car insurance search engine and comparison website which allows consumers to review quotes from hundreds of car insurance companies online. In order to receive accurate rates, users provide information about their driving record, mileage, and past insurance coverage, among other rating factors. Using select risk-related information, The Zebra also provides an Insurability Score, like a "credit score for insurance," which represents a driver's individual level of risk and the financial vulnerability they create for insurance companies.

We first found the weighted average Insurability Score across all digital footprint behaviors, and then looked at how the Insurability Score changed when each digital footprint variable was selected (ie. for operating system: iOS or Android). We assigned a percent change to premium using the full Insurability Score range (550 points), so each point change in Insurability Score amounted to a 0.18% change in premium. We then multiplied that 0.18% by the difference in the Insurability Score for a specific digital footprint variable from the average Insurability Score. We used that percentage, multiplied by the national average annual auto insurance premium to determine the dollar cost or savings of each digital footprint variable per year.

## Consumer Survey

The Zebra's report presents the findings of an online survey of 1,013 U.S. auto insurance consumers ages 18 and older. The survey was conducted by independent research firm SurveyGizmo from September 14-19, 2018.

**It's important to note that these are speculative rate changes and not actual, known premium changes based on listed digital footprint behavior.**

# About The Zebra

The Zebra is the nation's leading auto insurance search engine and marketplace. With its dynamic, real-time comparison tool, drivers can identify insurance companies with the coverage, service level, and pricing to suit their unique needs. The Zebra compares over 200 car insurance companies and provides agent support and educational resources to ensure drivers are equipped to make the most informed decisions about their car insurance. Headquartered in Austin, Texas, The Zebra has sought to bring transparency and simplicity to insurance shopping since 2012 — it's "insurance in black and white."

**Contact Research@TheZebra.com to learn more about this research.**

THE zebra